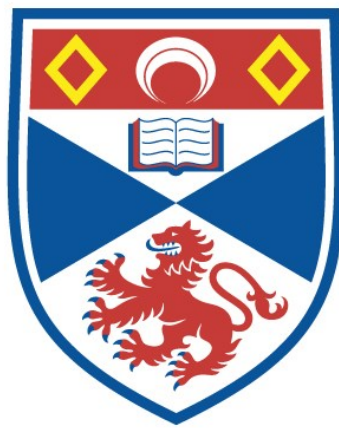


GOVERNING THE HIGH SEAS: EFFECTIVE INSTITUTIONAL
ARRANGEMENTS FOR THE CONSERVATION AND SUSTAINABLE
USE OF MARINE BIODIVERSITY BEYOND NATIONAL
JURISDICTION

James Luger

A Thesis Submitted for the Degree of PhD
at the
University of St Andrews



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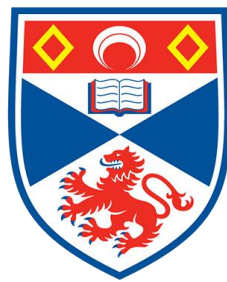
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Governing the High Seas: Effective institutional
arrangements for the conservation and sustainable
use of marine biodiversity beyond national
jurisdiction.

James Luger



University of
St Andrews

This thesis is submitted in partial fulfilment for the degree of
Doctor of Philosophy (PhD)
at the University of St Andrews

August 2022

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Postscript

This thesis was submitted on 22 August 2022, mid-way through the fifth (and potentially final) Intergovernmental Conference on an International legally binding instrument under UNCLOS on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (UN BBNJ IGC-5, 15-26 August 2022, pursuant to UNGA decision 76/564).

I sincerely hope the assembled delegations reach an agreement, and that the Conference negotiations arrive at a long overdue positive conclusion. In that spirit, I hope that the configuration below can aid effective implementation of the ILBI in the coming months and years.

MPC ← CSU/BBNJ

DATA*ADAPT*MPC → CSU/BBNJ

Funding

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Abstract

GOVERNING THE HIGH SEAS: Effective institutional arrangements for the conservation and sustainable use of marine biodiversity beyond national jurisdiction

Forming almost two-thirds of the global ocean, the High Seas and seabed areas beyond national jurisdiction (ABNJ) support some of the highest levels of biodiversity on the planet. However, these vital areas are increasingly under threat from human and climate change-induced pressures. The current governance regime related to the conservation of marine biodiversity beyond national jurisdiction (BBNJ) is fragmented (in terms of institutional mandates, powers and resources) and characterised by significant gaps (in terms of species and geographical coverage).

In response, the United Nations has negotiated an internationally legally binding instrument (ILBI) to protect the High Seas. A key aspect of the draft agreement is that that new instrument should “not undermine” existing bodies, instruments and frameworks, which raises key questions relating to interplay between the new ILBI and existing bodies.

My research seeks to understand how the agreement can be effectively operationalised by analysing two related strands:

- (1) The need for the agreement to be *effectively implemented by existing institutions*, and
- (2) Due to the migratory nature of BBNJ and governance gaps, the need for *existing institutions to work together effectively*.

I argue under (1) that four candidate conditions are likely to be important for implementation and deploy Qualitative Comparative Analysis (QCA) to identify one condition *necessary* for successful implementation (*multi-party coordination*) and three conditions (*access to/management of data*, *multi-party coordination* and *adaptive management*) which are *sufficient* to lead to a successful outcome.

Under (2) a case study of the Northern Atlantic institutional regime is used to characterise and help explain the forces and factors influencing institutional interplay.

Taken together, the two parts to the research generate insights into effective institutional arrangements for the future governance of BBNJ.

Governing the High Seas: Effective Institutional Arrangements for the Conservation and Sustainable Use of Biodiversity beyond National Jurisdiction

Acknowledgements

Abstract

Glossary of terms

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Glossary of terms

A

ABMTs	Area-based management tools
ABNJ	Areas Beyond National Jurisdiction
[The] Area	Sea-bed, ocean floor and subsoil of areas beyond national jurisdiction
ACCOBAMS	Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area
ASCOBANS	Agreement on the Conservation of Small Cetaceans of the Baltic, North-East Atlantic, Irish and North Seas
ACAP	Agreement on the Conservation of Albatrosses and Petrels
AOSIS	Alliance of Small Island States

B

BBNJ	Biological diversity in areas Beyond National Jurisdiction
------	--

C

CARICOM	Caribbean Community
CBD	Convention on Biological Diversity
CB&TT	Capacity building and marine technology transfer
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CHM	Clearing House Mechanism
COP	Conference of the Parties
CMS	Convention on Migratory Species (Bonn Convention)
CITES	Convention on International Trade in Endangered Species.

D

DOALOS	UN Division for Ocean Affairs and the Law of the Sea
--------	--

E

EBSAs	Ecologically or biologically significant marine areas
EBFM	Ecosystem-Based Fisheries Management (also EAF)
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMODnet	European Marine Observation and Data Network

F

FAO	Food and Agriculture Organisation of the United Nations
-----	---

G

GEF	Global Environment Facility
GFCM	General Fisheries Commission for the Mediterranean
GESAMP	[Joint] Group of Experts on Scientific Aspects of Marine Environmental Protection

H

HELCOM	Baltic Marine Environment Protection Commission, also known as Helsinki Commission
HSMPAs	High Seas Marine Protected Areas

I

ICCAT	International Commission for the Conservation of Atlantic Tuna
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ICES	International Council for the Exploration of the Sea
ICJ	International Court of Justice
ICPC	International Cable Laying Committee
IGC	Intergovernmental conference
ILBI	International legally binding instrument
IMO	International Maritime Organisation
IOC	Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural organisation (UNESCO)
IPR	Intellectual property rights
ISA	International Seabed Authority
ITLOS	International Tribunal for the Law of the Sea
IUCN	International Union for Conservation of Nature
L	
LDCs	Least developed countries
LLDCs	Landlocked developing countries
M	
MEA	Multilateral Environment Agreements
MGRs	Marine Genetic Resources
MPAs	Marine Protected Areas
MSR	Marine scientific research
N	
NEAFC	North-East Atlantic Fisheries Commission
NAMMCO	North Atlantic Marine Mammal Commission
NASCO	North Atlantic Salmon Conservation Organisation
NAFO	Northwest Atlantic Fisheries Organisation
O	
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
OECMs	Other effective area-based conservation measure
P	
PrepCom	Preparatory Committee
PICES	North Pacific Marine Science Organisation
PSIDS	Pacific Small Island Developing States
PSMA	Port State Measures Agreement and flag state performance
PSSA	Particularly Sensitive Sea Area (IMO)
Q	
QCA	Qualitative Comparative Assessment
R	
RFMO	Regional Fisheries Management Organisations
RSCAP	Regional Seas Conventions and Action Plans
REMP	Regional Environmental Management Plan (ISA)
RFBN	Regional Fisheries Bodies Network
S	
SDGs	Sustainable Development Goals
SEAs	Strategic Environmental Assessments

SIDS	Small Island Developing States
U	
UNCLOS	UN Convention on the Law of the Sea
UNEP/MAP	United Nations Environment Programme/Mediterranean Action Plan
UNFSA	UN Fish Stocks Agreement
UNFCCC	United Nations Framework Convention on Climate Change
V	
VMS	Vessel Monitoring System
VMEs	Vulnerable Marine Ecosystems

Qualitative Comparative Assessment (QCA) - specific nomenclature and notation

Cases	Individuals, organisations or geopolitical units – cases are made up of combinations of features, characteristics, attributes and elements (Kahwati and Kane, 2020)
Conditions	Factors chosen by the researcher as important in ‘explaining’ the occurrence (or otherwise) of a particular outcome. Conditions can be considered similar to independent variables in a statistical study (but the underlying maths and approach differ)
Configuration	The particular combination of multiple conditions in a case. A formula governs the number of possible configurations depending on the number of conditions (e.g. 1 case with four conditions has a maximum possible number of 16 configurations – this research examined 12 cases with 4 conditions meaning a total number of 192 configurations were examined for necessary and sufficient relationships).
Set	A group of common ‘artefacts’ (sharing common characteristics), sometimes referred to as a condition set.
Member(ship)	Indication of whether (or not) an individual/artefact belongs to a set
‘Crisp’ set	Distinguishes “differences in kind” (Kahwati and Kane, 2020) among cases, with a case’s membership in a set identified as 1 (present, or a member) or 0 (not present, or non-member).
SMVs	Set-Membership Values - 1 or 0 are the set membership values for ‘crisp set’.

The terminology used in QCA often requires clarification. For example, concluding that a condition is ‘necessary’ can – in the everyday understanding of the word – imply more importance than a condition that is ‘sufficient’. Necessity and sufficiency are terms from formal logic (the underpinning maths of QCA) and have the following specific meaning within this context:

Necessity	A relationship of necessity between a condition and outcome is one in which the outcome occurs <u>only</u> when the condition is present. <u>However</u> , the presence of the condition does not guarantee that the outcome will occur.
Causation	The necessary condition (e.g. individuals must be aged over 17 years old to sit a driving test) is present but the outcome is not achieved. This is the principle of asymmetrical causation, and requires further interpretation/analysis to understand why (e.g. individual unable to pass the vision test for the driving licence).
Sufficiency	A relationship of sufficiency between a condition and outcome is one where the presence of a condition – or a combination of conditions - leads to (is “sufficient for”) an outcome (Befani, 2016), but there may be other conditions that will also lead to the outcome (the concept of equifinality).

Solution grammar (Boolean operators and symbolic notation)

Term / concept	Boolean operators and symbolic notation	Symbols used in this thesis
Necessary / necessity	The symbolic notation for necessary relationships is ' \leftarrow ' ("is necessary for") $(X = \text{condition}) \leftarrow (Y = \text{outcome})$	\leftarrow
Sufficiency / sufficient	The symbolic notation for sufficiency is ' \rightarrow ' ("is sufficient for") $(X = \text{condition}) \rightarrow (Y = \text{outcome})$	\rightarrow
Upper and lower case	A capital letter indicates membership of a set ('A') whereas lower case indicates non-membership ('a').	A (membership) a (non-membership)
AND	Boolean multiplication – symbolic notation ' $*$ ' $A*B*C$	$*$
OR	Boolean addition – symbolic notation ' $+$ '	$+$
NOT	Boolean negation or non-membership of a set, sometimes referred to as a complement. Symbolic notation varies, including ' $\sim A$ ', ' $1-A$ ' or it can be expressed more simply as a lowercase letter 'a'.	a
Combining operators	OR, NOT	

Governing the High Seas: Effective Institutional Arrangements for the Conservation and Sustainable Use of Biodiversity beyond National Jurisdiction

Chapter 1: Introduction

La mer est un patrimoine commun - The sea is a common heritage

Governing the High Seas

Over 60% of the ocean area (43% of the Earth's surface) lies beyond State jurisdictions, generally 200 nautical miles offshore. These vast open ocean areas (the High Seas) as well as deep seabed environments form the Earth's "last great wilderness" (Ramirez-Llodra *et al.*, 2011).

Once beyond the reach of human activity, these areas are now increasingly under threat from multiple pressures (climate warming, ocean acidification, over-fishing, pollution), as well as new and emerging areas such as deep sea-bed mining and resource extraction. Failure to address these threats and pressures will impact the livelihoods of the three billion people (CBD, 2018) directly dependent on marine resources, and affect the projected \$3trillion contribution (OECD, 2016) made to the global economy by ocean ecosystems.

One of the most significant barriers to addressing these challenges is the sectoral and fragmented nature of High Seas governance. Beyond the protection of any single State, the High Seas lack specific protections and the existing legal framework¹ was developed at a time before integrated, ecosystem management-type approaches were fully recognised.

In recognition of this challenge, the United Nations (UN) has negotiated a new, legally binding international instrument (ILBI) to protect biodiversity beyond national jurisdiction (BBNJ). However, in the absence of an overarching authority for the oceans, implementation of this new agreement will fall to existing ocean governance institutions, which vary in terms of mandate, objectives and legal powers.

Their jurisdictions often interact or overlap, but "virtually no mechanisms exist to coordinate across geographic areas and sectors" (Rochette *et al.*, 2014). In addition, a key aspect of the draft agreement is that that new instrument should "not undermine" existing bodies, instruments, and frameworks, which raises key questions relating to interplay between the new ILBI and existing bodies.

Given the need for more integrated management of marine biodiversity on the one hand, and the fragmented, 'functionally specialised' arrangement of ocean governance institutions on the other, this thesis explores how the future agreement can be effectively operationalised by addressing two underpinning components:

- (1) The need for the agreement to be *effectively implemented by existing institutions*, and
- (2) Due to the migratory nature of BBNJ and governance gaps, the need for *existing institutions to work together effectively*.

¹ The United Nations Convention on the Law of the Sea, often referred to by the acronym UNCLOS, is a multilateral treaty concluded under the auspices of the United Nations and resulted from the third United Nations Conference on the Law of the Sea (UNCLOS III), which took place between 1973 and 1982.

Expanding the context, issue and problem

According to Buck (1998), global commons are those areas of the world (and the resources within them) defined as being beyond sovereign jurisdiction, or ABNJ.² Four areas of global commons exist: the global atmosphere, outer space, Antarctica and the focus of this thesis, the High Seas and deep seabed.

Traditionally untouched, these areas and their resources are increasingly being explored and exploited by society, a situation made difficult to manage due to a combination of governance challenges:

Viewed from an economics perspective, global commons are viewed as ‘resource domains’ and the resources within them ‘common goods’³, which, due to an absence of property rights, make governance difficult due to the challenges of *excludability* (difficult to exclude others from using the resource) and *subtractability* (the extent to which one user’s appropriation of resources diminishes the stock of resources for others). As these areas are beyond the sovereign jurisdiction of any one nation, the economic and legal perspectives interact over the concepts of ‘rights’, explored below.

From a legal perspective, there are different categories of ‘commons’ – Buck (1998) describes *international* commons as resource domains shared by multiple States (such as the Mediterranean Sea), while *global* commons are resource domains to which all States have legal access (such as the High Seas or outer space). Importantly, the conferring of equal rights does not equate to equal access, as not all States have the financial and technological resources to appropriate these resources⁴. Similarly, legal rights are not identical or unfettered, as there is not a single right but rather a ‘bundle’ of rights for each domain and each actor, conferring a variable range of rights of access, exclusion, resource use and transferability (or not). For example, all signatories to the Antarctic Treaty System (ATS) have the right to establish research outputs, but these rights cannot be transferred to non-signatories.

From a political perspective, the commons are a social construct which have arisen due to changes in human knowledge, capabilities and perceptions of scarcity (Vogler, 2012). Within the international governance system, the response has again been variable, ranging from extensions of sovereignty (such as the Exclusive Economic Zones negotiated under the UN Convention on the Law of the Sea) through to use of the international rules-based order to extend influence (by joining or influencing the development of international treaties or influencing activities through trade incentives and sanctions via the WTO). Increasingly, this political space has also experienced a degree of securitisation (for example, concerns over military space satellites and through projection of military power through use of the ‘Freedom of the Seas’).

From an ecological perspective, the commons are arguably the ‘natural state’ of the planet’s ecology, with limits and constraints set not by laws or regulation but by factors such as trophic energy levels, food availability, habitat connectivity and animal territorialism. The (partial but not complete) absence of governance in these areas is often popularly but erroneously referred to as the ‘tragedy of the commons’ (Hardin, 1968), whereby self-interest by actors leads to over-exploitation of a non-excludable resource. Ostrom’s (1991) seminal work *Governing the Commons: The Evolution of Institutions for Collective Action* takes issue with this perspective

² Areas Beyond National Jurisdiction.

³ Also referred to as ‘common-pool resources’ (CPR) in the academic literature

⁴ For example, in 2016 6 States (China, Taiwan, Japan, Indonesia, Spain and Korea) made up 77% of the global high seas fishing fleet and 80% of all high seas fishing effort (Sala *et al*, 2018).

and instead sets out a framework of self-collective action and decision-making, suggesting instead that a co-developed set of rules and norms (or ‘institutions’) can lead to, instead of resource degradation, the conservation and sustainable use of natural resources.

In terms of common-pool resources, these different perspectives (which each carry their own sets of assumptions) can make decision-making and effective governance challenging – for example, while the High Seas and seas within national jurisdiction are legally distinct entities, they are highly connected ecologically (Boteler, *et al.*, 2020). Adams *et al.*, (2003) summarises these competing CPR perspectives as “the social construction of resources and their meanings; the interface between formal and informal institutions; the difference between *de facto* access and *de jure* rights; the implications of illegality; political mobilisation and social movements”.

Exacerbating these governance challenges are the drivers of demand for common-pool resources – These drivers are manifold and multi-scalar (ranging from global, national and local scales, and influenced by changes to global trading arrangements and commodity prices, as well as more localised issues of agricultural intensification, population growth and urban/rural integration), but ultimately manifest as either increases or decreases in exclusions from common-pool resources, increases or decreases in the volume or rate of resource utilisation, and an increase or decrease in the supply of common-pool resources (Adams *et al.*, 2003).

Faced with this combination of challenges and multi-scalar drivers, a single coherent conservation and management framework has failed to emerge from the international community which has instead evolved a series of regulatory regimes of “varying coverage and effectiveness” (Vogler, 2012).

The High Seas: Scale, scope and jurisdictional boundaries

The global ocean commons, or High Seas/ABNJ resource domain is not entirely ungoverned⁵, and some protections do exist for the common-pool resources that exist within it. These protections exist under a range of international treaties and State-level obligations and apply to the 43% of the Earth's surface (see Figure 1) comprising the High Seas⁶.

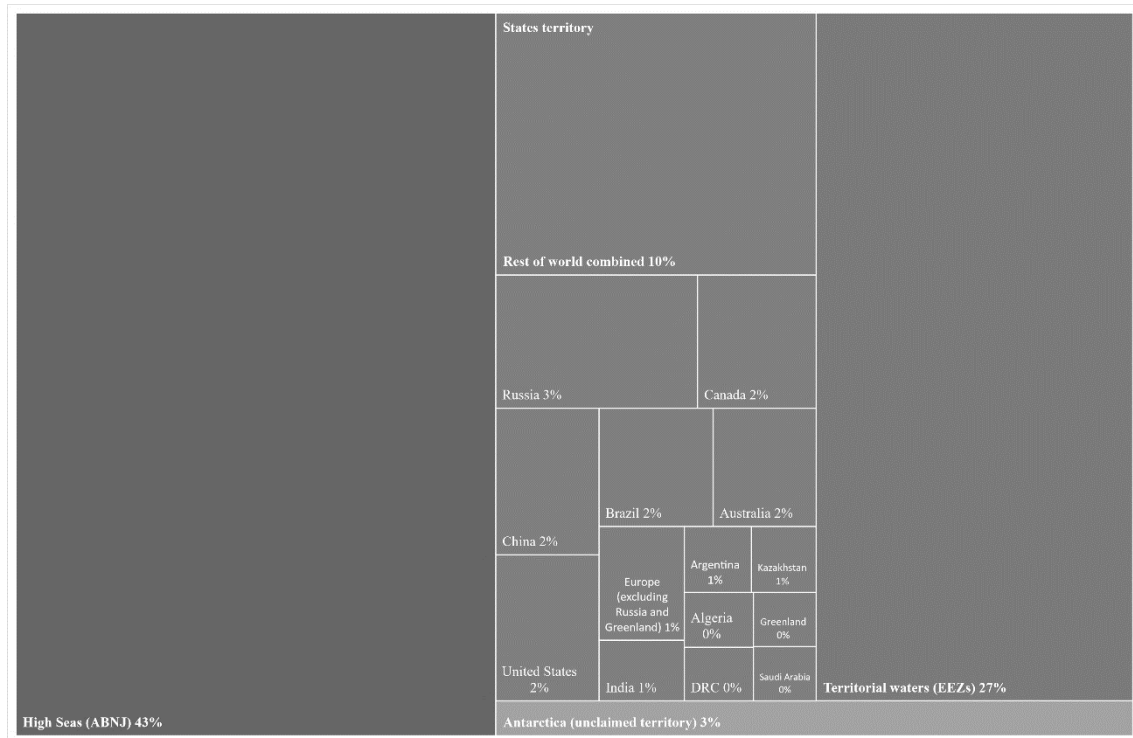


Figure 1. Earth's surface – Terrestrial vs marine

(Source: Author interpretation of data provided by UN Statistics Division (2021) copyright free and Protected Planet (2021) used under the Terms and Conditions of the UNEP-WCMC)

The primary ocean governance treaty is the United Nations Convention on the Law of the Sea (UNCLOS 1982), known as 'the constitution of the oceans', which provides the legal framework within which all oceanic activities must be carried out, including the protection of the marine and coastal environment.

Under this international law, the world's oceans are partitioned into distinct jurisdictions, including the High Seas and the Area. Each of these partitions confers a different set of rights and responsibilities, and many have their own unique management institutions. As a general rule, within this framework the sovereign jurisdiction of a State reduces the further the distance from the shoreline.

The different jurisdictions are illustrated in Figure 2, initially comprising the *territorial sea*, which is the sovereign territory of the State and the *Exclusive Economic Zone* (or EEZ) which extends the territorial sea (and the various rights and obligations) out to a distance of 200 nautical miles

⁵ On the High Seas an individual is subject to the laws of their country of citizenship, the law of the nation under which the vessel is flagged and UNCLOS.

⁶ defined as "all parts of the sea that are not included in the EEZ, in the territorial sea, or in the internal waters of a State" (UNCLOS Article 86).

from shore. Importantly, the EEZ is not part of a State's sovereign territory, but the State retains exclusive rights to the extraction and use of resources. Where a natural geological extension of the mainland exists (*the continental shelf*), States may – under certain circumstances – exploit the mineral resources of the sea floor up to a maximum of 350 nautical miles.

The *High Seas* begin at the 200 nautical mile line and form areas beyond national jurisdiction (ABNJ), accessible and exploitable by all States. A range of governance institutions exist in ABNJ, including Regional Fisheries Management Organisations (RFMOs), Regional Seas Conventions (RSCAPs) and the International Seabed Authority (ISA).

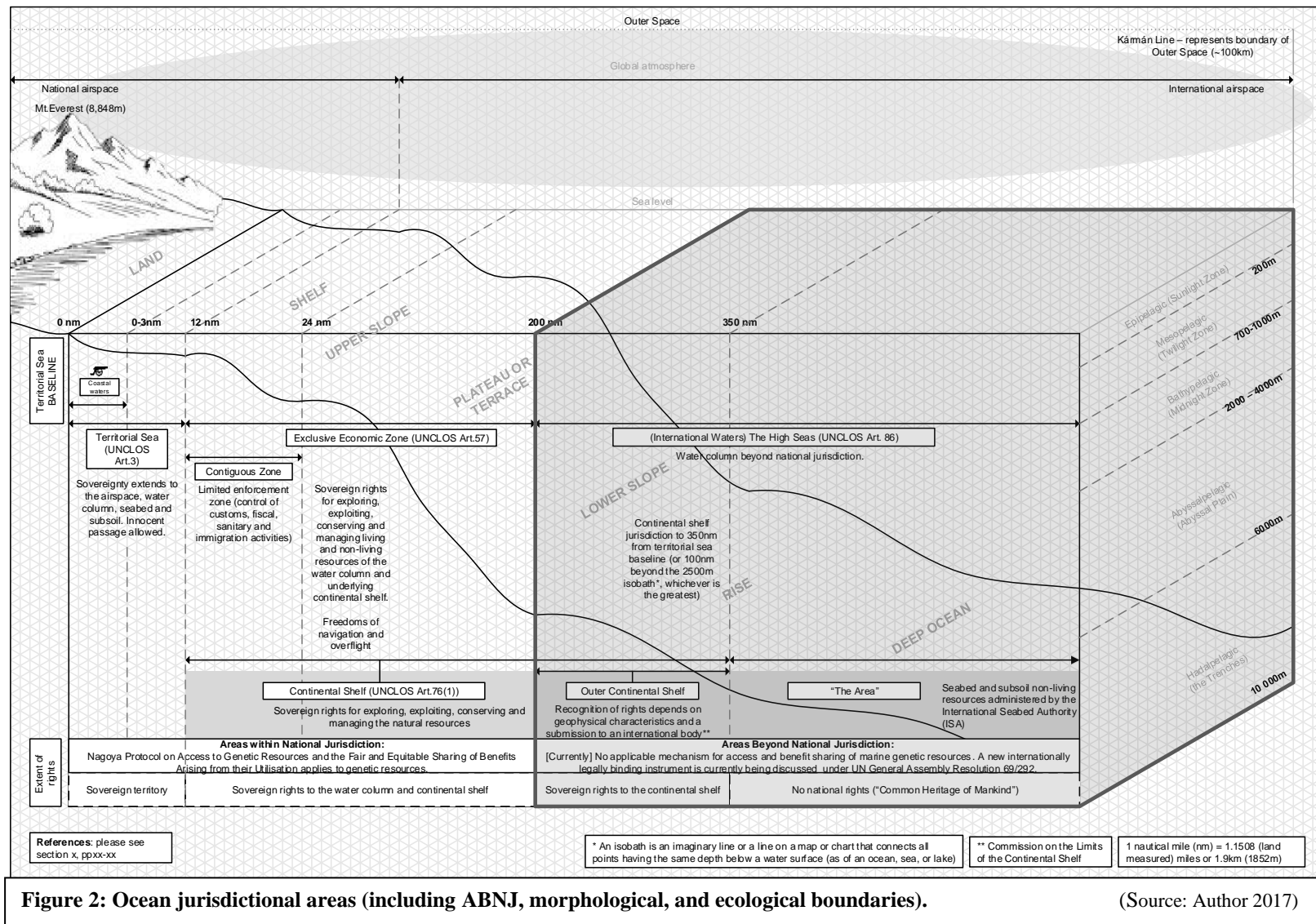


Figure 2: Ocean jurisdictional areas (including ABNJ, morphological, and ecological boundaries).

(Source: Author 2017)

The High Seas: Ecological and governance considerations

Within a terrestrial context, governance of common-pool resources draws on our familiarity and understanding of the biological components and processes of land-based ecosystems, and how society has, and continues to, influence these processes. Governance of the oceans, however, involves an appreciation and understanding of entirely different governance conditions, reflecting the fundamental distinctions between marine and terrestrial ecosystems.

These different ecosystem conditions pose inherent challenges to any governance approach (particularly those seeking to apply land-based tools), manifesting across the various ecological, spatial, legal/jurisdictional and socio-political domains of the ocean.

In considering these conditions, firstly we consider issues of scale and delimitation. Comprising 61% of the world's oceans and nearly 95% of its volume (GEF, 2021), the High Seas are genuinely a planetary-scale ecosystem, presenting a unique governance challenge⁷.

At the largest level, the oceans can be delimited in a number of ways, ranging from Somerville's original nineteenth-century proposal for nine latitudinal 'homozoic zones' (Somerville, 2009) sensitive to the effect of warm and cold currents, to the four partitions of polar, westerlies, trades and coastal biomes proposed in Longhurst's *Ecological Geography of the Sea* (2007), through to more contemporary expressions such as Large Marine Ecosystems (LMEs). Smaller scale designations include ocean basins, ocean regions and seas.

Turning from scale to categorisations of ocean characteristics, there are four widely recognised components of the ocean, the *water surface*, *water column*, *seabed* and *subsoil*, which are further sub-divided by five components of ocean depth (defined by light penetration) namely the *epipelagic*, *mesopelagic*, *abyssalpelagic* and *hadalpelagic* zones (see Figure 2). These 'vertical' concepts are made three-dimensional and cross-axial by the general circulation of the ocean, which includes both horizontal and vertical flows.

The deep seabed ("The Area") adds a fourth dimension (and consideration) to the categories and concepts above, in that the particular ecology, chemistry and temperatures associated with the deep seabed invoke a temporal consideration, that of slow, deep time. ABNJ often contain very deep habitats, populated by slow-to-mature, fragile ecosystems⁸ (when contrasted with coastal habitats and terrestrial ecosystems, which are often faster growing and more adaptable to changing conditions)⁹.

For governance purposes, these physical characteristics can be organised into management frameworks (Tarmizi, 2010) of *open space* (parts in the physical component), *ocean resources*

⁷ Certain ABNJ geomorphological features, such as mid-ocean ridges, can often be pan-oceanic in scale.

⁸ The deep-sea plays host to a wide range of habitat types that are commonly, but not exclusively, characterized by low productivity. Many of the species, both those of commercial value or otherwise, that inhabit the deep-sea, display life history traits adapted to slow-growth and high longevity/late maturation (Cailliet *et al.*, 2001), which markedly increases their vulnerability to direct exploitation or other disturbances.

⁹ The unique characteristics of the Area also extend to its governance regime, based on the principle of the Common Heritage of Mankind (CHM). Deriving from ethical concerns that global resources should be available for everyone's use and benefit, the CHM regime operates alongside the (freedom of the) High Seas regime, but offers a more inclusive, equitable and transparent approach. This can be seen in the hypothetical example of an Access and Benefit Sharing (ABS) arrangement for Marine Genetic Resources in ABNJ – the (freedom of the) High Seas regime includes a freedom of exploiting the living resources on the High Seas (Article 87, UNCLOS, 1982), whereas the CHM regime requires equity between developing and developed States and includes the 'equitable sharing of financial and other economic benefits' (Article 140(2), UNCLOS 1982)

(living and non-living resources) and *dynamic systems* (tides and thermal patterns), with the legal jurisdictions of UNCLOS (territorial seas, EEZs, continental shelves and ABNJ) superimposed.

More meaningfully for ecosystem management, the International Council for the Exploration of the Sea (ICES) pioneered an 'ecoregion' designation in 2004 (ICES, 2020). Developed in response to the need for a spatial designation that supported ecosystem -based management (EBM), the ecoregion designation is based on biogeographic and oceanographic features, while also taking account of existing political, social, economic and management boundaries. This development is notable in the context of this thesis as it directly addresses the concept of 'fit' in Young's (2002) theory of fit, interplay and scale, in that "the problem of fit is a matter of the match or congruence between biophysical systems and governance systems" (Young 2008, p26).

The trend towards the ecological and managerial partitioning of the oceans is resisted by some scholars, with the concept of 'functional territorialisation' being used to distinguish between the use of partitions to support effective management (for conservation purposes) and the trend towards increased managerialisation or the 'taming' of ocean spaces to make them safe for human activity and exploitation (Lambach, 2021).

The scale, geobiophysical properties and dynamic characteristics of the open oceans and High Seas raise particular challenges for governance, a situation compounded by scientific uncertainty and the difficulties in gathering accurate data on the High Seas, including the high cost of collecting samples at sea, the relative lack of isolation between natural regions and the complexities of monitoring three-dimensional distributions of organisms that vary in both space and time (Longhurst, 2007, p19).

Notwithstanding the data challenges, the deep oceans also present challenges to the management of human activities (such as management of pollution) given the thermodynamic processes in the water column which link the surface to deep waters and the seafloor, the 'openness' or scale-connectivity (Jones, 2014)¹⁰ of marine ecosystems, and the fragility of trophic structures and nutrient linkages.

Given the differences between terrestrial and marine ecosystems, and the particular challenges (dynamism, latency and 'openness' of the open oceans and deep sea/deep seabed), there is a clear need for a corresponding and comprehensive governance framework to ensure the conservation and sustainable use of ABNJ.

However, despite the preamble to UNCLOS stating that "the problems of ocean space are closely interrelated and need to be considered as a whole" (UNCLOS, 1982), the current institutional framework in ABNJ is described as a 'patchwork of international bodies and treaties' (Pew, 2017), with protections limited by the fragmented and sectorial nature of the institutional arrangements.

These variances in terms of institutional mandates, geographical scope and narrow focuses on specific issues and/or species has led many commentators (Macintyre 2010, Webb 2010, Ban *et al.*, 2014) to suggest the need for different governance approaches, pointing to adaptive, precautionary approaches and Ecosystem-Based Management tools, as well as the need for issues to be considered more holistically (as envisaged in UNCLOS). Beyond suitable management approaches, however, lies the more fundamental question of whether the current system of multi-lateral, regional ocean governance provides a suitable basis ('fit') for the effective management of the High Seas.

¹⁰ The density of seawater and its buoyancy (in combination with currents) supports the diffusion of organisms and pollutants over extremely large areas.

Biodiversity beyond national jurisdiction (BBNJ): Pressures and protections

Biodiversity beyond national jurisdiction (BBNJ) comprises the living organisms in the water column and sea floor of the High Seas¹¹, as well as seabirds following migratory and feeding paths. The High Seas and deep seabed contain a large range of species and unique habitats, with seabed biodiversity being characterised by long-lived, highly endemic, slow maturing and sensitive species, and the ocean featuring significant oceanographic and biological attributes (such as seamounts, hydrothermal vents and cold seeps) and highly productive ecosystems, all of which remain largely unexplored and poorly understood (STRONG High Seas, 2019a).

In addition to its intrinsic value, when maintained in a stable or improving condition, BBNJ provides considerable benefits to wider ecosystems and human society. There are a number of different lenses to understanding the contribution of the High Seas. Viewed through the *ecosystem services model*, the High Seas provide provisioning services (seaweed, raw materials, genetic and medicinal resources), regulating services (climate regulation, carbon sequestration, air purification, habitat), supporting services (nutrient recycling, primary production, pollutant sink) and cultural services (recreation, spirituality, history, science and education), (STRONG High Seas, 2019b).

Viewed from an *economic* perspective, Sala *et al* (2018) estimate the total fisheries catch from the High Seas in 2014 as \$7.6 billion¹², while WWF estimate the overall contribution of the oceans to the world economy to be \$21 trillion (Hoegh-Guldberg, 2015). In terms of primary production, fisheries output in the High Seas has grown from about 450,000 tonnes in 1950 to almost 5.2 million tonnes by 1989, with the latest figures (between 2009-2014) averaging 4.3 million tonnes annually, which is approximately 4 per cent of total annual marine catch (Sea Around Us¹³).

The contribution of the High Seas can also be viewed from a *food security* perspective. Although the 4 per cent referenced above suggests a relatively small contribution to food provisioning, there are distributional impacts arising from how this output is used, with certain species caught on the High Seas being important for addressing nutritional requirements in some Pacific Island nations (Bell *et al.*, 2019) and significant inequalities between countries in sharing the benefits from high seas resources (Sala *et al.*, 2018).

Crucially for food security, while there may be clear legal demarcations between BBNJ and coastal waters, there is increasing evidence of a close ecological connection between the nutrients flows from the High Seas to the coastal areas, where these nutrients support flourishing coastal ecosystems within reach of artisanal fisheries (Popova *et al.*, 2019).

Viewed from a *conservation perspective*, the High Seas offer critical habitat and migration spaces to a number of endangered species. For example, migratory whales feed, mate, give birth, and nurse their young, and migrate along ‘migration superhighways, or ‘blue corridors’ (Johnson *et al.*, 2022); seabird migratory routes; fish migrating to cooler waters due to the effects of climate change and sea turtles migratory networks (Kot, 2022). In addition to their conservation importance, these species movements also serve to highlight the disjuncture between natural boundaries and migratory ranges and socially constructed, legal jurisdictions and governance partitions.

¹¹ Non-living mineral resources in the deep sea-bed (‘The Area’) are subject to UNCLOS Part XI

¹² Although this revenue figure needs to be adjusted to reflect the estimated \$4.2 billion of subsidies provided by States to maintain their deep-water fleets (Sala *et al.*, 2018)

¹³ Sea Around Us: Fisheries, Ecosystems and Biodiversity, catch and price database, www.seaaroundus.org

Growing pressures

Until the mid-20th Century, the remoteness and challenging conditions in ABNJ provided deep-sea ecosystems some degree of protection from human activities. However, technological innovations (such as longer-range fishing fleets and refrigeration) and increasing demand for resources have driven greater expansion into these areas (Ramirez-Ilodra *et al.*, 2011; Merrie *et al.*, 2014).

A 2016 study into ecological pressures on the High Seas (Eassom *et al.*, 2016) identified three main impact areas, all of which derive from human activity (either directly or indirectly), these being physical impacts (smothering of seabed species, extraction, abrasion or siltation), the removal of biological resources (direct extraction of target and non-target species) and ocean acidification (caused by ocean absorption of excessive atmospheric CO₂).

Of these, unsustainable resource extraction (primarily fishing) is assessed as the key threat to biodiversity (Norse *et al.*, 2012; White and Costello, 2014) and fish stocks (Pauly and Zeller, 2016) on the high seas, with the threat compounded by climate-induced shifts in species distribution affecting fish and fisheries (Cheung *et al.*, 2017). Bottom-trawling has significantly impacted species diversity in ABNJ (Norse *et al.*, 2012; Wright *et al.*, 2015), whereas tuna and billfishes are severely over-exploited open ocean species (Cullis-Suzuki and Pauly 2010; White and Costello 2014) and all fishing activity inevitably causes bycatch impacts, including turtles, seabirds, sharks and marine mammals (McKinnel and Seki 1998; Oliver *et al.*, 2015; Lewison *et al.*, 2014).

Existing protections

Although UNCLOS does not refer explicitly to marine biodiversity or to the exploitation of resources in the water column beyond national jurisdiction, there are several general environmental provisions that are applicable to both the High Seas and the Area, these being to:

- conserve and manage the living resources of the high seas (Articles 116-120);
- protect and preserve the marine environment (Article 192);
- prevent, reduce and control pollution of the marine environment (Articles 194-196, 207-212);
- take the measures necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life (Article 194), and;
- the duties of States to cooperate with other States both at the regional and global levels (Articles 197, 242-244).

These provisions are also augmented by two UNCLOS Implementing Agreements (IAs):

Firstly, the *1994 Agreement* relating to Part XI of UNCLOS¹⁴, which addresses activities affecting the deep seabed, ocean floor and subsoil beyond the limits of national jurisdiction, and which establishes the ‘Authority’ governing seabed mining and associated activities, the International Seabed Authority (ISA). Importantly, the ISA’s mandate does not extend to all activities in the Area (only those relating to seabed mining and resource extraction), and other legal regimes apply to both contemporary activities such as marine scientific research and cable laying, and to future activities such as carbon sequestration.

Recalling the previous sections discussion on governance regimes and ‘rights’, Part XI is notable as it enshrines the concept of the “Common Heritage of Mankind”¹⁵ in relation to the protection

¹⁴ UNCLOS (1982) Article 156

¹⁵ UNCLOS (1982) Article 136

and use of the deep seabed, requiring activities in the Area to be conducted “for the benefit of mankind, irrespective of the geographical location of States, whether coastal or land-locked, and taking into particular consideration the interests and needs of developing States”¹⁶.

Secondly, the *Agreement for the Implementation of the Provisions of UNCLOS relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks* (or the UN Fish Stocks Agreement, 1995), which aims to enhance the cooperative management of fisheries resources that move through, or occur in, more than one regulatory jurisdiction.

Other international agreements of relevance are explored in more detail in Chapter 7, but briefly comprise the Convention on Biological Diversity (CBD 1992) which places a ‘transboundary impact’ obligation on signatories to ensure that activities within their jurisdiction do not cause damage to the environment of other States or *of areas beyond the limits of national jurisdiction*¹⁷, and requires States to cooperate, either directly or via competent international organisations, to ensure the conservation and sustainable use of marine biodiversity¹⁸, and a range of other international agreements and tools, restricted to certain sectors such as shipping (the International Marine Organisation, or IMO) and fishing (the Food and Agriculture Organisation, or FAO), geographical areas (UNEP Regional Seas Programme and Regional Fisheries Management Organisations) or specific issues and/or species (such as UNESCO instruments on the Convention on the Protection of the Underwater Cultural Heritage, and CITES for the protection of endangered species).

While extant, these protections have to date only resulted in less than 1% of the High Seas being currently fully or highly protected¹⁹. UNCLOS (1982) and its implementing agreements also do not offer ‘forward-looking’ protections for the new ecological pressures (e.g. climate change is not referenced in UNCLOS) or emerging uses of the High Seas and its biodiversity (Rochette and Billé, 2008), and implementation is heavily reliant on international competent institutions to deliver protections at sea.

This reliance is problematic as the current institutional arrangements are fragmented, with significant gaps in global coverage by bodies able to take binding measures and apply enforcement actions. For example, there are large ocean areas outside of EEZs in both the central Atlantic and south-west Atlantic (outside of the EEZ of southern Brazil, Argentina and the Falklands). The former area is overseen by two RFMOs which only have advisory status²⁰, and the latter area lacks any kind of management organisation.

Similarly, gaps in conservation and sustainable use protections exist within RFMO jurisdictions, as RFMOs do not manage all of the fish stocks in their geographical zones, typically only the commercially important ones. In addition, RFMO powers vary widely in ‘scope, authority, participation by fishing nations, and the robustness of the scientific advice provided’ (Cullis-Suzuki and Pauly, 2010; Clark *et al.*, 2015; Wright *et al.*, 2015; Gianni *et al.*, 2016).

¹⁶ UNCLOS (1982) Article 140

¹⁷ CBD (1992) Article 3

¹⁸ CBD (1992) Article 5

¹⁹ 3,301,299 km of the High Seas are currently designated (~1.5% of the total High Seas marine area ~ 222,498,835 km²) but less than 1% of designated areas have protections that afford full or high levels of protection and are implemented. (Marine Conservation Institute *Marine Protection Atlas*, 2022)

²⁰ The Western Central Atlantic Fisheries Commission (WECAFC) and the Fisheries Committee for the Eastern Central Atlantic (CECAF). There are currently negotiations underway for the establishment of a fully empowered RFMO in the WECAFC area.

Development of a legally binding “Implementing Agreement” under UNCLOS for the conservation and sustainable use of biodiversity beyond national jurisdiction

During the 2012 United Nations Conference on Sustainable Development (Rio+20), it was agreed that States would seek ‘*to address, on an urgent basis, building on the work of the Ad Hoc Open-ended Informal Working Group and before the end of the sixty-ninth session of the General Assembly, the issue of the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, including by taking a decision on the development of an international instrument under the United Nations Convention on the Law of the Sea*’ (UNGA, 2012)²¹.

Following re-affirmation of this commitment at the 67th and 68th sessions of the UN General Assembly, a resolution was passed (UNGA 68/70) for a Working Group to make recommendations to the General Assembly on ‘*the scope, parameters and feasibility of an international instrument under the Convention*’²².

The BBNJ Working Group led in turn to a Preparatory Committee on BBNJ, which ultimately led to the UN General Assembly (UNGA) Resolution 69/292²³ to develop the elements of an international legally binding instrument (ILBI) on the conservation and sustainable use of marine biodiversity of areas beyond national jurisdiction (BBNJ), what McDorman (2021) refers to as the “architectural fit” of a BBNJ Convention with the existing treaty-based law of the sea governance framework.

On 24 December 2017, the UNGA decided to convene an intergovernmental conference (IGC), to consider the recommendations of the Preparatory Committee (PrepCom) and elaborate the text of an international legally binding instrument (ILBI) under the United Nations Convention on the Law of the Sea (UNCLOS 1982) on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ)²⁴. This process is now about to enter its fifth IGC (August 2022)²⁵.

The IGC was tasked with addressing the aim of the ILBI and four topics that are intended to address the gaps and deficits in the existing suite of conservation protections for BBNJ, these being:

The conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, together and as a whole with:

Marine genetic resources, including how these can be accessed, used and their benefits shared in an equitable and transparent manner;

Area-based management tools, helping to regulate human activities in and around ABNJ and vulnerable marine areas in a more integrated manner using spatial management tools.

²¹ UNGA resolution 66/288. *The future we want*. UN doc. A/RES/66/288, of 11 September 2012. Para 162.

²² UNGA resolution 68/70. Oceans and the law of the sea. UN doc. A/RES/68/70, of 9 December 2013. Para 198.

²³ United Nations General Assembly, Development of an International Legally Binding Instrument 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, resolution adopted by the General Assembly on 19 June 2015, GA Res 69/292, 69th session, Agenda Item 7

²⁴ It is important to note that not all States or bodies agreed with the need for an ILBI, and it remains a contested concept in certain quarters, on the basis that there are no reasons why existing institutions and instruments could not be employed to deliver the majority of the ILBI’s aims and objectives if States saw fit to do this.

²⁵ Ordinarily, international negotiations under the auspices of the United Nations follow a four-meeting cycle, culminating in an agreement (or not).

Environmental impact assessments, helping to evaluate the impact of current and future activities on ABNJ, and, where activities are deemed to have an impact, introducing plans to mitigate these impacts and monitor the effectiveness of mitigations over time.

Capacity-building and technology transfer, helping to ensure the ability of developing and geographically disadvantaged States to participate in ABNJ research, commercial use and management (IASS, 2019)

Importantly, in agreeing the above, the UNGA also reaffirmed that the work and results of the IGC should be fully consistent with UNCLOS, stating in Resolution 72/249 (adopted on 24 December 2017, circulated on 19 January 2018) that the process and result of the ILBI IGC ‘*should not undermine existing relevant legal instruments and frameworks and relevant global, regional and sectoral bodies*’²⁶. This emphasis on ‘do not undermine’ was intended to reflect and respect the existing UNCLOS institutional regime and treaty complex, but its inclusion in the negotiating aims raises several questions over how this can be achieved, and also sets the context for this research into institutional interplay and effective (coordinated) implementation.

²⁶ UN General Assembly Resolution on the International legally binding instrument 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 (A/RES/72/249, para 7).

Defining the research focus

Given the complex social, economic and environmental interactions in ABNJ, the prevailing view in the literature is that in order to be effective the agreement (and instrument) will need to overcome the currently fragmented ocean governance regime but without ‘undermining’ existing global and regional processes. New institutions are proposed as part of the UN 69/292 negotiations (such as a Conference of the Parties, and Scientific and Technical Committee) but in the absence of a new, global ocean *delivery* institution, implementation of BBNJ protections (in both the short and longer term) will rely on the existing ocean governance framework.

This framework comprises multiple ‘implementing’ regimes, institutions and organisations, operating within tightly constrained *vires*. These “functionally specialized” institutions (Gehring and Oberthür, 2008) - all of which deliver against sectoral and/or issue-specific remits - will arguably struggle to implement joined-up protections as “virtually no mechanisms exist to coordinate across geographic areas and sectors” (Pew Trust, 2016). Looking ahead, the introduction of UN 69/262 will also challenge the current regime configuration as it will require – due to the ‘do not undermine’ stricture - a more integrated, collaborative response to be delivered successfully.

To help address these implementation challenges, the research will investigate the requirements for **more effective inter-institutional arrangements** between existing High Seas governance institutions, with a view to formulating outputs to theory and policy.

The gap in previous research

In order to conserve and sustainably manage ABNJ, both short term and long term actions are needed. Scholarly debates in this area draw predominantly on legal and international relations concepts and focus on what the geographer Evans (2011) describes as the first two elements of global environmental governance: *process* (international meetings and agreements) and *architecture* (institutions created to enact the agreements). However, the literature is less well developed in relation to Evans’ third core element of *implementation*.

Barring the introduction of a new global institution (similar in scale and scope to the UN Food and Agriculture Organisation given that it will need to administer to nearly half the planet), implementation of both short- and long-term actions will fall to existing marine governance institutions. This assumes that existing institutions have sufficient scope, powers, and capacity to effectively implement the ILBI requirements.

Application of Young (2008)’s theories of fit and interplay will explore these assumptions and consider whether there are mismatches between the tightly defined *vires* of the existing institutions and the more holistic approach necessary for EBM. Looking ahead, the introduction of UN 69/262 will also challenge the current configuration as it will require a more integrated, collaborative response to be delivered successfully.

Key research question

Given the conflicting interests and requirement to ‘not undermine’, the key research question from both an academic and policy perspective, is: *‘What are the key conditions for effective inter-institutional governance of BBNJ?’*

In addressing this research question, the thesis draws on and extends theories from institutional analysis and environmental governance (Ostrom, Young, Stokke), and focuses on the topic of institutional effectiveness in ocean Areas Beyond National Jurisdiction (ABNJ). Given the need

for more integrated management of marine biodiversity in ABNJs on the one hand, and the fragmented, ‘functionally specialized’ arrangement of marine governance bodies on the other, the research will investigate the requirements for more *effective* inter-institutional arrangements between existing marine governance organisations.

How will the research address the question?

To help address this research question, it is important to consider two main areas: What are the conditions influencing effective implementation by existing ocean governance institutions and to what extent do they work effectively with organisations operating in a similar context? (Institutional interplay). The thesis will focus on both areas, applying a set-theoretic approach to empirically test which conditions are likely to influence effective implementation, and deploying Young’s theories of interplay (Young, 2008) alongside Stokke’s approach to the “conditions influencing effectiveness” (Stokke, 2012) to consider the forces and factors influencing inter-institutional collaboration.

For the outcome to be realised (conservation and sustainable use of marine biodiversity beyond national jurisdiction), two things need to happen.....

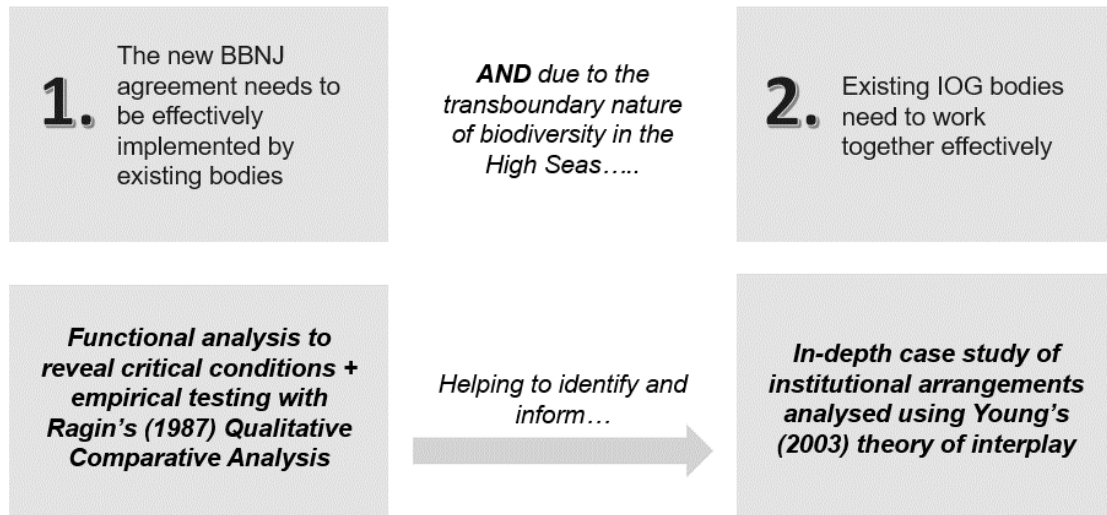


Figure 3: Underpinning components of key research question

To fully address the above components, the proposed research will be interdisciplinary in nature, and employ a mixed-methods approach. Proceeding from a critical-realist epistemology, the research will mobilise insights from a range of social scientific fields, extending institutional theory, political ecology and human geography. The purpose of the research will be to apply, critique and extend Young’s theoretical concepts of institutional fit and interplay (2008) and Stokke’s (2012) model of effectiveness in the novel context of ABNJ governance, generate hypotheses, attempt to explain relationships and add depth to understanding of inter-institutional arrangements in the marine governance space.

Given this purpose and the relatively small target population (decision-makers and elites within marine governance organisations), the most appropriate methodological approach is qualitative, with the research utilising (i) secondary data analysis and elite interviews to inform a Qualitative Comparative Analysis (QCA), followed by (ii) an embedded case study approach. The case study will focus on the Northern Atlantic as the geographical unit of analysis as this area brings together a variety of marine management organisations and several differing ABNJ regions.

Thesis overview and orientation

This thesis proceeds according to the following chapters. Having introduced the context, issues, principal terms and key research question, Chapter 1 (Introduction) leads into Chapter 2 (Literature review) which builds on this introduction by setting out the main theoretical and conceptual approaches to understanding and assessing governance, institutions and their interplay, and effectiveness.

Chapter 3 (Methods) describes the rationale and choice of research methods and sets out a justification for the combination of empirical (Qualitative Comparative Analysis) and qualitative (embedded case study) approaches as the best methodological fit for the research question.

Chapter 4 (Stage 1a) applies documentary analysis techniques and draws on elite interviews to identify candidate conditions of effectiveness, using the ILBI's components (EIA, MGR, ABNJ and CB&TT) as an overarching framework.

Chapter 5 (Stage 1b) sets out the analytical approach (rubric) and evidence reviewed in support of each of the candidate conditions, set against 14 real-world cases of Regional Fisheries Management Organisations (RFMOs) and Regional Seas Conventions/Action Plans (RSCAPs). This chapter produces a set of calibrated Set-Membership Values (SMVs) to inform the empirical testing phase.

Chapter 6 (Stage 1c) applies the Qualitative Comparative Analysis (QCA) approach to those candidate conditions that are either necessary or sufficient, or both, to lead to the outcome of conservation and sustainable use of biodiversity beyond national jurisdiction.

Chapter 7 (Stage 2) deploys Young's (2002) and Stokke's (2012) theories of interplay and effectiveness within an embedded case study (Northern Atlantic) to help illuminate the forces and factors that aid, and impede, inter-institutional cooperation in High Seas governance.

Chapter 8 (Conclusion) brings together the findings of the thesis, answers the key research question, and sets out summative insights of interest to policy and theory.

Governing the High Seas: Effective Institutional Arrangements for the Conservation and Sustainable Use of Biodiversity beyond National Jurisdiction

Chapter 2: Literature Review

Chapter introduction

Building on the introductory chapter, this section sets out a focussed literature review of the main theoretical foundations relevant to environmental governance, institutional responses to environmental change and models of effectiveness. The review is deliberately focussed on those theoretical contributions with most relevance to High Seas institutional interplay (Young, 2002; Stokke, 2012; Rosendal, 2001; Oberthür and Gehring, 2006) and institutional cooperation (Young 2002; Stokke, 2012; Hanssen *et al.*, 2013).

The intention is to provide a theoretical grounding in the key literature and use this to both inform analytical approaches (Chapters 3-7) and bring greater depth to the understanding of inter-institutional arrangements in the High Seas governance context (Chapters 4, 5 and 7).

Chapter overview

The literature reviewed and the subsequent thesis are situated in a critical-realist epistemology, drawing on and extending insights from a range of social scientific fields, including institutional theory, international relations and human geography.

The geographical frame of the research relates to areas beyond national jurisdiction (ABNJ), and the management of biodiversity (BBNJ) within these spaces. As global commons, these areas and their associated biodiversity can be considered under Common-Pool Resource (CPR) theory. Within CPR theory, the research can be considered to align with a ‘thick’ CPR perspective, acknowledging the nested, embedded and overlapping nature of institutional decision-making. Protections for these spaces are limited, and, within the current landscape of marine organisations and institutions with BBNJ responsibilities, there are significant governance gaps that impede effective conservation and sustainable use (Rochette *et al.*, 2014). These gaps are both jurisdictional but also represent mismatches between the design of institutions and the properties of the ecosystems they interact with (Young, 2002).

To help diagnose how institutions interact, both positively (‘fit’) and negatively (‘misfit’), Young (2002) describes five *types* of institutional interplay - 1) *Functional linkages* (where the operation of one institution directly influences the effectiveness of another through some substantive connection among the activities involved); 2) *Political linkages* (where actors actively seek to link and/or integrate two or more institutions); 3) *Vertical linkages* which cut across levels of social organization; 4) *Horizontal linkages*, found among institutional arrangements operating at the same social, political and geographical level, and 5) *Reciprocal or unidirectional linkages*, which describe the source(s), direction and recipient(s) of interplay – and four main *expressions* of institutional interplay – (1) *Embedded in* and informed by overarching principles and practices, (2) *Nested* by design within functionally and/or geographically broader regimes, (3) the result of deliberate *clustering* of several regimes across functional and/or geographical borders, and (4) *Overlapping*, largely and often unintentionally.

The introduction of a new internationally legally binding implementing (ILBI) agreement under UNCLOS in the area of biodiversity and sustainable conservation (issue-area) bridges several of these types and expressions, such as *top-down vertical interplay within nested institutions in a single issue-area* being observed in the example of UNCLOS, Food and Agriculture Organisation (FAO) and RFMOs, as well as an example of *institutional horizontal overlap between issue-areas* with RFMOs and RSCAPs.

At a superficial level, this is an example of what Young refers to as vertical and horizontal interplay, but the introduction of the ILBI also brings into consideration Young's theories of regime governance²⁷ (Krasner, 1983) and his distinction between changes to the constitutive and operational attributes (Young, 1999:134-138) of regimes. By way of example, the introduction of the ILBI will necessitate changes to both the constitutive (roles, scope and functional responsibilities) and operational attributes (procedures, mechanisms and programmes) of High Seas governance institutions. In this research, reference will be made to potential changes to both the constitutive and operational elements of the High Seas regime.

At a more granular level, the research will address the concept of interplay management, and focus initially on the area of *inter-institutional responses* (Oberthür and Gehring, 2006) which involve tangible coordination or cooperation with another institution (e.g. through joint meetings, observers, MoUs, joint monitoring). Within these tangible forms, the analysis will consider Rosendal's (2001) *secondary aspects of norms* (operational norms that do not challenge an institution's underlying normative orientation) and *programmatic rules* (operational rules that sit below regulatory obligations).

The research will also consider the significance of interplay for inter-institutional effectiveness²⁸ and draw on scholarly approaches (Stokke, 2012; Hanssen *et al.*, 2013) to understand the conditions influencing effectiveness.

²⁷ Krasner (1983) defines regimes as "institutions possessing norms, decision rules, and procedures which facilitate a convergence of expectations"

²⁸ As opposed to focussing on other aspects of interplay, such as regime formation or regime maintenance.

Situating the research

This thesis draws from a number of scholarly fields, including international relations, human geography, political ecology and governance. The following section situates the research in relation to the key fields of common-pool resource management and multi-level governance. The key geographical concepts addressed by the research relate to interdependence (of systems, organisations and resources) and socio-spatial interactions (social-economic-environmental interactions at a particular spatial scale).

The foundational framework for the research is common-pool resource (or CPR) theory, which relates to how to manage non-excludable, rivalrous resources and avoid collective failures (Hardin, 1968; Olson, 1971; Axelrod 1984; Ostrom 1999). More widely, the research also draws upon international Relations (IR) theory pertaining to the role and significance of institutions in multi-level governance (Krasner 1983; Axelrod 1984; Keohane 1984; March and Olsen 1998).

Within Common-Pool Resource theory, ‘thin’ and ‘thick’ models provide competing interpretations of how decisions over resource management are conceived, influenced and implemented. The ‘thin’ model, inspired in some ways by new institutional economics (Williamson, 2000) suggests that individuals are autonomous, rational actors and implies that rationally derived rules are likely to lead to predicted outcomes, irrespective of political and power structures. The ‘thick’ model (drawing from anthropological and political ecology theory) suggests that actors are embedded and situated within multiple relationships and reciprocal commitments at different scales (Benjaminsen and Lund, 2002; Bardhan and Ray, 2006), and without understanding the socio-economic context in which actors are ‘embedded’ it is difficult to understand the circumstances that affect individual decision-making over resource use (Agrawal, 2003; Johnson, 2004)

The research will proceed from a ‘thick’ model perspective, which explicitly recognises the embedded nature of institutional decision making²⁹ within the High Seas regime. However, if this perspective provides the context within which interaction occurs, there is also a need to apply frameworks to help understand *how* and *why* interaction takes the form it does.

As the High Seas are global commons, with multi-agency and multi-sectoral institutions, there is a need for cooperation (rather than mandated activity) to ensure multi-sectoral and integrated management (Ostrom *et al.*, 1999), which brings elements of International Relations (IR) scholarship to bear. Historically, IR theory has addressed the role of State-level interactions in given topic or issue areas. However, as the nature of the international system has shifted from bipolarity (e.g. Cold War-era) to one of multi-polarity (multiple centres of power), the discipline has also expanded to consider the role of multi-level governance and a wider diversity of actors.

Hooghe and Marks (2003) argue that there has been a reallocation of political authority sideways, downwards and upwards from the central state. Negotiations between ostensibly equal nation states in a multilateral process of negotiation and compromises falls short of being able to address complex environmental challenges (Underdal, 2010). This has led to a focus on the role of institutions and governance arrangements in achieving international cooperation.

Specifically, research has developed to focus on the identification of cooperation problems and exploration of international cooperation mechanisms. Within this, the study of regimes (Krasner, 1983) and institutions (Keohane, 1984) emerged, alongside theoretical concepts and mechanisms to help explain the presence of cooperation (such as monitoring and scrutiny, enforcement and

²⁹ Interplay theorists often refer to ‘thick’ models of CPR governance as ‘nested’

information exchange). The emergence of these approaches can be characterised by the notion that hard power and coercion are not the only means by which institutions can be effective, and that softer governance mechanisms can also play a role.

Given its origins in International Relations (IR) theory, this concept first emerged from a rationalist epistemology, which described cooperation theory as requiring incentive structures to be in place for inter-State cooperation to occur, supported by fair and transparent procedures where States can expect the same gains or losses (Neumayer, 2001). Since then, constructivist scholars such as Wendt (1992) have extended this thinking to include consideration of ideas, norms and socialisation as key forces shaping actor interactions, particularly in the arena of multi-lateral cooperation over environmental issues.

Situated within the twin foundational concepts of CPR and rationalist cooperative theory (IR), this review will now focus on the international marine dimensions of multilateral environmental interactions, drawing on those theoretical contributions with most relevance to High Seas institutional interactions (Young, 2002; Stokke, 2012; Rosendal, 2001; Oberthür and Gehring, 2006) and [environmental] institutional cooperation (Young 2002; Stokke, 2012; Hanssen *et al.*, 2013).

Opening argument and research context

While the introduction of an ILBI under UNCLOS will represent a significant step forward in the conservation and sustainable use of biodiversity beyond national jurisdiction, legal instruments are by themselves not “*self-executing*” and are only effective when they have “*strong institutions and mechanisms to support and implement them in practice*”. (Baldock, 2018). This situation is further complicated by the High Seas regime within which the ILBI will apply. As a globally binding agreement, it will need to articulate with existing multi-lateral environment agreements and be implemented by States acting cooperatively through existing *regional* international ocean governance institutions.

Regional-level governance has therefore been highlighted as critical to the effective application and implementation of legal provisions for the conservation of high seas biodiversity (Warner, Gjerde, Freestone, 2014). This view is supported by Hoydal, Johnson and Hoel (2014) who argue that, in terms of impact on biodiversity and its actual management, regional-level organisations are more important than global ones.

However, there are currently “no rules or mechanisms for cross-cutting area based management of human uses” (EU 2015) of BBNJ, and, given the scale of challenges and timescales involved in introducing and implementing global agreements, this research will focus on approaches to improving implementation via effective “interactions between existing institutions” (Andrews-Speed *et al.*, 2015), with research subjects comprising existing regional international ocean governance bodies capable of implementing conservation management measures³⁰.

Examining existing institutions and their interactions introduces two main considerations: Are they configured to be a good match for the problem they are seeking to resolve? (Young’s concept of institutional fit) and to what extent do they operate effectively with organisations operating in a similar context? (Young’s concept of institutional interplay).

Importantly, this will involve consideration of interplay between institutions both *within* the same issue area (UNEP-Regional Seas Convention) and institutions *between* issue areas (principally RSCAPs and RFMOs). Young’s concept of vertical and horizontal interplay will provide the overarching analytical framework, informed by Rosendal’s (2001) definition of overlapping institutions. The intention is to use Young’s (2002) concept of institutional interplay to help illuminate the conditions where supportive (and less supportive) outcomes (Rosendal, 2001; Oberthür and Gehring, 2006) arise from institutional interactions.

The research case studies to be selected are RFMOs and RSCAPs that have the ability to implement legally binding conservation measures. What is arguably missing is the ability of these geographically and jurisdictionally constrained bodies to work effectively together to reflect the ‘fit’ of the problem (marine biodiversity as a global, dynamic resource). An immediate answer is to say all bodies will be charged with cooperation (a likely outcome under the ILBI) but if this is the case, then how will effective cooperation be achieved, and under what conditions?

³⁰ The legal ability and means to take action are precursors to any subsequent assessment of effectiveness. Within the overall list of bodies charged with ocean governance at the regional level, only the following have the legal and/or jurisdictional authority to implement ecosystem-based management type measures: **RFMOs**: GFCM, SEAFO, SPRFMO & NPFC. **RSCAPs**: CCAMLR, MAP & OSPAR.

Institutional interplay

At a high level, the institutional linkages between global and regional ocean governance institutions can be fairly simply drawn. The institutional map provided in Chapter 7 illustrates this by aligning institutions along jurisdictional and functional themes. However, this provides a static representation of institutional relationships at best, and the concept of *interplay* goes beyond command-and-control or similar linear relationships and suggests that decisions and actions taken by an institution in a particular political or operational context can have ramifications for others operating in different contexts.

Defined as a situation where “the contents, operations, or consequences of one institution are significantly affected by another” (Stokke, 2001), institutional interplay derives from regime theorists (and ultimately from rationalist cooperative theory, new institutionalism³¹ and CPR theory) and is used to explain changes between interacting institutions, a process referred to as the dynamics of interplay (Young, 1999).

At this stage a conscious decision was taken to focus on the applications of Young’s theory of interplay. Other, complementary theories such as the ‘eight design principles’³² for successful management of a shared resource pioneered by Elinor Ostrom (1991), and the associated concept of polycentricity, and the enabling conditions for achieving a “functional polycentric governance system” described by Carlisle and Gruby (2019) offered equally suitable theoretical ‘homes’ for the research. The decision to proceed with Young’s framework was taken on the basis that polycentricity and its applications remain largely theoretical, with few empirical examples in the ocean context, whereas Young’s work is both oceans-relevant and focuses on three research foci – “causality, performance, and design” (Vatn and Vedeld, 2012), the first two of which are closely aligned to the research aims of this thesis.

As described earlier, Young elaborates categories of interplay in terms of four *types* of interaction linkage (vertical, horizontal, functional and political) and four *forms* (embedded, nested, clustering and overlapping). Examples of these categories include the international monetary order as the regime, and the IMF and World Bank as institutions *embedded* in that regime, and the UNCLOS framework which brings together shipping, conservation, mining and boundary-setting functions together in a *clustered* framework.

These interaction types and forms take place either within common operational contexts (issue-area) or between differing contexts (between issue-areas). Other scholars have extended or adapted the four forms and types described above. Stokke (2001) broadens Young’s theoretical categories, introducing a wider set of manifestations including diffusion, political spill-over, normative, operational, utilitarian and ideational interplay³³.

Rosendal (2001) takes a different approach, offering categories of the *effect* of interplay within issue-based interactions. She suggests the effect of interplay can be disruptive or supportive and argues that the effect of interplay is influenced by the characteristics of (in this case) regimes

³¹ The ‘new institutionalism’, a theory which, in contrast to earlier studies of formal institutional rules, took as a starting point that institutions exist in a social, messy world, operate on pragmatic rather than paper-based rules and which, collectively, “constitute a potent driving force, accounting for a significant proportion of variance in the condition of many bio-geophysical systems” (Young, quoting Turner *et al.*, 1990)

³² Ostrom’s eight design principles led to the Institutional Analysis and Development (IAD) Framework, a means of applying the principles to the management of shared resources.

³³ Importantly, while the manifestations differ the fundamental concept of interplay remains consistent between Young and Stokke’s descriptions.

(core and secondary aspects) and distinctions between rules (regulatory and programmatic). In this way, Rosendal offers a way of analysing the conditions *for* and categories *of* effect of interplay.

Interplay can be used to understand structural linkages between organisations (by examining the constitutive attributes, such as mandates and memberships), and behavioural interactions (the actual processes of cooperation). Oberthür and Gehring (2003) build on this latter aspect by focussing on the information flows between source and target institutions, differentiating between directionality and intentionality of institutional interactions in order to describe the mechanisms of causality. They also provide a further set of dimensions of interplay, considering the causal pathways, ability of the source institution to influence and the response in the target institution.

Interplay can also manifest in power-based forms, such as the dependence between institutions and the forms this can take. Schroeder, H (2008) describes *reciprocal* or *unidirectional* forms of dependence, with power relations being broadly equivalent under reciprocal interplay (e.g., two broadly similar institutions interacting) and typically asymmetrical under unidirectional (e.g. a large institution imposing a direction on smaller entities which lack the institutional capacity to respond or defend their interests).

In approaching the study of interplay, two main analytical approaches can be identified in the literature. The first, which might be considered reductionist, is typified by Oberthür and Gehring's (2006) approach described above which involves disaggregating the complexity of interplay to the study of a single 'source' (the origin of the change) institution, a single 'target' (or recipient) institution, and a unidirectional causal pathway between the two.

This approach implies that an understanding of interplay is best served through a simple understanding first and then building up an understanding of more complex interactions. The second, described by Young (cited in Oberthür and Gehring, 2006) as 'integrationist', involves a focus on the more complicated forms of interaction on the basis that the aspects of interplay that are most interesting tend to 'arise as emergent properties of institutional complexes'.

Proponents of this approach take as the unit of analysis the overall patterns emerging from several institutions and multiple individual cases of interaction (Alter and Meunier, 2009) and attempt an integrated view on a 'whole interplay' setting (such as interactions in the Antarctic environment, for example).

Together, these analytical approaches can be thought of as layers of interplay, with each layer revealing either a different or deeper aspect of the causes, conditions and effects of interplay. For analytical purposes, they provide a taxonomy of interplay which allows observed conditions to be diagnosed, situated and structured.

This research will adopt the 'thick' concept of common-pool resource theory and view institutional interplay from a nested and overlapping perspective. This is consistent with the views of interplay scholars who argue that an organisation cannot be analysed in isolation from the wider set of organisations, institutions, frameworks, regimes and norms within which it is nested. Any diagnostic analysis relating to a single organisation is also, to some degree, an analysis of the broader institutional environment.

Interplay management

Understanding how institutions react to influences from others is termed *interplay management*, a concept explored in the literature by Oberthür and Stokke amongst others. Focussing on the operational or political aspects of institutional interactions, interplay management was first

outlined by Stokke, who described it as the political efforts to purposefully shape and improve institutional interaction and its effects (Stokke, 2001).

Interplay management is alternatively described as the institutional adaptation to the substantive features of interplay, which sets it apart from the descriptive and diagnostic concepts described above and moves more into the empirical domain of how an institution responds to stimuli from its wider regime environment, and how it seeks to influence others.

Interplay management can occur both within and between issue-areas and draws on differing scholarly interpretations to explain the motivations of actors and potential for disruptive or supportive outcomes. For example, both Young (2002) and Oberthür and Gehring (2006) suggest that vertical, in-issue interactions (e.g. FAO – RFMO - Fisheries ministry) are stronger and lead to synergistic effects due to similarities in norms, objectives and outcomes, as opposed to greater levels of disruption or conflict across issue areas (RFMO and RSCAP). However, Rosendal (2001) argues that differences in norms between institutions working across issue areas do not automatically lead to disruption or conflict, as the actors are often motivated in bridging or changing the “overlapped” norms to bring about change or correspond more closely to the particular driver that has brought the issue areas together.

However, as the primary research question is concerned with effectiveness of institutions, or the extent to which their interplay affects (positively) the state of the environment or other targets of governance, it is important to be explicit about whether the research is exploring the significance of interplay for regime formation, regime maintenance, or regime effectiveness. This is necessary in order to move forward, because a taxonomy of interplay that works in one of those domains is likely to fail in one of the others (Stokke, 2001)

To this end, it is important to move beyond simply the identification and description of inter-institutional responses (e.g. the presence or absence of a MoU) and consider the processes of interplay and whether they help to deliver meaningful outcomes.

This is described by Oberthür and Gehring (2003b) as the *outputs* of inter-institutional responses (which could be agreements, co-operative practices or the development of new norms) which subsequently have behavioural influences on others (which leads to the *outcome* of improved monitoring, for example, which may then have an *impact* on the ultimate target of governance (Hovi, Sprinz, Underdal, 2003). As outputs occur at the institutional level, outcomes (behavioural changes) necessarily take place between institutions operating in the same issue-area, which may (or may not) lead to impacts.

Rosendal (2001) builds on this by considering the potential for *outputs* to achieve *outcomes*, distinguishing between core and secondary aspects of institutional norms, and between programmatic and regulatory rules. Core norms are the fundamental principles and underlying normative orientation of an institution, whereas secondary aspects are rules which sit alongside but do not directly challenge the core areas, so are more operational and temporary in nature. Similarly, regulatory rules are the fixed, legal mandates of an institution whereas programmatic rules are more dynamic and designed to improve understanding/enhance knowledge about an issue area.

She suggests this helps to explain why some changes are more straightforward than others, as changes to core norms and regulatory rules can be associated with political discord or possessing redistributive implications. Some scholars have interpreted this as implying that meaningful impacts can only be achieved through changes to core norms and regulatory rules (Kyalvik, 2011), whereas others hold that meaningful change can also be brought about via secondary aspects of

norms and programmatic rules through an iterative, incremental and/or negotiated approach (Young 1999).

Implementation and effectiveness

The introduction of a new internationally legally binding instrument (ILBI) will represent a significant step forward in the conservation and sustainable use of biodiversity beyond national jurisdiction. However, legal instruments are not “self-executing”, and are only effective when they have “strong institutions and mechanisms to support and implement them in practice” (Baldock, 2018). Furthermore, robust enforcement mechanisms are needed for when environmental requirements are not being met (Green Alliance, 2017).

Whilst acknowledging the importance of MoUs in clarifying competences and forms of interaction between High Seas governance institutions, Rochette *et al.*, (2015) echo concerns over an ‘implementation gap’ and caution that the real challenge is to make such MoUs operational.

The following section will therefore focus on relevant literature exploring aspects of *effective* interplay management, and the “conditions influencing effectiveness” (Stokke, 2016).

Concepts of effectiveness relate to particular frames of reference and context-scale. For example, effectiveness in economic terms relates to the ratio between inputs and outputs, whereas context and scale affect the choice of measures of effectiveness. Within the field of environmental governance, most scholars have focussed research into effectiveness at the context-scale of international environmental regimes (Young 1999; Helm and Sprinz 2000; Miles *et al.*, 2002). Within this context-scale, a variety of approaches are used to target various aspects of regime effectiveness, with the Oslo-Potsdam (O-P) solution being one of the most widely used.

In operation, the O-P solution uses binary values to quantify a no-regime counterfactual (what would have occurred in the absence of a regime), a measure of the actual performance of the regime, and a measure reflecting a collective optimum. Depending on what determination (scale) of effectiveness is required involves a comparison of the first two measures, the second two or a combination of all three.

Stokke (2012) critiques and extends the O-P solution, arguing that assigning a binary value to measures of performance can obscure understanding of the underlying processes. Although retaining the concept of a no-regime counterfactual, Stokke proposes a disaggregation of the key components of regime change, so as to better understand some of the causes and conditions influencing effectiveness. In particular, Stokke argues for examining the *cognitive*, *regulatory*, and *behavioral* aspects of a regime separately, and for contrasting each of the three aspects to a counterfactual situation in which no regime exists.

Understanding the *cognitive* aspect of regime effectiveness implies that the researcher evaluates whether the regime in question “entails building a shared, well-founded understanding of how best to achieve the social purpose that motivated states to create the regime” (Stokke, 2012,p16). Hence, it implies that the regime members understand the specific nature of the problem the regime was created for to solve and how to achieve this. The *regulatory* part of a regime pertains to the establishment of specific rules that constrain regime members in their behavior in order to solve the problem in question. Finally, the *behavioral* aspect of regime effectiveness focuses on whether these rules influence members' behaviour and, thus, contribute to the elimination of the problem in question. This disaggregated approach allows the researcher

to draw a more nuanced picture of the effectiveness of the regime, by demonstrating which specific factors influence either some or all of the three components of regime effectiveness.

Coordination, collaboration and cooperation

As set out in the introductory section, a key cause of *ineffective* governance is the jurisdictional and functional fragmentation amongst laws and institutions. This fragmentation typically takes two forms: a lack of coordination between instruments and institutions within the regime, and gaps in the coherency of institutional structures (Blanchard, 2017).

As a minimum response to this, the principle of cooperation in protecting and sustainably managing BBNJ is established in both legal terms (UNCLOS duty to cooperate provisions) and through practical recognition of the migratory, cross-boundary nature of marine biodiversity.

However, the UNCLOS requirement for cooperation does not specify *how* cooperation may be achieved. As can be seen from other comparable areas (such as geo-engineering regulation), the creation of formal linkages and interactions between institutions can improve the governance of issues where legal cooperative requirements do not yet exist, or are not explicit (Scott, 2011).

So how then does cooperation occur in the High Seas governance regime?

The establishment of Regional Seas Conventions/Action Plans (RSCAPs) represents one way in which this requirement can be discharged, but there is no ‘second-level’ requirement for regional bodies to cooperate. While examples do exist, such as the intra-RFMO Kobe process for harmonisation of activities between tuna RFMOs, and RFMO-RSCAP arrangements such as the OSPAR-NEAFC³⁴ ‘Collective Arrangement’ (see below), most efforts toward cooperation have arguably been motivated by efforts to reduce operational costs and exploit the benefits of a harmonised approach to compliance and enforcement (both examples of Stokke’s *utilitarian* interplay).

Although being careful not to confuse interplay with effectiveness, Stokke (2001) found that *cognitive* interplay resulted in little immediate change in institutions (notwithstanding the importance of incrementalism) but sharing of more operational activities, such as compliance controls, led to more direct changes. This was especially found to be in the case in relation to *horizontal interplay within issue-areas*, as opposed to between institutions in different issue-areas.

Where cooperative relationships exist between regional bodies these tend to focus on non-binding, mutually beneficial areas such as information exchange, scientific cooperation, joint reporting mechanisms and joint liaison positions (Scott, 2012). This type of cooperation can achieve results beyond the principal objective – for example, adopting a joint science programme can deliver cost-savings to both parties and help to harmonise the evidence base upon which decisions are taken (important when many regional bodies are governed by Contracting Parties, who may not agree on particular course of action (Lodge *et al*, 2007).

Cooperation through agreement (such as a Memorandum of Understanding) remains the most well-documented example of cooperative relationships in the marine context. Given the tightly drawn legal *vires* of RFMOs and RSCAPs, agreements can help to clarify each institution’s competences and detail the extent and outcomes of collaboration (Durussel, 2015)

³⁴ The ‘Oslo-Paris’ Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) and the North-East Atlantic Fisheries Commission (NEAFC)

The best documented example of cooperation through agreement is the OSPAR and NEAFC ‘Collective Arrangement’. Signed in 2008, the agreement aims to ‘promote mutual cooperation towards the conservation and sustainable use of marine biological diversity including protection of marine ecosystems’ (Ásmundsson and Corcoran, 2015) through cooperative provisions on information and data exchange, joint discussions over human impacts, common approaches to implementation of certain legal principles (such as the precautionary principle), joint support for scientific funding and cooperation over marine spatial planning and administrative reciprocity (reciprocal observers and meeting reports).

As separate entities (but working through the spirit of the arrangement) OSPAR and NEAFC have also established memoranda of understanding (MoUs) with other bodies active in the North-East Atlantic, including the International Seabed Authority, the International Maritime Organisation and the International Council for the Exploration of the Sea (ICES).

A further example of semi-formal cooperation is provided by the *Hamilton Declaration on Collaboration for the Conservation of the Sargasso Sea (2014)*, an agreement designed to conserve and protect an ABNJ with a unique marine ecosystem, principally through scientific collaboration and offering a ‘soft-law’ platform for cooperative conservation actions to be discussed and agreed. First signed in 2014, the Declaration resulted in the creation of the Sargasso Sea Commission, which includes a number of international signatories, as well as collaborating NGO and academic partners. In 2016, Canada signed the Declaration, reflecting its interests in the area providing a spawning ground for commercially valuable species that are harvested on Canada’s Atlantic coast.

We can therefore see, across the literature and in practice, examples of cooperation, both in terms of agreements and mechanisms. What is less evident are assessments of how effective that cooperation has been, or the effect the cooperation has had on the outcomes it sought to target.

Where it does address this area, the literature varies in specificity. For example, Scott (2011) argues that the use of [a range of] institutional cooperative mechanisms is a fundamental prerequisite in achieving effective high seas biodiversity conservation, whereas Kyalyik’s 2011 analysis of institutional interplay between OSPAR and NEAFC highlights three key factors influencing success: the need to include an ecosystem approach in institutional mandates; the need to clarify each institutions competences; and the need for a formal framework to facilitate inter-institutional cooperation. Interestingly, Kvalvik does *not* conclude that a commonality of contracting party membership between organisations (such as exists between OSPAR and NEAFC) is a condition of high levels of inter-institutional cooperation³⁵ – instead, she emphasises that more significant conditions for successful management of activities within BBNJ are the presence of inter-institutional interaction between regional and international institutions and appropriate coordination at the national level.

This view has been repeated more recently by Ásmundsson and Corcoran (2015) who propose a ‘minimum effective operating model’ of horizontal and vertical interplay between shipping (IMO), fishing (RFMO), conservation (RSCAP) and mining (ISA) authorities.

³⁵ As argued by Nele Matz-Luck and Johannes Fuchs, ‘the impact of OSPAR on Protected Area Management Beyond National Jurisdiction: Effective Regional cooperation or a network of paper parks?’ (2014) 49 Marine Policy 155.

Inter-institutional effectiveness: Conceiving the High Seas regime as a network.

We can see that the High Seas governance regime comprises a complex and growing network of institutions working across *intra-issue* and *inter-issue* areas.

If we can understand the constellation of marine governance organisations and the wider High Seas governance regimes as complex socio-political networks, then new institutionalism theory (van Bueren, 2003; Scharpf, 2000) highlights the importance of coordination amongst networks as a means of dealing with institutional complexity. However, as with interplay theory, the literature in this field has mostly focussed on identifying and classifying *types* of coordination strategies or approaches, while fewer have examined the effect of strategies on the outcomes of networks (Ansell and Gash 2008), or how the outcome of network management strategies can be influenced by different conditions (Klijn *et al.*, 2010).

Hanssen *et al.*, (2013), drawing on Bouckaert, Peters and Verhoest (2010) suggests that coordination can be defined as the instruments and mechanisms that aim to enhance voluntary or forced alignment of tasks. Similar to taxonomies of interplay, coordination takes place across horizontal and vertical domains, as well as across different types of actors (public, private).

In attempting to address the research gap of how different conditions influence the effectiveness of coordination, Hanssen *et al.*, (2013) have developed the “ladder of coordination”, a series of stages describing the cumulative conditions under which effective coordination is achieved.

The lowest level is characterised by a mutual exchange of information and knowledge. Actual coordination does not take place until the second stage, which involves discussions and deliberations, and an alignment of world views. At the third stage, actors deliberately align their activities to create synergies and avoid wasteful expenditure of resources³⁶. At the fourth (and highest) stage, superficial coordination deepens into joint action and joint measures. This stage – described as collaboration by Keast *et al.*, (2007) - is characterised by joint decision making and high levels of co-investment by otherwise autonomous actors.

Hanssen *et al.*, (2013) suggest that, when faced with ‘wicked’ problems in a situation of institutional fragmentation, there is a need for multi-level networks to achieve high levels of cooperation and even collaboration. This presents the possibility of characterising inter-institutional interactions by their level of coordination, and therefore predicting levels of effectiveness through their relevant stage. It is also interesting to note the similarities between the various stages described above with the different forms of interplay (e.g. *diffusion* = Stage 1, *interplay management* = Stage 3).

Conclusions

The different conceptual frameworks and theories reviewed in this chapter share a common characteristic, they tend toward diagnosis and description of the observed situation, rather than offering insights for policy or practice, with the exceptions of Rosendal (2001), Stokke (2012) and Hanssen *et al.*, (2013). However, understanding the ‘what’ of inter-institutional interplay (via Young’s overarching theory) provides the foundation for constructing experiments into the ‘how’ and ‘why’, and the literature reviewed in this chapter highlight a number of possible avenues, including network analysis, ‘soft-power’ arrangements and potentially the most illuminating, informal cooperation, collaboration and coordination.

³⁶ Within the High Seas governance context, it could be argued that the OSPAR/NEAFC ‘Collective Arrangement’ represents stage 3 coordination in Hanssen, Mydske and Dahle’s (2013) model.

The literature theorises that informal (and formal) cooperation, collaboration and coordination matters because it feeds through to and influences effectiveness, with regime effectiveness defined as “the extent to which international cooperation succeeds in reducing or solving societal problems” (Young, 1999). In considering how to test the effectiveness of collaborations, Underdal (1992) argues that there are two major questions to be addressed: Firstly, under which conditions is some kind of cooperative arrangement likely to be established, and secondly under which conditions will the arrangement established be *effective*?

However, providing an empirical response to these questions is challenging, not least because focussing on the establishment of a regime or cooperation mechanism does not necessarily equate to effectiveness, while terms such as effectiveness offer a convenient shorthand, they achieve this convenience by “abstracting away from the mechanisms that determine bureaucratic performance and policy implementation”.

This chapter has focussed on the key debates within the existing literature on interplay, effectiveness, collaboration and cooperation. While the theoretical foundations are well developed, significant gaps remain in relation to ‘proving the case’ and empirically demonstrating which conditions, under which circumstances, and according to which taxonomy of interplay, lead to improved real-world outcomes. The remainder of this thesis will seek to address these gaps in the context of governance arrangements for the conservation and sustainable use of BBNJ, with reference to the themes and issues explored in this chapter.

Governing the High Seas: Effective Institutional Arrangements for the Conservation and Sustainable Use of Biodiversity beyond National Jurisdiction

Chapter 3: Methods

Introduction

As previous chapters have set out, the international ocean governance framework comprises multiple instruments, frameworks and bodies, each of which have partial responsibility for the conservation and sustainable use of biodiversity beyond national jurisdiction (BBNJ).

These institutions operate within a patchwork of sectoral or species-specific remits, with no single body charged with overall implementation. These narrowly defined institutions are poorly matched to the nature of the governance problem, which involves management of biodiversity in both fragile, static deep-sea locations and across transboundary, highly dynamic open-ocean ecosystems (Dunn *et al.*, 2017).

The development of an international legally binding instrument (ILBI) is intended to address the conservation and sustainable use of biodiversity beyond national jurisdiction, but in the absence of a new global delivery institution, implementation of the ILBI will fall to those existing ocean governance institutions. Given the fragmented nature of these organisations, and the political timescales involved in adopting and ratifying UN resolutions, it is prudent to explore “complementary processes that make best use of the existing instruments to ensure that action is being taken in the shorter-term” (2014 Potsdam Ocean Governance workshop).

From both an academic and policy perspective, the key research question is: ‘*What are the key conditions for effective inter-institutional governance of BBNJ?*’

In addressing this research question, the thesis draws on and extends theories from institutional analysis and environmental governance (Ostrom, 1991; Young, 1999; Stokke, 2001), and focuses on the topic of institutional effectiveness in ocean Areas Beyond National Jurisdiction (ABNJ). Given the need for more integrated management of marine biodiversity in ABNJs on the one hand, and the fragmented, ‘functionally specialized’ arrangement of marine governance bodies on the other, the research will investigate the requirements for more *effective* inter-institutional arrangements between existing marine governance organisations.

How will the research address the question?

To help address this research question, it is important to consider two main areas: What are the conditions influencing effective implementation by existing ocean governance institutions and to what extent do they work effectively with organisations operating in a similar context? (institutional interplay). The thesis will focus on both areas, applying set-theoretic approach to empirically test which conditions are likely to influence effective implementation, and deploying Young’s theories of interplay (Young, 2008) alongside Stokke’s approach to the “conditions influencing effectiveness” (Stokke, 2012) to consider the forces and factors influencing inter-institutional collaboration.

Barring the introduction of a new global implementation body, the key focus of this study will be on understanding the conditions influencing effective inter-institutional arrangements between *existing* marine governance organisations.

Consideration of methods

Within a social science, a range of potential methods exist to explore questions of institutional analysis. As explored in the literature review, the research is situated in a rational framework of international organisations (Abbot and Snidal, 1998), with governance interactions (Young, 1999) occurring in a multi-level context (Ostrom, 1991) between States and their agents.

The choice of method in this study also needs to reflect the profile of international High Seas governance bodies, which tends towards small-*n* samples, distributed across multiple settings with heterogeneous implementation arrangements. Further, existing analyses of High Seas governance (Rochette, 2015) tend to focus on *describing* the legal potential for cooperation (e.g. presence of clauses encouraging cooperation in legislation) or *diagnosing* gaps in structural arrangements. Given the research questions identified above, a key contribution of this study will therefore be to advance a method that is *explanatory* in nature, as well as accommodating the particular profile of the research subjects.

Of the main methodological approaches available in the disciplines of Geography, International Relations, Political Economy and Common-Pool Resource theory, several were considered and discounted (such as surveys, experiments, field observations, agent-based modelling) given the relatively small-*n* sample in question, and the challenges in making *in situ* observations.

A case study approach was identified as an effective fit with the research parameters, as well as offering flexibility over data-collection methods (analysing documents, conducting interviews or through participant observation). The further benefit of the case study approach lies in the simultaneous use of different sources of information (triangulation) to enhance explanatory power (Yin, 2003; Gerring, 2007) and highlight causal mechanisms. However, Gerring (2004) also highlights the main disadvantages of the case study approach as being the lack of representativeness of its results and the limited ability to estimate causal effects, so a further method was needed to augment this aspect of the research.

The question – of most interest to the UN’s policy makers – of what combination and under what conditions do (some) factors make policies effective requires a methodology that allows systematic comparisons of varying policy types, institutional settings, countries and successful/unsuccessful instances of implementation (Pülzl and Treib 2007, p103).

Qualitative Comparative Analysis (QCA) was identified as a means of analysing the causal contribution of different conditions (e.g. aspects of an intervention and the wider context) whilst remaining consistent with a qualitative approach. QCA is a case-based method which allows different combinations of factors that are critical to a given outcome to be identified. Taken together, the two methods enable a rich yet empirical response to the research question of what factors affect effectiveness in the High Seas context, why and under what circumstances.

Importantly, QCA proceeds from and returns to a theoretical perspective, following Ostrom’s (1991, p. xvi) view “that knowledge accrues by the continual process of moving back and forth from empirical observation to serious efforts at theoretical formulation”.

For Stage 1 (QCA testing), a representative sample of fourteen regional ocean governance institutions was selected, on the basis of their involvement in the conservation or sustainable use of High Seas biodiversity, geographical distributions and coverage, and institutional diversity. Stage 2 (Northern Atlantic region) case study selection was made on the basis of a region

characterised by institutional maturity yet still experiencing a range of biodiversity pressures and management implementation challenges³⁷.

Research strategy

Building on the research context set out in Chapter 2, the following section describes, explains and justifies the research methods, sampling strategy, data analysis and approach to ethics.

Proceeding from a critical-realist epistemology (Sayer 2000; Easton 2010), the research question(s) were addressed through a qualitative, multiple-methods approach. The purpose of the research was to apply Young's theoretical concepts of institutional fit and interplay (2008) and Stokke's (2016) model of effectiveness in the novel context of BBNJ governance, generate hypotheses, attempt to explain relationships and add depth to understanding of inter-institutional arrangements in the marine governance space.

Given this purpose and the relatively small target population (decision-makers and elites within marine governance organisations), the most appropriate methodological approach is qualitative, with the research utilising (i) secondary data analysis and elite interviews to inform a Qualitative Comparative Analysis (QCA), followed by (ii) an embedded case study approach. The case study will focus on the Northern Atlantic as the geographical unit of analysis as this area brings together a variety of marine management organisations and several differing ABNJ regions.

Table 1: Research strategy

Thesis content		Research design and main analytical stages
a)	Chapter 1: Introduction	Initial hypothesis and key/subsidiary research questions
b)	Chapter 2: Literature review	Cross-disciplinary, focussed literature review of the theoretical and policy-based approaches to governance of BBNJ to situate the research and develop insights for subsequent analysis.
c)	Chapter 3: Methods	Justification and selection of predominantly qualitative approach (document analysis, case study) with empirical elements (QCA)
-	-	<i>Design and piloting of Stage 1 research instrument (Appendix B)</i>
d)	Chapters 4 and 5: Identifying and calibrating candidate conditions of effective High Seas governance	Stage 1 elite interviews: Semi-structured interviews to elicit the views and practices of elite stakeholders, with a view to considering how these might influence improvements to existing collaborations and/or adoption of new arrangements for delivery of UNR 69/292. Elite interview subjects will be drawn from a wide sample of academic, advocacy and professional contexts.
		Transcription and content analysis
		Stage 1 document analysis: Drawing from: (i) institutional performance reports (OECD, Chatham House, FAO, CBD); (ii) Policy review ('grey literature')

³⁷ Further details on the factors and criteria informing case selection can be found on page 87 (Stage 1 case selection) and page 119 (Stage 2 case study selection).

		(iii) Academic literature related to implementation of the ILBI constituent measures (EIA, benefit sharing etc) and review of institutional/legal analogues (UN FSA)
e)		Synthesis and consolidation of candidate conditions
f)	Chapter 6: Application of the QCA method (Rhieux, 2006)	Empirical analysis of candidate conditions 1) Building the data table 2) Constructing a ‘truth table’ 3) Resolving contradictory configurations 4) Boolean minimisation 5) Consideration of the logical remainders’ cases, and 6) Interpretation
	-	<i>Design and piloting of Stage 2 research instrument (Appendix C)</i>
g)	Chapter 7: Analysing the interplay between global and regional bodies: An embedded case study focussing on inter-institutional cooperation for the conservation and sustainable use of BBNJ in the North Atlantic region	Stage 2 elite interviews: Semi-structured interviews to elicit the views and practices of elite stakeholders, with a view to developing insights into the forces and factors influencing collaboration between global-to-global and global-to-regional institutions. Elite interview subjects will be drawn from a purposeful sample of RFMOs, RSCAPs and global institutions.
h)		Embedded case study: Analysing interplay between global-to-global and global-to-regional institutions in the Northern Atlantic, drawing on Young and Stokke’s theories in order to reach theory and policy conclusions on the potential for existing marine governance organisations to <i>effectively</i> implement UNR 69/292.
i)	Chapter 8: Conclusions	Reviewing chapter conclusions and addressing key research question.

Respondent sampling (strategy and recruitment)

A number of considerations and decisions were applied in the selection and final composition of the Stage 1 and Stage 2 elite interview samples. At a high level, the justification for the Stage 1 sample can be seen as extensive, and focussed on types of organisations, whereas the Stage 2 sample is intensive, and structured around how and why organisations come together.

Ethical considerations

Ethical considerations linked to the research arise as human participants are involved at a resolution that allows for their identification from reported findings. The research instruments also involved:

- collection of spoken word transcripts via audio taping
- collection of written responses via questionnaire instruments
- potential reputational risk to research participants (considered to be low risk as limits to confidentiality will be explicitly discussed and informed consent secured).

The nature of the research also involved interactions with marine policy elites, which raised specific considerations relating to professional and elite interviewing. These considerations related to (a) realistic limits to confidentiality and (b) factors undermining valid consent.

The senior/prominent elites within marine institutions and relevant bodies (e.g. international NGOs) are publicly known. Given this, the key risks related to exposure of respondents expressing opinions, which may compromise their organizations, and reputational damage. To mitigate this, the difficulty of full anonymization was explained to the research participant and risks (related to reputational damage and attribution of comments) explored in advance. Informed consent was secured before proceeding with the principal research instruments.

Within elite interviewing, the following factors can undermine valid consent and compromise the integrity of the research process and outcome(s):

- **Power differentials** (when interviewing people who are used to setting their own agendas)
- **Access** (busy professionals can be difficult to access, and alternative interviewees they nominate may not be appropriate)
- **Voluntary participation of nominees** (A professional may have been nominated by their manager – willingly or unwillingly – raising the question of whether their participation is freely given or forms part of their job requirement)
- **Skipping consent** (busy professional may be impatient with the steps involved in securing informed consent, and may wish to ‘hurry’ the researcher along)
- **Access to privileged conversations** (Vaughan 2011)

These challenges were addressed through adequate preparation (e.g. establishing contact in good time, arranging interviews at convenient times and setting clear expectations) and through the researcher’s ‘recognised’ status within policy circles and extensive experience of interacting with policy elites.

Stage 1 and 2 sample - composition and recruitment

The target population for the Stage 1 research comprised academic, NGO/advocacy and policy elites, identified through (i) their (recurring) presence in the literature, (ii) documentary analysis and (iii) via jurisdictional/functional mapping of High Seas institutions. Given the centrality of Young’s theoretical framework to the research, the sample was designed to be multi-scalar and include actors involved in vertical (global-regional) and horizontal (regional – regional) interplay. The Stage 2 sample selection was more purposive in nature, with research subjects selected on the basis they represented (i) global and regional institutions with influence over the High Seas and operated in or had influence over activities in the Northern Atlantic.

Appendix D sets out the Stage 1 and 2 research subjects and their organisational affiliations.

Given the qualitative nature of the research and the relatively small number of potential research subjects, the relevance of the subjects to the research (Patton, 2004) informed the sample composition (rather than quantitative approaches such as minimum populations), with the total number of relevant institutions governing the upper limit of the sample size³⁸. In this way, the approach adopted the survey principles of coverage and representation, as opposed to replicability or generalisability. This sampling approach was justified on the basis of consistency with the research aims, which sought to explore, understand and explain factors, rather than generalize and attempt to identify replicable phenomena.

³⁸ Management of research factors also influenced the sample composition (such as budget, limitations of time)

Recruitment was achieved through email invitations, followed by securing consent permissions and agreements over the interview mode (face-to-face, MS Skype and Teams). Response rates were high given the professional orientation of the research subjects, and the wider context (timely nature of research, potential to positively influence negotiations).

Research instruments and process

Stage 1 research instrument: design considerations

The aim of the Stage 1 interviews was threefold: (i) to establish a degree of consensus (or otherwise) over the key issues affecting governance of the High Seas, (ii) to gain insights into the degree of interactions across actors and governance scales, and (iii) to explore respondent views on the conditions influencing effective High Seas governance.

The profile of the interviewees was therefore necessarily diverse in order to bring the widest possible set of views to bear on (i)-(iii), ensure that a credible sample could be achieved in order to contrast respondent views on (i)-(iii) with those set out in the literature, and provide sufficient depth and richness of responses to support subsequent analysis in the study.

Anticipating the analysis, the instrument needed to support comparability between respondents drawn from different sectors (global, regional, professional, academic and advocacy), and recognise the professional (elite) status of many of the interviewees. Interestingly, wider aspects such as challenges associated with cross-cultural, religious, race and gender-specific interviewing did not present significant issues as the majority of respondents were used to engaging in the English idiom, were familiar with professional terms and practices, and practiced in interpreting and responding to professional exchanges. Instead, issues associated with professional boundaries and political affiliations emerged as greater challenges in the research process, with many respondents offering limited or carefully constructed responses in order to not compromise their position, the position(s) of their Contracting Parties or expose themselves to the risk of misinterpretation.

More practical elements (such as seeking/receiving permission to record the interviews and securing consent) were dealt with via consent forms and through the researcher repeating the basic terms of consent at the beginning of the interview.

Initial versions of the research instrument were piloted with non-participant elites operating in similar professional contexts. Feedback relating to simplification of questions and use of clearer terminology was incorporated into the final instrument (Appendix B).

Interview process and conduct

In order to proceed as flexibly yet consistently as possible, the interview process adopted a semi-structured interview model – applying practical experience, skills and operational pacing rather than following formalised methodological rules and techniques (Kvale and Brinkmann, 2009). The intention was to provide space for interviewees to have the flexibility to digress into unanticipated topics that might provide unexpected insights, as well as to allow for a more free-flowing and life-like flow of conversation. Although such an approach risked interviewees lapsing into less relevant topics, in practice due to the elite nature of the subjects they tended to self-regulate and keep to the question areas without intervention.

The interviews were conducted according to the following format, based on the overall aim of the research and the specific requirements of the research question(s). At the beginning of each interview, the interviewees were informed about the purposes and aims of the study, and introduced to the researcher. They were then invited to describe their own position, role and perspective on the research topic, and asked a ‘scene-setting’ question related to the PrepComm international negotiations. This was designed to serve as general orientation question, but also to segue from the introductory exchange to the main lines of enquiry.

The Stage 1 interview was based around 5 themes with 12 specific questions. These were informed by the literature and designed to meet the aims (i-iii above), as well as providing insights into the design of the Stage 2 research instrument.

Theme 1. Problem consensus

Extracts from an authoritative UNEP-WCMC report (Eassom *et al*, 2016) were used to explore the degree of consensus (or otherwise) amongst elites over key pressures facing biodiversity in the High Seas.

Theme 2. (High Level) Existing Arrangements

Looking across the current High Seas governance landscape, a widely held view in the academic and grey literature is that the institutional arrangements governing the High Seas are fragmented, overlapping and ineffective (Pew Trust, 2016). At a high level (recognising that later questions would seek to explore detailed aspects), the second theme sought to confirm this view, and elicit views on the high level / structural challenges to managing resources on the High Seas. If the first theme had sought to establish consensus on the pressures, the second theme explored the adequacy and coverage of the management response.

Theme 3. (Detailed) Implementation challenges

The first two question themes were intended to ‘set the scene’ and capture views on the current set of pressures and management responses. In addition to exploring respondent views, this process also served to refresh the issues and situate the current institutional landscape in the interviewee’s mind. This was important as the next set of questions asked the respondent to look ahead at the proposed ILBI, and consider the implications of the proposed *institutional arrangements*³⁹ (e.g. new global scientific panel and decision-making body) and *constituent measures* (such as the requirement to undertake EIA/SEA⁴⁰ or participate in benefit sharing mechanisms).

This was intended to drop to the next level of issues, requiring the interviewee to consider the proposed governance and implementation requirements of the ILBI, and the preparedness (or otherwise) of the current set of institutional arrangements to meet these requirements. The wording of the research instrument was deliberately designed to be relevant to both professional bodies (faced with delivering the new ILBI) and advocacy bodies (interested in achieving an ‘ideal’ delivery state amongst regional and global bodies).

Theme 4. Institutional interactions

The social interactions between entities, the dynamics of one-to-one and one-to-many networks and cross-scale flows are increasingly being recognised as key to understanding both conservation outcomes (Bodin and Crona 2009) and multi-actor governance arrangements (Carlsson and Berkes 2005). Although a full social network analysis was beyond the scope of this research, in order to add depth and understanding to the study and provide insights to Young’s (2002) theories of vertical and horizontal interplay, it was felt important to incorporate questions relating to the *social and institutional* interactions between bodies involved with High Seas governance.

The fourth theme was therefore designed to explore the *type* and *nature* of interactions between sample institutions with a view to adding to the researcher’s understanding of how different patterns of social relations contribute to different outcomes in the marine conservation context

³⁹ Terms taken from the Chairs Notes of the PrepComm process.

⁴⁰ Environmental Impact Assessment and Strategic Environmental Assessment.

(Bodin & Crona 2009), and how combinations of features and attributes can enhance or inhibit effective marine protections.

Theme 5 – Effective implementation of ILBI management measures: Institutional implications

Having established the pressures and potential responses to High Seas governance challenges (at both a high level and in relation to the ILBI's institutional arrangements and constituent measures) and drawn insights into the role of social network interactions on the function of High Seas governance bodies and those interested in influencing them, the final thematic section of the interview focussed on institution-specific challenges.

This final theme was designed to link directly to the findings of the literature review into effectiveness and encouraged elite interviewees to identify (i) current or planned steps being taken to prepare for the ILBI, (ii) views on the specific challenges the ILBI might pose and (iii) factors influencing effective interactions.

A final extension question (Q12) was also used, subject to time allowances. This was framed around the global SDG14 (Life under Water) and invited the research subject to (i) comment on the wider context of the ILBI (e.g. being introduced alongside an existing global policy framework), and (ii) to offer views on whether the presence of a relevant SDG held any significance for the implementation of the ILBI.

Stage 2 research instrument: design considerations

The Stage 2 research instrument was based around 10 questions, informed by Young's (1999) theory of interplay and designed to illuminate the forces and factors aiding or impeding inter-institutional cooperation in the case study area. Eight iterations of the research instrument were developed, leading to the final instrument in Appendix C.

Opening question

The timing of the Stage 2 interviews coincided with the planning for the fourth BBNJ Intergovernmental Conference (IGC), so the opening question was designed to elicit respondents' views on progress, prospects and relevance of the negotiations.

Institutional interactions

The second question invited respondents to comment on and validate a diagram of institutional interactions in the Northern Atlantic. Adapted from Mahon *et al.*, (2015), the visual aid allowed both interviewer and interviewee to identify and map institutional interplay in terms of Young's (2008) typology of horizontal or vertical interplay, with follow-up questions allowing intensity and frequency of interaction to be established, along with any overlapping arrangements.

Purpose of the interactions

The third question sought to understand the purpose of the interactions, reflective of either (i) a shared interest or desire to manage a common resource or (ii) more about influencing the other institution, helping to reveal the presence of functional and/or political interplay.

Nature of the interactions

Questions 4 and 5 focussed on understanding the nature of the relationship (e.g., Principal-Agent, peer-to-peer) and helped establish the respondent's view of the interplay pathway between their institution and others (unidirectional or reciprocal interplay), as well as the expression of interplay, *embedded, nested, clustered or overlapping*.

Achievements

This line of enquiry sought to understand what benefits or significant outcomes had emerged from institutional collaborations, helping to inform whether Stokke's (2012) definition of utilitarian interplay (reduction in costs, improved efficiencies) had occurred or was occurring.

Evolving nature of the relationships

Questions 7 and 8 sought to understand the 'maturity journey' of institutional interactions, as well as clarifying any gaps or intended future interactions.

Analogues

The penultimate question invited respondents to reflect on issues of implementation with one or more of the analogues to the BBNJ ILBI, these being UNCLOS Part XI (The 'Area' and International Seabed Authority), Article 5 of the Convention on Biological Diversity (Duty to cooperate) and the UNCLOS Fish Stocks Agreement. Understanding what issues were involved in implementing existing agreements provides useful insights into future arrangements.

A final question (Q10) was used as a summative device, inviting respondents to comment on (from their institutional perspective) the key issues facing successful implementation of the ILBI.

Coding approach

Each of the interview recordings was transcribed by the researcher in order to develop familiarity with the material and enter into a "dialogue with the data". The first part of the process involved organising the transcription under structured headings and using consistent numbering of sections, terminology and formatting to support import into QDAS software (NVivo 11).

With the interviews transcribed and imported into NVivo, the coding process of "breaking down, comparing, conceptualising and categorising data" (Strauss and Crobin 1990:61) took place. The process of coding the data combined (1) 'bottom up' emergent themes, (2) predefined themes identified from Young and Stokke's theoretical frameworks and (3) themes identified from the literature review.

In identifying (or applying) codes, and grouping them into concepts and categories the risk of misinterpretation arises. This was mitigated to some extent⁴¹ through use of NVivo memos to record assumptions and observations made during the coding, but also through linking the arguments for interpretations back to supporting literature or interview corroborations. In the analysis chapters, direct quotes from interviewees are used to support the interpretation and allow others to be able to judge the plausibility of interpretation.

⁴¹ A further mitigation would be the use of a 'second' coder and an independent study director to challenge interpretations and help reconcile differences.

The aim of coding and analysing the responses was two-fold: Firstly, to support an explanation of *why* certain views are held⁴² and to help form a response to the research questions, and secondly to help narrow the long list of candidate conditions (identified in Chapter 4) and inform the QCA analysis.

Use of content analysis as a method

Content analysis refers to a suite of analytic approaches ranging from impressionistic, intuitive, interpretive analyses to systematic, strict textual analyses (Rosengren, 1981). The goal of content analysis is “to provide knowledge and understanding of the phenomenon under study” (Downe-Wamboldt, 1992, p. 314), and an interpretative approach was employed in this research, with a view to drawing out insights from High Seas governance elites.

The process (applied to the literature detailed in Chapter 4, and to a lesser extent to the Stage 1 interview responses) involved categorisation of information from the key documents and transcripts into nodes, followed by the development of ‘parent’ nodes through identification of content or thematic similarities, and unique relationships. These parent nodes were then applied to the research question and contrasted with findings from the literature review and policy analysis.

The emerging findings were used to develop the candidate conditions for empirical QCA analysis, as well as assisting with design of the Stage 2 research instrument.

Use of QCA as a method

The conclusion of Stage 1 of the study involved application of the qualitative comparative analysis (QCA) method to identify the key conditions influencing successful implementation of the ILBI. For the purposes of this study, successful implementation is seen to require effective cooperation between existing bodies capable of implementing conservation management measures.

Complexity of architecture and multiple interactions within and between bodies is a defining characteristic of international ocean governance. Effective governance of these interactions is similarly complex as it involves not only interactions between nested (vertical) and functional (polycentric) legal and institutional frameworks but also social, cognitive and behavioural norms (Stokke, 2012). Effectiveness in this context is affected by a number of these conditions and requires a method capable of managing this complexity in a rigorous manner.

Statistical methods tend to rely on intervention replicability, and holding variables fixed against each other. While useful for large scale assessments, statistical tools are less appropriate for studies involving small-*n* participants and complex interactions.

QCA, however, offers a means of understanding the way in which different conditions result in different impact(s). Through systematic comparison, QCA identifies configurations (or sets of combinations) of conditions that are (or not) present when a particular intervention has been successful (or not) in achieving a desired outcome. Importantly, QCA as a method recognises and internalises (rather than controls for) the inherent complexity of social interactions, which may offer a more accurate representation of the causal pathways leading to an outcome, and crucially address the qualitative reasons *why* certain interventions are more effective than others.

QCA also offers the following features which were felt to be consistent with the research questions:

- Can be used with small-*n* studies

⁴² Following the spirit but not the precise method of a discourse analysis approach

- Accommodates multiple settings and heterogeneous examples
- Attempts to bridge the two worlds of quantitative and qualitative analysis
- Development of a detailed case (or cases), rather than focussing on the importance (or otherwise) of a single variable, allows for a deep, holistic understanding of interventions, features and context.
- Set-theoretic approach – systematic comparison of cases to identify necessary and sufficient conditions.
- Analysis informed by theory

QCA supports the need to reflect complex interactions and “model the world not as separate parts but as relationships between parts and between parts and wholes” (Kooiman, 2003). To focus on the intervention as a cause and not regard features of its context as also potentially causal (as statistical methods do) is to consider only part of the evidence. Similarly, regarding causes and effects as independent and dependent variables is a long way from real causal pathways and how interventions really work (or not) (Petticrew *et al.*, 2009).

Applying the method

The analysis part of Stage 1 followed the main stages of QCA (Rihoux and Ragin, 2009) which comprise:

- 1) Building the data table
- 2) Constructing a ‘truth table’
- 3) Boolean minimisation, and
- 4) Interpretation

The first stage involved building detailed information of the cases. This involved both qualitative and quantitative data and included differences in outcomes and the factors presumed to be responsible. These cases formed the y axis of the data table.

Following construction of a range of cases (in this research, a detailed ocean governance case study with multiple embedded sub cases), candidate conditions were identified – these being possible influencing factors on the outcome – drawn from the literature (both academic and gray⁴³) and evidence identified during the case construction. In testing, these formed the x axis of the data table.

Calibration formed the next key stage – involving allocation of numerical values to conditions. QCA models are either be ‘crisp’ where the set is dichotomous (1 = ‘in’ or present, 0 = ‘out’ or not present) or ‘fuzzy’, which permits greater granularity in the interval between 0 and 1 while retaining the two qualitative states of full membership and full non-membership. 0.5 is normally allocated as the ‘crossover’ point, and it is important that the research specifies the steps taken and rationale for assigning values, to ensure transparency (and potential replicability) by other scholars. A decision was taken at an early stage to focus on crisp-set QCA in order to maintain transparency and clarity of analysis.

The next stage involved reformulating the data into a ‘truth table’ – this is an automated process whereby inferential logic (based on Boolean algebra) is used to simplify or reduce the number of

⁴³ ‘Grey literatures sources will include (i) institutional performance reports (OECD, Chatham House, FAO, CBD); (ii) policy reviews, (iii) (‘grey literature’), (iii) literature related to implementation of the ILBI constituent measures (EIA, benefit sharing etc) and (iv) review of institutional/legal analogues (UN FSA)

inferences to the minimum supported by the data. This process gives rise to the concept of equifinality (multiple possible pathways) and *necessary* and *sufficient* conditions.

The presence of a **sufficient** condition (A) always leads to the outcome (X) BUT according to multiple causation, outcome X could also be the result of another condition (or configuration of conditions). The presence of a **necessary** condition (B) has to occur for outcome (X) to occur BUT when there is B there is not always X, as B might have to be accompanied with another condition.

In this way, all possible pathways (or configurations) were tested, with the aim of arriving at configurations of conditions that consistently result in a positive outcome.

The final stage involves considering the results against the theory, and analysing which aspects of the theory are challenged/supported by the configuration, or whether new elements are introduced.

Case study approach

As previously described, the Stage 1 research ‘cases’ selected were RFMOs and RSCAPs with the ability to implement High Seas conservation measures.

Although the QCA method will provide an empirical response to the question of which conditions are critical to the successful implementation of the ILBI, what is arguably missing from the Stage 1 analysis are insights into the ability of these geographically and jurisdictionally constrained bodies to work effectively together to reflect the ‘fit’ of the problem (marine biodiversity as a global, dynamic resource).

In response, an embedded case study approach (Yin, 2003) will be applied, as more than one sub-unit of analysis (ocean governance institution) will be considered. The geographical unit of analysis will be the Northern Atlantic region, as this area brings together a variety of High Seas management organisations and several differing ABNJ regions.

The case study will critically examine and seek to explain the institutional interplay at work in the Northern Atlantic area, developing insights to help address the research aim of understanding the forces and factors that influence how existing ocean governance institutions work together effectively.

In approaching the study of interplay, two main analytical approaches can be identified in the literature. The first, which might be considered reductionist, is typified by Oberthür and Gehring’s (2008) approach which involves disaggregating the complexity of interplay to the study of a single ‘source’ (the origin of the change) institution, a single ‘target’ (or recipient) institution, and a unidirectional causal pathway between the two.

This approach implies that an understanding of interplay is best served through a simple understanding at first and then building up an understanding of more complex interactions. The second, described by Young (cited in Oberthür & Gehring, 2006) as ‘integrationist’, involves a focus on the more complicated forms of interaction on the basis that the aspects of interplay that are most interesting tend to ‘arise as emergent properties of institutional complexes’.

Proponents of this approach take as the unit of analysis the overall patterns emerging from several institutions and multiple individual cases of interaction (Alter and Meunier, 2009) and attempt an integrated view on a ‘whole interplay’ setting (such as interactions in the Antarctic environment, for example).

Analytical strategy: designing the case study.

As outlined above, the study will take an integrationist approach to analysing the institutional complex in the Northern Atlantic. Drawing on the Gehring and Oberthür (2008) typology of interplay research strategies, an integrationist approach reflects a diversity of participants and tends to reflect an actor-centred level of analysis set against a complex interaction setting as the unit of analysis.

Figure 4 – Key research questions of different perspectives on institutional interaction (Gehring & Oberthür, 2008)

		Unit of analysis	
		Case of interaction	Complex interaction setting
Level of analysis	Systemic	I. How, and with what effects, does an international institution influence another international institution?	II. How, and with what effects, does an institutional interaction affect the institutional structure of the international system?
	Actor-centred	III. How can and do actors exploit opportunities arising from institutional interaction or avoid undesired interaction effects? How does institutional interaction frame policy choices of actors?	IV. How, and with what effects, do actors change the institutional structure of the international system through institutional interaction?

The case study will adopt this perspective (actor-centred level of analysis set against a complex interaction setting) as the unit of analysis. This type of interplay research is best categorised as *interplay management*, with the aim of improving the effectiveness of environmental resource governance.

Asking how, and with what effects, actors influence the existing institutional structure implies an awareness and “conscious efforts by any relevant actor or group of actors, in whatever form or forum, to address and improve institutional interaction and its effects” (Oberthür and Stokke, 2011) – this conscious intent is termed *interplay management* in the literature. The active nature of interplay management suggests a goal or objective (as distinct from descriptive or more passive concepts of interplay such as clustering or political linking) which, in turn, implies a judgement or evaluation of how well that goal or objective has been met, hence the relationship between interplay management and concepts of ‘effectiveness’ in the literature.

The case study will examine these interactions through content analysis and elite interviews.

The focus of the inquiry will be the use of interplay theory to illuminate and attempt an explanation of the forces and factors influencing global and regional inter-institutional cooperation in the context of biodiversity protection in ABNJ. Importantly, this focus allows for the identification and discussion of *existing and current* factors, rather than relying on speculative views on the not-yet finalised BBNJ ILBI.

Study propositions

The case study research proceeds from a set of assumptions, these being that existing ocean governance institutions in the North Atlantic should collaborate in order to efficiently⁴⁴:

⁴⁴ ‘Efficiently’ in this context proceeds from the critical-realist perspective and is used to suggest that, in the current political and economic climate, it is unlikely that each ocean governance institution will be furnished with adequate

- (i) meet the future requirements of the BBNJ ILBI,
- (ii) address the management challenges of the migratory nature of biodiversity in the High Seas, and the transboundary nature of pollution and disturbances in the Area, and
- (iii) fill governance gaps where these exist and affect (i) and (ii) above.

Analytical Framework

In terms of criteria for interpreting the findings, Stokke (2001) proposes an analytical framework which distinguishes three general pathways for how and why interplay occurs: *Utilitarian* interplay, whereby interactions are influenced by incentives, costs, benefits and efficiencies; *Normative* interplay draws from theories of international legitimacy (Wight, 1972) and refers to where one institution or wider regime may influence normative changes in another and therefore “affect its normative compellence” (Stokke, 2001, p10), and *ideational/cognitive*, which reflects learning driven changes and the transfer of ideas and solutions from one regime to another.

In analysing the case study data, the criteria above will be used to help structure the interpretation of findings and provide a degree of consistency and comparability to conclusions. For example, understanding where an institution has positioned itself in terms of cognitive, normative or utilitarian processes conducive to effective collaboration will help indicate where strengths and gaps may exist in the institutional complex. Similarly, understanding where the key conditions exist or are lacking will help inform assessments of effectiveness (of interplay management). Additionally, new or additional areas or criteria may emerge during analysis and the research will stay open to this.

The geographical region, the institutions in question and the topic of BBNJ governance have all appeared extensively in the literature, so the case study seeks to extend that analysis. This linkage between the case study and previous investigations also supports the comparison of findings with previous research and helps to justify the choice of units of analysis. However, to date there does not appear to be specific analysis of institutions using the theory of interplay, so the case study will also make an original contribution to the literature.

resources to deliver against the requirements of the new ILBI, and will therefore need to seek out the most efficient means of meeting the ILBI obligations, as well as continue to deliver against existing obligations at least cost.

Governing the High Seas: Effective Institutional Arrangements for the Conservation and Sustainable Use of Biodiversity beyond National Jurisdiction

Chapter 4: Identifying candidate conditions of effective High Seas governance.

Introduction

This chapter develops insights into the conditions likely to influence the successful implementation of the Internationally Legally Binding Instrument (ILBI) by existing regional ocean governance institutions.

Qualitative Comparative Analysis (QCA) is a theory-led approach, so in order to develop a list of key conditions to test using the method, the first stage involves the development of candidate conditions, informed by theory, that may, under certain conditions, lead to the intended outcome. Reflecting the contextual, qualitative nature of the QCA method, this requires development of a theoretical proposition which goes beyond ‘single-source’ evidence and explores intermediary outputs, external circumstances, and internal organisational conditions in order to build up a comprehensive theoretical basis for subsequent analysis. This is also necessary as QCA is an iterative approach, whereby unexpected findings in the analysis phase require the underlying evidence to be revisited and reconsidered. A more comprehensive evidence base leads directly to more meaningful final QCA results.

The chapter documents the process to develop the candidate conditions, which involved documentary analysis of legislative requirements, consideration of theoretical and real-world best practices, and insights from elite stakeholder interviews (please refer to Methods chapter). This data was then used to identify institutional implications for regional ocean governance bodies and to draw out candidate conditions of effectiveness for implementation. This primary analysis then forms an input to the empirical QCA testing, which applies systematic cross-case comparison and identifies which combination of conditions, or configurations, produce a given outcome of interest (Ragin, 2000). This analysis is set out in Chapter 6.

As discussed in the Introductory and Methodology chapters, the successful implementation of the Internationally Legally Binding Instrument (ILBI) requires two related sets of circumstances to happen simultaneously: (1) the ILBI [components] need to be effectively implemented by existing regional ocean governance bodies, and, due to the transboundary nature of BBNJ, (2) regional ocean governance bodies need to work effectively together to manage dynamic ecosystems.

The following chapter draws out the institutional and inter-institutional implications for regional ocean governance bodies of the proposed ILBI, and, in analysing these, identifies candidate conditions of effective implementation. As described in the Introduction, the ILBI is a ‘package’ deal, comprising 4 components:

- Marine genetic resource (MGR) utilisation, including access and benefit-sharing approaches (ABS);
- Area-Based Management Tools (ABMTs), including Marine Protected Areas;
- Environmental Impact Assessment and Strategic Environmental Assessment (SEA), and;
- Capacity Building and Technology Transfer (CB&TT)

The sections below will address and analyse each of these components in turn.

Marine Genetic Resources, including access and benefit-sharing

The purpose of this section of the thesis is to consider the institutional and inter-institutional implications for international ocean governance bodies of Marine Genetic Resources, the first component of the proposed ‘package deal’ for the conservation and sustainable use of biodiversity beyond national jurisdiction. In analysing these implications, consideration is also given to the conditions influencing effective implementation of MGR.

There is currently no internationally agreed legal definition of Marine Genetic Resources (MGR), a serious issue given the overlapping legal, policy and economic interests and given that MGR encompasses a wide range of organisms, habitats, and environments (water column, seafloor and beneath the seafloor).

A working definition can be borrowed from similar concepts used in the 1992 Convention on Biological Diversity (CBD), and the 2010 Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of the Benefits Arising from their Utilisation (Vierros *et al.*, 2016; Quirk and Harden-Davies, 2017). Referring to these agreements, MGR can be described as:

‘material from marine plants, algae, animals, and microbial or other organisms, and parts thereof containing functional units of heredity of actual or potential value (CBD 1992, Article 2)’.

The Nagoya Protocol widens this definition by including reference to derivatives (the *utilisation* of genetic resources), including any:

‘naturally occurring biochemical compound resulting from the genetic expression or metabolism of biological or genetic resources, even if it does not contain functional units of heredity’, therefore also encompassing secondary metabolites, enzymes, and natural products’⁴⁵

Genetic health and diversity are key requirements for the resilience of marine species and their ecosystems, and therefore directly influence the successful (or otherwise) outcome of achieving conservation and sustainable use of marine biodiversity beyond national jurisdiction. However, the 2019 assessment by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019) describes a negative outlook for global biodiversity (including the marine environment) and calls for the kinds of changes contained within the BBNJ instrument.

Although the current MGR focus is on terrestrial organisms, the scale and nature of the oceans (representing ~70% of the biosphere and hosting a greater diversity of major animal groups and with longer evolutionary processes) raises an expectation of significant resource potential for new discoveries and products an attractive prospect for both developed and developing States.

What is envisaged as part of the ILBI?

The draft ILBI sets out the following objectives for this component of the ‘package deal’:

⁴⁵ The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity is a supplementary agreement to the Convention on Biological Diversity. It provides a transparent legal framework for the effective implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising out of the utilization of genetic resources.

- a) Promote the scientific understanding of marine genetic resources in areas beyond national jurisdiction as a fundamental contribution to the implementation of the Agreement for the conservation and sustainable use of marine biodiversity.
- b) Promote the generation of knowledge and technological innovations, including by promoting and facilitating the development and conduct of marine scientific research in areas beyond national jurisdiction, in accordance with the Convention;]
- c) Build the capacity of developing States that might need and request technical assistance, Parties, in particular least developed countries, landlocked developing countries, geographically disadvantaged States, small island developing States, coastal African States and developing middle - income countries, to [collect] [access] and utilize and conserve marine genetic resources of areas beyond national jurisdiction;]
- d) ***Promote the [fair and equitable] sharing of benefits arising from the [collection of] [access to] [utilization of] marine genetic resources of areas beyond national jurisdiction;]***
Promote the development and transfer of marine technology [, subject to all legitimate interests, including, inter alia, the rights and duties of holders, suppliers and recipients of marine technology].]

The ILBI therefore envisages three pillars of an access and benefit sharing (ABS) regime (**emboldened** text above): access; benefit-sharing; and compliance. An effective MGR regime is one that is considered fair to all parties (scientific research objectives, safeguarding private sector investments and developing States' interests). On the last point, the draft ILBI makes clear that in order to achieve a more "[...] *equitable and efficient utilisation of their (seas and oceans) resources*"⁴⁶, there is a need to bridge the gap between those States which hold knowledge, MGR and technologies, and those that do not.⁴⁷

Challenges in operationalising an effective ILBI MGR and ABS regime

This need to bridge access and utilisation between developed and developing States is arguably the main reason for inclusion of MGR in the package deal, in that only '*very few States have the ability to utilise MGR in areas beyond national jurisdiction*' (World Maritime University, 2020). This constraint on access and the opportunity presented by the ILBI relates to several access and exploitation challenges, including:

- **High investment costs** associated with high seas/deep seas exploration vessels, and the various stages of R&D (sampling, storage, sequencing, analysis) (Brogiato *et al.*, 2014)
- **Lack of sufficient R&D in certain countries** – the lack of R&D capability resources and equipment limit the ability of many countries to access/participate in MGR utilization. The distribution of ships and submersibles is overwhelmingly with developed countries, and the majority of published marine biodiversity research is by a small number of developed countries (Hendriks and Duarte, 2008)
- **Legal ambiguity** – Marine genetic resources in ABNJ are currently not subject to a legal regime (unlike terrestrial MGR under the CBD), lack definitional precision and are not mentioned explicitly in UNCLOS⁴⁸.

⁴⁶ Preamble to UNCLOS 1982, para 4.

⁴⁷ As noted in subsequent sections of this thesis, there are significant overlaps between this section of the draft Agreement and those parts dealing with Capacity-Building and Technology Transfer (CB&TT).

⁴⁸ The resources and benefit sharing approaches mentioned under Part XI of UNCLOS 1982 refer to non-living resources (minerals)

This access [to MGR] point also links to a wider negotiating point on the ‘benefit-sharing’ aspects. Benefits arising from utilisation of MGR fall into two categories: monetary (financial payments at different stages of the utilisation process) and non-monetary (capacity-building, shared access to resources and collaborative R&D).

As discussed later in the chapter, the mechanism for benefits-sharing raises two relevant considerations for the research: Firstly, terrestrial examples of genetic research benefit-sharing (e.g. Nagoya Protocol) require a transfer between two legal parties (bilateral). The fact that MGR in ABNJ does not ‘belong’ to any single State party makes any transfer arrangement automatically multilateral, raising comparisons with the ‘Common Heritage of all Mankind’ principle outlined under UNCLOS (1982) Article 136. Secondly, the need for fair, impartial and efficient transfers of monetary benefits would also suggest a new global body, or the extension of mandate of an existing competent body⁴⁹, which would add an additional layer to or require complex interplay within the international governance of the oceans⁵⁰.

Despite the scope and potential for marine MGR in ABNJ discovery and utilisation, leading in turn under an ILBI to potential monetary benefits, research by Blasiak *et al.*, (2018) and others highlight that to date relatively few commercial products (e.g. medicines) have yet been developed from MGR, with none derived from ABNJ. Set against this is the product development pipeline for new pharmaceutical products, with new pharma products typically taking up to 17 years to be realised commercially, with low success rates and very high R&D costs (EU, 2019)

A further challenge to effectively operationalising this element of the agreement is the inclusion (or otherwise) of fish in the definition of MGR. Article 8, 2 of the draft ILBI states:

The provisions of this [Part] [Agreement] shall not apply to:
[(a) The use of fish and other biological resources as a commodity.

Under the negotiations, this issue remains perhaps the most contentious as it is seen to encroach on extant parts of UNCLOS and apply conservation treaties to (and therefore potentially constrain) fishing custom and practice. Minor issues arise in relation to the precise wording of the text, for example, the USA would prefer limiting the wording of (d) above to fair and equitable sharing of benefits arising from the collection, rather than the collection, access and utilisation. This addresses the lack of ability of developing States to operate deep-water scientific vessels (to collect samples) but does not address the similar lack of capacity/resources amongst developing States to then manage, analyse and commercially exploit the samples.

Two further observations are relevant to this section, relating to effectiveness and geographical scope. Firstly, given the absence of national jurisdiction in the geographical area concerned, any regime regulating ABS of MGR needs to be multilateral in order to be effective (Brogiato, *et al.* 2018) (which implies interplay between institutions), and secondly the scientific definition of MGR does not justify differentiating between MGR in the water column (High Seas) or seabed

⁴⁹ Some commentators have suggested extending the mandate of the ISA, which already manages benefit-sharing for non-living resources in the Area.

⁵⁰ A further, final, complexity lies in the existing rights of Parties to UNCLOS (under Part XIII) to carry out Marine Scientific Research (MSR). This complicates any attempts to limit or prescribe controls on MGR prospecting, sampling and utilisation.

(the Area)⁵¹, in line with the UN General Assembly decision on the development of an ILBI which specifically required that the question of MGR be addressed ‘together and as a whole’⁵²

Operationalising access and benefit sharing under the ILBI

In the absence of an agreed model in the ILBI, the proposals by Broggiato *et al.* (2018) occur repeatedly in the literature describing well-functioning MGR regimes in Areas Beyond National Jurisdiction. Key to their proposals are 3 principles governing:

- **Conditional open access**—in this model, [open] access to MGR is allowed/facilitated but conditional on the public release of collected samples and raw data;
- **Non-monetary benefit-sharing** – The open access principle allows benefits to be shared, subject to the mechanism of an extended embargo period (allowing samples and data to be kept confidential for a certain period) which incurs a payment to a biodiversity contribution fund (the ‘price’ of keeping things confidential);
- **Monetary benefit-sharing** – A sector-negotiated percentage on revenue, imposed at the point of product commercialisation, offers a tangible payment system with low transaction costs.

Under their proposal, parties seeking to access MGR would complete an initial notification step (Obligatory Prior Electronic Notification or OPEN), managed by the ‘new’ body established by the ILBI. In submitting an OPEN, the party automatically accepts the condition to share monetary and non-monetary benefits arising from utilisation of the MGR. This is the starting point of a track-and-trace system.

The main non-monetary benefit is related to releasing samples and sharing raw data through open access biorepositories and databases – in this way, connecting various collections will establish (or strengthen) “common pools” of MGR (Wright *et al.*, 2016). Importantly (given the cost of high seas exploration and sampling) the coordination of databases will facilitate *ex situ* access. If monetary benefits are agreed during the BBNJ negotiations, the authors suggest these be linked to the commercialisation of a “product derived from MGR coming from ABNJ” (Broggiato *et al.*, 2014), and not to the act of research and development (R&D) itself.

ILBI current state of play – Interplay and conditions influencing effective implementation

The current state of play in relation to MGR and ABS in the ILBI is found in the latest version of the Presidents Text⁵³, which can be read alongside DOALOS’s summary of delegates’ contributions and proposed amendments⁵⁴. The current text relating to MGR-ABS is set out in Articles 7-13, and these are analysed below through the lenses of interplay and capability requirements:

⁵¹ Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction: Preparing for the PrepCom, Report of the BBNJ Workshop of the Centre for International Law, National University of Singapore, February 2016, available at <http://cil.nus.edu.sg/wp/wp-content/uploads/2015/10/CIL-report-of-BBNJ-workshop-21-March-2016-final-2.pdf>; [Accessed 03 May 2016].

⁵² UNGA Res. 69/292 (n 14), para. 2

⁵³ Revised draft text of an 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 - <https://undocs.org/en/a/conf.232/2020/3>.

⁵⁴ DOALOS compilation of textual proposals for consideration at the fourth session dated 15 April 2020 - https://www.un.org/bbnj/sites/www.un.org/bbnj/files/textual_proposals_compilation_-_15_april_2020.pdf. [Accessed on 05 May 2020]

The first and arguably most significant provision is Article 8, which describes the treatment (collection and utilisation) of MGR in ABNJ *in situ*, *ex situ* and *ex silico*, with a particular emphasis on the requirement for capacity building and technology transfer to support access and participation by developing countries, and those lacking the resources and technical capabilities to access and utilise MGR. This emphasis on inclusion also features in Article 10 which promotes cooperation in terms of collection of MGR (e.g. shared ship time, shared protocols) and 10(bis) (Access to traditional knowledge of indigenous peoples and local communities associated with marine genetic resources of areas beyond national jurisdiction).

Article 8 and Article 9 - which describes the scope of the application of the Agreement - are significant as they define how the provision will be applied and the scope of beneficiaries. With regard to the former, Article 8 distinguishes the BBNJ ILBI approach from similar terrestrial approaches to access and benefit sharing.

Under the terrestrial regime (CBD and the Nagoya Protocol), interactions take place on a bilateral basis between a single host country whose land or coasts maintain the genetic resource, and a single user, an individual or entity requesting access and use of the genetic resources. A bilateral agreement between the two parties is then formed, consistent with the requirements for equitable and fair benefits sharing set out in the Protocol.

The bilateral approach does not apply to MGR in ABNJ, as the resources do not fall within the sovereign right of any single country, and the absence of a global authority to administer any use agreement hampers any benefit sharing approaches. Article 9 confirms this scope of beneficiary, stating that “*the utilization of marine genetic resources of areas beyond national jurisdiction shall be for the benefit of mankind as a whole, taking into consideration the interests and needs of developing States*”⁵⁵

Looking to analogues to try to understand how this might be operationalised, multilateral (global) arrangements for accessing and sharing benefits from genetic resources can be found in the FAO’s International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) or the WHO Pandemic Influenza Preparedness Framework for the Sharing of Influenza Viruses and Access to Vaccines and Other Benefits (PFIP). Both of these approaches establish multilateral arrangements for the governance of ‘common pools of resources’. A similar approach could be developed under the ILBI, supported by standard template agreements to reduce bureaucracy (IUCN, 2018, p18).

However, a new global entity or an existing internationally recognised body would need to represent the ‘multi’ in the multilateral agreement, raising interplay implications for the existing international ocean governance regime. The terminology in Article 9 (‘for the benefit of mankind as a whole’) places the treatment of MGR in ABNJ on the same legal footing as non-living seabed resources of the Area (‘common heritage of all Mankind’), raising the possibility of the International Seabed Authority – which already has the mandate to multilaterally administer and distribute benefits arising from seabed mining – having its mandate extended to administer the MGR-ABS requirements of the ILBI.

Article 11(bis) (Access and benefit sharing mechanism) stops short of naming a particular existing body, or proposing a new organ under the ILBI, simply stating that an ‘*an access and benefit mechanism shall be established, reporting and making recommendations to the CoP*’⁵⁶. The existence of the ISA ABS mechanisms and the ambiguity of the draft ILBI text open up the space

⁵⁵ IGC-5 President’s Text, Article 9

⁵⁶ *Ibid.*

for a different kind of institutional arrangement, a more “*distributed governance arrangement, instead of locating the secretariat and functions of the ILBI with DOALOS [who lack the competences], instead there could be more of a distributed form of governance, with different component authorities delivering parts of the ILBI*” (Interview respondent A, 2022)

Section conclusions

In reviewing the literature, elite interview responses and draft requirements of the ILBI, four main areas of interplay and candidate conditions emerge:

- **Importance of an inclusive, equitable approach⁵⁷** – The inclusion of “fair and equitable” is important to move away from a focus on commercial reward and to ensure that there is wider benefit to all including those with less capacity to be involved in generating benefit in the first place. To this end, ocean governance institutions will need to adopt mechanisms to engage efficiently with a more diverse range of stakeholders.
- **Vertical and horizontal functional interplay** – operation of a global & regional ABS system will require several existing systems to develop interfaces/collaborative mechanisms (e.g. Nagoya Protocol – ILBI, BBNJ global structures – RFMOs – scientific community)
- **Multi-party coordination (public, private and scientific communities)** – as above but also required at institutional/organisational level
- **Significant overlap between aims of MGR/ABS and Capacity Building and Technology Transfer components of the ILBI.**

⁵⁷ UN BBNJ Negotiating text – Presidents combined text (2020) p63; IUCN responses to combined text comment 7(a).

Environmental Impact Assessment and Strategic Environmental Assessment

The purpose of this section of the thesis is to consider the institutional and inter-institutional implications for international ocean governance bodies of environmental impact assessment (EIA/SEA) the second component of the proposed ‘package deal’ for the conservation and sustainable use of biodiversity beyond national jurisdiction. In analysing these implications, consideration is also given to the conditions influencing effective implementation of EIA/SEA.

Environmental Impact Assessment – NEPA origins and applications in multi-lateral agreements and treaties

Defined as a “procedure for evaluating the likely impact of a proposed activity on the environment”⁵⁸, Environmental Impact Assessment (EIA) originated as a formal process through the US National Environmental Policy Act (NEPA 1969). Formed of two Titles⁵⁹ (or schedules), the provisions of NEPA Title 1, particularly sections 101, 102 and 102(2), are notable for setting out the first expression of what have come to be the main components of EIA in national and international law, these being a screening process to determine whether a proposal will lead to significant effects on the environment, a scoping phase to define the issues to be addressed and a substantive assessment phase, where baselines are established, potential effects identified, and a mitigation plan for impacts developed.

In international law, UNEP’s “Goals and principles for EIA” (1987) was the first international instrument defining a generic form of EIA. It set out the now well-recognised process diagram, as well as building on the content requirements first set out in the NEPA Act.

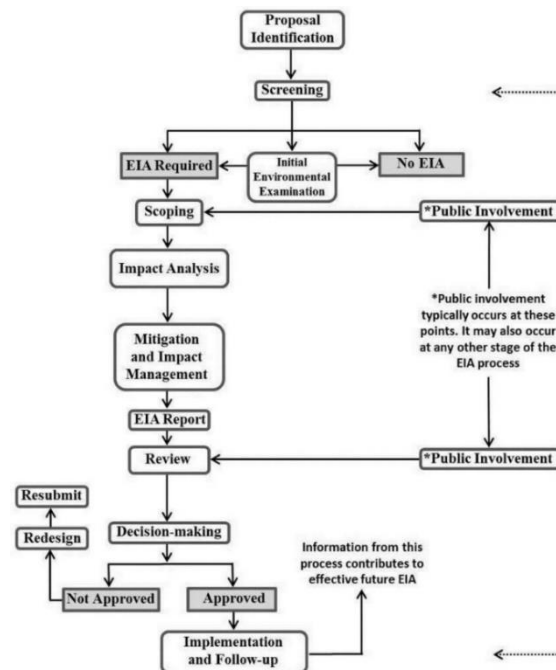


Figure 5: Generalised EIA process flowchart (UNEP 1990, 2002)

⁵⁸ Convention on Environmental Impact Assessment in a Transboundary Context, Espoo, Finland, Feb. 25, 1991, 30 ILM 802, entered into force Jan. 14, 1998

⁵⁹ In US law and in reference to an Act (such as Title VII of the Civil Rights Act) the word ‘title’ refers to a large portion or subset of the Act. NEPA comprises two Titles, the first sets out a national policy on the protection and restoration of environmental quality, and the second establishes advisory structures and reporting and accountability obligations.

Interactions with other treaties and legal obligations

EIA is considered to form part of general international law due to the ruling by the International Court of Justice over whether an obligation exists to carry out an EIA in the *Argentina/Uruguay Pulp Mills* case⁶⁰. This is generally held to apply directly to transboundary impacts (e.g. where an activity in ABNJ may impact on areas within national jurisdiction, and indirectly where activities and impacts arise solely within ABNJ – in this latter instance, the impact on a shared resource is considered to affect other States, and therefore equates to a transboundary issue.⁶¹

The Court in its judgment also indicated that customary international law does not specify the scope and content that an EIA should have as a minimum. However, the Court did indicate minimum requirements of an EIA in order for a State to meet its obligations in this respect. Factors which according to the Court must be taken into account are the nature and magnitude of the proposed activity and its likely adverse impact on the environment, as well as the need to exercise due diligence in conducting an EIA. An EIA must be conducted prior to the implementation of a project. Once operations have started and, where necessary, throughout the life of a project, continuous monitoring of its effects on the environment must be undertaken.

At its most fundamental, EIA is a generic process which lends itself to applications across institutional functions. Adopting an EIA process provides a means for international ocean governance institutions to operationalize several of their key obligations, such as applying the precautionary approach or ensuring effective protection of the marine environment from the harmful effects of deep sea mining.

With regard to the Convention, although UNCLOS does not use the term ‘environmental impact assessment’, Articles 204 to 206 of UNCLOS 1982 (World Maritime University, 2020) require competent organisations and States Parties to be cognisant of the consequences of [their] actions, and Part XI Art.145 requires identification and mitigation of such harmful effects to facilitate environmental protection.

Under the revised draft text of an 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, Part IV (Environmental Impact Assessments) describes the following objectives:

[(a) Operationalize the provisions of the Convention on environmental impact assessment by establishing processes, thresholds and guidelines for conducting and reporting assessments by Parties;]

[(b) Enable the consideration of cumulative and transboundary impacts;]

[(c) Provide for strategic environmental assessments;]

[(d) Achieve a coherent environmental impact assessment framework for activities in areas beyond national jurisdiction.]

⁶⁰ Case concerning Pulp Mills on the River Uruguay (*Argentina v. Uruguay*); hereinafter Pulp Mills. Judgment available at <http://www.icj-cij.org/docket/files/135/15877.pdf>

⁶¹ This is also reflected in the judgement of the Seabed Disputes Chamber of the International Tribunal for the Law of the Sea, *Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area*; *Advisory opinion of 1 February 2011* (available at http://www.itlos.org/fileadmin/itlos/documents/cases/case_no_17/adv_op_010211.pdf [Accessed on 02 Feb 2021])

These provisions are intended to fill the gaps in UNCLOS and bring up-to-date the EIA/SEA obligations on States Parties acting in the High Seas and the Area. When drafted UNCLOS did not specify when and how an EIA should be undertaken, or by whom, and issues such as cumulative assessment of impacts, ecosystem approaches and climate change were yet to be fully reflected in international treaties.

There are a number of characteristics of the High Seas and the Area which raise challenges for UNCLOS and require an ILBI (or equivalent mechanism or cooperative agreements between States and institutions) to address. These include what are the likely conditions under which an EIA is triggered, the scope of obligation for Parties to the ILBI (as certain regions may not host vulnerable species or be directly affected by an EIA and would therefore be justified in not taking action to increase capacity or competencies),

It is also important to consider the particular characteristics of both the ‘receiving’ environment (the High Seas and the Area) and the nature of the impact pathways (human activity). IUCN suggest that deep-sea habitats are characterised by ‘enhanced vulnerability’ – activities that would not be considered ‘significant’ in other environments could have significant and irreversible impacts in the deep sea (IUCN, 2020). Similarly, ‘additive’ and cumulative impacts are also important to consider in a High Seas context – for example, assessing a single effect may under-emphasise or miss entirely the repetitive and ongoing changes noise pollution (for example) can have on ecosystems, and therefore not be considered ‘significant’.

The ability to address these – and similar issues – via an EIA/SEA are all undermined by the paucity of baseline data on deep-sea environments. This lack of data forms a major constraint in terms of effective marine EIA practice – both in terms of baselines (pre-human intervention) and current conditions have led the IUCN amongst others suggest that thresholds and criteria for triggering EIAs should be in line with the precautionary principle rather than held to a particular standard.

ILBI current state of play – EIA proposals and institutional and inter-institutional implications for international ocean governance bodies

The current state of play in relation to EIA in the ILBI is found in the latest version of the Presidents Text⁶², which can be read alongside DOALOS’s summary of delegates’ contributions and proposed amendments⁶³. The current text relating to Environmental Impact Assessment is set out in Articles 21-40, and these are analysed below:

In terms of interplay, Article 23 (Relationship to other agreements and institutions) is the primary clause, setting out how the CoP and Scientific and Technical Body will “*consult and/or coordinate with relevant legal instruments and frameworks and relevant global, regional, subregional and sectoral bodies with a mandate to regulate activities [with impacts] in areas beyond national jurisdiction or to protect the marine environment.*”⁶⁴

Under the proposals, existing ocean governance bodies would be statutory consultees and/or advisory bodies inputting to the design, development and implementation of EIAs. Interplay

⁶² Revised draft text of an 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 - <https://undocs.org/en/a/conf.232/2020/3>. [Accessed on: 3 June 2020]

⁶³ DOALOS compilation of textual proposals for consideration at the fourth session dated 15 April 2020 - https://www.un.org/bbnj/sites/www.un.org/bbnj/files/textual_proposals_compilation_-_15_april_2020.pdf. Accessed on: 10 June 2020]

⁶⁴ Article 23, IGC-5 President’s Text

would occur between the Scientific and Technical body (STB), States Parties and existing organisations during the consultation and scope agreement stages⁶⁵⁻⁶⁶.

During the elite interviews conducted as part of this research, several interviewees argued against the vesting of EIA with the Scientific and Technical Body on the grounds of not undermining existing competences, pointing out that several existing bodies already have competence for designating ABMTs and considering EIAs with regard to shipping activity and seabed exploitation (for example IMO⁶⁷ and ISA). To not undermine, this implies that the EIA thresholds and standards agreed under the ILBI will need to be reflected in or harmonised with comparable processes in existing institutions. This raises the issue of duplication and requires ‘technical interplay’ where standards are shared and/or converge across differing organisations to achieve conformity.

From a skills, capability and competence perspective, the need to interact with (and potentially lead elements of) a EIA process implies a minimum capacity requirement within existing institutions where this does not already exist (arguably across the majority of RFMOs and some RSCs), a commitment by Contracting Parties to resource a coordination function to keep abreast of and participate in multiple EIAs across different geographical locations, and a long-term resource commitment to participate effectively in what could be multi-year EIA processes, and certainly long-term monitoring obligations. These are not insubstantial undertakings and raise serious questions regarding the ability of existing institutions to participate fully in EIA processes.

Article 24 refers to thresholds and critical processes for EIAs, and introduces the consultation element of the process, whereby prior to activity commencing (assuming a determination of sub-threshold impacts), the EIA screening data will be submitted to the Scientific and Technical Body (STB) for approval, and for the bodies’ subsequent recommendation to the CoP. Under all draft options in the ILBI, it is the State Party (or agent acting on their behalf) that will undertake the EIA, with Article 30 ensuring that other States Parties – and historically underrepresented views such as those of Indigenous peoples and coastal communities – are consulted and afforded an opportunity to register their views and concerns with the STB⁶⁸. This relates to the capacity point above, in that existing ocean governance bodies will need to have sufficient capacity and expertise to monitor and track EIA screening submissions and analyse the implications for their regulatory area and competences.

With regard to effectiveness, a key weakness of existing marine EIA approaches is the treatment of cumulative effects and impacts. To a far greater extent than terrestrial effects, marine effects and impacts can extend to much greater distances and certainly, given the dynamic environment, extend beyond the agreed scope of a ‘project’. During the elite interviews conducted as part of this research, Respondent I described an offshore mining operation (on an island) that had carried out and received consent for activity through an EIA. However, the EIA was limited to the on-

⁶⁵ Unless the EIA was limited to the jurisdiction of a single IOG body, see note on additional proposals under Article 23 below.

⁶⁶ *Note on additional proposals under Art 23* - There are a number of suggested amendments to the text, which broadly relate to the primacy of EIA requirements under the ILBI vis-à-vis existing States parties arrangements (e.g. for activities within national jurisdiction but with effects in ABNJ). Under these proposals, the State would not be obligated to conduct an additional EIA as long as consultation with relevant global, regional, subregional and sectoral parties takes place and that the EIA undertaken under national jurisdiction is functionally equivalent (addresses the same requirements) to the requirements under the ILBI. These proposals do not materially change the implications for IOG bodies so are not considered further as part this research.

⁶⁷ Extract from International Chamber of Shipping’s submission to IGC 4 ILBI draft (President’s text)

⁶⁸ Article 30 also provides for Joint EIAs, between States Parties and Small Island States, for example, helping to overcome resource constraints of less developed countries.

island operations, rather than the increase in marine traffic, underwater noise, effluent pollution and wider factors, all of which accounted for a far greater environmental impact. For the ILBI EIA proposals to be effective, transboundary and cumulative effects and impacts need to be well addressed.

Article 25 sets out the ILBI approach to cumulative and transboundary impacts but offers little in the way of detail or thresholds, simply that they will be *'taken into account'*⁶⁹. This is perhaps due to the treatment of transboundary effects in existing international law (see Uruguay case referred to above) but the lack of detail raises interplay questions in relation to how transboundary issues will be managed between adjacent States (particularly where relationships may not be in place or functioning well), the differentials in resources and political influence available between States Parties, and the untested ability of existing transboundary pollution laws and sanctions to be applied in the context of the ILBI.

Turning to a skills, capability and competence perspective, carrying out a cumulative impact assessment involves a different set of skills from a more localised, project-based EIA, involving more dialogue-based approach between stakeholders (to establish a common policy context for the development of an area), a means of identifying and avoiding cumulative impacts themselves (which requires a high level of baseline data to be in place) and a longer-term time horizon (to anticipate and accommodate impacts at different stages).

Article 38 raises the issue of decision-making [for EIA], with the ILBI still undecided on whether the responsible Party or the CoP makes the decision to proceed with activity, following a recommendation from the STB. Under either scenario, a decision would trigger interplay between existing ocean governance bodies, States Parties and/or those third-party experts designated by the State Party or by the STB.

Certain delegates to the BBNJ process (Iceland, Norway) have proposed an alternative approach to a STB, where the ILBI mandates cooperation and coordination among regional and sectoral bodies and vests decision-making with these existing bodies⁷⁰. As this approach would result in decision making regarding ABMTs and EIAs being at the regional level, it would follow that there would not be a need to include language in the Agreement relating to several points, including adopting at a global level decisions on individual ABMTs or EIAs nor regarding a global Scientific and Technical Body.

Article 39 sets out the Monitoring expectations, again divided by two possible options, either a light touch approach grounded in the Convention (UNCLOS articles 204-206), or a more comprehensive approach which requires that "Parties shall ensure that the environmental, social, economic, cultural, human health and other related impacts/effects of the authorised activity are continuously monitored in accordance with the conditions set out in the approval of the activity"⁷¹.

The more comprehensive option places significant resource, monitoring capacity and data acquisition requirements on parties, with monitoring of the deep ocean (for specific impacts) being a relatively exclusive process, undertaken only by those States equipped with satellite or deep-ocean vessels and technologies. Monitoring also requires extensive data capabilities, both to design, collect, interpret and monitor changing data conditions. The expensive and

⁶⁹ Article 41 of the IGC-5 President's Text addresses strategic environmental assessment, but again offers no detail or process for carrying out more strategic, cumulative-type assessments.

⁷⁰ Extract from Iceland's submission to IGC 4 ILBI draft (President's text)

⁷¹ Article 39 of the IGC-5 President's Text

capacity/capability requirements associated with the comprehensive monitoring option implies that EIAs may not be carried out effectively by less well-resourced States.

Article 40 details the Reporting requirements envisaged under the ILBI, with a expectation that existing ocean governance bodies may be required to assist in or contribute to the monitoring of environmental impacts identified in the EIS. This may already be a feature of the international ocean governance's capabilities (e.g. the ISAs DeepData global repository, or the data collection and monitoring responsibilities of certain Regional Seas Conventions and Action Plans (RSCAPs) but in many cases may be a new and additional feature. It may also require amendments to existing monitoring arrangements for capturing cumulative and transboundary impacts.

Article 30 sets out the process requirements for EIA in ABNJ. Bradley, these stages are consistent with the UNEP process, but interplay and implementation aspects for each stage are drawn out below:

Screening - This phase of the EIA process is unlikely to involve international ocean governance bodies other than in an advisory role (e.g. the proposed Scientific and Technical Committee may seek input from international ocean governance bodies on the environmental characteristics of a certain area, or when a project undergoes 'material changes' from the original screening decision. They may also hold or curate key baseline environmental information.

Scoping - As above, international ocean governance bodies are likely to be key stakeholders in the scoping phase of the EIA, with their specialist knowledge helping inform what issues are retained or removed from scope, and in assisting with the development of credible project alternatives. The scoping phase also introduces elements of interplay between international ocean governance bodies, the project proponent and wider stakeholders. For example, the scoping phase under the ISA's Mining Code approach to EIA involves ongoing dialogue between the contractor and the ISA on the EIA process, and on the content of the EIA report and environmental monitoring plan.

In terms of wider stakeholder involvement, this is challenging in the context of the ISA as the Area is held in trust as the Common heritage of all mankind, but Durden *et al.*, (2018) suggests that this global engagement is limited as there are currently no clear mechanisms for regular exchanges between stakeholders and the competent organs of the ISA.

Another advantage to the early review and approval of the screening and scoping documents is the anticipation of any transboundary or regional effects, allowing the regulator to coordinate projects across the affected area or region. This also brings into play inter-institutional interplay, strategic environmental assessment and the emerging concept of 'regional environmental assessment' (Doelle and Sander, 2019).

Environmental impact assessment ('Conducting' phase) - This phase of the EIA process normally involves four steps – baseline survey, assessment of impacts, mitigations and an environmental management plan. It is also in this phase that a synthesis of all of the impacts and mitigations is produced, which introduces interrelationships and cumulative and combined effects.

As above, international ocean governance bodies may be consultees and offer an advisory role. This role will differ where the international ocean governance body is also the regulatory authority (such as ISA for the Area and CCAMLR for the Antarctic).

Environmental management plan (mitigation and monitoring phase) - The EMP should include details of the practical implementation of all mitigation measures identified in the EIA, within the context of the contractors' environmental management system, the environmental goals of the

project, and regulations. It should explain how environmental objectives, regulations and thresholds will be met and proven to be met. This document should outline the roles and responsibilities of all parties in its implementation (international ocean governance body, state, contractor and subcontractors), and the anticipated continued communication between proponent and regulator.

Best practice EIA will also include extensive stakeholder consultation - the span of which will need to be set broadly as the high seas are a global commons yet interact importantly with near shore ecosystems, and the Area is considered the common heritage of all Mankind. A procedural mechanism is likely to be required for international ocean governance bodies to support this engagement, and to ensure that multiple comments from stakeholders are reflected and incorporated meaningfully in the final decision.

In the case of deep-sea mining, it is particularly important that the Environmental Management Plan includes provisions for accommodating change (and adaptive management), for example what types of change require action, and how that action should proceed (e.g. in the form of amendment of the EIA and EMP, etc.). This is important both in terms of establishing the principle of adaptive management as a key part of effective EIA, but also in reflecting the long-term nature of change in deep sea environments and therefore the need for regular reviews of the project as it progresses.

In terms of institutional interplay, there are a variety of roles and levels at play in EIA processes - for example, the State sponsoring the EIA will have a role in approving the content of the Environmental Management Plan, but depending on the nature of the proposal other international ocean governance bodies may also have a formal regulatory approval role (such as the ISA) and potentially the proposed Scientific and Technical Committee. More widely, the EIA will also have to comply with international legal requirements and customary law obligations.

There is also potential for existing international ocean governance bodies to have their roles extended - for example, the ISA would need to expand its current role of regulatory authority to one that incorporated administrative and monitoring duties as it increasingly oversees mining applications under its remit. It is currently unclear how the ISA would undertake such an expanded role, and how its mandate would apply.

Section conclusions

In reviewing the literature, elite interview responses and draft requirements of the ILBI, four main areas of interplay and candidate conditions emerge:

- **Access to / management of data** – as a key requirement for both establishing an environmental baseline and maintaining a monitoring regime.
- **Precautionary approach and adaptive management** (Durden *et al.*, 2018) as key concepts for addressing uncertainty associated with environmental management of deep-sea mining projects.
- **Transparency in decision-making, knowledge sharing and clear guidance-** have been identified as important in the marine EIA screening process, as well as deep sea mining proposals (Pinho, *et al.*, 2010)
- **Vertical and horizontal functional interplay** – operation of a global & regional EIA/SEA system will require several existing systems to develop interfaces/collaborative mechanisms (e.g. ILBI, BBNJ global structures – RFMOs – scientific community)

Capacity building and technology transfer

This section of the chapter considers the institutional and inter-institutional implications for international ocean governance institutions of capacity-building and technology transfer (CB&TT), the fourth component of the proposed ‘package deal’ for the conservation and sustainable use of biodiversity beyond national jurisdiction. In analysing these implications, consideration is also given to the conditions influencing effective implementation of CB&TT by these institutions.

In the context of marine biodiversity, capacity-building can be understood as:

‘activity aimed at allowing or improving academic, professional and technical training; the exchange of knowledge and skills; access to physical infrastructure; institutional strengthening; communication between relevant actors; the exchange of scientific information, technological development and innovation; and awareness raising through public information and basic knowledge about marine biodiversity in areas beyond national jurisdiction’⁷².

The draft definition of ‘Technology transfer’ in the President’s compilation text refers to:

‘information and data, provided in a user-friendly format, on marine sciences and related marine operations and services; manuals, guidelines, criteria, standards and reference materials; sampling and methodology equipment; observation facilities and equipment (e.g., remote sensing equipment, buoys, tide gauges shipboards and other means of ocean observation); equipment for *in situ* and laboratory observations, analysis and experimentation; computers and computer software, including models and modelling techniques; and expertise, knowledge, skills, technical, scientific and legal know-how’⁷³

Internationally, capacity building and technology transfer appears across three main treaty regimes: Within UNCLOS (Parts XII, XII, XIV and XI of the 1982 Convention), the 1994 Part XI Agreement (International Seabed Authority, Articles 143 and 144) and the 1995 Fish Stocks Agreement (Part VII, Art. 25).

Of less direct relevance but of importance due to reinforcing an international norm, CB&TT also appears across the related United Nations Convention on Environment and Development (UNCED 1992, 2002 and 2012), Convention on Biological Diversity (CBD 1994, Art.15.11), the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2012 Deliverable 1(b)) and the 2015 Paris Agreement on climate change (Article 11, 1-5), (Cicin-Sain *et al.*, 2019)

CB&TT within the ILBI is taken forward within the context of the overarching Convention, specifically developing the marine scientific and technological capacity of States parties in accordance with Parts XIII and XIV of UNCLOS (World Maritime University, 2020). For the purposes of this analysis, capacity and technology transfer will be treated as a combined issue (e.g. transfer of marine technology is a key part of capacity building, and investments in human capacities and capabilities ensures that marine technology is used appropriately and delivers lasting benefits).

⁷² Definition adapted from terms used in the President’s Combined Text & IOC Capacity Development Strategy 2015-2021 (Document IOC / INF-1332) <http://www.ioc-unesco.org/index.php?option=com/oe&task=viewDocumentRecord&docID=14939>. [Accessed 18 May 2021]

⁷³ p292, President’s IGC-5 Combined Text.

What is envisaged as part of the ILBI?

The draft ILBI sets out the following objectives for this component of the ‘package deal’, to:

- (a) Assist States Parties, in particular developing States Parties, in implementing the provisions of this Agreement, to achieve its objectives;
- (b) Enable inclusive and effective participation in the activities undertaken under this Agreement;
- [(c) [Promote and encourage] [Ensure] access to marine technology by and the transfer of marine technology for peaceful purposes to developing States Parties for the attainment of the objectives of this Agreement;]
- (d) Increase, disseminate and share knowledge on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction;
- (e) Develop the marine scientific and technological capacity of States Parties with regard to the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction;

The final objective (f) comprises a series of draft obligations relating to: developing States Parties having access to (and benefitting from) the scientific information resulting from the collection of marine genetic resources in ABNJ; special consideration in the sharing of said benefits; ensuring the involvement of local research capabilities in regard of the above, and the capacity to develop, implement and monitor any ABTs and EIA/SEAs (c/f Section 4.2.1).

Importance of the inclusive, underpinning and enabling nature of CB&TT to the ILBI

Capacity building and technology transfer are, by their nature, inclusive and enabling measures, which directly support the effective implementation of the new ILBI by “all countries by strengthening their ability to fulfil their rights and obligations as stated in the Agreement” (Cicin-Sain *et al.*, 2018)

The inclusiveness of CB&TT measures are key ingredients to the success (or otherwise) of the ILBI as not all Parties are created equal, and CB&TT measures are critical ‘access and enablers’ to the wider benefits of a BBNJ agreement amongst least developed countries, environmentally vulnerable States, landlocked developing countries, geographically disadvantaged States, small island developing States, coastal African States and developing middle-income countries.

As noted in the First and Second World Ocean Assessments (WOA, 2017 and 2021) capacity-building, sharing of scientific knowledge and technology transfer empowers States to participate in and benefit from the conservation and sustainable use of the ocean. Similarly, a lack of investment in “human, institutional and systemic capacities, as well as financing, continue to be the primary limiting factors” (WOA, 2017) to participation and benefit-sharing, and to the conservation and sustainable use of the marine environment.

Two further aspects of inclusivity are relevant here – Firstly, without an acknowledgement of the uneven resourcing between more and less economically development countries and a corresponding mechanism to address this, it is questionable as to whether the ILBI will carry developing States support and be agreed at all (Harden-Davies & Vierros, 2021).

Secondly, for the ILBI to operate effectively, it requires all Parties to have the capacity to meet their obligations under the agreement (Egge, K.K. in WMU, 2020). If obligations around the other

three components of the ILBI are set too high without a corresponding level of CB&TT, some States may struggle to fulfil those obligations, raising the risks of the ILBI becoming an exclusive instrument and the possible emergence of a ‘two-tier’ model of High Seas governance.

Cicin-Sain *et al.*, (2019) further develop the importance of the ‘underpinning’ aspect of CB&TT by setting out a list of the types of skills required to implement the other three ILBI components, including: capacity development relating to area-based management (such as identification of key areas for protection, development of management plans, and proper application of tools such as marine spatial planning and monitoring and enforcement), building capability and capacity to undertake, participate in and evaluate EIA/SEA processes, effective development of marine genetic resources (including biological prospecting, scientific techniques relating to biotechnology, molecular biology and bioinformatics, as well as legal and technical aspects of benefit-sharing), general capacity building in relation to effective policy and legal frameworks to support the ILBI, and a consideration of the effects of climate change on the above.

This focus on the underpinning nature of CC&BT as set out above is also reflected in the President’s Text, where similar language is used to describe the implementing requirements (e.g. increasing and disseminating knowledge on BBNJ, developing marine scientific and technological capacity, strengthening cooperation and coordination) for ABMTs, MGRs and EIAs.

In essence, in order to deliver the ‘package deal’ effectively, CC&BT is an essential underpinning component, and should be dealt with not as ‘one of four’ but rather as a critical component of the ILBI, without which the other three components will fall short of effective implementation, and particularly fall short of inclusive implementation across all States.

Operationalising CB&TT under the ILBI: Interplay and analogues

With regard to CB&TT modalities, the draft text is still under development, with the negotiations currently exploring key delivery mechanisms and modalities, including the types and categories of CB&TT, the establishment of a Scientific and Technical Body (as a subsidiary organ of the ILBI) to form judgements on the application of CB&TT, and the desirability of a Clearing-House Mechanism (CHM), which would provide a platform for the sharing of scientific and technical information among Parties.

Articles 43-46 of the draft text also recognise that cooperation is key to achieving CB&TT, and needed at all levels, with provisions detailing cooperation across global, regional, sub-regional and sectoral bodies (IISD, 2019). Specifically, the principle and practice of inter-institutional cooperation is made clear in a key opening provision (Article 43, para 2), which suggests that CB&TT shall be carried out through ‘enhanced cooperation at all levels and in all forms’, including partnerships with and involving all relevant stakeholders, such as, where appropriate, the private sector, civil society and holders of traditional knowledge, and by ‘strengthening cooperation, coordination and synergies between relevant legal instruments and frameworks and relevant global, regional, subregional and sectoral bodies.

The ambition of this provision is immediately constrained by the views of certain States which seek to limit its scope – the USA, for example, has expressed a preference for the requirement to promote/ensure capacity building and technology transfer to be limited to BBNJ, as opposed to more general CB&TT in the wider marine context, whereas the Alliance of Small Island States are requesting specific and targeted assistance to take into account their capacity constraints, and provide assistance to enhance and facilitate their wider development of appropriate policy or administrative measures, and access to MGR and marine technology (IISD, 2019).

Further examples of inter-institutional cooperation occur throughout the text, including a proposal that the ILBI Conference of the Parties (CoP) undertake the CB&TT needs assessment, which would involve significant interactions between the CoP, States, international competent organisations and NGOs to disentangle and avoid duplication between existing and new capacity building programmes, and a proposal by the Deep-Ocean Stewardship Initiative (DOSI) and International Union for the Conservation of Nature (IUCN) that the proposed Clearing-House Mechanism brings together the information and data sharing provisions from the CB&TT and MGR components in order to maximise developed/developing economy collaborations.

This question over how new ILBI organs will interact with existing mechanisms and institutions is central to both issues of institutional interplay and the effectiveness of the ILBI, but the text is largely silent on implementation mechanisms. Given the paucity of information regarding implementation mechanisms, it is helpful to turn to analogues to the ILBI to consider what similar mechanisms exist, and whether these might provide insights for potential application under the ILBI.

The UN Fish Stocks Agreement (FSA 1995) is an ILBI under UNCLOS, with Part VII of the agreement addressing the requirements of developing States, with Article 24.1 giving “full recognition to the special requirements of developing States in relation to the conservation and management of straddling fish stocks and highly migratory fish stocks and development of fisheries for such stocks”, Article 25 addressing forms of cooperation over stock assessment and scientific research, and Article 26 including provisions for technical assistance and the establishment of a special fund to support implementation of the agreement, and the establishment of new organisations for fisheries management [as required]⁷⁴.

Unlike the Fish Stocks Agreement, however, the ILBI comprises three very distinct components, which reflect different areas of marine science. Hoel (2021) argues that the overlap between areas is limited and that the components are very different in a number of ways (including scientific constituencies, infrastructure requirements and application costs). This raises the challenge of the ability of a single body (either the proposed Scientific and Technical Body or the CoP) to effectively address a diverse range of scientific questions, with Hoel (2021) further suggesting that rather than a global body with limited capability, the needs of developing States may be better served by a regional solution “more tailored to the needs of different regions of the world”, with the International Council for the Exploration of the Sea’s (ICES) activities in various regions offered as an apolitical example.

This argument – that existing structures and institutions may already offer a suitable implementation mechanism for the ILBI – is also supported by the existing CB&TT guidance⁷⁵ and concepts of a clearing house mechanism (IOC CGTMT proposal⁷⁶) by the International Oceanographic Commission (IOC) and the Decade of Ocean Science for Sustainable Development (2021-2030) which aims to develop a common framework for ocean science and represents a major opportunity for strengthening capacity building efforts in marine science and technology (Ryabinin *et al.*, 2019).

⁷⁴ This provision provides for the establishment of new RFMOs in areas currently without a fisheries management organisation, which interacts with the intention (if not the wording) of the current ILBI draft text.

⁷⁵ Criteria and Guidelines on the Transfer of Marine Technology of the Intergovernmental Oceanographic Commission

⁷⁶ <https://unesdoc.unesco.org/ark:/48223/pf0000370143> [Accessed on: 18 June 2021]

Conditions influencing effective implementation – analysis of the President’s Text

As discussed in the chapter introduction, the successful implementation of the Internationally Legally Binding Instrument (ILBI) requires two related sets of circumstances to happen simultaneously:

- (1) The ILBI [components] need to be effectively implemented by existing international ocean governance (international ocean governance) bodies, and, due to the transboundary nature of BBNJ;
- (2) Adjacent international ocean governance bodies need to work effectively together to manage dynamic ecosystems.

In order to inform an empirical analysis of (1), it is necessary to consider the institutional and inter-institutional implications for international ocean governance bodies of the four components of the proposed ‘package deal’ (ILBI) and draw out the key conditions of effectiveness for implementation of the ILBI by these bodies.

In considering possible conditions influencing the effective implementation of the ILBI, two sources are considered. Firstly, the overarching obligations under the Convention (and supporting UN reports and documents) and secondly the proposals contained within the draft ILBI text (‘Presidents Text’)

According to Harden-Davies and Snelgrove (2020), UNCLOS treats the development and transfer of marine technology (UNCLOS Part XIV) separately from marine scientific research (Part XII) but there are four common themes which establish a relationship between the two in the context of marine capacity-building, these being: data, information and knowledge; training and exchanges; equipment and infrastructure; and cooperation and collaboration.

These themes are reinforced by two UN-mandated reports: The report of the Secretary-General on the 2010 meeting of the UN Informal Consultation Process on Oceans and the Law of the Sea, which provides a comprehensive review and concludes that effective marine capacity-building requires the development of skills, infrastructures, technology transfer, and access to data⁷⁷, and Part A of the International Oceanographic Commission’s Criteria and Guidelines for the Transfer of Marine Technology⁷⁸, which describes marine technology transfer as ideally comprising: (a) information and data, (b) documentation (guidance, manuals, standards), (c) sampling equipment, (d) observation facilities and equipment, (e) laboratory and in-situ equipment, (f) computer hardware and software, and (g) expertise, knowledge, skills and technical/scientific/legal know-how related to marine scientific research.

With regard to the ILBI, the current state of play in relation to CB&TT is found in Article 46 of the Presidents Text⁷⁹, which reflects the four themes but – consistent with the nature of an

⁷⁷ The report of the Secretary-General on the 2010 meeting of the UN Informal Consultation Process on Oceans and the Law of the Sea <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N22/302/84/PDF/N2230284.pdf?OpenElement>. [Accessed on: 12 March 2019]

⁷⁸ IOC Guidance: <https://repository.oceanbestpractices.org/bitstream/handle/11329/856/139193qaa.pdf?sequence=1&isAllowed=y>. [Accessed on: 18 June 2021]

⁷⁹ Revised draft text of an 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 - <https://undocs.org/en/a/conf.232/2020/3>. [Accessed on 14 May 2020]

Implementing Agreement - deepens and extends the detail of the 8 types of capacity building and technology transfer envisaged, as follows:

- (a) The sharing of relevant data, information, knowledge and research;
- (b) Information dissemination and awareness-raising, including, in line with the principle of free, prior and informed consent, with respect to relevant traditional knowledge of indigenous peoples and local communities;
- (c) The development and strengthening of relevant infrastructure, including equipment and capacity for its maintenance;
- (d) The development and strengthening of institutional capacity and national regulatory frameworks or mechanisms;
- (e) The development and strengthening of human resources and technical expertise through exchanges, research collaboration, technical support, education and training and the transfer of technology;
- (f) The development and sharing of manuals, guidelines and standards;
- (g) The development of technical, scientific and research and development programmes, including biotechnological research activities
- (h) The development and strengthening of capacities and technological tools for effective monitoring, control and surveillance of activities within the scope of this Agreement

Annex II of the President's Text sets out the detailed typology of CB&TT initiatives, across each of the ILBI 'package deal' components. With a view to identifying candidate conditions of effectiveness Table x below provides a thematic review of the detailed typology and identifies emerging (or 'candidate' conditions)

Table 2: Potential candidate conditions of effectiveness across CB&TT modalities

Potential candidate condition	Type of CB&TT activity set out in ILBI Art.46 and Annex II - Proposed modalities for CB&TT (across all components of the 'package deal')
Access to, ability to use/interpret/analyse and share/mobilise data	(a) The sharing of relevant data, information, knowledge and research, in user-friendly formats, including: (i) The sharing of marine scientific and technological knowledge; (ii) The exchange of information on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction; (iii) The sharing of research and development results;
Access to, ability to use/interpret/analyse and share/mobilise data Specific scientific capabilities	(b) Information dissemination and awareness-raising, including with regard to: (i) Marine scientific research, marine sciences and related marine operations and services; (ii) Environmental and biological information collected through research conducted in areas beyond national jurisdiction; (iii) Relevant traditional knowledge [, in line with the principle of prior informed consent]; (iv) Stressors on the ocean that affect marine biological diversity of areas beyond national jurisdiction, including the adverse effects of climate change and ocean acidification; (v) Measures such as area-based management tools,

(biological and marine science)	including marine protected areas; (vi) Environmental impact assessments;
Adequate technological capacity and related skills-based capability	(c) The development and strengthening of relevant infrastructure, including equipment, such as: (i) The development and establishment of necessary infrastructure; (ii) The provision of technology, including sampling and methodology equipment (e.g., for water, geological, biological or chemical samples); (iii) The acquisition of the equipment necessary to support and further develop research and development capabilities, including in data management, in the context of [the collection of] [access to] and the utilization of marine genetic resources, measures such as area-based management tools, including marine protected areas, and the conduct of environmental impact assessments;
Adequate policy, technical and regulatory capacity (recalls Cincin-Sain <i>et al.</i> 's 2019 call for institutional capacity-building among certain countries) Networks and specialist group interactions Effective stakeholder engagement	(d) The development and strengthening of institutional capacity and national regulatory frameworks or mechanisms, including: (i) Governance, policy and legal frameworks and mechanisms; (ii) Assistance in the development, implementation and enforcement of national legislative, administrative or policy measures, including associated regulatory, scientific and technical requirements at the national, subregional or regional level; (iii) Technical support for the implementation of the provisions of this Agreement, including for data monitoring and reporting; (iv) Capacity to translate data and information into effective and efficient policies, including by facilitating access to and the acquisition of knowledge necessary to inform decision makers in developing States Parties; (v) The establishment or strengthening of the institutional capacities of relevant national and regional organizations and institutions; (vi) The establishment of national and regional scientific centres, including as data repositories; (vii) The development of regional centres of excellence; (viii) The development of regional centres for skills development; (ix) Increasing cooperative links between regional institutions, for example, North-South and South-South collaboration and collaboration among regional seas organizations and regional fisheries management organizations;
Conditions as above	(e) The development and strengthening of human resources and technical expertise through exchanges, research collaboration, technical support, education and training and the transfer of technology, such as: (i) Collaboration and cooperation in marine science, including through data collection, technical exchange, scientific research projects and programmes, and the development of joint scientific research projects in cooperation with institutions in developing States; (ii) [Short-term, medium-term and long-term] [Education] and training in: a. The natural and social sciences, both basic and applied, to develop scientific and research capacity; b. Technology, and the application of marine science and technology, to develop scientific and research capacities; c. Policy and governance; d. The relevance and application of traditional knowledge; (iii) The

	exchange of experts, including experts on traditional knowledge; (iv) The provision of funding for the development of human resources and technical expertise, including through: a. The provision of scholarships or other grants for representatives of small island developing States Parties in workshops, programmes or other relevant training programmes to develop their specific capacities; b. The provision of financial and technical expertise and resources, in particular for small island developing States, concerning environmental impact assessments; (v) The establishment of a networking mechanism among trained human resources;
Procedural capacity building	(f) The development and sharing of manuals, guidelines and standards, including: (i) Criteria and reference materials; (ii) Technology standards and rules; (iii) A repository for manuals and relevant information to share knowledge and capacity on how to conduct environmental impact assessments, lessons learned and best practices;
	(g) The development of technical, scientific and research and development programmes, including biotechnological research activities.

This thematic review across the more detailed typology highlights a number of recurring themes. Most prominently, the sharing and use of data and information appears across the Convention, supporting UN documentation and the ILBI text, and is further supported by external bodies (IUCN, DOSI). Similar themes also appear as part of the Intergovernmental Oceanographic Commission's Criteria and Guidelines on Transfer of Marine Technology (IOC, 2005), which were developed to help clarify the capacity building aspects of UNCLOS Article 271, these being:

(i) Data, information and knowledge: sharing data, information, and knowledge about marine scientific research activities and outputs, as well as technological development. (ii) People: training in science and technology and exchanging skilled people; (iii) Equipment: access to or transfer of research infrastructure and equipment, including both hardware and software; and (iv) Cooperation and collaboration: for scientific research (including on criteria and standards, programs, funding for ocean science), through activities, programs including international, regional and/or national scientific and technical institutions.

Section conclusions

In reviewing the literature, elite interview responses and draft requirements of the ILBI, four main areas of interplay and candidate conditions emerge:

- **Access to / management of data** – as a key requirement for both understanding areas of need/prioritising support, but also in monitoring effective uptake and delivery.
- **Vertical and horizontal functional interplay** – operation of a global & regional 'clearing house' system will require several existing systems to develop interfaces/collaborative mechanisms (e.g. ILBI, BBNJ global structures – RFMOs – States - scientific community)
- **Extending policy development support expertise** – Involving trusted and long-term partnerships between international ocean governance actors, scientific community and

developing States. Also requiring an outward looking, collaborative mindset amongst existing international ocean governance actors.

- **Importance of an inclusive, equitable approach** – Vital to the success of any CB&TT programme between partners of unequal resources.

Area Based Management Tools

The purpose of this section of the thesis is to consider the institutional and inter-institutional implications for international ocean governance bodies of area-based management tools (ABMT), the final component of the proposed ‘package deal’ for the conservation and sustainable use of biodiversity beyond national jurisdiction. In analysing these implications, consideration is also given to the conditions influencing effective implementation of ABMT.

Area-based management provides a means of addressing multiple user interests in a given space, within an agreed set of objectives (which may be conservation-based, resource-extraction based or a combination thereof). Area-based management ‘tools’ (hereafter ABMTs) are simply the set of management measures (actions plans, monitoring processes, decision-making principles) to help ensure the objectives are met.

ABMTs range from single-sector management plans – such as licence areas for offshore energy, of fishery plans for closed or restricted areas – through to tools that attempt to balance and reconcile competing demands.

In the context of the marine environment (but not exclusively the High Seas), examples of the former include Areas of Particular Environmental Interest (APEIs), MARPOL Special Areas, fishery closures related to Vulnerable Marine Ecosystems (VMEs), Particularly Sensitive Sea Areas (PSSAs) and highly specific spatial tools such as Fisheries Restricted Areas (FRAs) and Territorial Use Rights for Fisheries (TURFs).

With regard to the latter, tools which aim to reconcile cross-sectoral interests include Marine Protected Areas (MPAs) and Marine Spatial Planning (MSP), both of which involve broad stakeholder participation in designing the management measures. There are also scientific and process ‘inputs’ to these tools, such as the identification of ecologically or biologically significant areas (EBSAs) or the Ecosystem approach to fisheries (EAF) which can be used to help design the shape and nature of the final management measure.

Existing types of ABMT relevant to the High Seas include Marine Spatial Planning (MSP), Marine Protected Areas (MPAs), Particularly Sensitive Sea Areas (PSSAs), Areas of Particular Environmental Interest (APEIs) and Fisheries Closures.

Within the High Seas context, VMEs, regional MPAs and APEIs have been applied but are “single sector in their approach and are therefore only binding upon the sector which is using them” (UNEP-WCMC, 2018, p5). Given this single-sector approach, existing ABMTs cannot easily be applied for the purposes of cross-sectoral area-based planning required for ABNJ.

Given the lack of cross-sectoral planning tools applied in ABNJ (UNEP-WCMC, 2018, p4), a clear objective for the ILBI is to provide the governance framework and imperative to bring together multiple interests and address them in a way that also incorporates the needs of wider sectors, policy goals and international obligations.

ABMT interactions with other international agreements and regimes

With regard to international legislation, ABMTs feature in a number of treaties relevant to the ILBI, including UNCLOS (1982) Arts 61 and Part VII Sec 2 116-220) relating to the conservation and management of the living resources of the High Seas, and the Convention on Biological Diversity Jakarta Mandate (1995) (1982) Sec 2 Art 116-220) which obliges Parties to establish a global network of MPAs.

The ABMT component of the ILBI package deal also has clear synergistic interplay with global targets and commitments, including the Convention on Biological Diversity (CBD) and Sustainable Development Goal (SDG 14) to protect 10% of marine and coastal waters by 2020, and the more recent recommendation by the IUCN to set aside 30% of the ocean as highly protected MPAs by 2030

What is envisaged as part of the ILBI?

The ABMT objectives in the most recent President's draft of the ILBI are to:

(a) Enhance cooperation and coordination in the use of area-based management tools, including marine protected areas, among States, relevant legal instruments and frameworks and relevant global, regional, subregional and sectoral bodies, which will also promote a holistic and cross-sectoral approach to the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction;

(b) Conserve and sustainably use areas requiring protection, including by establishing a comprehensive system of area-based management tools, including a network of ecologically representative and connected marine protected areas that are effectively and equitably managed;

[(c) Rehabilitate and restore biodiversity and ecosystems, including with a view to enhancing their productivity and health and building resilience to stressors, including those related to climate change, ocean acidification and marine pollution;]

[(d) Support food security and other socioeconomic objectives, including the protection of cultural values;]

[(e) Create scientific reference areas for baseline research;]

[(f) Safeguard aesthetic, natural or wilderness values;]

[(g) Promote coherence and complementarity.]

Given these objectives, it is important to consider the nature and positioning of these 'novel geographies' (Interview respondent K) within the typical multi-level nesting of international marine governance arrangements (Fanning *et al.*, 2007; Biermann 2007), as they operate predominantly at the local and regional scale, but are designated via national, international or global agreements.

This issue of 'cross-scale' implementation raises the issue of primacy (e.g. where an ABMT is designated by a Conference of the Parties but disputed by a regional RFMO). These issues of ABMTs and primacy can lead to perceived or actual 'jurisdictional over-reach' and disruptive interplay between institutions, with regionally-based agreements, conventions or institutions seeking to designate areas that may extend beyond their jurisdictional scope – for example, elite interviews conducted as part of this research flagged two examples of a regional convention seeking to designate parts of the Area (which raised concerns and opposition from the ISA and its membership) and to bind global parties via a regional agreement (which again attracted opposition from States outside of the region querying why they should be bound by a geographically distinct institution).

Another important aspect related to ABMTs is the relationship with the Coastal States. ABMTs in the High Seas might be established close to or adjacent with Exclusive Economic Zones (EEZs), raising the question of whether the Coastal State should play a particular role in the development and management of the ABMT.

Conditions influencing effective implementation – analysis of the literature.

A review of the literature has highlighted a number of themes relevant to inter-institutional collaboration and effectiveness, across both marine and High Seas application, set out in table 3 below:

Table 3: Emerging themes influencing marine ABMT effectiveness.

Importance of the availability of spatially explicit data and knowledge	In order to define ABMT boundaries that are biologically important and socially and economically acceptable (Costello <i>et al.</i> , 2010)
Larger tends to be better, unless financial resources are limited	Larger MPAs tend to be more effective because they encompass biologically connected and diverse ecosystems, allowing a greater fraction of fish populations to remain protected than in smaller MPAs (Jennings, 2000; Sale <i>et al.</i> , 2005). However, increasing MPA size often incurs significant socio-economic costs that can impede the implementation of these areas (Devillers <i>et al.</i> , 2014), with some research showing smaller MPAs to be effective (Aburto-Oropeza <i>et al.</i> , 2011; Russ & Alcala, 2003) and therefore offering potential as components within a larger MPA network. <i>NB – this last study related to a relatively small, near-shore MPA</i>
Habitat diversity matters Friedlander, <i>et al.</i> (2018)	Friedlander <i>et al.</i> found that habitat was an important contributor to MPA effectiveness, with MPAs possessing a heterogeneous mix of habitat types with high complexity (e.g. aggregated reef, scattered coral, boulder and rubble) harboured higher fish biomass and more diverse trophic assemblages than MPAs with lower habitat diversity / low complexity. <i>NB – this study related to a relatively small, near-shore MPA</i>
Compliance	Delivery of agreed MPA objectives depends on long-term collaborative arrangements between relevant institutions and organisations with legal competence over the areas – multiparty monitoring, control and surveillance plans, combined with the political and social will for compliance, will therefore be essential (O’Leary <i>et al.</i> , 2012) <i>NB – this paper related to a High Seas MPA</i>
Equitable	For an MPA to achieve its objectives, specifically that of conservation and protection, the coherent management of the seabed together with the water column is essential. This implies that international organisations must work together to develop management objectives and plans (e.g. in the North-East Atlantic context of this paper these organisations included OSPAR, NEAFC, ISA, IMO, ICCAT, NASSCO and NAMMCO) and that MPAs in ABNJ need to be established within the context of the

and inclusive stakeholder engagement	<p>legal status of the area, including specific interests, rights and competencies of organisations, <i>communities (author emphasis)</i> and coastal states (<i>NB – this paper related to a High Seas MPA</i>)</p> <p>Distribution of the benefits and externalities from activities in ABNJ is extremely uneven, with ten developed countries accounting for 71% of high seas fishing catches (Sumaila <i>et al.</i>, 2018) and 98% of the patents on MGRs (Blasiak <i>et al.</i>, 2018), while the interconnected nature of the ocean means that even countries remote from the high seas feel the effects of exploitation (Popova <i>et al.</i>, 2019) – this is especially concerning for developing countries, whose large coastal populations often depend heavily on healthy marine ecosystems for nutrition, livelihoods and government revenues (Wright <i>et al.</i>, 2019).</p>
Adaptive management can potentially improve MPA effectiveness	<p>Investigating declining biomass (83% reduction in biomass and 54% drop in catch rates between 2005 – 2011) in the Gilbert Bay MPA, Morris & Green (2014) found that adjacent commercial fishing combined with inflexible MPA regulations, poor coordination and communication (of scientific findings) among stakeholders were contributory factors in implementation failure, and that a relatively small change in the timings of commercial fishing seasons adjacent to the MPA would improve the MPA effectiveness – they conclude that MPAs can protect diversity, but to do so effectively requires understanding population connectivity and implementation of adaptive management decisions when such actions are deemed advantageous or necessary. <i>NB – this study related to a relatively small, near-shore MPA</i></p>
Governance and species resilience	<p>Based on a review of 34 case studies, Jones, <i>et al.</i> (2019) concluded that to achieve effective governance of marine protected areas the priority was to build resilience. From a marine ecosystem perspective, resilience is achieved through encouraging species diversity across trophic groups, while governance system resilience is through the application of a diverse set of incentives applied across different categories.</p> <p><i>NB – these conclusions were based on a study of 34 MPA case studies (no High Seas examples)</i></p>

Helping to validate the findings above, a useful summary of key conditions of effectiveness for High Seas ABMTs is provided by De Santo (2018), who suggests that effective spatial measures need to include: both the water column and the seabed; well-developed monitoring and compliance plans; and inclusive stakeholder engagement and use of science to inform management plans

Conditions influencing effective implementation – analysis of the President’s Text

The main provisions of relevance to ABMT interplay and effective implementation are Articles 14, 17 and 19 within the latest version of the Presidents Text.

Article 14(a) addresses institutional interplay with its call to *‘enhance cooperation and coordination in the use of area-based management tools, including marine protected areas, among States, relevant legal instruments and frameworks and relevant global, regional, subregional and sectoral bodies, which will also promote a holistic and cross-sectoral approach to the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction’*, whereas 14(g) calls for the promotion of coherence and complementarity between *‘existing instruments, institutions and arrangements’*

Viewed from a capability and capacity perspective, in order to be realised 14(a) and (g) require significant multi-party coordination and stakeholder engagement. This requirement for cooperation also interacts with Article 19 on decision-making, which is currently subject to two options – one where the CoP makes decisions and ‘organises’ cooperation and coordination, and one where the CoP makes decisions, but other parties are encouraged to cooperate and coordinate in a complementary fashion. Under either option, the need for close working, collaboration and cooperation appears key to the ultimate success (or otherwise) of ABMTs in the High Seas.

Article 17 sets out the process for identification of marine protected areas, including the (a) geographic or spatial description of the area that is the subject of the proposal and (b) duration for the proposed area and measures. Although needing to be heavily informed by data to justify the designation, the wording of this provision is interesting as it could allow consideration of Other Effective Conservation Measures (OECMs), in that the clause on duration could allow the protections to be open-ended and dynamic, rather than the traditional fixed, non-dynamic approach (Maxwell *et al.*, 2015).

Article 17(bis) extends this process of identification, highlighting the importance of the use of best available scientific information *‘as well as relevant traditional knowledge of indigenous peoples and local communities, taking into account the application of precaution and an ecosystem approach’*, which draws out key elements of adaptive management (ecosystems approach), inclusiveness as well as the importance of data to support effective decision-making.

Interplay and conditions influencing effective implementation.

Analysing the functions and requirements described above, four main areas of interplay and candidate conditions emerge:

- **Knowledge, skills and capacity to adopt a ‘whole site’ approach to ABMTs⁸⁰**
- **Adaptive management** as a key component of effective ABMTs given the need to respond to improved knowledge and environmental change.
- **Vertical and horizontal functional interplay** – operation of significantly sized MPAs involves multi-stakeholder management and interactions across vertical and horizontal institutional layers.

⁸⁰ ‘Whole site approach’ refers to the end-to-end process of designating, implementing protections and monitoring across the areas as a whole (not just focussing on specific species)

- **Importance of an inclusive, equitable approach** – Vital to the success of any ABMT programme between partners of unequal resources/differing levels of knowledge.

Conclusion: Synthesising candidate conditions

In reviewing the literature for candidate conditions, approximately 8 areas repeatedly occurred across the different ILBI components, implying a general level of importance. These areas were further prioritised and consolidated on the basis of two methods:

1. Triangulation between the author's analysis, extensive literature review and elite interviews conducted as part of Stage 1; and
2. Conceptual framework to guide condition selection, informed by the nature of the topic and;
3. The requirements of the analytical method (QCA).

Expanding the approach under (2), with the QCA method conditions should be selected based on a theoretical or conceptual framework that explains positive or negative performance on the outcome of interest, as well as familiarity with the cases under study.

Many QCA experiments focus on a single topic (such as the relative success of the UN's REDD+⁸¹ reforestation scheme) and derive conditions from this single focus area. However, a complicating factor in analysing the BBNJ instrument is that the ILBI is both an artefact in and of itself (for legal purposes) and a 'wrapper' for four very distinct components (ABMT, EIA, MGR and CB&TT). Consequently, while the outcome of the ILBI is clear and applicable to all components (the aggregate outcome of each component should be the conservation and sustainable use of marine BBNJ), the QCA analysis needs to be applied to both the 'wrapper' (all components working in concert as intended by the original vision of the PrepComm) and the distinct components. Recognising and working with this view helped inform judgements over which conditions and common success factors to prioritise.

In terms of the approach under (3), while QCA is a relatively scaleable method (ideally suited to small-*n* applications, the approach can also accommodate larger *n*-samples), applications with an intermediate number of cases (10-15) should ideally use fewer than 5 conditions. This is because the computational approach underpinning QCA assesses all possible configurations of conditions and adding conditions to the model increases the possible number of configurations exponentially (Kane *et al.*, 2014).

The combination of (1)-(3) above ensured that the integrity of the ILBI (as both 'wrapper' and components) was reflected, judgements were shaped by expert views (both primary and secondary sources) and the limitations inherent to the QCA method were respected. Identifying common conditions occurring across all of the ILBI components also reflected real-world conditions, as any institution tasked with delivering the ILBI would inevitably have to address all of its requirements simultaneously.

Applying these approaches led to the consolidation of eight candidate conditions down to five (Figure 5). These five - plus the outcome of 'conservation and sustainable use of marine biodiversity' - inform the approach to calibration set out in Chapter 5. Chapter 5 also addresses the concept of 'preconditions' (such as adequate resources and skills) to effective implementation.

⁸¹ Reducing Emissions from Deforestation and forest Degradation (REDD)

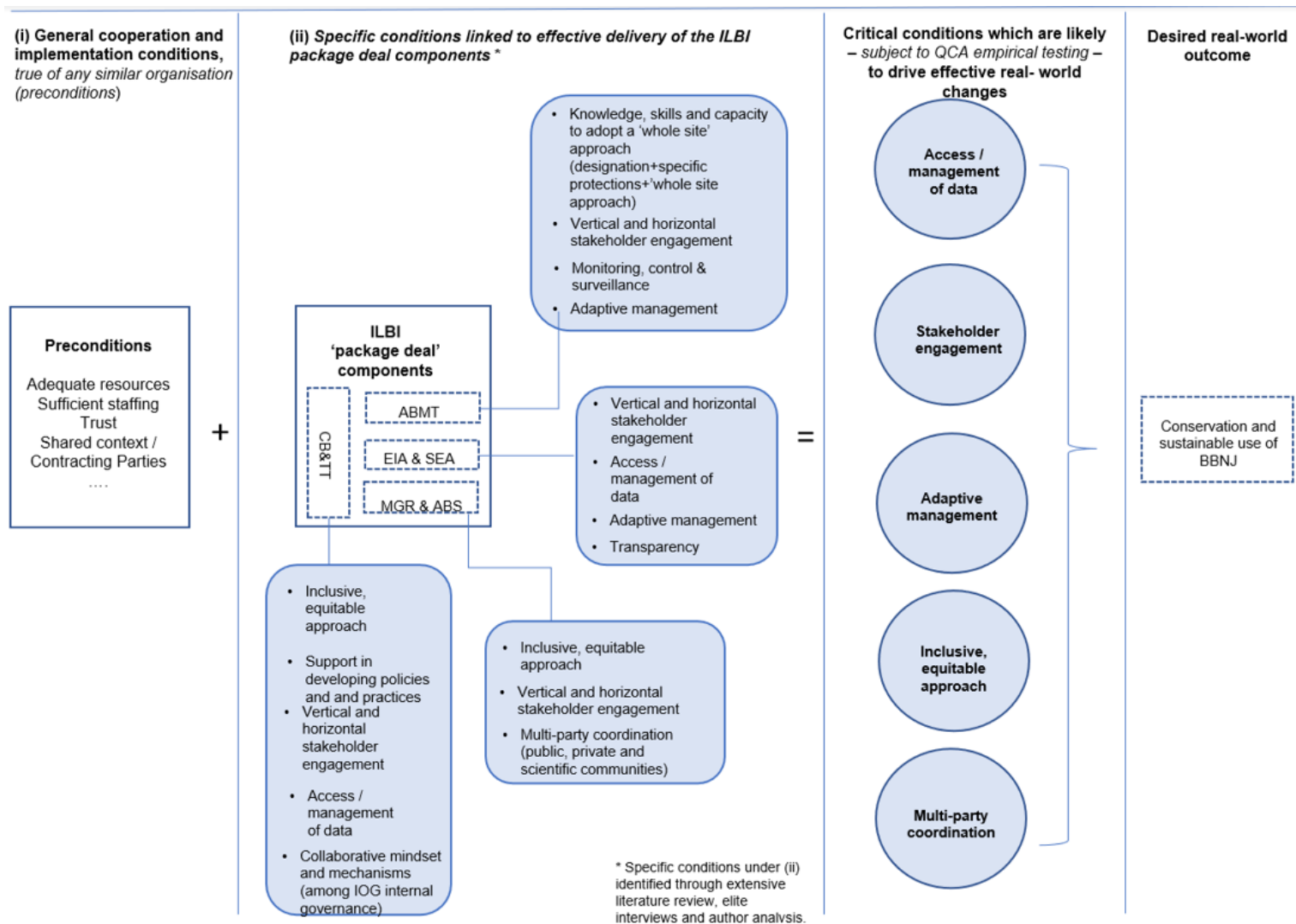


Figure 6: Emerging critical conditions influencing effective BBNJ implementation

Governing the High Seas: Effective Institutional Arrangements for the Conservation and Sustainable Use of Biodiversity beyond National Jurisdiction

Chapter 5: Calibrating conditions for effective governance of the High Seas

Introduction and overview of the chapter

Chapter 4 set out the documentary analysis and focussed literature review to identify those candidate conditions likely to be important to the effective implementation of the ILBI and bringing about the outcome of conservation and sustainable use of marine BBNJ.

This process identified a list of five candidate conditions, which are evaluated and synthesised further in this chapter, helping to establish the basis for the empirical qualitative comparative analysis testing in Chapter 6.

This chapter sets out the rationale and supporting analysis for the candidate conditions and argues for a further consolidation to four conditions. Having established the conditions which, according to theory and literature, are most likely to contribute positively to the outcome in question, the chapter proceeds to set out a definition (or calibration rubric) for each condition, demonstrating transparently how the (initial) QCA set-membership values (SMVs) have been assigned in the research. This section of the chapter also distinguishes between preconditions and conditions, and, while acknowledging the importance of preconditions, argues for their discounting to allow greater focus on the operative conditions.

Having established a set of conditions and outcome, and the associated scoring calibration, the next section of the chapter sets out the cases under consideration and the data sources used as an input to the calibration rubric.

Taken together, the (1) calibration data – drawn from primary and secondary sources, published academic literature, official reports and statistics, and elite interview responses – and (2) scoring rubric helps populate the QCA data table, which precedes the configurational analysis of the truth table in chapter 6). Prior to testing, the final section of the chapter re-examines and reflects on the data and evidence used in the analysis from an internal validity (the depth and accuracy of the underlying rationale) and external validity (breadth of literature and data reviewed) perspective, finishing with conclusions, insights and reflections on the process.

Consideration of preconditions

When considering the conditions influencing institutional collaboration (for effective natural resource governance), much of the literature focuses on the process(es) of collaboration, which Gray (1989, p5) describes as a means through which different parties who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible. Weber (1998, p9) provides a more mechanistic definition, with collaboration defined as an interplay between parties relying on consultation and negotiation, flexible, power sharing arrangements, a concerted search for better information, and the generation of win-win outcomes.

Gray (1989) see these processes as following three phases: a preparatory or problem-setting phase; a direction-setting phase and an implementation phase. However, an earlier phase or more specifically, context, exists – this being the “institutional substructures that underlie cooperative endeavours” (Ebrahim, 2004). These substructures comprise a series of factors (or preconditions) which are common to most institutional contexts. These include factors such as adequate resources, sufficient staffing, trust and a sense of shared purpose.

Drawing on real-world examples, the EU Economic and Social Council (EU ESC 2018) has set out what it considers to be the preconditions necessary for good environmental governance (Table 4) which incorporates three main domains: effectiveness, accountability, and inclusiveness.

Similar preconditions – resources, staffing⁸² (capability and competences), trust, shared purpose and inclusiveness – feature in many of the RFMO performance reviews and in good practice case studies of the Regional Seas Conventions⁸³ and warrant further research on their own merits.

However, the focus of this thesis is on answering the question of effective implementation of the ILBI (either directly or through interplay), and therefore a choice was made to acknowledge the importance of preconditions but to focus research efforts on the specific conditions likely to influence the effective implementation of the ILBI. This focus is justifiable both in terms of meeting the research aims, but also in terms of ultimately producing outputs of relevance to policy makers.

⁸² A recent (2021) survey of Regional Seas Conventions and Regional Fisheries Management Organizations conducted by the CBD Secretariat identified the main challenges regarding regional collaboration are a lack of financial resources and excessive workload (limiting capacity to engage in collaborative activities). Survey accessed at: <https://www.cbd.int/doc/c/a90d/a208/ade08d0d6db62c6063ad91ea/booklet-soi-gd-survey-en.pdf>. [Accessed on 30 November 2021].

⁸³ Ehler (2006) sets out six elements for a successful Regional Seas Programme, these being: political will and commitment of the member governments to support the convention and its programme/action plan; a solid financial base; a solid legal base; a sound and effective institutional structure and internal organisation; a sound, realistic and practical implementation/action plan, and; a strong and efficient Secretariat. These elements arguably form the preconditions for effective implementation of RSCAP objectives.

Table 4– Preconditions

Institutional preconditions for the effective governance of sustainable development⁸⁴ (potentially applicable to the marine BBNJ context)

Example	Definition
<i>Effectiveness</i>	
Competence	To perform their functions effectively, institutions are to have sufficient expertise, resources and tools to deal adequately with the mandates under their authority
Sound policymaking	To achieve their intended results, public policies are to be coherent with one another and founded on true or well-established grounds, in full accordance with fact, reason and good sense
Collaboration	To address problems of common interest, institutions at all levels of government and in all sectors should work together and jointly with non-State actors towards the same end, purpose and effect
<i>Accountability</i>	
Integrity	To serve in the public interest, civil servants are to discharge their official duties honestly, fairly and in a manner consistent with soundness of moral principle
Transparency	To ensure accountability and enable public scrutiny, institutions are to be open and candid in the execution of their functions and promote access to information, subject only to the specific and limited exceptions as are provided by law
Independent oversight	To retain trust in government, oversight agencies are to act according to strictly professional considerations and apart from and unaffected by others

⁸⁴ European Union Economic and Social Council Official Records, 2018 Supplement No. 24 - [Principles for the effective governance of sustainable development](https://publicadministration.un.org/Portals/1/Images/CEPA/Principles_of_effective_governance_english.pdf) [Accessed on: 12 September 2019].

<i>Inclusiveness</i> <i>Leaving no-one behind</i>	To ensure that all human beings can fulfil their potential in dignity and equality, public policies are to take into account the needs and aspirations of all segments of society, including the poorest and most vulnerable and those subject to discrimination
<i>Non-discrimination</i>	To respect, protect and promote human rights and fundamental freedoms for all, access to public service is to be provided on general terms of equality, without distinction of any kind as to race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth, disability or other status
<i>Participation</i>	To have an effective State, all significant political groups should be actively involved in matters that directly affect them and have a chance to influence policy
<i>Subsidiarity</i>	To promote government that is responsive to the needs and aspirations of all people, central authorities should perform only those tasks which cannot be performed effectively at a more intermediate or local level
<i>Intergenerational equity</i>	To promote prosperity and quality of life for all, institutions should construct administrative acts that balance the short-term needs of today's generation with the longer term needs of future generations

Defining the conditions and outcome of interest

Defining the conditions

Informed by the five critical conditions identified in the literature (see Chapter 4), a calibration rubric was developed according to a Theory-Consistency strategy, which recommends defining ‘1’ in the rubric on the basis of a commonly accepted or widely understood definition of the condition of interest in literature or practice, and then using this definition to inform the rest of the calibration (Befani, 2016)⁸⁵.

A challenge when selecting conditions is the breadth to choose from. The primary approach for selecting a manageable number is to take into consideration existing theories, hypotheses and previous data related to the research question, and use these to rationalise the options. During the course of developing the rubrics, stakeholder engagement and inclusive, equitable approach were identified as closely overlapping, and so were combined into a consolidated condition, resulting in four conditions emerging for empirical testing.

Formal assessments (such as the 2006 and 2014 FAO Performance Reviews of Regional Fisheries Bodies) do not use the language of adaptive management. However, FAO Annex 7⁸⁶ suggests that adaptive management is an imperative of the ecosystem-based management approach, which is included as a performance criteria in FAO RFB performance reviews. As such, the presence of well-functioning ecosystem-based management practices was taken as a proxy for adaptive management.

A feature of effective conservation highlighted in the literature (High Seas Task Force, 2006) is the presence of a compliance and enforcement mechanism. This is considered important due to the pressure on High Seas biodiversity from Illegal, Unregulated and Unreported Fishing (IUUF). A decision was made to exclude compliance and enforcement from the conditions as the study is attempting a composite analysis across RFMOs and RSCAPs, and enforcement mechanisms are not a common feature.

Defining the outcome

The outcome rubric adopted for this study draws from three main sources: Firstly, the UNESCO (2019) phrasing of ‘conservation [of biodiversity] and [the] sustainable use [of its components]’. This implies that the presence of the outcome is characterised by a management plan for the conservation of natural stocks and well-functioning ecosystems, as well as the human use of the flows from the sound management of natural stocks. The key aspect in assigning the outcome Set-Membership Value (SMV) is the effectiveness of the measure, that is to say the measure must lead to a measurable/evidenced positive change in relation to the conservation and sustainable use of marine biodiversity beyond national jurisdiction.

Secondly, Roach (2018) proposes the CBD and FAO descriptors for defining ‘conservation’ (‘conservation of biological diversity’, CBD, and ‘actions to ensure the sustainability of the resources being exploited’, FAO), ‘sustainable use’ (the use of components of marine biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations, CBD Art 2) and ‘marine biological diversity’ (the variability among living organisms

⁸⁵ As distinct from defining ‘0’ as the precise opposite of ‘1’, which can mask or even exclude important aspects in the calibration.

⁸⁶ CBD Decision v/6 <http://www.fao.org/3/y4810e/y4810eOf.htm> [Accessed: 16 January 2018].

from marine ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems, adapted from CBD Article 2).

Thirdly, the Greenpeace evidence submission to the 1st Session of the BBNJ Preparatory Committee ('PrepCom') in February 2016, which recommended a series of governance principles relevant to Marine Biodiversity in Areas Beyond National Jurisdiction, building on the existing UNCLOS requirement for the protection and preservation of the marine environment (UNCLOS Art. 192) and calling for an extended definition of "protection and preservation and restoration of biodiversity as well as the marine environment". (Currie and Davis, 2016)

An underdeveloped element of the outcome definition is the 'sustainable use' description. When managing a particular species of fish, conservation and sustainable use outcomes can and should be synonymous. However, sustainable use implies a broader definition of fisheries management that goes beyond the sustainability of a target species population, and extends to encompass fisheries management approaches that are ethical, economically productive, inclusive *and* ecologically sound (Adams 2021⁸⁷). This wider view is also supported by Lodge *et al.*, (2007) who notes the absence of wider socio-economic factors when assessing RFMO performance.

Calibrating the conditions

Calibration is the process of assigning numerical values to conditions across the cases (Befani, 2016). In crisp-set QCA, values can only be binary, with 0 and 1 indicating the absence and presence respectively of a key feature or characteristic of the condition or outcome. Calibration is a key step in the QCA process as all subsequent analyses are based on the numerical values assigned at this stage.

QCA is a qualitative approach, so the data informing the calibration will be textual or mixed (text + numbers), and this data needs to be transformed via the use of rubrics, or qualitative descriptions of each value. As with all good research practices, the data selected to indicate the presence or absence of a key characteristic should be valid and reliable (Kahwati & Kane, 2020), and the process of transforming the data should be transparent and informed by the dialogue between ideas and evidence (Ragin, 1987).

A range of calibration strategies exist to help define Set Membership Values (SMVs) in QCA. For the purposes of this research, a Theory-Consistency strategy was used which defined '1' on the basis of a commonly accepted/well-known definition of the condition in the literature, with '0' then defined in relation to the '1'. The Theory-Consistency strategy was primarily used as it supports the validity and transparency criteria and allows comparison across studies.

Informed by the four critical conditions identified in the literature (see Chapter 4), the following rubrics were developed and are set out in full in Table 5 for transparency. As mentioned earlier, during the course of developing the rubrics, *stakeholder engagement* and *inclusive, equitable approach* were identified as closely overlapping, and so were combined into a new condition.

In approaching the collection, management and analysis of data sources, good practice has been adopted in terms of transparent, [triangulated], iterative and non-mechanistic steps (Kahwati. & Kane 2020). External sources were used to inform initial calibration points, which were subsequently iterated (Ragin's concept of dialogue with the cases) and refined through empiric data from cases (researcher interpretation/judgement). Consulted sources were recorded transparently, with thresholds between SMVs also transparently set out (Appendix E).

⁸⁷ Adams, T (2021) Twitter comment accessed 12:27 4 April 2021.

Mechanistic transformations (such as assigning SMVs on the basis of number of incidences in a text) were avoided in favour of qualitative, expert judgements.

SMVs have been calibrated based on sources meeting the following standards of evidence and falling within the High Seas context (Figure 7). Low bar sources (such as media reports and anecdotal sources) have been excluded. Sources for each SMV are set out in Appendix E), which maps the specific source used (page numbers, survey data, analysis, artefacts and report sections):

High bar <ul style="list-style-type: none">• Peer-reviewed academic sources;• ‘Grey’ reports from <u>official/recognised</u> institutions (e.g. UNEP, FAO)	Research context <ul style="list-style-type: none">• Evidence drawn from High Seas examples/sources (as opposed to marine or coastal sources)
Medium bar <ul style="list-style-type: none">• Researcher interpretation/expert judgement• NGO source material• Twitter/social media commentary (<u>from recognised experts only and validated in follow-up research/analysis</u>)• Stage 1 interview transcript evidence (single perspective)	

Figure 7– Standards of evidence

Table 5 – Crisp set calibration rubric

Presence ('1')	Absence ('0')	Indicators	Evaluation
Condition 1: Access to / management of data (DATA)			
Availability of adequate key scientific data (e.g., EIA baselines)	Absence of key scientific data; partial data sets	Open source data (e.g. GOOS); tailored data sets available	Two or more indicators present = 1
[Scientific/ technical capability] + [access to decision data]	One but not the other, or absence of both scientific capability/access to data	Evidence of [Data literacy/capability] + [accessibility of decision data], form could take individual Science Officer, Committee structures etc	Zero or one indicator present = 0
Effective flow and sharing of data between supra-national and international bodies	Poor / limited flow and sharing of data between supra-national and international bodies.	Evidence of good 'two-way' data flows between (for example FAO and RFMOs); opportunities for regional bodies to influence/input to data held by supra-national body	
Effective flow and sharing of data between equivalent bodies (e.g., RFMO-RFMO)	Minimal or no sharing of data across jurisdictional boundaries	Existence of data sharing forums, MoUs, protocols	
Shared engagement in technical, scientific and research and development programmes	Minimal or no shared engagement in technical, scientific and research and development programmes	Shared programme documentation, agreed schedule of works; working group sessions	
Condition 2: Inclusive Stakeholder engagement (INC-STAKE)			
Flexibility [of processes, timings, means/methods of engagement]	Rigid, inflexible means/methods of engagement	Differing approaches to engagement visible across stakeholder engagement processes	Two or more indicators present = 1
Early engagement	Late and/or overly onerous engagement requirements	Adequate timescales and support mechanisms for all parties (particularly	Zero or one indicator present = 0

		from developing countries)	
Openness to public concerns shaping the end process	Perfunctory, ‘knowledge transfer’ type consultation	Discernable changes between consultation and final decision documents	
Transparency [of processes, timings, means/methods of engagement]	Closed processes; invitational-only engagement	Use of innovative methods of outreach and engagement; active/purposive engagement plan	
Vertical and horizontal stakeholder engagement	Engagement focused on one main audience / one ‘institutional tier’	Cross-section of institutions and communities of actors visible in lists of consultees	

Condition 3: Adaptive management (ADAPT)

Dynamic management processes in place (“learning by doing”), consistent with the adaptive management cycle.	Static (“passive”) management processes in place; absence of feedback loops and reflexive processes.	Evidence of most of the following: iterative planning, implementation, auditing/review of outcomes, and adaptive planning in response to review	Two or more indicators present = 1
Stakeholder engagement at appropriate levels (to inform learning processes and decision-making)	Limited or no stakeholder engagement that feeds through to decision-making; ‘closed, one-way’ structures for decision-making and implementation	Data and experience sharing mechanisms / arrangements;	Zero or one indicator present = 0
Management/decision-maker tolerance of uncertainty and approximate data	Management/decision-maker insistence on certainty prior to implementation of actions	Documentary evidence of decision making under uncertainty and/or iterative approaches	

Condition 4: Multi-party coordination (MPC)

Aligned mandates, duties and responsibilities between parties in respect of IOG	Functionally separate jurisdictions or ‘weak’ alignment between parties in respect of IOG	Shared or coterminous jurisdictional boundaries; evidence of joint projects	Two or more indicators present = 1
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and/or marine conservation	and/or marine conservation.		
Significant political alliances and/or coalitions of interest within IOG collaborations and/ contracting parties	There are no observable significant alliances or coalitions within cases (recognizing that some may exist but are too marginal to influence outcomes)	Documentary evidence of significant collaboration (e.g. regular bi-lateral meetings, joint memoranda etc) ; Policy leaders or ‘entrepreneurs’ acting as drivers of change.	Zero or one indicator present = 0
‘Fairness’ and legitimacy – mutual ‘acceptance’ between parties of another's right to participate and take action	Imbalanced power dynamics between IOG bodies / parties ; Partial or no compliance efforts between adjacent parties (as they do not accept the other as legitimate)	Documentary evidence of working partnerships ; joint initiatives ; ‘equal’ representation at governing forums	
Capabilities within IOG bodies that exceed minimum legal requirements (e.g. capacity and capability to engage with collaborative activities)	IOG body secretariats limited to statutory mandate only.	Evidence of <u>more than one</u> joint activity/endeavour going beyond legal mandate	

The cases under consideration (1): Case selection

In selecting a sample for the study, careful consideration was given to the initial approach. Testing individual cases (OSPAR) was compared with testing collaborations between cases (such as OSPAR-NEAFC). Ultimately it was concluded that a 2-phase analysis was most appropriate – phase 1 being a broad QCA analysis (transforming cases into configurations – or sets of conditions leading to an outcome) of those regional ocean governance institutions able to implement the provisions of the ILBI. This is complemented by phase 2 of the research: an intensive, in-depth case study on a ‘real-world’ regime area, including some of those institutions identified as having a positive outcome, and drawing on interplay theory.

As outlined by Rihoux and Lobe (2009), a key stage in QCA is defining the cases theoretically (in this instance, empirical, general cases that pre-exist the research) and justifying their inclusion in the data table by defining attributes. For the purposes of this research, case selection was justified by a number of factors and criteria:

- **High Seas context:** Given the focus of the research, the most important criterion was that cases should be operating in the High Seas (fully or partially).
- **Conservation and/or sustainable use:** As above, given the focus of the research, cases were selected on the basis of their conservation mandate and/or focus
- **Regional implementation** – Implementation of the ILBI will take place primarily at the regional level (RFMO, RSCAP). Given the focus on this level of implementation and in recognition that many global treaties and institutions exert influence through regional bodies (e.g. CITES, FAO, UNEP) or through States (IMO), the criteria excluded global influencing and global *implementation* bodies (such as IWC and ISA).
- **Geographical distribution and coverage:** ideally, at least 1 case from each of the world’s 5 major oceans. The Arctic Ocean is excluded on the basis the Arctic Council does not (yet) fulfil the range of functions of a RFMO/RSCAP.
- **Institutional diversity:** ideally at least 1 Regional Fisheries Management Organisation and 1 Regional Seas Convention/Organisation covering each ocean area.
- **Availability of data:** The last consideration but relevant given the lack of meaningful data in the High Seas institutional context.

Applying the criteria above resulted in a representative sample selection of fourteen regional ocean governance organisations engaged in the conservation or sustainable use of High Seas biodiversity (SIOFA, SPREP, SPRFMO, WCPFC, NPAFC, NPFC, OSPAR, NEAFC, MAP, GFCM, IATTC, SEAFO, CCAMLR and NAFO) – see Figure 8. As described in earlier chapters, the emerging BBNJ agreement is most likely to be implemented by existing bodies, so analysing the capabilities of existing organisations provides a useful insight into the ‘future implementation’ space.

Both Regional Seas Conventions and Action Plans (RSCAPs) and Regional Fisheries Management Organisations (RFMOs) contribute to the conservation of High Seas biodiversity – sometimes by acting collectively – so the research treats both of these organisations as cases within the definition of a “meaningful comparable population of a phenomenon” (Cambré, Loosveldt and Swyngedouw, 2008), or cases with common characteristics and similar outcomes

The sample provides sufficient cases to perform a QCA but – as outlined above – also separates out the conditions affecting successful implementation of the ILBI by existing bodies from consideration of the forces shaping the effectiveness of the conditions and configurations (the ‘why’), which will be considered in Chapter 7.

The following five institutions were excluded by the criteria on the following grounds: CCSBT, ICCAT, IOTC on lacking a primary conservation mandate, IWC on the basis of its hybrid status⁸⁸ and NASCO on grounds of scale and volume of species under management.

⁸⁸ IWC is both a global entity and considered a RFMO by the FAO.

Figure 8 Case selection - Organisations with a High Seas mandate and a primary focus on conservation⁸⁹

Oceans and geographical areas ⁹⁰		Regional fisheries management organisations (RFMOs) with a High Seas mandate (Pew, 2016, ⁹¹ FAO, 2020 ⁹²)		Regional Seas Conventions and Action Plans (RSCAPs) with a High Seas mandate (Pew, 2016)	
Arctic		-		Arctic Council	-
Southern	Antarctic	-		CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
	-	CCSBT	Commission for the Conservation of Southern Bluefin Tuna	-	
-	Mediterranean	GFCM	General Fisheries Commission for the Mediterranean	MAP	Mediterranean Action Plan for the Barcelona Convention
Atlantic	-	ICCAT	International Commission for the Conservation of Atlantic Tuna	-	
	North-East Atlantic	NEAFC	North East Atlantic Fisheries Organisation	OSPAR	OSPAR Commission (from the Oslo and Paris Conventions)
	North-West Atlantic	NAFO	North West Atlantic Fisheries Commission ⁹³		
	South-East Atlantic	SEAFO	South East Atlantic Fisheries Organisation	Abidjan Convention	Abidjan Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of

⁸⁹ It is acknowledged that the definition of conservation differs between RFMOs (and the FAO) and institutions outside of the extractive industry (e.g. RSCAPs) The RFMO/FAO definition of “conservation” derives from the 1958 Convention on Fishing and Conservation of the Living Resources of the High Seas, “As employed in this Convention, the expression “conservation of the living resources of the high seas” means the aggregate of the measures rendering possible the optimum sustainable yield from those resources so as to secure a maximum supply of food and other marine products. Conservation programmes should be formulated with a view to securing in the first place a supply of food for human consumption”.

⁹⁰ Cases grouped by geographical area to assist in interplay analysis (e.g. commonality of languages, cultural contexts, shared historical path dependencies etc) and NVivo attributes

⁹¹ [Mapping Governance Gaps on the High Seas | The Pew Charitable Trusts \(pewtrusts.org\)](#). August 2016

⁹² Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). *Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017*.

⁹³ Although lacking a primary conservation mandate, NAFO is included due to its considerable progress in adopting, developing and implementing the Ecosystem Approach to Fisheries approach

					the Atlantic Coast of the West, Central and Southern Africa Region ⁹⁴
Indian Ocean	South Indian Ocean	SIOFA	South Indian Ocean Fisheries Agreement	Nairobi Convention	Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean ⁹⁵
	-	IOTC	Indian Ocean Tuna Commission		
Pacific Ocean	Eastern Pacific	IATTC	Inter-American Tropical Tuna Commission	-	
	South Pacific	SPRFMO	South Pacific Regional Fisheries Management Organisation	Lima Convention	Lima Convention (Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific)
	Western and Central Pacific	WCPFC	Western and Central Pacific Fisheries Commission	SPREP ⁹⁶	(Noumea Convention) Secretariat of the Pacific Regional Environment Programme
	North Pacific	NPAFC	North Pacific Anadromous ⁹⁷ Fish Commission		
		NPFC	North Pacific Fisheries Commission		

⁹⁴ Parties and member countries of the following Regional Seas Programmes have also started studying the issues related to biodiversity in ABNJ

⁹⁵ *Ibid*

⁹⁶ SPREP lacks the regulatory authority to enact binding management measures

⁹⁷ An anadromous fish, born in fresh water, spends most of its life in the sea and returns to fresh water to spawn. Salmon, smelt, shad, striped bass, and sturgeon are common examples.

The cases under consideration (2): Key data sources

Having selected the cases, data on the four identified conditions and the outcome was gathered through documentary analysis and reference to elite interviews and assessed against the calibration rubric.

This key stage in the analytic process involves the researcher forming a judgement on the initial set membership value (SMVs) of each piece of evidence in turn, and then the overall evidence in aggregate for each condition against each case. The synthesis of this analytic review was then converted into final SMVs (taking the mean score across all evidence sources) which were then expressed as a raw data table (see Chapter 6).

Arriving at initial and final SMVs is a key stage for three main reasons: Firstly, clearly setting out initial and then aggregate scores supports transparency of process, aiding future replicability, potential expansion of sample and scrutiny. Secondly, the SMVs indicate the set-membership status of a condition, either fully ‘in’ a set (‘1’) or fully out (‘0’), a numerical format essential for the subsequent Boolean minimization process applied in Chapter 6. Thirdly, the SMVs demonstrate internal consistency through the application of the Theory-Consistency calibration approach (Befani, 2016)

In addition to a comprehensive review of the available published literature, judgements informing the SMVs were also supported through reference to influential grey literature, such as the Chatham House report on Recommended Best Practices for RFMOs (Lodge *et al.*, 2007) and the assessment criteria developed as part of the final report of the Ministerially led Task Force on Illegal, Unreported and Unregulated Fishing on the High Seas (HSTF)⁹⁸. The official RFMO Performance Reviews were also utilised, although judgements were conditional to a degree given the age of some of the reports. A strategy was adopted to focus only on the more recent publications⁹⁹, as shown in Table 6 below.

Table 6: RFMO Performance Review sample

	1 st review	2 nd review	Sample reviewed for Chapter 5
CCAMLR	2008	2017	2017
GFCM	2011	-	2011
IATTC	2016		2016
NAFO	2011	2018	2018
NEAFC	2006	2014	2014
SEAFO	2010	2016	2016
SIOFA	-	-	-
SPRFMO	-	First review undertaken in 2018	2018
WCPFC	2012	-	2012

⁹⁸ Established in 2003, the HSTF comprised a group of fisheries ministers and international non-government organizations (NGOs) working together to develop an action plan designed to combat illegal, unregulated and unreported fishing on the high seas. The HSTF final report was released in March 2006.

⁹⁹ For the purposes of evidencing SMVs, a cut-off (2011) for reviewing performance data has been applied in order to balance existing reports against usefulness of data. Where more recent reports exist, these have been reviewed and not the original report (on the basis of more-up-to-date information and that the reports build cumulatively on issues identified, and therefore cover the same issues but in a more up to date manner).

Commentary on the data sources reviewed.

The following section provides a commentary on the results of the meta-analysis of RSCAP and RFMO performance in relation to the identified conditions and outcome (DATA, INCLUSIVE-STAKEHOLDER, ADAPTIVE, MULTI-PARTY COORDINATION and CSU/BBNJ).

As described above, the source material reviewed was extensive, with preference given to official and independent reports and peer-reviewed literature where possible. However, the paucity of official data on effective performance for both RSCAPs and RFMOs resulted in a mix of studies assessed.

A particular challenge across both RFMOs and RSCAPs is the absence of aggregate-level data on ecosystem health and overall levels of biodiversity. High-level data for RSCAPs in particular tends to reflect one or more of the following categories: (i) a deficiency in data, and a future-focussed action plan to address the gaps, (ii) performance against a range of biodiversity or species-specific indicators but no aggregate overview, (iii) extremely out-of-date data and (iv) data linked to the priorities of some of the contracting parties (e.g. France) and not set in a wider context (what does the data mean for the wider Mediterranean?)

RSCAPs

“An often-repeated general criticism of Regional Seas activity: The programme is one of ‘cooperation without implementation’”. (DiMento & Hickman, 2012, p165)

The UNEP Regional Seas Programme was established in 1974 to address the worsening condition of the world’s ocean (UNEP, 2014). Commonly organised around a legal framework (Convention) with a corresponding Action Plan to help implement activities, the Regional Seas Conventions and Action Plans (RSCAPs) help to coordinate stakeholder activities in an oceanographic region to address issues of marine pollution, marine protected areas, integrated coastal zone management and marine spatial planning, coastal and ocean ecosystem services, and the relationship between agricultural and land-based interests and those of ocean users. Most RSCAPs also have functions relating to communication, training and monitoring and assessment.

The programme currently comprises of 18 Regional Seas Conventions and/or Action Plans in which 146 countries participate (UN Environment, 2016), and RSCAPs form a key institutional interface between individual States parties, business and civil society and the wider institutional apparatus of United Nations agencies and multilateral environmental agreements (MEAs).

Rochette *et al.* (2014) describes the benefits of RSCAPs as including measures which reflect regional political, legal and ecological characteristics; a diversity of approaches and perspectives: an aggregate effect where regional arrangements can sometimes surpass global protection standards; promotion of cooperative actions to address common concerns, and ‘bottom-up’ approaches enhancing and facilitating more active participation by States and other stakeholders.

However, while acknowledging these benefits it is important to note that RSCAPs vary in configurations, resources, political support and expertise (UNEP, 2014), all factors which influence how effectively they are able to deliver their objectives.

Only four RSCAPs currently include areas beyond national jurisdiction (ABNJ)¹⁰⁰ within their range, namely: the Convention for the Protection of the Marine Environment of the North-East

¹⁰⁰ Other RSCAPs are beginning to explore extending their functions into protection of marine biodiversity in ABNJ. These include the Lima Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific (CPPS), the Abidjan Convention for Cooperation in the Protection, Management and Development of Marine

Atlantic (OSPAR), the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (UNEP/MAP), and the Noumea Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (SPREP).

The two key publications regarding RSCAPs performance are Ehler's (2006) *global strategic review of the Regional Seas Programme*¹⁰¹, and Dimento and Hickman's (2012) *Environmental Governance of the great seas: Law and effect*. While useful for concepts, approaches and historical performance assessments, both publications are now dated and used selective case study approaches which limit their applicability.

Similarly, the key synthesis report for RSCAPs¹⁰² is now twelve years out of date, and the more recent UNEP summary of RSCAPs operating in ABNJ¹⁰³ is limited to a selective sample of cases.

Commentary on DATA condition evidence

RSCAPs have baseline obligations through their constituting members being Parties to UNCLOS (1982) with obligations regarding UNCLOS Part XII (on the Protection and preservation of the marine environment) and UNCLOS Section 2, Art.200 on Studies, research programmes and exchange of information.

UN-administered RSCAPs¹⁰⁴ are also obliged to produce regional seas 'state of the marine environment' (UN Environment, 2017) reporting (also called Quality Status Report, State of the Coast Report, depending on the region), although these reports tend to focus on environmental pressures, species and habitat-specific issues and rarely bring together a holistic ecosystem functioning assessment (see CSU/BBNJ below). This situation may improve in the future as RSCAPs have collectively adopted a Regional Seas Core Indicators suite, aligned to the global SDGs (UNEP, 2019).

Many RSCAPs seek to provide a regional 'hub' for data, information and knowledge flows (e.g. UNEP-MAP's MedProgramme and SPREP's regional Pacific Environmental Portal), and where the evidence indicated a hub or portal had been established and was working well (as opposed to an aspiration) this scored highly in the assessment. Many RSCAPs have also developed region-wide environmental indicator sets.

Commentary on INC-STAKE condition evidence

Reflecting their partnership-based constitutions, many RSCAPs have close, inclusive relationships with a broad range of stakeholders, although this breadth can sometimes be to the detriment of delivery, with the Independent Corporate Review of SPREP finding that "SPREP is trying to cover too many bases and serve too many stakeholders" (SPREP, 2021, pvi)

and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region, and the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean (UN Environment, 2017).

¹⁰¹ Ehler, C. (2006). *A global strategic review: Regional Seas Programme*. UNEP.

¹⁰² UNEP (2010) *Global Synthesis: A report from the Regional Seas Conventions and Action Plans for the Marine Biodiversity Assessment and Outlook Series*. Nairobi.

¹⁰³ United Nations Environment Programme. (2017b). *Regional Seas Programmes covering areas beyond national jurisdictions*. Regional Seas Reports and Studies No. 202

¹⁰⁴ There are currently three types of RSCAP: UN-administered (established and directly administered by UNEP who provides Secretariat functions, managing of finances and technical assistance), non-UNEP **administered** (established under the auspices of UNEP, but another regional body provides the Secretariat and administrative functions) and independent (such as OSPAR).

Table 7: Relevant clauses to RFMOs (and RSCAPs) under UNCLOS (1982) and UNFSA (1995)

	UNCLOS (general applicability via Contracting Parties / members)	UN FSA (specific applicability via Contracting Parties)	1995 FAO Code of Conduct for Responsible Fisheries (specific applicability to RFMOs)
DATA	Regional organisations are mentioned under UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information	Contracting parties are signatories to/RFMOs have incorporated UN FSA (1995) Articles of relevance include: FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data	Article 12 – Fisheries research
INC-STAKE	Part XIV of UNCLOS, related to the Development and transfer of marine technology	Recognition of the special requirements of developing States and artisanal/subsistence fisheries UNFSA (Arts. 3(3), 5(i), 24 and 25)) and Article 12 (Transparency)	Article 5 – Special requirements of developing countries
ADAPT	-	Contracting parties are signatories to/RFMOs have incorporated UN FSA (1995) Article 6 (Precautionary Approach, which includes elements of adaptive management)	Article 6 (General Principles) 6.4 - Conservation and management decisions for fisheries should be based on the best scientific evidence available, also taking into account traditional knowledge of the resources and their habitat, as well as relevant environmental, economic and social factors...recognising interactions with the [wider] ecosystem
MPC	Part VII High Seas, Section 2, Art. 118 (Cooperation of States in the conservation and management of living resources)	Contracting parties are signatories to/RFMOs have incorporated UN FSA (1995) Article 7 (Compatibility of conservation and management measures); UNFSA 9(1)(c), 12(2) addressing cooperation with other organizations	1995 FAO Code of Conduct for Responsible Fisheries (Code of Conduct) - RFMOs are charged with collaborating in the implementation of the objectives and principles in the Code

	<p>Regional organisations are mentioned under UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.197 on Global and Regional Cooperation</p> <p>Part XIV of UNCLOS, related to the Development and transfer of marine technology, under Section 2 (on international cooperation) and Section 3 (on national and regional marine scientific and technological centres) refer to institutional structures and functions that are mirrored by RSCAPs.</p>		
CSU/BBNJ	<p>Part VII High Seas, Section 2, Art. 119 (Conservation of the living resources of the high seas)</p> <p>Under UNCLOS the importance of regional of regional organisations is particularly mentioned in Part XII, on the Protection and preservation of the marine environment,</p>	Article 5 (g) requires Parties to the FSA to protect biodiversity in the marine environment	Article 6 (General Principles) Multiple references to the conservation and sustainable use of living marine resources.

The partnership-based model, while inclusive, can also affect progress with delivery, as not all partners are equally well resourced, and many initiatives are ‘nested’, relying on all parties to be able to move and act at the same pace. (UNEP/MAP Medium-Term Strategy 2022-2027, p134)

Resource issues are also a consideration for RSCAPs, with enhanced stakeholder engagement in (and on) ABNJ issues requiring “additional human and financial capacity” (OSPAR, 2017)

Commentary on ADAPT condition evidence

The data indicates strong evidence of RSCAPs using data to assess impacts and adapt management responses accordingly, but that this can often be held back by a lack of organisational investment (SPREP, 2021 p64). In some areas (northern Atlantic), RSCAPs collaborate with RFMOs to identify and jointly nominate “Ecologically or Biologically significant marine Areas” (EBSAs), in line with Convention on Biological Diversity (CBD) guidance.

Commentary on MPC condition evidence

Many RSCAPs incorporate partnership working in their governing documents and this is reflected in the diversity and range of partners, for example SPREP currently has ~58 active partnership agreements (SPREP, 2021). The Collective Arrangement¹⁰⁵ between OSPAR and NEAFC represents perhaps the most mature example of multi-party cooperation, in that OSPAR and NEAFC have reached the fourth (and most developed stage) in the ‘ladder of coordination’ model (Hanssen *et al.*, 2013) where both parties have adopted joint measures across their sectors. The Collective Arrangement is also forward looking, in that it is open to wider membership and was designed to accommodate the four key sectors relevant to management of ABNJ (IMO for shipping, ISA for seabed management and RFMO and RSCAP for fisheries and wider conservation)

Commentary on CSU/BBNJ condition evidence

RSCAPs produce region-wide data compendiums, but these often fall short of providing a summative overview or drawing out assessment of overall ecosystem functioning. This is a short-term strength in that it allows resources to be directed to urgent indicators, but it falls short of meeting RSCAPs overall objectives, with the focus on activity (inputs) and isolated results (outputs) arguably preventing the wider mobilisation of partners, resources and political attention, which might flow from a focus on outcomes and impacts (SPREP, 2021, p35).

The opposite tends to be true in areas where supranational entities exist (such as the EU); in these areas regional data requirements tend to be of a higher quality and follow more coherent collection routes for data, with Member States required to provide information in a consistent format and on a regular basis. The material also tends to be organised in an aggregate format due to the need for summary information for consumption across 27 different countries.

In the case of the Mediterranean (UNEP-MAP) and North-East Atlantic (OSPAR), summaries of regional sea performance and biodiversity aggregate status are both available (via the European Environment Information and Observation Network (Eionet), a partnership between 39 EU Member States and cooperating countries and the European Environment Agency), and from ‘Plan Bleu’, one the Regional Activity Centres of the Mediterranean Action Plan (MAP) which provides (among other functions) regional observatory type services.

¹⁰⁵ UNEP Information Paper on the process of forming a Cooperative Mechanism between NEAFC and OSPAR - <https://www.ospar.org/documents?v=35111>. [Accessed 14th September 2017].

Unfortunately, both of these summaries led to ‘0’ status for both MAP, OSPAR and GFCM (although not NEAFC, due to its restricted fisheries mandate). In the first initial assessment, the OSPAR outcome is negative while its conditions are positive. This may point to the fact that human pressures in the sea area (land-based run-off pollution, heavy shipping lanes, established fishing industry, historical pollution from early industrialisation) outweigh the management and collaboration capabilities of the organisational regime, so despite it performing better on average than other regimes, the outcome is still negative. That would stand to reason as it is more challenging to manage a resource given more pressures on it. The other factor likely to be at play relates to more mature institutions tend to publish more data about their governance and performance, so there is more material to be scrutinised and judged.

RFMOs

“The performance of any RFMO is to be judged, in the end, by the status of the stocks it is responsible to manage; and the management of any stock can be only as good as the data available for the assessment of its status” p107, WCPFC Performance Review, 26-30 March 2012

Regional Fisheries Management Organisations (RFMOs) are regional mechanisms for States parties and international organisations (such as the European Union) to cooperate on the sustainable use and conservation of marine living resources and/or the development of marine capture fisheries (UNEP, 2016). They have mandates to adopt legally binding conservation and management measures and operate according to their founding Conventions and decision-making by their Contracting Parties.

RFMOs coordinate via inter-institutional relationships and collectively via the Regional Fishery Body Secretariats’ Network (RSN), a collaborative forum hosted by the FAO. Under the UN Fish Stocks Agreement (UN FSA 1995), RFMOs are also the primary vehicles for cooperation between coastal states and high seas fishing states in the conservation and management of straddling fish stocks and highly migratory fish stocks.

The two primary sources for performance data of RFMOs are the periodic Performance Reviews commissioned by FAO, and independent performance reviews commissioned by the RFMO Management committees and contracting parties.

The first of these reviews took place in 2006, with subsequent and follow-up reviews occurring between 2008-18¹⁰⁶. The reviews utilise four general criteria: assessment of conservation and management of fish stocks; the level of compliance with international obligations; the status of legal frameworks and organizational and financial affairs; and the level of cooperation with other international organizations and non-member States.

In addition to these formal sources, a range of academic literature and ‘grey’ research reports were consulted.

Commentary on DATA condition evidence

As a baseline level of performance, parties to UNCLOS (1982), UN FSA (1995) and FAO Code of Conduct (1995) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information; FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data; and FAO Code of Conduct for Responsible Fisheries (1995) Article 12 (Fisheries research)¹⁰⁷. While these may be implemented to a varying degree, they represent a common standard of evidence for RFMOs in terms of *access to/management of data*.

In reaching assessments on the extent to which RFMOs have met this standard and exceeded it, a range of other evidence sources were considered, including the most recent independent RFMO Performance Reports (various, 2011-18)¹⁰⁸ and the FAO’s over-arching review (FAO, 2015) of how effectively the recommendations from the Performance Reports have been implemented. These official sources provided information on how RFMOs had (in some but not all cases)

¹⁰⁶ 15 out of 22 RFMOs have undertaken performance reviews.

¹⁰⁷ Please see table 7 for a more detailed summary of RFMO UNCLOS, UN FSA etc obligations.

¹⁰⁸ Please refer to table 6 for a list of RFMO Performance Reports consulted.

expanded their data collection efforts beyond their regulatory areas to encompass their entire convention area¹⁰⁹.

However, RFMOs are often not the data ‘owners’ and have to manage data within proscribed limits, which can constrain sharing and wider use such as among other agencies and researchers (SPRFMO Independent Performance Review, 2018, p19). The exception to this is the IATTC, with its original 1949 Agreement placing responsibilities on IATTC to undertake a range of scientific functions including “*promote, carry out and coordinate scientific research concerning the abundance, biology and biometry in the Convention area of fish stocks covered by the Convention and, as necessary, of associated or dependent species and the effects of natural factors and human activities on the population of these stocks*” (Article VII). As such, IATTC has, since the 1950s, had an internal research program that was designed to meet its obligations under the Convention. To do this it has built a long-term program to undertake serious biological research, ecosystem (including bycatch) data collection, tagging and stock assessment. (IATTC Independent Performance Review 2016, p29), and more recently employed the use of drones to improve estimates of dolphin abundance in the Eastern Tropical Pacific (Sustainable Ocean Initiative, 2021, Annex 3)

Looking at interplay between existing organisations and the ILBI, both RFMOs and RSCAPs rely (to a greater or lesser extent) on third-party data collection and reporting (such as fishing vessels reporting on observations, sightings and catch composition). This situation varies markedly, with some ocean areas relying almost entirely on third-party data. Mounting dedicated data collection expeditions in the Southern Ocean involve huge expense and complexity due to the conditions and relative isolation and are mostly conducted via commercial vessels.

Data interpretation is also challenging, even in European waters as “*the small pelagic and demersal fisheries in the GFCM area, accounting for close to 90% of landings, are generally conducted by small fishing units relatively close to their home ports. This complicates the interpretation of fishery data to a great extent*”(p23, *GFCM Performance Review 2011*). The Review goes on to conclude that the GFCM approach to data does not appear to appreciate the ways in which neighbouring countries’ management of their national jurisdiction fisheries may influence GFCM areas (GFCM Performance Review, 2011)

Factors in forming the SMV judgement included: consideration of frequency/regularity of data reporting (for example, depending on the region CCAMLR requires daily, five-day, ten-day and monthly catch and effort reporting); the extent to which data processes were organised (e.g. through dedicated Working Groups, specialist sub-Committees or Joint Programmes), supported (through senior roles such as Chief Scientist) and utilised in decision making; and the expansion of data gathering beyond RFMO-specific data to include Vulnerable Marine Ecosystem (VME) requirements.

Commentary on INC-STAKE condition evidence

The UN FSA (1995) and FAO Code of Conduct for Responsible Fisheries (1995) both contain model provisions that are often reflected in RFMO conventions and therefore in their operational controls and management procedures. An example would be the requirement for transparency, where RFMO Convention transparency provisions are often consistent with Article 12 of the UN Fish Stocks Agreement and paragraph 7.1.9 of the FAO Code of Conduct on Responsible

¹⁰⁹ RFMO convention areas often cover ABNJ and EEZ; however, their regulatory areas cover only ABNJ. With the consent of relevant coastal States, these RFMOs also establish measures within those States’ EEZ

Fisheries, both of which strongly encourage transparency in fisheries management and decision-making.

An important aspect in calibrating the '*Inclusive stakeholder engagement*' condition was the issue of transparency, defined in the NAFO Independent Performance Review (NAFO, 2018, p36) as “two-fold – internal (i.e., whether decisions within NAFO are made in a transparent manner) and external (i.e., openness towards other organizations and civil society)”. Calibration decisions were informed by: the presence of working groups to deliberate options before making final recommendations; flexibility to allow a change of position amongst delegations; accessible and non-onerous procedures for allowing other intergovernmental and civil society interests to observe, and in certain selected cases (such as SPRFMO), participate in working level discussions.

Initial SMV judgements were further informed by peer-reviewed composite indices and assessments of RFMO transparency (Clark *et al.*, 2015) and official evaluations of the independent performance assessments (FAO 2020).

More mechanistic elements which were assessed included the accessibility and ease of navigation of RFMO websites; the timeliness of uploading information and the presence of a public relations or stakeholder policy to guide day-to-day activities.

Commentary on ADAPT condition evidence

As set out earlier in this chapter, a major component of assessing the adaptive management condition involved identifying evidence of RFMOs having adopted the Ecosystem Approach to Fisheries (FAO, 2003, Løbach *et al.*, 2020), or similar evidence of having adopted and applied adaptive management processes (for example, establishing regular data feedback inputs to decision-making). In addition to official reports, peer-reviewed academic articles also provided an extremely useful source of evidence in this area, with several authors examining and assessing (through scorecards, ranking systems and indices) RFMO performance in relation to application of the FAO EAF process (Fletcher, 2020), ecosystem-based governance of bycatch and discards (Gilman *et al.*, 2014), linking adaptive management to fishery closures and target species prohibitions (Kock, 2000) and more generic comparative assessments (Willock and Lack, 2006; SOI 2021).

Commentary on MPC condition evidence

Evidence of *Multi-party coordination* was drawn from documented interactions between two or more institutions (e.g. MoUs, cooperation agreements), diversity of forms of cooperation (such as scientific, management and data cooperation), cooperation with NGOs and environmental treaty-based organisations (such as ACAP and CITES) and provisions to support developing States attend and participate in discussions.

Commentary on CSU/BBNJ condition evidence

The most challenging ‘condition’ to evaluate, the outcome of conservation and sustainable use of BBNJ focussed where possible on “effectiveness indicated by physical parameters” (DiMento and Hickman, 2012) or the extent to which actual conditions in the seas have changed over time.

However, few summative evidence sources exist that align biodiversity status to the regulatory areas of the RFMOs. Where sources do exist, they tend to focus less on the overall ‘state’ of species, habitat, or ecosystem functioning, and more on (i) the state of biodiversity for target, non-

target and other species (which overlooks wider ecosystem functioning) or (ii) the performance of the RFMO in relation to implementation of meaningful management measures such as closure of areas for bottom-fishing (Elliot, 2020), the number/effectiveness of measures and the intensity/spatial extent of regulated activities (Bell *et al.*, 2019, Gianni *et al.*, 2016).

These types of assessments – where supported by robust evidence such as peer-reviewed academic publications (Cullis-Suzuki and Pauly, 2010) – were used as a proxy for an overall biodiversity assessment.

Reflections on the process and validity of arriving at SMV judgements.

This section of the chapter reflects on the data and evidence used in the analysis from an internal validity (the depth and accuracy of the underlying rationale) and external validity (breadth of literature and data) perspective, concluding with insights and reflections on the process.

Reflections on the availability and temporality of data

In presenting, organising and synthesising the data in Appendix E, it was important to be transparent and systematic in how the various data sources were selected and contrasted. In all cases of source material, the date of publication has been provided and, where possible, the most up-to-date source used (in preference of older source material). However, the variable quality, intermittent nature of reports and the overall lack of data on deep-ocean and ABNJ institutional performance must be acknowledged – for example, even the most up-to-date, official report used in the chapter (the FAO's Report on the activities and developments of RFMOs and RFABs, 2020) may have been published in 2020 but draws on a compilation of data and information between 2000-2017.

As discussed earlier in the chapter, a particular challenge for researchers investigating RFMO and RSCAP biodiversity performance is the absence of aggregate-level data on ecosystem health and overall levels of biodiversity.

A wide variance can also be seen across RSCAPs and RFMOs in terms of published data – some institutions such as CCAMLR document performance in high levels of detail, while others are more opaque, supporting the rationale for a triangulated, meta-review of formal, informal and academic data to build a performance picture in aggregate.

Validity of SMVs to inform data table construction.

SMV judgements were formed (where possible) on a minimum of two evidence sources (reflecting the paucity and lack of robustness of RFMO and RSCAP performance data), but in most instances three or four sources were used. To arrive at a single SMV value, a set membership threshold of 0.5 was established, with scores assigned to each of the evidence sources, arranged in order and then a mean value taken to indicate whether a certain condition of the case was fully out of the set (0.333, or 0) or fully in the set (0.666, or 1).

A number of evidence sources were consulted for each case, both in order to increase robustness but also to help 'smooth' discrepancies in third-party assessments. As an example, in considering the contribution of the tuna RFMO IATTC to the CSU/BBNJ outcome, academic assessments diverged with Juan- Jordá *et al.* (2018) reporting better than average performance by IATTC in implementing ecosystem-based fisheries management, whereas Cullis-Suzuki and Pauly (2010) gave a relatively low 33.3% overall score in their 'performance in practice' assessment. Discrepancies also arose due to the differences in approach, research focus and methodology, hence the need for multiple evidence sources to help identify a consensus position.

Further challenges with calibration judgements involved the application of a standardised rubric to different organisations. RFMOs and RSCAPs are subject to differing geo-political and socio-economic contexts and factors relevant to each regional context need to be taken into account and reflected in the criteria applied (Mannini, 2019). Interestingly, CCAMLR has joint status as both

a RFMO and RSCAP¹¹⁰ but has been allocated to the RSCAP category for the purposes of this assessment. It is useful to reflect on this joint status when defending the decision to consider RFMOs and RSCAPs as a common set and consider the possible future evolution of what are currently separate organisations.

¹¹⁰ CCAMLR is a conservation organization with some attributes of an RFMO (CCAMLR-XXI, Paragraph 15.2).
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Conclusions

The approach of a meta-analysis, bridging and bringing together a range of different source materials inevitably involves reviewing content produced by different authors, under different conditions and timescales, and with differing research methods. While the QCA approach allows for a diversity of input data and heterogeneity (to some extent) across cases, there are clearly limitations in how far assessments of causality can be applied. At best, the evidence presented in this chapter and the empirical testing set out in Chapter 6 point towards plausible configurations of conditions that lead to a certain outcome.

A strength and weakness of the approach lies in the breadth and diversity of evidence consulted. Traditional meta-analyses tend to specify certain databases which leads to an over-reliance on published journals for example, whereas this research took a broad view of what constitutes evidence in the field of RSCAP and RFMO studies. Further methodological constraints related to: bias towards reports in English-only, difficulties in setting a time period to include/exclude sources, and the low quantities of performance evidence overall.

On this last point, a key area for future research lies in the need for a comprehensive review of RSCAPs performance¹¹¹, potentially drawing on recent work to develop a common set of RSCAP indicators aligned to the SDGs. The majority of performance data is out-of-date, and where more recent information is available it is reported unevenly across the RSCAP family, making comparative assessments challenging. In line with calls for standardising the approach to evaluating RFMOs (Mannini, 2019; Haas *et al.*, 2020), a two-tier framework could be established, with the first tier describing minimum standards of acceptable performance and the second tier representing levels of outperformance beyond this.

¹¹¹ While superficially the same argument could be made for an up-to-date assessment of RFMOs, the FAO has (as a minimum) established a regular cycle of evaluations and formulated a common set of performance criteria, although gaps remain as shown in Table 6: RFMO Performance Review sample.

Governing the High Seas: Effective Institutional Arrangements for the Conservation and Sustainable Use of Biodiversity beyond National Jurisdiction

Chapter 6: QCA results and returning to cases and theory

Introduction

The thesis hypothesizes that for the outcome (of conservation and sustainable use of marine BBNJ) to be realised, two processes need to occur: Firstly, the forthcoming BBNJ agreement needs to be implemented effectively by existing bodies, and secondly existing bodies need to work together effectively.

Chapter 5 described the theoretical basis for four candidate conditions of effectiveness (DATA, INC-STAKE, ADAPT and MPC) which, in combination or on their own, *may* contribute to the presence of the intended outcome (CSU/BBNJ).

The following chapter tests these conditions empirically using Qualitative Comparative Analysis (QCA). As described in the methods chapter, QCA is ideally suited to this investigation as it proceeds from a theoretical basis, involves iterative dialogue with qualitative cases and captures causal asymmetry (in that causal factors may be only necessary but insufficient, or sufficient but not necessary).

Befani (2016) suggests QCA is well suited to answer (at least) two empirical questions, which closely match the requirements of the research hypothesis, namely:

What causal factors are necessary for the outcome to occur?

What causal factors - alone or in combination - are most effective (sufficient) for the outcome?

The following results chapter will apply the main analytical tools of Qualitative Comparative Analysis (QCA) to address these questions in the context of institutional effectiveness in High Seas conservation. A guide to the specific nomenclature and notation used in QCA is provided at the beginning of the thesis (viii/ix).

Analysing the conditions influencing the effective conservation & sustainable use of BBNJ

Crisp-set QCA (or csQCA) refers to the analysis of dichotomous social data, reflecting the membership of cases to sets. The underpinning analysis is based on Boolean algebra, where a case is either in or out of a set, with 1 indicating membership and 0 indicating non-membership.

There are two 'states' in Boolean algebra - True (or present) and false (or absent). A Boolean-based comparative analysis addresses the presence or absence of conditions under which a certain outcome is observed. In order to use Boolean algebra to carry out a qualitative comparative analysis, it is first necessary to construct a raw data matrix which represents the set-membership scores from Chapter 5's calibration.

Each row in the raw data matrix comprises a case (either a RSCAP or RFMO), and each column represents the causal condition being analysed alongside the outcome. This is shown in Table 8 below. Conditions scoring on the threshold between fully in or out of a set membership are highlighted in red for subsequent analysis.

Table 8: Aggregate SMVs for all cases across theoretical conditions of effectiveness and outcome of interest, presented in order of original design (raw data matrix).

Cases	Condition 1: DATA	Condition 2: INC-STAKE	Condition 3: ADAPT	Condition 4: MPC	Outcome: CSU/BBNJ
CCAMLR	1 (0.667)	0 (0.3335)	1 (0.833)	1 (0.75)	1 (0.75)
SEAFO	0 (0.375)	1 (0.875)	0 (0.25)	1 (0.667)	1 (0.625)
IATTC	1 (0.667)	1 (0.75)	1 (0.667)	1 (0.75)	1 (0.5)
NAFO	1 (0.833)	1 (-)	1 (0.875)	1 (0.833)	1 (-)
GFCM	1 (0.5)	0 (0.25)	1 (0.5)	1 (0.667)	0 (0.125)
MAP	1 (0.5)	1 (0.75)	1 (0.75)	1 (0.75)	0 (-)
NEAFC	1 (0.75)	0 (0.167)	1 (-)	1 (0.875)	1 (-)
OSPAR	1 (0.667)	1 (0.75)	1 (0.833)	1 (-)	0 (-)
NPAFC	1 (0.5)	0 (0.25)	0 (0.25)	1 (0.667)	1 (-)
NPFC	1 (0.75)	1 (-)	1 (0.67)	1 (-)	1 (0.5)
WCPFC	1 (0.5)	1 (-)	1 (0.75)	1 (0.625)	1 (-)
SPRFMO	1 (0.667)	1 (0.5)	1 (0.75)	1 (0.75)	0 (0.25)
SPREP	1 (0.677)	1 (0.677)	1 (0.5)	1 (0.75)	0 (0.167)
SIOFA	1 (0.75)	1 (-)	1 (0.5)	1 (0.667)	1 (0.5)

Preparing the truth table data

Having established dichotomous set-membership values (SMVs) for the outcome and conditions of the study, the next step involved converting the raw data table into a truth table (Table 9).

A truth table is a sorting and summarising mechanism, which takes the raw data values and displays all the possible combinations of conditions, or *configurations* of the data. By matching configurations to outcome (the ‘set relationship’), the truth table summarises the relationships between combinations of conditions and the outcome. The purpose of the truth table is to identify which groups of configurations are linked with positive (1) and negative (0) outcomes.

Differing from the data matrix above, each row of the truth table therefore represents a summary of all the cases with a certain configuration of conditions. The truth table (and the underlying algorithm¹¹²) also assesses the consistency of the evidence for each causal configuration.

Table 9: Initial Truth table (iteration ONE)

Common groupings	Condition 1: DATA	Condition 2: INC-STAKE	Condition 3: ADAPT	Condition 4: MPC	Outcome: CSU/BBNJ
SEAFO (1)	0	1	0	1	1
NPAFC (1)	1	0	0	1	1
CCAMLR, GFCM, NEAFC (3)	1	0	1	1	C
IATTC, NAFO, MAP, OSPAR, NPFC, WCPFC, SPRFMO, SPREP and SIOFA (9)	1	1	1	1	C

We can see from the truth table grouping that two contradictions arise, the first being that CCAMLR, GFCM and NEAFC all share common conditions of effectiveness, but GFCM shows a negative outcome. Secondly, we see that IATTC, NAFO, MAP, OSPAR, NPFC, WCPFC, SPRFMO, SPREP and SIOFA all share common conditions but IATTC, NAFO, NPFC, WCPFC and SIOFA are associated with positive outcomes, while MAP, OSPAR, SPRFMO and SPREP are associated with negative outcomes.

As implied above, these ‘contradictory configurations’ (indicated by ‘C’ in Table 9) arise when differing outcomes are associated with the same values on the conditions and need to be resolved before proceeding further. There are several strategies that can be employed to achieve this, ranging from revisiting the case data to identify omitted or significant information through to more mechanistic steps, such as adding or removing conditions, changing or removing those results on the borderline/close to the set membership threshold and using a different outcome variable (Devers *et al*, 2013).

¹¹² The software used to perform QCA analysis utilises the Quine-McCluskey algorithm

In the first instance, borderline values were revisited, and cut-off points revised. In order to avoid substantially altering the underlying analysis, the raw data table (Table 8) was revisited and all borderline values (0.5) revised downwards, resulting in the changes highlighted in Table 10.

Table 10 - Revised thresholds table

Cases	Condition 1: DATA	Condition 2: INC-STAKE	Condition 3: ADAPT	Condition 4: MPC	Outcome: CSU/BBNJ
IATTC	1 (0.667)	1 (0.75)	1 (0.667)	1 (0.75)	0 (0.5)
GFCM	0 (0.5)	0 (0.25)	0 (0.5)	1 (0.667)	0 (0.125)
MAP	0 (0.5)	1 (0.75)	1 (0.75)	1 (0.75)	0 (-)
NPAFC	0 (0.5)	0 (0.25)	0 (0.25)	1 (0.667)	1 (-)
NPFC	1 (0.75)	1 (-)	1 (0.67)	1 (-)	0 (0.5)
WCPFC	0 (0.5)	1 (-)	1 (0.75)	1 (0.625)	1 (-)
SPRFMO	1 (0.667)	0 (0.5)	1 (0.75)	1 (0.75)	0 (0.25)
SPREP	1 (0.677)	1 (0.677)	0 (0.5)	1 (0.75)	0 (0.167)
SIOFA	1 (0.75)	1 (-)	0 (0.5)	1 (0.667)	0 (0.5)

However, while addressing many of the contradictions, these changes resulted in further, knock-on contradictions (albeit fewer) arising which were addressed by revisiting the underlying evidence. Evidence was therefore reassessed in the following areas:

Firstly, OSPAR continued to be an outlier, due to high performance against the outcome of interest across all conditions bar the outcome, where the extremely negative European Topic Centre report on biodiversity on the North-East Atlantic led to an outcome SMV of 0. Consideration was given to removing OSPAR as a case given the difficulty in finding summative evidence of biodiversity performance but it was ultimately retained and the outcome SMV revised upwards for three main reasons – a) consistency with NEAFC, which was assessed as ‘1’ for

outcome and operating in the same geographical area, b) the extensive data available on *individual* biodiversity areas in the NE Atlantic, many of which showed positive trends and upwards trajectories, and c) the lack of summative data meaning that the ‘0’ assessment was based on a single evidence source.

Secondly, the initial SMV for ADAPT for GFCM was revised upwards on the basis on more recent evidence (the original assessment had been based on the 2011 Performance Review but a more recent 2016 study offered an updated view, please refer to Chapter 5).

Thirdly, the ‘mechanical’ change to threshold applied in the first step (which reduced IATTC’s outcome) was revised upwards on reconsideration of the strength/diversity of evidence (see Chapter 5). The same upwards revision was applied (for the same reasoning) to SMVs for MAPs DATA condition and SPRFMO’s MPC condition.

Fourthly, changes were considered to the outcome scores of NPAFC and MAP, but in both instances, changes were rejected on the strength of evidence provided.

Finally, in terms of wider adjustments based on evidence, consideration was also given to adjusting the outcome SMV for SEAFO based on elite interviews (Stage 1)¹¹³ but this was discounted as the overall evidence was strong.

This combination of approaches (mechanistic and re-visiting qualitative judgements in the cases) maintained the integrity of the underlying data sets while allowing contradictions to be resolved, as set out below:

Table 11: Revised truth table, iteration TWO (showing only relevant configurations¹¹⁴)

Common groupings	Condition 1: DATA	Condition 2: INC-STAKE	Condition 3: ADAPT	Condition 4: MPC	Outcome: CSU/BBNJ
NPAFC (1)	0	0	0	1	1
GFCM (1)	0	0	1	1	0
SEAFO (1)	0	1	0	1	1
WCPFC (1)	0	1	1	1	1
SPRFMO (1)	1	0	1	0	0
CCAMLR, NEAFC (2)	1	0	1	1	1
MAP, SPREP, SIOFA (3)	1	1	0	1	0

¹¹³ Anecdotally, SEAFO often performs well in comparative assessments as it has a small fisheries industry, low levels of fisheries activity and a low level of target species.

¹¹⁴ The full truth table comprised 22 rows, each representing one of the total possible configurations. However, 8 of these rows comprised remainders, or combinations of causal condition variables which are not represented by specific cases and are therefore not shown above.

IATTC, NAFO, OSPAR, NPFC (4)	1	1	1	1	1
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The revised truth table can also be expressed visually as a Venn diagram (Figure 9 below). This supports visual checking of data and suggests sufficiency configurations for subsequent testing.

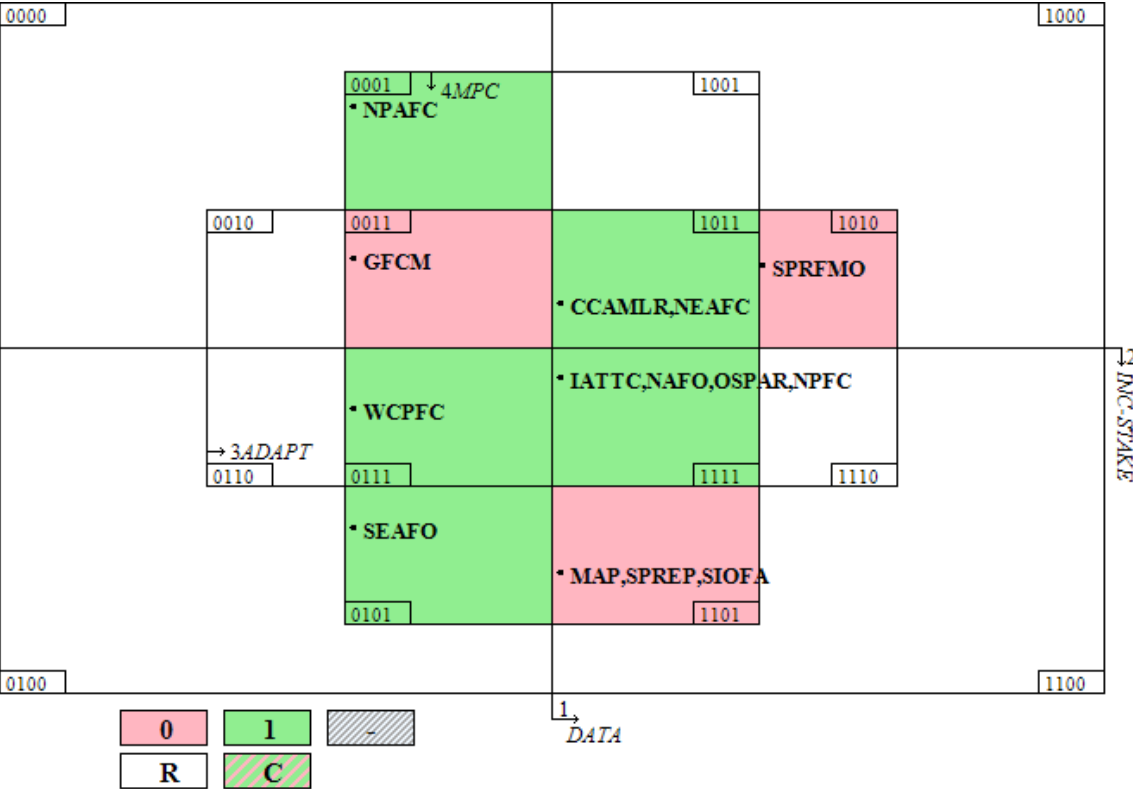


Figure 9 Venn diagram of Truth Table results showing permutations in relationships between conditions and outcome.

Interpretation guidance:

To interpret the graph, conditions are divided across the square and build up into quadrants and sections within quadrants, beginning with the presence of DATA in cases is represented to the right of the vertical axis, and the absence of DATA to the left.

The second condition (INC-STAKE) is represented by the horizontal axis which divides the space into ‘top’ and ‘bottom’ spaces. Where INC-STAKE is present, these cases appear in the bottom half of the space, with absence of the condition represented in the top half.

The introduction of the horizontal axis creates quadrants, with the cases in each quadrant displaying specific combinations of present or absent conditions, with the small 4-digit numbers representing this numerically. The introduction of a third condition (ADAPT) involves the addition of a central rectangle – where cases are present, they go inside the rectangle, and outside if absent, and this rule also applies to the addition of the fourth and final condition (MPC) where the presence/absence of this condition is represented in a vertical rectangle.

The green shaded areas represent combinations which are consistently associated with a positive outcome (1), while the pink shaded areas represent associations with a negative (0) outcome. There are no shaded areas (which are used to identify contradictory cases, marked C in the key) as these were resolved and removed at an earlier stage, as were logical remainders (those cases with insufficient coverage, marked R in the key)

Consistency and coverage

As an approach, QCA uses two means of ensuring that the data is robust and ‘fits’ to the model: consistency and coverage (Ragin, 2006). Consistency measures the degree to which a particular set of conditions are consistently associated with the presence or absence of an outcome, and therefore the degree to which the data supports the claim that a set relationship exists between a condition (or combination of conditions) and the outcome.

Coverage describes the degree to which, when taken together, conditions or sets of conditions account for all or most of the cases, and explain the outcome, allowing a view to be taken on which conditions have more empirical importance than others.

The truth table helps to reveal causal patterns of sufficiency (‘causal recipes’) that are sufficient for the outcome. Importantly, the addition of the final column indicates the level of consistency with sufficiency, with Rhioux and Ragin (2009) considering a minimum consistency requirement to be .80 or more. In the table below, this test is met in terms of the first five groupings all scoring 1.0, therefore they all agree in displaying the outcome. Similarly, the final three groupings score 0, indicating they agree in not displaying the outcome.

Table 12: Truth table re-ordered to show consistency (the proportion of cases in each truth table row that display the outcome (0 or 1))

Truth table groupings	Condition 1: DATA	Condition 2: INC-STAKE	Condition 3: ADAPT	Condition 4: MPC	Outcome: CSU/BBNJ	Consistency
IATTC, NAFO, OSPAR, NPFC	1	1	1	1	1	1
CCAMLR, NEAFC	1	0	1	1	1	1
NPAFC	0	0	0	1	1	1
SEAFO	0	1	0	1	1	1
WCPFC	0	1	1	1	1	1
MAP, SPREP, SIOFA	1	1	0	1	0	0
SPRFMO	1	0	1	0	0	0
GFCM	0	0	1	1	0	0

Some of the clustering of cases seen above (in rows 1 and 2) may be suggestive of limited diversity, which would require the cases or calibration to be revisited. In this instance, however, the presence of other rows associated with the outcome address this and provide confidence that a reasonable level of diversity exists within the cases, allowing the analysis to proceed.

Subset/superset analysis

This analysis tests all possible combinations that fulfil the requirements for necessity (superset) and sufficiency (subset), in that necessary conditions are a superset of the outcome of interest, and sufficient conditions form a subset of the outcome. By combining consistency and coverage scores (Ragin, 2017), this provides a way of focusing subsequent necessity and sufficiency analysis on those conditions or configurations that meet or exceed a particular cut-off (such as 0.8).

Table 13: Subset/superset analysis

Conditions and configurations of conditions tested	Consistency	Coverage	Combined
DATA*ADAPT*MPC	1.000000	0.666667	0.812404
INC-STAKE*ADAPT*MPC	1.000000	0.555556	0.741620
INC-STAKE*ADAPT	1.000000	0.555556	0.741620
DATA*INC-STAKE*ADAPT*MPC	1.000000	0.444444	0.663325
DATA*INC-STAKE*ADAPT	1.000000	0.444444	0.663325
ADAPT*MPC	0.875000	0.777778	0.850490
DATA*ADAPT	0.857143	0.666667	0.778888
ADAPT	0.777778	0.777778	0.758654
MPC	0.692308	1.000000	0.685565
INC-STAKE*MPC	0.666667	0.666667	0.483046
INC-STAKE	0.666667	0.666667	0.483046
DATA*MPC	0.666667	0.666667	0.483046
DATA	0.600000	0.666667	0.316228
DATA*INC-STAKE*MPC	0.571429	0.444444	0.221108
DATA*INC-STAKE	0.571429	0.444444	0.221108

Necessity testing

A condition is necessary to produce an outcome if it is *always* present when the outcome occurs, based on the available data. With a relatively small n , it is possible to visually check the results of the necessity analysis and develop working conclusions. For example, for a condition to be necessary, it must be present in all instances of a successful outcome. This allows the unsuccessful examples to be excluded and the following table produced:

Table 14: Analysis of Necessary Conditions for outcome: CSU/BBNJ

Condition	# of successful cases where each condition can be observed									Occurrence
DATA	1	0	1	1	1	1	0	1	0	6/9 times (66%)
INC-STAKE	0	1	1	1	0	1	0	1	1	6/9 times (66%)
ADAPT	1	0	1	1	1	1	0	1	1	7/9 times (77%)
MPC	1	1	1	1	1	1	1	1	1	9/9 times (100%)
CSU/BBNJ	1	1	1	1	1	1	1	1	1	-
	CCAMLR	SEAFO	IATTC	NAFO	NEAFC	OSPAR	NPAFC	NPFC	WCPFC	

More formally, the *fs/QCA* software returns the following results for both consistency and coverage:

Table 15: Consistency and coverage

Conditions tested	Consistency	Coverage
DATA	0.666667	0.600000
INC-STAKE	0.666667	0.666667
ADAPT	0.777778	0.777778
MPC	1.000000	0.692308

The results above support a series of working conclusions, based on the available data:

- Multi-Party Coordination (MPC) is necessary for the conservation and sustainable use of BBNJ
- The presence of DATA and INC-STAKE conditions are 2-3 times more important (although not perfectly necessary) than their absence.
- The presence of ADAPT is 3 times more important (although still not perfectly necessary) than its absence.

Although the importance of multi-party coordination for successful High Seas conservation and sustainable use may appear obvious, the conclusions above need to be qualified by the following contextual factors:

Firstly, in all instances of the successful outcome, MPC can be observed, suggesting that institutions have overcome the absence of a BBNJ agreement to cooperate and coordinate. Whether the future introduction of an ILBI supports and expands this cooperation, or makes it more complex, remains to be seen.

Secondly, in the context of the future LBI, mechanisms which support, enhance and enable cooperation and coordination are likely to be a key determinant of implementation success. This is to draw a distinction between instrumentalist approaches ('top-down' decisions) and more 'outcome' focussed interventions, where the preferred outcome is set out but the means of achieving that outcome are diverse and allowed to emerge from new and existing arrangements.

Thirdly, the importance of adaptive governance approaches (3 times more useful than their absence) again provides a clear indication – based on the observed cases – for this form of management approach to be promoted or required by the ILBI, and for instances of slow adoption amongst RSCAPs and RFMOs to be accelerated.

Sufficiency testing

While understanding necessary conditions are important, the analysis of sufficiency is arguably the most important aspect of QCA. A sufficient condition is one which, when present, ensures (or significantly increases the chance) that the outcome will occur. This will typically take the form of equivalent configurations, as there are many pathways that lead to the successful outcome, a concept known as equifinality (Schneider & Wagemann, 2012)

The purpose of conducting a sufficiency analysis is - through logical minimisation and other techniques – to identify the minimal configuration of conditions that are sufficient for a positive outcome.

The software *fs/QCA* was utilised to perform the minimisation process, and returned three solutions: complex, intermediate and parsimonious. The following section considers each of these solution types:

Table 16: Complex, intermediate and parsimonious solutions

Complex solution	Raw coverage	Unique coverage	Consistency	Applicable cases (greater than 0.5 membership)
~DATA*~ADAPT*MPC	0.222222	0.111111	1	SEAFO, NPAFC
DATA*ADAPT*MPC	0.666667	0.222222	1	CCAMLR, IATTC, NAFO, NEAFC, OSPAR, NPFC
~DATA*INC-STAKE*MPC	0.222222	0	1	SEAFO, WCPFC
INC-STAKE*ADAPT*MPC	0.555556	0	1	IATTC, NAFO, OSPAR, NPFC, WCPFC

The complex solution returns four sufficient pathways to the outcome, as indicated by the consistency score of 1 across each configuration.

The absence (~) of data AND the absence of adaptive management AND the presence of multiparty coordination leads to a positive association in 2 cases (SEAFO and NPAFC). Returning to the case data, the association of a positive outcome with this configuration is potentially explained by the low levels of fishing activities and low levels of target species in the SEAFO regulatory area, and that the NPAFC Convention prohibits directed catch of anadromous fish in its Convention Area.

The second pathway involves the presence of data AND adaptive management AND multi-party coordination, leading to a positive association in 6 cases (CCAMLR, IATTC, NAFO, NEAFC, OSPAR, NPFC), with a high level of both raw and unique coverage. This coverage and consistency implies a strong association and high levels of empirical importance.

The absence of data AND the presence of inclusive stakeholder engagement AND multi-party coordination leads to a positive association in 2 cases (SEAFO, WCPFC), whereas the presence of stakeholder engagement AND adaptive management AND multi-party coordination leads to a positive association in 5 cases (IATTC, NAFO, OSPAR, NPFC, WCPFC). For the first pathway we see low levels of empirical importance but higher levels in the second, where the data suggests over ‘half’ of the outcome can be explained by the configuration of INC-STAKE*ADAPT*MPC although this falls away in the unique coverage column, suggesting that this high level of explanation is not unique and is replicated in other pathways.

Turning to the intermediate solution, we see the minimisation process further reducing the pathways to three configurations sufficient for the outcome, with the coverage values changing to reflect the reduction in options.

Table 17: Intermediate solution

Intermediate solution	Raw coverage	Unique coverage	Consistency	Applicable cases (greater than 0.5 membership)
~DATA*~ADAPT*MPC	0.222222	0.222222	1	SEAFO, NPAFC
DATA*ADAPT*MPC	0.666667	0.222222	1	CCAMLR, IATTC, NAFO, NEAFC, OSPAR, NPFC
INC-STAKE*ADAPT*MPC	0.555556	0.111111	1	IATTC, NAFO, OSPAR, NPFC, WCPFC

In identifying the parsimonious solution, the analysis ignores any logical remainder rows, and the truth table is minimized to represent only those rows with cases that have outcome values equal to 1 and are deemed ‘sufficient’ for the outcome based on a consistency value of 1.

The parsimonious solution reveals three equivalent pathways (in that all lead to the outcome) with the same consistency score, but with differing coverage and cases.

Table 18: Parsimonious solution

Parsimonious solution	Raw coverage	Unique coverage	Consistency	Applicable cases (greater than 0.5 membership)
~DATA*~ADAPT*MPC	0.222222	0.222222	1	SEAFO, NPAFC
DATA*ADAPT*MPC	0.666667	0.666667	1	CCAMLR, IATTC, NAFO, NEAFC, OSPAR, NPFC
~DATA*INC-STAKE*MPC	0.222222	0.111111	1	SEAFO, WCPFC

The consistency score remains the same across the pathways, but we can observe a (reasonably) high coverage score for the DATA*ADAPT*MPC configuration, indicating a greater level of empirical importance than the others. This means that, having compared all possible configurations positively associated with the outcome, and removed redundant conditions, the solution with the highest coverage score explains most of the cases with the positive outcome (in this instance 6 cases out of 9 can be explained by the solution).

Further research

There are several further research avenues that are prompted by this analysis. Firstly, a number of RFMOs were excluded from the sample and could be re-introduced, helping to increase the *n* and broaden the diversity of evidence and cases.

Secondly, further analysis could be undertaken - both at the level of the cases (for example to further develop and deepen the evidence informing the SMV calibrations) but also the analysis of ‘special conditions’ (Befani, 2016) where cases could be examined to identify two (or more) identical cases, one with a positive and one with a negative association, that differ by only one condition. This would enable insights into whether a specific condition makes the difference to the outcome¹¹⁵.

Finally, the choice of QCA method could be revisited and fuzzy-set QCA employed instead of crisp-set. While csQCA results are easier to interpret and translate more readily to recommendations for practice (Kane *et al.*, 2014), fuzzy-set QCA allows greater consideration of degrees of presence or absence, which may capture some of the nuances in the data more effectively.

Conclusions

Of the data observed, the truth table, necessity and sufficiency analyses reveal two parsimonious pathways (or minimal configurations of conditions) to the effective conservation and sustainable use of BBNJ. Of these, the configuration with the greatest empirical importance and (joint) highest level of consistency involved the conditions DATA, ADAPT and MPC (but not INC-STAKE).

Returning to the underlying evidence and cases, these conditions confirm to theoretical and practical considerations, in that adaptive management is dependent on data, so these two conditions could reasonably be expected to sit alongside each other in a sufficient configuration.

¹¹⁵ This special condition is known as an “INUS cause” because it is neither needed (necessary) or effective (sufficient) in an absolute sense; but is needed (necessary) for certain configurations to be effective.

The significance of multiparty coordination has already been discussed above and is prevalent throughout the case data. The issue of calibration is important for this condition (and is explored more thoroughly in chapter 5), in that the existence of multi-party coordination can mask how effective it is in practice, with some agreements being ‘paper-only’ and not representing a maturity of approach in terms of trust, active engagement and respectful coordination. These aspects are explored in more detail in the case study chapter.

Overall, the parsimonious solution suggests that, of the data observed and under the present set of institutional and socio-political circumstances, the successful conservation and sustainable use of marine biodiversity beyond national jurisdiction (CSU/BBNJ) occurs in the presence of **access to/management of data, adaptive management** and **multi-party coordination**, and that **multi-party coordination** is a necessary condition for the successful outcome of CSU/BBNJ¹¹⁶.

This configuration provides a useful output to policy and practice and forms a starting point in the development of effective High Seas regional regimes.

¹¹⁶ Expressed formally, we find that **MPC** ← **CSU/BBNJ**, and that **DATA*ADAPT*MPC** → **CSU/BBNJ**

Governing the High Seas: Effective Institutional Arrangements for the Conservation and Sustainable Use of Biodiversity beyond National Jurisdiction

Chapter 7. Analysing the interplay between global and regional bodies: An embedded case study focussing on inter-institutional cooperation for the conservation and sustainable use of BBNJ in the Northern Atlantic region.

Chapter introduction

“The effectiveness of specific institutions often depends not only on their own features but also on their interactions with other institutions” (Young et al., 1999, p49)

As outlined in earlier chapters, the last thirty years have seen an increase in the human and climate-induced pressures on High Seas biodiversity, but without a corresponding strengthening of the regional and sectoral institutions charged with protecting these areas. The international response to this challenge is unfolding under the framework of UNCLOS, specifically the negotiations to formulate an internationally legally binding instrument (ILBI) to address the conservation and sustainable use of biodiversity beyond national jurisdiction.

The current negotiating text states that the final ILBI should “not undermine” any relevant existing agreement and instead seek to work alongside such agreements where possible. This “do not undermine” clause immediately places the implementation of the ILBI at the cross-section of several existing and overlapping regimes, agreements and institutional arrangements.

Because these multiple existing agreements and the ILBI may soon be in force concurrently, stage 2 of the research will use Young’s (1999) theory of interplay to help understand the forces and factors at play and develop insights into what influences (and impedes) effective collaboration between ocean governance institutions¹¹⁷.

This study is particularly timely given the forthcoming Intergovernmental Conference on BBNJ and the evidence from the literature which finds “no examples of integrated cross-sectoral protection of biodiversity in ABNJ”(Freestone *et al.*, 2014).

Relationship between Stages 1 and 2 of the research

The aim of the research is to critically examine the factors influencing successful implementation of agreements for managing biodiversity beyond national jurisdiction. Within the context of implementing the ILBI, the first stage of the research examined and evaluated the key institutional conditions of effectiveness (Chapters 4-6). However, my research hypothesis argues that, for a desired *impact* to occur (the conservation and sustainable use of marine biodiversity beyond national jurisdiction), two *outcome* processes need to take place in parallel:

¹¹⁷ Note on defining institutions - As defined earlier in the thesis, international institutions are defined as a set of rules, decision-making procedures, and programs that define social practices, assign roles to participants in these practices, and guide interactions among the occupants of individual roles (Young 2002, p.5). Conventionally, however, the term can be used with the broad definition above or with a narrower scope (Young 2002; Lake 2001), and this research views ‘institutions’ as organisations with a budget, physical presence and personnel, operating within the broader High Seas governance regime.

1. In order to not undermine existing institutions and arrangements and to reflect pragmatic implementation challenges, the new BBNJ Implementing Agreement (IA) needs to be *effectively implemented by existing institutions*...

...and, due to the migratory nature of biodiversity in the High Seas, gaps in governance (and the transboundary nature of pollution and disruption to the Area)

2. Existing [global, regional, sectoral and species-specific] institutions need to *work together effectively*.

The QCA assessment in chapter 6 identified where *impact* (interpreted as effective implementation of outputs and outcomes leading to positive environmental change) had occurred amongst individual institutions and offered a parsimonious solution to the question of which combination of conditions – derived from the ILBI components - led to the impact (or outcome in QCA nomenclature) in question.

While connections and read-across between the two research stages clearly exist (stage 1 results having influenced the selection of the stage 2 case study for example) the QCA assessment exists as a distinct analysis, framed and answering only the first part of the hypothesis. The second part of the hypothesis focuses on institutional interplay¹¹⁸, and in particular the forces and factors that influence successful cooperative behaviours between High Seas bodies¹¹⁹.

Overview and selection of case study

The following chapter critically examines and seeks to explain the institutional interplay at work in the Northern Atlantic area, developing insights to help address the research aim of understanding the forces and factors that influence how existing ocean governance institutions work together effectively.

A diversity of institutional arrangements exist in the Northern Atlantic, and it offers current examples of inter-institutional interaction focussing on biodiversity in ABNJ. It also feeds through from and links to two of the institutions (OSPAR and NEAFC) identified as parsimonious solutions to Stage 1, which provides a coherence between the stages of the research and ultimately to the final

Using a bounded case study approach, this chapter examines these interactions through a critical review of the key conceptual frameworks, documentary analysis and elite interviews. The focus of the inquiry uses interplay theory to illuminate and attempt an explanation of the forces and factors influencing global and regional inter-institutional cooperation in the context of biodiversity protection in ABNJ. Importantly, this focus allows for the identification and discussion of *existing and current* factors, rather than relying on speculative views on the not-yet finalised BBNJ ILBI.

¹¹⁸ While focussing on interplay, the research will inevitably touch upon the other aspects of Young's theory (the problem of *fit*, whether the design of institutions are well matched to the properties of the biophysical system they relate to, and the problem of *scale*, the extent to which findings about the roles of institutions can be generalised across different spatial and jurisdictional scales).

¹¹⁹ Schroeder (2008 citing Young 2002) describes these forces and factors as 'interplay', the process of exploring 'whether distinct institutional arrangements interact with others horizontally and vertically and politically or functionally in ways that significantly influence outcomes'.

The first part of the chapter briefly recaps the case study context, drawing out salient features of the Northern Atlantic for governance of BBNJ and relevant methodological details.

The second, substantive part of the chapter provides a concise overview of (i) the geographical and oceanographic characteristics of the Northern Atlantic which in part (due to resource availability, access and State adjacency) lay the foundations for the ensuring institutional arrangements, and (ii) the global institutional arrangements for the governance of the High Seas, and the regional Conventions, Agreements and institutions relevant to the case study area. Taken together, these two parts recap on the rationale and justification for the choice of case study area and serve to familiarise the reader with the key biodiversity issues (state, pressures, threats) and institutional actors (regional and global).

The third part of the chapter frames the problem under consideration and detail the BBNJ and governance challenges at play in the Northern Atlantic. In comparison with other regions, the North Atlantic is institutionally mature, in that a number of well-resourced institutions and robust management measures are in place and have been operating for over 40 years. However, the region still experiences a range of biodiversity pressures and management implementation challenges.

The fourth part of the chapter deploys Young's (2008) definitions of interplay to help characterise how interplay manifests in the case study area, mapping clear matches between real-world evidence and theory. The section considers both *types* and *expressions* of interplay between institutions in the Northern Atlantic and applies Stokke's (2011) typology of *ideational* (problem identification, recognition, ideas and solutions are transferred from one body to another), *normative* (norms spilling over/influencing others) and *utilitarian* (costs, rewards, incentives, penalties, efficiencies) interplay to help explain *why* interplay occurs.

The fifth part of the chapter addresses the primary and subsidiary research questions and offers explanations on how and why institutions collaborate (and how and why they do not) in ways that promote effective interplay. The section considers - at global-to-global, global-to-regional, and regional-to-regional scales - the main enablers and impediments to collaboration.

Finally, a conclusions section draws together the sections above and presents the key arguments relating to the forces and factors influencing effective biodiversity governance (inter-institutional interplay) in the Northern Atlantic area, offering insights to both theory but also to practitioners working on the successful implementation of the BBNJ agreement.

Recap of case study context - Northern Atlantic

Geographical and temporal focus of the case study

The geographical focus of this case study will be bounded by the overlapping regulatory jurisdictions of those institutions engaged in management of BBNJ in the Northern Atlantic (NEAFC, NAFO, OSPAR), and the northern jurisdiction of ICCAT (see Figures 10 and 11 below)

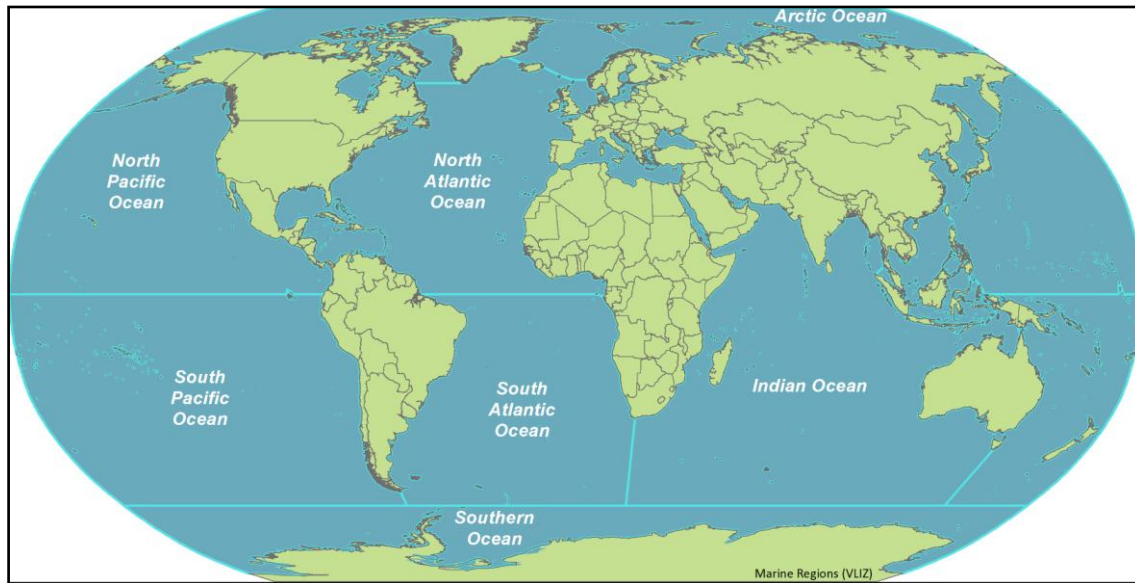


Figure 10: Marine Regions (Source: Flanders Marine Institute 2021. Global Oceans and Seas, version 1. Licensed for educational use under CC-BY 4.0.)

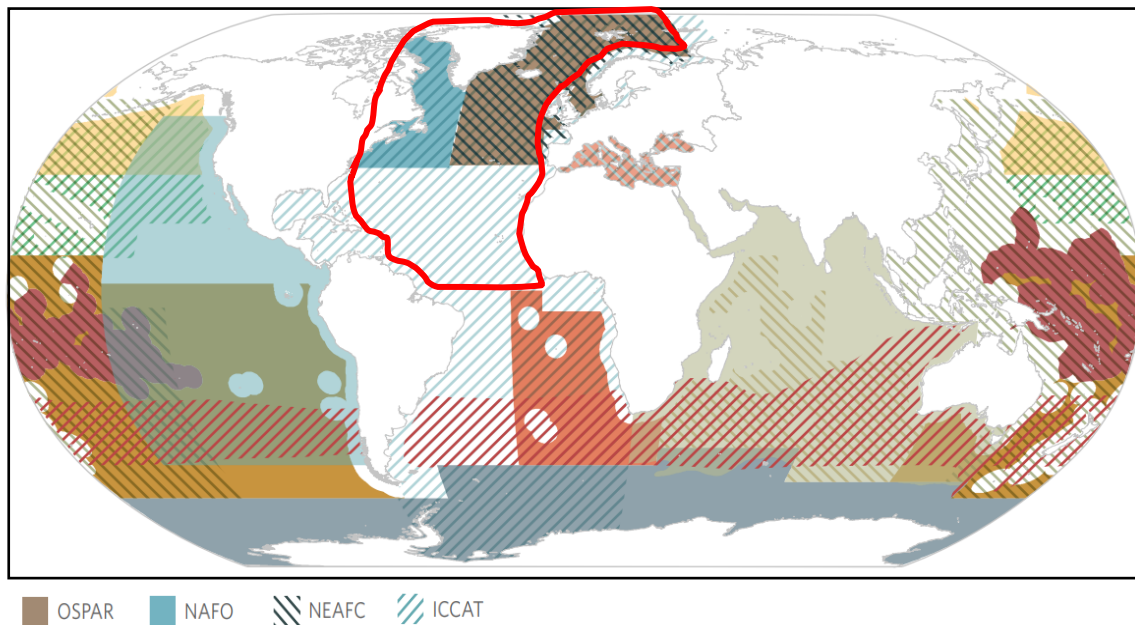


Figure 11: International governance on the High Seas – red outline denoting regulatory areas of OSPAR, NEAFC, NAFO and ICCAT (Source: Image amended and used in accordance with the content Terms and Conditions of the Pew Charitable Trusts, 2017)

Within the geographical region of the Northern Atlantic, the case study will primarily focus on the open ocean areas, particularly where these extend beyond Exclusive Economic Zones and become the High Seas.

A specific temporal timeframe will apply to the case study (2008-21), reflecting key developments in the history of the BBNJ negotiations and institutional cooperation in the Atlantic (e.g., the start of the BBNJ Preparatory Committee in 2016 and the development of collaboration between RSCAP and RFMO from 2008 onwards).

The 2008-21 time frame is intended to allow reference to be made in the analysis to early deliberations on BBNJ governance (as these often lay the groundwork and shape contemporary discussions), however, the majority of analysis will focus on the sub-period 2016-2021 as that reflects the period of sharpening of ‘operational collaboration’ between institutions (e.g., documents detailing cooperation) and the emergence of the draft final text of the BBNJ ILBI.

Characteristics (geographical, oceanographic, jurisdictional and institutional) of the Northern Atlantic

The Northern Atlantic forms one half of the Atlantic Ocean, covering approximately 10% of the Earth's surface and occupying the top half of an S-shaped basin separating the North American and Northern European continents from east to west. The equator separates Northern and Southern Atlantic waters.

The ABNJ specific areas are entirely oceanic, with depths generally exceeding 1000m, and only small areas of the seabed shallower than 500m. The geomorphology is characterized by extensive abyssal plains, with the Mid-Atlantic Ridge, multiple seamounts and the Rockall-Hatton Plateau being the major seabed features rising above the abyssal plain. The deep seabed comprises underlying red clays topped by calcareous deposits.

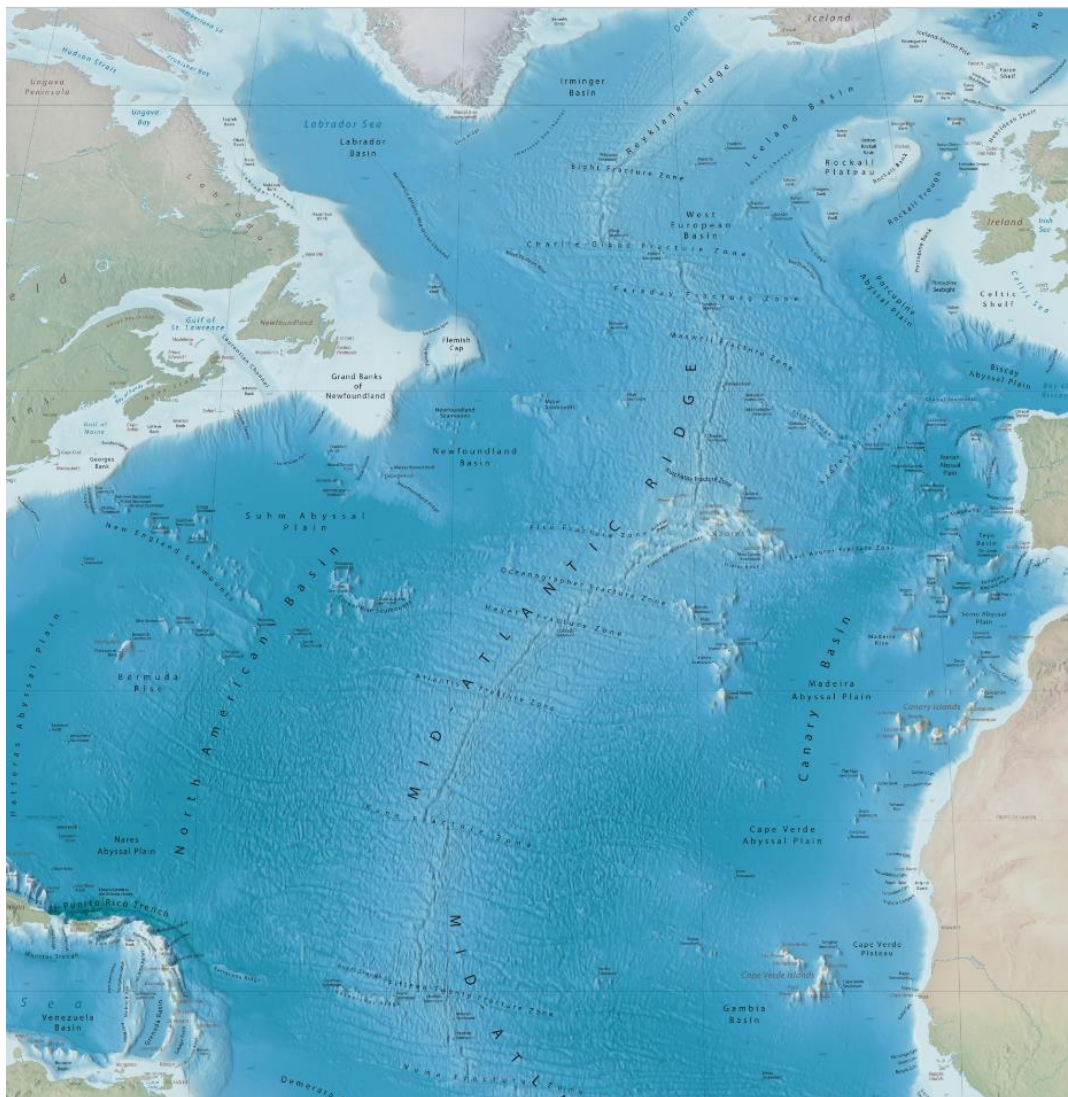


Figure 12: Topography of the North Atlantic Sea floor.
Source: Public domain image created by Tom Patterson (July 29 2020).

The geomorphology of the northern Atlantic is characterised by the Mid-Atlantic Ridge (MAR), a subsea mountain range which divides the north-east Atlantic into two deep sea areas (extending to depths of 5,000 metres) and a shallower continental shelf to the east. The deep seabed comprises

underlying red clays topped by calcareous deposits, with polymetallic sulphide deposits on or near the MAR.

In relation to faunal biodiversity, the northern Atlantic provides habitat for ~1100 species of fish, of which 600 are pelagic and the rest demersal (Merrett, 1995). Small environmental variations in the deep-sea bed results in a relatively wide geographical distribution of many of the demersal species.

Ocean circulation is key to the habitat and movements of planktonic species, with the Northern Atlantic circulatory system comprising a series of gyres (or large ocean currents) bounded by strong boundary currents, which help to distribute species (including plankton). The mixing of waters from the warmer Gulf Stream system to the west and the colder Arctic waters from the north interact with the geomorphology of the seabed and landmasses to provide the conditions for seasonal blooms of phytoplankton, which form the basis of life in the ocean. Consumed by zooplankton, which are in turn consumed by larger species such as whales, birds, fish and shellfish. In the Northern Atlantic, the large copepod *C. finmarchicus* is the dominant mesozooplankton species, upon which most of the characteristic North Atlantic pelagic species (cod, herring, right whales) rely, either directly or indirectly (Pershing and Stamieszkin, 2020).

Focusing on the open ocean areas (contiguous in some parts with ABNJ), Johnsen *et al.* (2008) identify the main actual and potential threats to biodiversity in these areas in this region to comprise fishing pressures (overfishing, bottom trawling, discards, lack of regulations, catch of non-targeted species) and shipping accidents (pollution, TBT (toxic compound used in antifouling paint for ships hulls) and oil spills).

This assessment corresponds with the more recent ICES ecoregion assessment (ICES, 2019) (for the north-east Atlantic) which lists fishing (selective extraction of species, sea bed abrasion through trawling), military movements (marine litter and underwater noise) and shipping (marine litter, introduction of contaminating compounds and underwater noise) as the key pressures on biodiversity.

In reviewing these pressures, the time aspect should be noted. The pressures above are mostly contemporary, observable pressures, whereas the onset of climate change is causing longer term changes, with evidence (Caesar, L *et al.*, 2018; Eriksen, E, *et al.* 2017) that the Northern Atlantic biome is expanding northward, with corresponding movements of *C. finmarchicus* and cod. As the seasonal blooms of phytoplankton are strongly influenced by sea surface temperature and light levels, the continued viability of species remains to be seen and in the medium-term, the ‘north and deep’ trend for species migration seeking to avoid warming temperatures is beginning to redraw the functional geographies – but not yet the legal boundaries – of many of the Regional Fisheries Management Organizations (RFMOS).

Overview of Institutional Ocean governance: Institutions and arrangements.

Institutional ocean governance¹²⁰ first emerged post-World War II, with the formation of the United Nations (1945) and the establishment of specialised global institutions to regulate increased international fishing (FAO in 1945) and shipping activities (IMO in 1948). In addition, the International Whaling Commission (1946) was formed as a voluntary agreement among member nations to implement the International Convention for the Regulation of Whaling.

The 1948 IMO convention text made no reference to marine pollution or protection of the environment, both of which now form contemporary IMO priorities, and the IMO subsequently developed two main agreements addressing the effect of human activities on the marine environment, the International Convention for the Prevention of Pollution from Ships (MARPOL, 1972) and the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matters (1972).

Following the Stockholm Conference on the Human Environment, the specialised UN agencies described above were joined by the United Nations Environment Programme (1972), the coordinating body for the UN's environmental activities. UNEP subsequently initiated the Regional Seas Programme (RSP/RSCAPs¹²¹1974), a regional approach to the cooperative management and protection of shared marine and coastal environments.

The United Nations began to examine ocean governance issues from a holistic perspective during the 1950s (Ardrón & Warner, 2015), prompted by the work of the International Law Commission (ILC). Four United Nations Conferences on the Law of the Sea were convened, with the first (UNCLOS I, 1958) producing the Convention on the High Seas, the first international treaty which codified international rules relating to international waters. However, UNCLOS I and II did not address aspects of marine biodiversity and protection, which were later developed in UNCLOS III (1973-1982) and which led to the current formulation of the United Nations Convention on the Law of the Sea (UNCLOS 1982).

UNCLOS is considered the 'constitution of the oceans' and provides the global framework agreement for all subsequent and sectoral agreements. (Ardrón & Warner: 2015, 56ⁱ). Part XI of UNCLOS provides for the protection and preservation of the marine environment. Article 192 places an obligation on States Parties [to the Convention] to "protect and preserve the marine environment", whereas Article 194.5 sets out "the measures taken...shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitats of depleted, threatened or endangered species and other forms of marine life".

Two further implementing agreements to UNCLOS were introduced to address emerging challenges of straddling and highly migratory fish stocks (Fish Stocks Agreement) and to clarify implementation of the International Seabed Authority (Part XI 1994 agreement).

¹²⁰ A distinction is made here between international and institutional ocean governance, recognising that some form of international ocean governance has been in place since at least Van Bynkerschoek and Grotius, both 17 Century.

¹²¹ Regional Seas Programme (RSP) refers to the UN coordination framework, many of which have established a legal framework or Regional Seas Convention (RSC) to guide their actions (Regional Seas Action Plan)

Figure 13

Unpacking UNCLOS: Provisions relating to the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction.

- The separate treatment of marine areas within and beyond national jurisdiction within UNCLOS mitigates against the development of more coherent, integrated future instruments.
- “Belongs to no-one” No State may validly appropriate parts of the High Seas (UNCLOS 1982, Art. 89)
- “Belongs to everyone” The freedom of the High Seas (Art 87(1) includes freedom to fish, subject to provisions on the conservation and management of the living resources of the High Seas (UNCLOS Part VII, Sec.2)
- These provisions require States Parties to take unilateral and cooperative measures to maintain viable fish stock populations (UNCLOS Arts. 117-119)
- These measures must be based on the best available scientific information, informed by aspects such as the interdependence of fish stocks and the impacts of fishing on associated and dependent species (UNCLOS Art 119(1)). *These measures (Arts 117-119) informed the development of the UN Fish Stocks Agreement (UNCLOS ILBI 1995), which in turn elaborated provisions for cooperation between State interests in fish stocks straddling/migrating between coastal and high seas waters*
- The International Tribunal of the Law of the Sea (ITLOS) was established under Annex VI, Art.1 of UNCLOS, with the mandate to resolve disputes related to the law of the sea.
- UNCLOS Part XI (Arts 136, 153(1)) establishes that the non-living resources of the deep seabed are the common heritage of mankind, to be managed under the jurisdiction of the International Seabed Authority (ISA), and took effect in 1994 through the Part XI Implementation Agreement. *Although Part XI relates to non-living resources, there is potential for harm to biodiversity through the operational and waste activities associated with seabed mining.*
- UNCLOS is silent on the need for ecosystem-based approaches to conservation and sustainable use, and the options for mitigating and adapting to climate change

Source: (UNCLOS, 1982; Ardron & Warner, 2015 in Smith, H, 2015)

At the global and regional level, a number of agreements relevant to ocean governance have been developed under the auspices of the United Nations Environment Programme (UNEP). Of these, the most significant is the Convention on Biological Diversity (CBD), which was introduced at the United Nations Conference on Environment and Development (the ‘Earth Summit’) in 1992 and entered into force in 1993, covering the three aims of conservation of biological diversity¹²² in terrestrial and coastal marine settings, the sustainable use of its components, and the fair and equitable sharing of benefits arising from genetic resources¹²³.

The CBD addresses the relationship with UNCLOS through Art.22 (Relationship with other international conventions) by requiring States Parties to “implement this Convention with respect to the marine environment consistently with the rights and obligations of States under the law of

¹²² The CBD covers terrestrial and marine biodiversity but does not extend beyond the limits of national jurisdiction. It also defines biodiversity as a national resource rather than the common heritage of mankind.

¹²³ The similarity in wording, intent and outcome between the CBD and BBNJ ILBI is notable.

the sea”.¹²⁴, whereas Article 4 (Jurisdictional Scope) sets out that Parties are responsible for protection of biodiversity within *their* national jurisdiction, but does not impose management obligations on Parties acting within another State’s national jurisdiction, or on the High Seas, other than those obligations associated with being a Party to UNCLOS.

States Parties are encouraged to meet the aims of the CBD through cooperation with other States Parties, and in particular “through competent international organisations, in respect of areas beyond national jurisdiction” (CBD Article 5).

In 2008, the ninth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 9) adopted scientific criteria for identifying ecologically or biologically significant marine areas (EBSAs) in need of protection in open-ocean waters and deep-sea habitats. Given the constraints of the CBD in relation to High Seas competences, many CBD parties acknowledged that the process of identifying an EBSA was a scientific and technical exercise, but that it is for the United Nations (and the ongoing BBNJ process) to formally address issues relating to the designation of protected areas in the High Seas. The expectation is that the scientific work undertaken to identify EBSAs will form an input into any ABMT/MPA process under the BBNJ ILBI.

Regional Conventions and Agreements relevant to the case study area:

The above section sets out the international framework for oceans governance, providing an important context for the ocean governance regime in the Northern Atlantic. A number of other legally and non-legally binding regional agreements exist under the auspices of UNEP, predominantly focusing on protection of specific species. Where these agreements are legally binding, they were negotiated under Article IV of the global framework Convention on the Conservation of Migratory Species of Wild Animals (CMS 1979)

These agreements (and their corresponding institutions) comprise (i) the 1992 Agreement on the Conservation of Small Cetaceans of the Baltic, North-East, Irish and North Seas (ASCOBANS), (ii) the 1996 Agreement on the Conservation of the Cetaceans of the Black Seas, Mediterranean Sea, and Contiguous Atlantic Area (ACCOBAMS), (iii) the 1998 Trilateral Agreement (between Denmark, Germany and the Netherlands) on the Conservation of Seals in the Wadden Sea, and (iv) the 2001 Agreement on the Conservation of Albatrosses and Petrels (ACAP-Birds).

Importantly, the CMS includes binding agreements, but these depend on States Parties unilaterally adopting management measures (which many choose not to do so as not to disadvantage nationals).

Finally, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 1973 is distinct from many of the other global conservation agreements as it has the mandate to adopt binding regulations and apply compliance mechanisms. However, the scope of CITES is limited to specific species and trade measures, rather than more comprehensive conservation management measures (Ardron & Warner, 2015 in Smith, H 2015)

¹²⁴ CBD Article 22. Relationship with Other International Conventions - [Convention Text \(cbd.int\)](#) [Accessed: 26 June 2021]

Turning to regional implementation, UNCLOS Article 63(2) establishes the general rule that where a stock occurs both in areas within and beyond national jurisdiction, all coastal States and States fishing for the stock in the high seas shall seek to agree on conservation and management measures¹²⁵. The same article states that efforts to reach agreement on management should be “either directly or through appropriate subregional or regional organizations”, which led to the establishment of Regional Fisheries Management Organisations (RFMOs) which now cover the majority of the world’s oceans.

Reflecting the economic interests of their Contracting Parties, RFMOs tend to focus on the management of selective fish species rather than an encompassing ecosystems management role and have been criticised for failing to meet conservation objectives for fish stocks (Cullis-Suzuki and Pauly, 2010).

Regional Seas Conventions and Action Plans (RSCAPs) were established by those States with a shared interest in addressing marine pollution. These agreements tend to apply to EEZs of neighbouring States, with currently only three RSCAPs covering High Seas areas (OSPAR, Mediterranean Action Plan and SPREP). The exception is the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), which applies to High Seas areas and offers a hybrid model of fisheries management but within a strong conservation framework¹²⁶.

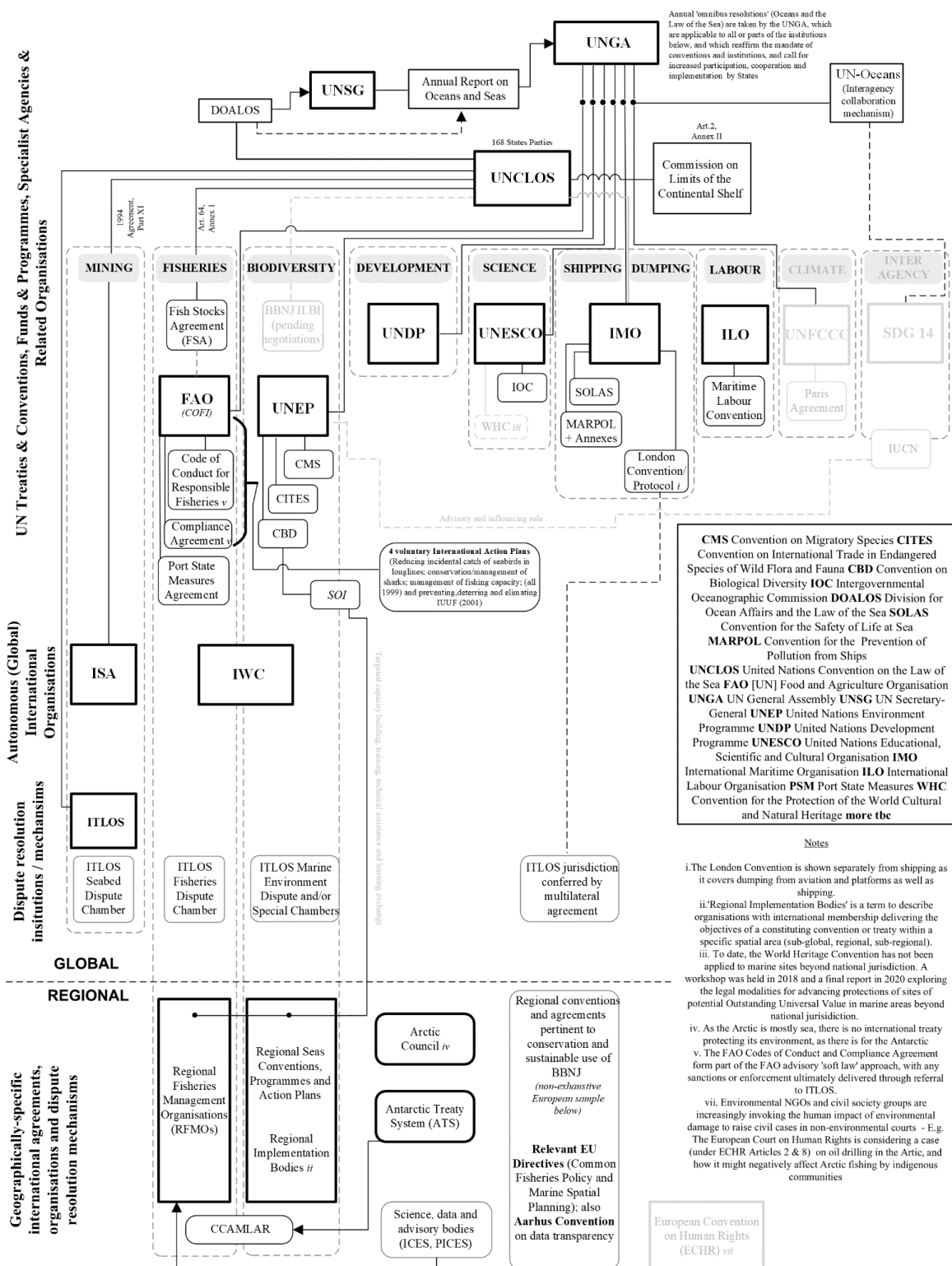
Figure 14 draws these sections together and provides a visual summary of key international and regional agreements and institutions relevant to the conservation and sustainable use of marine BBNJ.

¹²⁵ This principle is generally known as the duty to cooperate, and it means that a State that has not sought to reach an agreement on the management of a stock does not have the right under international law to authorise its nationals to fish for it in the high seas.

¹²⁶ Ardron (2015) suggests that CCAMLRs approach was informed by a mix of interests among Contracting Parties, some conservation oriented, and some fisheries and resource utilization. The implication is that changes to RFMOs could be achieved through diversification of Contracting Party membership.

Figure 14 SUMMARY OF KEY INTERNATIONAL/REGIONAL AGREEMENTS AND INSTITUTIONS RELEVANT TO THE CONSERVATION AND SUSTAINABLE USE OF MARINE BBNJ

Adapted from Ardrón et al (2014c, pp99-104), Ardrón & Warner in Smith, H.D. et al (Eds) (2015, p59), Global Ocean Commission Report (2014, p9), Ocean Atlas (2017, p45) as amended under Creative Commons by Petra Boeckman on behalf of STRONG High Seas (https://www.prog-ocean.org/wp-content/uploads/2019/07/General-STRONG-High-Seas-Presentation_final.pdf)



Institutional regime complex in the Northern Atlantic

Historically, the northern Atlantic was the main trade route and shipping way for Northern European trade and expansion. While modern maritime enterprise has expanded globally, the northern Atlantic remains one of the densest shipping routes in the world, alongside high levels of over extracted and vulnerable fish species. Consequently, the Northern Atlantic has developed some of the most mature marine governance institutions in the world. The institutional regime complex¹²⁷ in the Northern Atlantic comprises geographically anchored entities, advisory and adjacent bodies and global institutions, and their interactions. A useful organizing structure is to view the institutions through a sectoral and species-specific lens:

Conservation and sustainable use - The [Oslo-Paris] Convention for the Protection of the Marine Environment of the North-east Atlantic (hereafter OSPAR) performs the functions of a Regional Seas Agreement¹²⁸ but is constitutionally separate from UNEP. There is currently no Regional Seas Agreement in place for the north-west Atlantic, and the Arctic Council performs some (but not all) of the roles of an RSCAP in the far north/Arctic Ocean.

Fisheries - In non-EEZ areas of the Northern Atlantic, fisheries are regulated principally by four RFMOs: North-east Atlantic Fisheries Commission (NEAFC) which regulates pelagic, demersal and deep-sea species; Northwest Atlantic Fisheries Organisation (NAFO) which regulates all fish species except tunas, marlins, salmon, mammals and sedentary species; International Commission for the Conservation of Atlantic Tunas (ICCAT) is the regulatory authority for tuna and other large pelagic species, and North- Atlantic Salmon Conservation Organisation (NASCO) is the authority for distant-water salmon (but these are largely confined to EEZs rather than ABNJ).

Other living organisms - The International Whaling Commission (IWC) and national authorities regulate the harvesting of whales and cetaceans (none at present), and the North-Atlantic Marine Mammal Commission (NAMMCO) provides non-binding advice on other marine mammals. Non-governmental organisations also form part of the institutional complex, but on an advisory and advocacy basis. For example, the NGO BirdLife International has recently used tracking data to identify three “Important Bird Areas” in the southern parts of the case study area. These fall within a large area (more than 600 000km²) OSPAR is considering designating as an Marine Protected Area (MPA). The International Council for the Exploration of the Sea (ICES) also provides data and advice to various parties above.

Mining - The International Seabed Authority (ISA) has sole and exclusive jurisdiction over the Area, including the northern Atlantic seabed, and acts as the international competent authority through which States Parties can organise and control activities in the ‘Area’.

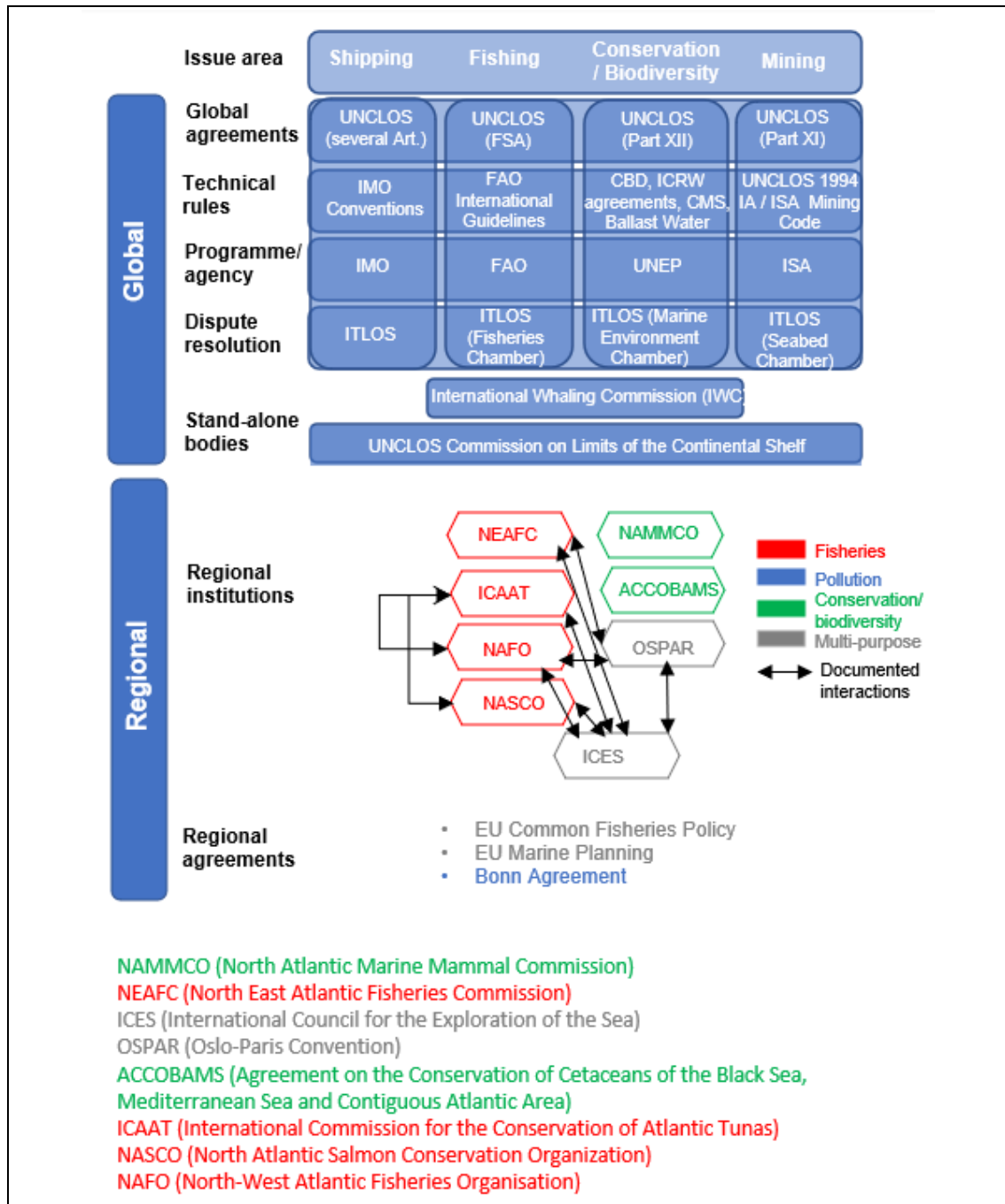
Shipping - The international Maritime Organisation (IMO) regulates global shipping activities, including in the High Seas, and implements the MARPOL Convention and Protocol (on pollution from shipping) and London Convention (on dumping of waste).

¹²⁷ When geographically approximate ‘clusters’ of institutional arrangements occur, with certain characteristics, Orsini *et al* 2013 refers to them as regime complexes (Orsini *et al.* 2013). To considered a regime complex, there should be three or more arrangements, they should not be interrelated in a hierarchical way and they should be interacting based on a common purpose and set of principles.

¹²⁸ Derived from a legal convention between Contracting Parties, OSPAR carries out the functions of a Regional Seas Agreement but is not constituted by UNEP (all other RSCs are).

Figure 15 below illustrates the regime complex diagrammatically, showing the documented interactions between regional institutions in the Northern Atlantic as set out by Mahon *et al.* (2015) as part of the UNESCO-IOC Transboundary Waters Assessment Programme. The diagram has been adapted to show relevant global bodies.

Figure 15 - Northern Atlantic Ocean governance regime: global & regional (after Mahon *et al.*, 2015)



Reflections on applying Figure 14 and re-drawing the institutional diagram.

Part of the research exercise (Stage 2) involved elites commenting on a simplified diagram of global and regional ocean governance interactions within the Northern Atlantic (based on Mahon *et al.*, 2015). The following observations are useful to note when considering how and why institutional interplay unfolds in a given region.

Turning first to the global level, respondents identified a number of ‘missing’ institutions from the original diagram which have now been reflected in Figure 15. These included reference to climate change agreements and the UNFCCC, on the basis that global bodies involved in ocean governance should be more involved in global mitigation efforts and recognizing that regional implementation bodies could undertake some adaption measures but there were little or no mitigation measures that could be taken at the regional level (Interview respondent H).

The inclusion of the International Labour Organisation (ILO) was felt to be important on the basis that human activity on the High Seas is – or should be – influenced by appropriate labour laws and restrictions.

On the theme of conservation, the International Union for Conservation of Nature (IUCN) was proposed for inclusion on the basis that the IUCN strongly influences global-level marine conservation negotiations, including CBD and BBNJ, and it was felt that the CITES agreement should be more prominent on the basis that large species (e.g. sharks) are often harvested from the High Seas; CITES was also identified by respondents (Interview respondents D and J) as providing a key platform for RFMOs and FAO to come together and strengthen their understanding of species and trade issues.

Epistemic communities were also proposed (Interview respondent K), such as ocean data management networks (e.g. AMAP) given their key role in informing decisions, socializing emerging issues among parties and providing ‘neutral spaces’ for dialogue.

Turning next to regional agreements and institutions, it was proposed that the Aarhus Convention be included (interview respondent K) as part of relevant regional agreements (in the Northern Atlantic context) given its focus on transparency of data and engagement of civil society in decision-making, and the inclusion of the Arctic Council was strongly recommended, given the geographical and jurisdictional overlaps between Northern Atlantic and Arctic Ocean high seas areas.

On this last point, a decision was taken to not include the Arctic Council in the analysis. This was informed primarily by the challenging geopolitical circumstances making it difficult to engage with elites, but wider factors supporting the decision included the problematic power differentials (the Arctic States retain decision-making power, other States can only be granted Observer status) and the absence of binding compliance or enforcement mechanisms (posing a challenge for the implementation of the ILBI).

BBNJ and governance challenges in the Northern Atlantic: Framing the problem

The governance architecture for biodiversity beyond national jurisdiction (BBNJ) is often characterised as fragmented and having significant gaps in coverage of sectors, species and/or specific issues (Mahon *et al.*, 2015). Management of BBNJ in the Northern Atlantic under the *current* UNCLOS and regional regimes reflects this, with most areas administered on a sectoral or species-specific basis, through both global and regional authorities.

In reviewing these arrangements, a FAO workshop in 2015 concluded that “the level of effectiveness and progress achieved through [these] sectoral mechanisms, the interlinked nature of the environment and resources in ABNJ, and the threats that continue to undermine their structure and function, indicate the need for an integrated approach to management”.

In comparison with other regions, the Northern Atlantic has a number of institutions and management measures in place. However, the region still experiences a high level of biodiversity pressures and management implementation challenges. According to a 2016 FAO report, these include:

- The ecosystem approach to fisheries (EAF) approach has not been universally operationalised from theory to practice, although NAFO is moving forward on this;
- Information sharing on ABNJ pressures and risks is limited between regional institutions;
- There is complexity in ensuring baseline data for management is in place, and in communicating and coordinating data and information;.
- There are challenges in using data for monitoring, control and enforcement;
- Despite the existence of relatively advanced institutional frameworks in the region, tensions and dynamics remain e.g. legal uncertainty related to mixed jurisdictions where two or more frameworks apply);
- There is limited engagement between regional and global institutions, which constrains how effectively single institutions can address biodiversity pressures;.

More positively, high quality data series do exist (Kingston, 2015), and there is sufficient strategic information to understand trends (although these are primarily related to coastal and marine regions, not ABNJ). Quality assurance also exists in the form of involvement between ICES and the scientific committees of RFMOs. A diversity of governance forms also exist, ranging from formal and informal structures to cooperative agreements (FAO/GEF, 2016)

The elite interviews undertaken as part of this research have confirmed the above issues, as well as raising new and emerging issues for consideration, such as the absence of a Regional Seas Agreement in the north-west Atlantic and that adaptive management and access to/management of data both within and between institutions is still developing (Interview respondent K)

Concepts and terminology to describe interplay in the Northern Atlantic Ocean governance complex

Institutions within a regime complex interact in a variety of ways and forms, influenced by their constitutive context, relationships, resources and dependencies. Young's (1999) theory of interplay provides a means of characterizing these interactions, principally to diagnose and describe, whereas subsequent theorists have proposed explanatory theories such as the 'output-outcome-impact' relationship model (Obethür and Gehring, 2008) discussed earlier and the typology of 'cognitive, normative and utilitarian' interplay (Stokke, 2012), discussed below.

Young (1999) establishes that institutions interact both *horizontally* (i.e. at the same level of social organisation, such as the Convention on Biological Diversity (UN CBD) and the United Nations Framework Convention on Climate Change (UNFCCC) and *vertically* (i.e. information exchange between the FAO and RFMOs); At the same time, interplay can be *functional* or *political*. A functional linkage arises from a systemic interdependence between institutions, such as the joint interest between the Montreal and Kyoto protocols in regulating greenhouse gases (Schroder, 2008, p53), whereas political linkages sub-divide into *issues*-based interplay (where two or more institutions faced with a given issue identify an effective solution), *goal*-based interplay (collaboration to achieve greater efficiencies, such as the Joint Advisory Group on Data Management between NAFO and NEAFC) and *power*-based interplay (where one party engages in interplay to increase their standing, or to apply undue influence on an outcome).

These types of interplay manifest as *embedded*, *nested*, *clustered* and *overlapping* arrangements (Young, 1996). Examples of embedded arrangements include ACCOBAMs, ASCOBANs and ACAP operating under the Convention on the Conservation of Migratory Species of Wild Animals (CMS); *Nested* arrangements refer typically to where specific instruments are 'contained' within a cognate but more general arrangement, the most relevant example being the BBNJ ILBI nested within the broader UNCLOS treaty framework.

Clustered arrangements occur where functionally different but related instruments or institutions are gathered in a single arrangement, with UNCLOS being an example of a broad framework encompassing shipping, mining, biodiversity, fishing and conservation elements. *Overlapping* arrangements refer to policy regimes developed for a specific purpose that intersect with another area (or areas) and as a consequence can be either synergistic or disruptive (Rosendal, 2001; Obethür and Gehring, 2006).

In terms of the *modalities* of interplay, Stokke (2000) identified three general pathways for how and why interplay occurs: *Utilitarian* interplay, whereby interactions are influenced by incentives, costs, benefits and efficiencies; *Normative* interplay draws from theories of international legitimacy (Wight, 1972) and refers to where one institution or wider regime may influence normative changes in another and therefore "affect its normative compellence" (Stokke, 2001, p10), and *ideational/cognitive*, which reflects learning driven changes and the transfer of ideas and solutions from one regime to another.

Taken together with the defining characteristics, these pathways for interplay will form the basis for considering how interplay takes shape and operates in the Northern Atlantic Ocean governance regime.

How does interplay manifest in the Northern Atlantic institutional complex?

As highlighted earlier in previous sections, significant challenges exist regarding inter-institutional cooperation over BBNJ protections. As Billé *et al* (2016) point out, “even though regional seas programmes have progressively extended the scope of their activities, they still lack the competence to deal with key economic sectors, notably fisheries, mining and maritime transport”. The opposite challenge is often the case with RFMOs, which have either overly narrow or species- specific competences and are therefore prevented from engaging on broader or cross-boundary issues.

Where regional institutions have attempted to overcome these challenges, they have met with some successes but also encountered challenges of vertical cooperation with global bodies. As an example, the OSPAR-NEAFC Collective Arrangement is widely considered to be - in the northern hemisphere at least - an example of good practice in that it has driven successful outcomes through genuine partnership working and has been designed from the outset as a multi-lateral agreement, capable of scaling beyond the current signatories to include other, relevant global and regional entities.

The Collective Arrangement model posits that, in order to comprehensively address all drivers of impacts in ABNJ (fishing, mining, shipping) it is important that any agreement includes the relevant competent authorities (IMO, ISA, potentially IWC alongside RFMOs and RSOs). However, to date, this expansive model has not been realised.

Viewed from a biodiversity management perspective, this lack of vertical and horizontal interplay is challenging – for example, the IUCN (Dotinga and Molenaar, 2008) highlight the example of the Mid-Atlantic Ridge, a zone of particularly rich biodiversity which is governed through an *overlapping* regime¹²⁹ comprising OSPAR, NEAFC, NASCO, ICCAT at the regional level, ICES at the political-scientific interface and the ISA¹³⁰, IMO and IWC¹³¹ at the global level. Although some forms of cooperation exist between a sub-set of these organisations, a mechanism to “ensure full cooperation and coordination within and across all sectors and all regional and global organisations is not at present available” (Dotinga and Molenaar, 2008)

Other examples exist from different perspectives – another example of *overlapping* interplay can be observed in the western part of the northern Atlantic, with jurisdictional overlaps between the NAFO regulatory convention area (High Seas fishing), the Sargasso Sea Geographical Area of Collaboration (biodiversity conservation) and the Bermudan Exclusive Economic Zone (territorial waters) – this example highlights the potential for either synergistic or disruptive interplay between formal and informal governance arrangements.

If the BBNJ ILBI is to be implemented without undermining existing institutional arrangements, the current set of organisations within the North Atlantic institutional complex will need to overcome limits of mandate, governance gaps and resource constraints through collaboration rather than receiving direction from a new instrument or supra-national body.

¹²⁹ Young, O.R. (1996) set out a number of definitions of interplay, including *overlapping* to indicate relationships between institutions due to unintentional influence.

¹³⁰ The ISA is consulting on processes for Regional Environmental Management Plans (REMPs), and in 2020 ran workshops focussed on development of a REMP for the Mid-Atlantic Ridge.

¹³¹ Although not widely addressed in the literature, the International Whaling Commission (IWC) forms part of the global ocean governance regime, and interacts with relevant bodies in the North-East Atlantic – for example, following an official objection in 1982 to the whaling moratorium, Norway and Iceland continue to hunt minke whales in the North Atlantic

The following sections will explore the forms and types of interplay occurring within the Northern Atlantic institutional complex and start to lay the foundation for addressing the primary research questions of ‘how’ and ‘why’ institutions do and do not collaborate in ways that promote effective interplay.

Characterising interplay within the Northern Atlantic Ocean governance complex

Turning first to interplay between global institutions (principally, FAO, UNEP and IMO, and ISA and IWC), the immediate observation is to note the distinction between the *intra*-UN family of agencies (FAO, UNEP), the Competent International Organisations (such as IMO) and the autonomous international organisations (such as ISA and IWC). While all operate at the global level, the distinction leads to differences to decision-making, governance and institutional arrangements, which can influence the nature of their interplay with others.

The direction of interaction between the global-to-global bodies is predominantly *horizontal* as they operate and interact at the international level. In terms of *vertical* interplay, the existence of relevant institutions at the global level creates a vertical interaction between High Seas bodies in the Northern Atlantic. Within the literature, studies of vertical interplay have tended to focus on clearly distinguishable tiers, such as international, national and local. Within the Northern Atlantic High Seas context, it is more accurate to describe vertical interplay as occurring between two main tiers, the global and regional, with little or no reference to national or local (other than to describe the actions of individual State Parties to Regional Fisheries Conventions, or the benefits accruing to coastal communities from a healthy High Seas fish stock).

As in the case of horizontal interplay, vertical interplay can be synergistic or disruptive. Vertical interplay is also closely related to the concept of scale, but Gehring and Oberthür (2008) caution against confusing the two concepts, arguing that scale analysis helps with determining the appropriate level of institutional action, touches on effectiveness (at what level are problems addressed effectively) and addresses power dynamics (which level do influential actors want the problem addressed?), but is distinct from the focus of vertical interplay which addresses inter-institutional influence.

Examples of synergistic vertical interplay include capacity building efforts in less economically developed countries by the IMO, and SDG14¹³², in the sense of globally agreed objectives being implemented through a cascading series of institutions at the global, regional, national, local and community levels.

UNEP, FAO and IMO demonstrate *functional* linkages, with a Permanent Working Group to explore joint technical issues (some of which are relevant to the High Seas) existing between FAO and IMO, and UNEP and FAO interacting principally through the Convention on Biological Diversity (CBD) Secretariat and the Sustainable Oceans Initiative (SOI). Led by Japan, this latter body emerged from the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 10, Nagoya 2010), where the need was identified for training and capacity-building of developing country Parties in relation to the conservation and sustainable use of marine and coastal biodiversity. The SOI focusses on regional implementation but is constituted as a global platform.

¹³² SDG 14 is dedicated to humanity’s interactions with the oceans. It covers a range of issues in the area of conservation and sustainable use, with seven targets and three means of implementation to respond to the urgent need for transformative change toward more sustainable practices.

Other global bodies that interact with FAO, IMO and UNEP include DOALOS in relation to the implementation of the 1995 Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks Agreement (henceforth ‘Fish Stocks Agreement’), and the International Seabed Authority (minor interplay at best, infrequent contact).

With regard to institutional *overlap*, over the last 10 years FAO and UNEP have deliberately taken steps to clarify their respective roles, scopes and jurisdictional responsibilities in order to avoid confusion at the international level. There is now clarity between FAO and UNEP (and their stakeholders) that UNEP is the global body with responsibility for conservation and marine biodiversity protections, whereas FAO is responsible for food security and the role fish stocks and fisheries play in that agenda. This clear separation of responsibilities tends to pull against the scientific and ecological realities of marine biodiversity, a situation acknowledged by FAO but the clarity of purpose in keeping jurisdictional boundaries clear is considered paramount. To mitigate the effects of this, FAO emphasises the importance of close informal cooperation, formal cooperation where this can be managed clearly (e.g. through working groups with clear terms of reference) and information exchange.

The importance attached to avoiding *disruptive overlap* is not purely a jurisdictional issue – Interview respondent D explained that because States will often be represented in negotiations by different Ministries (e.g. Ministry for Agriculture or Environment), there is significant potential for confusion and misunderstandings at the international level.

Pathways for FAO to influence changes and outcomes in other institutions range from the formal Committee on Fisheries (COFI) which can set binding policy, allocate resources and initiate new action plans, through to a diversity of sub-committees, working groups and more informal collaborations. The key consideration for which pathway is most suitable is “guided by the most expedient modality to support the FAO objectives” (Interview respondent D)

Engagement and delivery with the RFMOs is achieved mostly through issuing guidance (the ‘soft-law’ type approach typified by FAO) and via the Regional Fisheries Bodies Network (RFBN), which comprises the secretariats of all of the RFMOs and related advisory bodies / agreements. The RFBN does not deal with policy (as that remains the purview of the Contracting Parties to the RFMO) but instead addresses technical implementation issues against a common set of issues and concerns. The FAO is attempting to share this approach and modality with UNEP’s Regional Seas Organisations in part to help address those areas where RSOs lack a formal mandate on the High Seas and/or where there is ambiguity over roles and competences.

At the global level, ASCOBANS operates as part of the Convention on the Conservation of Migratory Species (CMS) and is therefore *nested* within the UNEP family of conservation agreements. ASCOBANS occupies a relatively small niche within the CMS family, with a similarly constrained geographical reach. In these respects, the BBNJ agreement offers the potential to expand ASCOBANS conservation reach and ‘connect’ with larger migratory High Seas species.

ASCOBAN’s principal interactions are with sister agreements (ACCOBAMS) and the same ‘family’ of treaties and agreements under UNEP. ASCOBANS works closely with the CBD Secretariat on ocean aspects, and reports that working together helps to deliver mutual amplification of issues during negotiations. The pathway for this cooperation is via the CBD’s Biodiversity Liaison Group¹³³ of conservation conventions. A more formal pathway for collaboration exists through a joint work programme between ASCOBANS, CITES, RAMSAR

¹³³ CBD Biodiversity Liaison Group <https://www.cbd.int/blg/> [Accessed 29 May 2021]

and the CBD, addressing topics such as noise pollution impacts on cetaceans. No other joint work programmes (multi-lateral or bi-lateral) exist.

At the regional level, ASCOBANs has a very close relationship with the Regional Seas Conventions, as they form part of the same UNEP ‘family’ of institutions, and a number of ‘out-of-scope’ relationships with RFMOs such as provision of advice to the IOTC on seabird conservation and migratory turtles. ASCOBANs represents an example of Young’s (1999) theory of ‘fit’, in that the environmental issues, geographical area and institutional mandate are well aligned.

Turning to the autonomous internal organisations, the International Seabed Authority (ISA) interacts most closely at a global level with the IMO and ILO, reflecting the importance of shipping, floating platforms and workers in delivering seabed mining, as well as overlaps in terms of safety and environmental protection measures between the two institutions.

Other global bodies that interact with ISA include a formal annual consultation with ITLOS (and IMO), and more informal meetings with CBD Secretariat (in the margins of existing meetings), attending SOI meetings and *ad hoc* engagement with FAO. This latter engagement occurs mostly via the UN-Oceans platform which provides adequate opportunities for organisation-level interaction.

The ISA is also supportive of cooperation with UNESCO’s Intergovernmental Oceanographic Commission (IOC) to help improve seabed mapping and enhancing ocean observing networks (within the context of UN Decade of Ocean Science for Sustainable Development) and interacts *functionally* with the International Cable Protection Committee (ICPC) to ensure that seabed mining and cable laying activities can occur in harmony (ICPC, 2017).

Interplay management between the key competent international organisations (as defined under UNCLOS) of ISA, ITLOS and IMO is driven by the organisations themselves developing an understanding of where respective competencies lie, and whether gaps exist. An example of this process is the jointly commissioned Technical Working Paper 25 that studies the interface of competencies between the ISA and the IMO with respect to activities in the international seabed area (the Area). Jointly commissioned work and exchange of information are also supported by non-binding documents agreed between the two parties such as the MoU on Cooperation which was agreed between ISA and IMO in 2016. The above example of interplay management can be considered *normative* in that the established rules and procedures of two distinct institutions are being constructively compared to ensure alignment.

Young’s (1999) concept of fit helps to explain, within the Northern Atlantic context, the absence of regional interactions with the ISA, which has been limited to in-the-margins meetings at conferences or to regional bodies participation in the development of the Mid-Atlantic Ridge Regional Environmental Management Plan (REMP). Interview respondent B explained that this was in contrast to much greater cooperation with regional bodies in the Southern hemisphere, with MoUs signed between ISA and the South Pacific Regional Fisheries Management Organisation (SPRFMO) and the Indian Ocean Rim Association (IORA), reflecting the greater seabed mining potentials in these areas.

Conflicting or disruptive interplay between regional and global levels can be seen in the example of the interactions between OSPAR and the ISA membership over the proposal for ISA to participate in the Collective Arrangement. Initially welcomed as a positive development by the ISA, the Collective Arrangement encountered resistance among ISA members when OSPAR suggested designating protections for large areas of the seabed. ISA members challenged this

position on the basis the Area is under the mandate of a global organisation and could not accept a regional organisation imposing management measures without the full participation of ISA members, which could not in turn be accommodated by OSPAR (Interview respondent B). Further examples include the ISA granting commercial seabed mining licences for exploration work in a World Heritage Site. There are currently no obligations on the ISA to consult with UNESCO, the agency charged with protecting global heritage.

The IWC engages in both *horizontal interplay* with the FAO (attendance at FAO Committee on Fisheries) and also *vertical interplay* through engagement in the Regional Secretariats Network (RSN), a good practice forum of regional ocean governance institutions. Given the narrow species focus of the IWC, interview respondent H emphasized the importance of access to a forum where information can be shared, and collaboration can lead to practical cooperation (a form of *ideational interplay*). The importance of this collaboration was underlined given that – with the whaling moratorium in place – all of the pressures faced by whales are beyond the control of the IWC, so collaboration horizontally and vertically becomes key.

The IWC also highlighted an example of *synergistic treaty interplay*, giving the example of a member of the IWC having recently withdrawn membership, and thereby no longer being subject to the whaling moratorium but still being subject to the provisions of the UN Fish Stocks Agreement.

Turning to the regional level, four institutions operate as RFMOs (NEAFC, NAFO, NASCO and ICCAT) and one operates as a non-UN affiliated Regional Seas Organisation (OSPAR). These fisheries and conservation bodies interact at the regional level with five Regional Implementation bodies (NAMMCO, ASCOBANS, ACCOBAMS, ICES and the Arctic Council).

There are interesting examples of negative *political interplay* between the Contracting Parties of OSPAR and NAMMCO, potentially influencing effectiveness. The OSPAR ‘Region 1’ area overlaps with the NAMMCO area. According to interview respondent I, OSPAR have very little data for this area whereas NAMMCO have extensive data-sets, but the OSPAR Contracting Parties are unwilling to enter into collaborative arrangements due to tensions over the NAMMCO view of biodiversity utilization for human purposes. This situation is mirrored between NAMMCO and ASCOBANS, with NAMMCO arguing for greater collaboration on grounds of shared focus on marine mammals and limited administrative resources (*utilitarian interplay*).

At the global-to-regional scale, pragmatic interplay occurs between the ISA and RFMOs, in the sense that where close cooperation is needed it occurs, but it does not exist where there is no demand. To illustrate this, the ISA engaged with relevant fishing interests when developing the Clarion-Clipperton Zone REMP due to the potential for seabed activities to affect fish habitats and movements, but while RFMOs were invited to participate in the workshops for the Mid-Atlantic Ridge none attended the sessions, in part as there are no meaningful fishing grounds on the Mid-Atlantic Ridge (Interview respondent B).

Interplay between FAO and other institutions follows the grain of the FAO’s mandate, with the closest relationships being with Regional Fisheries Management Organisations (RFMOs), specifically NEAFC, NAFO, NASCO¹³⁴ and ICCAT in the Northern Atlantic context, but also indirectly with ACCOBAMS (as a partner to one of the RFMOs above). The FAO has a mandate to act as an ‘umbrella’ for the RFMOs and provides advice and guidance, as well as collaborating on the implementation of joint programmes. This principal-agent type relationship differs from

¹³⁴ Although NASCO is less involved in FAO-RFMO BBNJ discussions due to its circumscribed mandate

other forms of global-regional interplay as the relationship explicitly allows for joint delivery and partnerships, whereas the IMO deliberately excludes this approach on the grounds of avoiding precedents, focusing instead on capacity building and support programmes (knowledge transfer rather than co-development).

Other positive global-to-regional relationships include NAFO and IMO (*utilitarian interplay* based around the volume and intensity of shipping routes in the NAFO regulatory area)

At the regional-to-regional scale, NAFO interacts most closely with NEAFC, as all of the Contracting Parties are the same (States send representatives to both organisations' meetings) and due to the adjacent geographies and jurisdictions. This interplay takes the shape of informal engagements on a regular basis, particularly between Secretariats, and more formal partnerships, such as the Joint Advisory Group on Data Management (JAGDAM). OSPAR interacts most closely with NEAFC for similar reasons.

There is no substantive interplay between NAFO and OSPAR, and there is no Regional Seas Organisation/Agreement in the north-west Atlantic, a gap noted by ICES. The NAFO-NASCO relationship is similarly insubstantial, but this is due to NASCO's unusual RFMO status focusing on a single marine mixed-stock fishery that is managed under its Convention and for a (comparably to most marine fisheries) small volume of salmon.

Looking across the RFMO-RFMO and RFMO-RSCAP relationships, the strongest forms of inter-institutional arrangements occur between *adjacent* institutions (for example, NAFO principally interacts with NEAFC even though there is a commonality of purpose with NASCO and a shared interest in ecosystem based management approaches with OSPAR), with joint agreements on data sharing and data use forming the most common interplay pathway (reflecting *utilitarian* and *ideational* interplay).

The International Council for the Exploration of the Sea (ICES) is an independent, intergovernmental marine science organization working predominantly in the Atlantic Ocean region to provide impartial evidence on the state and sustainable use of the ocean. At the global level, ICES has infrequent interaction with FAO (which apparently tends to be quite "hands off" in the Northern Atlantic) and informal contact with IMO, limited to contributing 'think-pieces' to working groups. ICES occupy a clear knowledge building niche (*ideational interplay*) within the Northern Atlantic regime.

At the regional level, ICES has a formal relationship with NEAFC, where it is written into the NEAFC constitution as the sole scientific advisor to the RFMO. Less formally, ICES also acts as the main external advisor and scientific data manager to OSPAR (although OSPAR has their own scientific working group). The OSPAR collaboration also extends to collaborative work on emerging issues, such as marine noise pollution and eutrophication (within EEZs).

ICES maintains close working relationships with ASCOBANs but has minimal contact with NAMMCO. With regard to pathways to influence, ICES has the strongest influence over NEAFC through its formal scientific advisory role. ICES provides ICCAT with fish stocks data but has no wider MoU or relationship, participates in joint working groups on science with NAFO (but has no wider agreement to 'advise') and has advisory MoUs in place with NASCO and ACCOBAMS.

Factors impeding cooperation at the various ocean governance scales.

Drawing on the previous section, elite interviews and documentary analysis, the following factors *impeding* cooperation at the various ocean governance scales have been identified:

Differing competences

Firstly, and fundamentally, cooperation is rarely observed between institutions (even when connections can be broadly drawn) when competencies and organisational remits are fundamentally dissimilar, such as between the IWC and ISA.

Rules-based limitations

Secondly, international conventions such as the Convention on Biological Diversity (CBD) often have strict participation rules, and therefore will not take certain views into consideration, even if they are perfectly valid and made by an internationally competent body. In these instances, excluded bodies have to explore alternative means of influencing policy processes at different levels or scales of administrative fora (forum shopping). Interview respondent C described a situation where they had to engage in this form of ‘scalar mobility’ (Gupta, 2008) to overcome institutional barriers by reframing the conservation issue as one of carbon benefits.

A related perspective (but for different reasons) was shared by interview respondent A in terms of the IMO engaging with regional initiatives. As a global body, the IMO sets the global minimum standards which are applicable to all, and therefore chooses not to participate in regional initiatives as these may set unhelpful precedents and dilute the ‘universal applicability’ mandate. Instead, the IMO focuses instead on capacity building and support programmes (knowledge transfer rather than co-development).

Constitutive constraints

A further example is the constitutive status of RFMOs, in that many are excluded from considering wider socio-economic issues by their Conventions, and instead focus on stock management and conservation issues. Each Contracting Parties (States) has their own national set of socio-economic priorities, and in the absence of a consensus position the RFMO is unable to step beyond its fisheries and conservation mandate. This is particularly challenging given the wider importance (and scope) of the Ecosystem Approach to Fisheries (EAF) and the ability of RFMOs to genuinely engage with the ‘sustainable use’ component of the ILBI.

Timing tensions

Many of the global bodies and RSCAPs can deliberate over decisions for extended periods of time, whereas the RFMOs tend to set and implement priorities on an annual cycle. This mismatch of operational timings and priorities can make ‘windows of cooperation’ difficult to identify between global and regional, and regional-to-regional institutions.

Absence of a global forum

Virtually all interview respondents indicated the value of a regional-to-global forum, where institutions can come together to discuss opportunities, identify constraints and begin to co-develop implementation solutions. A good example of this is the Sustainable Oceans Initiative (SOI), which has offered multiple institutions the opportunity to come together and explore common solutions and measures to High Seas biodiversity conservation.

Unresponsive governance structures

Overly rigid and non-adaptive governance processes can be a clear barrier to cooperation. Interview respondent C described the process whereby the International Whaling Commission (IWC) allocates the majority of its resources to calculating a catch quota – Even though there is

a global moratorium on whaling, this exercise involves multiple countries and calculates a sustainable level of whaling activity (should the moratorium ever be lifted). In comparison, the IWC's science committee receives very low levels of funding but has issued repeated warnings that currently occurring, non-whaling impacts (such as ocean acidification, ship strikes, underwater noise pollution) are accountable for far more whale deaths than any projected under the IWC's future catch quotas. Despite this scientific advice, the governance structures do not change and cooperation with the IMO (to help address the issue) is at best informal, and under-resourced.

Sanction-free frameworks

The majority of international agreements, while sometimes legally binding, are often sanction-free due to the absence of an enforcement and compliance mechanism. Interview respondent H gave the example of the UNGA Resolution on Bottom-Fishing, which has been translated into formal guidance by the FAO and implemented by some RFMOs but remains voluntary and without sanction. This has clear implications for the forthcoming ILBI, and the extent to which States will agree to bind themselves to an enforceable agreement.

Lack of institutional 'fit'

A lack of fit between ecosystems (and the pressures they face) and governing institutions can be identified both within the case study context and in terms of sources of ecosystem pressures beyond the marine regime complex.

For example, within the case study boundary, 'institutional gaps' (Ekstrom, & Crona, 2017) can be identified in terms of contrasting the main actual and potential threats to biodiversity (Johnsen *et al.* 2008) in the northern Atlantic (fishing pressures and shipping pollution accidents).

Fishing pressures such as overfishing, bottom trawling, discards, lack of regulations, catch of non-targeted species can arguably be addressed through the Collective Arrangement between OSPAR and NEAFC, but shipping impacts (such as pollution, oil spills, seabed abrasion through trawling and TBT leakage¹³⁵) fall between the mandates of OSPAR and IMO, with little evidence of interplay between these two bodies to address pollutants in the Northern Atlantic.

Looking beyond the marine governance regime complex, the most recent ICES ecoregion assessment (2019) (for the north-east Atlantic) lists the above pressures but also highlights impacts from military movements (marine litter and underwater noise) as of key concern. These *extra*-regime impacts (which also include pollution from land-based sources¹³⁶) pose challenges for how effective bounded interplay management can ultimately be, but also point to the need for the BBNJ ILBI to at a minimum acknowledge wider pressures or better incorporate a mechanism for updating the provisions as new pressures emerge.

The challenges of 'fit' are manifold, ranging from issues of "less *inter*, more *extra*" identified by several elite respondents (referring to the challenges of working beyond the Northern Atlantic regime complex), through to the "sanction-free" nature of the ILBI, which retains the current institutional *status quo* in terms of power, influence and sanction but overlays a further layer of

¹³⁵ TBT is a toxic compound used in antifouling paint for ships hulls

¹³⁶ A number of interviewees also highlighted the 'treaty silence' of the BBNJ ILBI on land-based pollutants, which are increasingly forming a key pressure on species and habitats.

implementing organs which may or may not improve the governance performance of existing arrangements.¹³⁷

Factors enabling cooperation at the various ocean governance scales

Clarity and trust

Raised unanimously across all interview respondents, the twin issues of clarity (over the roles and responsibilities the ILBI will require) and trust (between governance layers) were seen as critical enablers of cooperation.

Filling gaps but not ‘reinventing wheels’

A clear theme emerging from the analysis (and confirmed through elite interviews) emphasized the importance of the ILBI for filling legal gaps and providing clear treaty text/jurisdictional protections for those ocean areas lacking any form of governance institution(s).

Similarly, the ILBI is seen as vital for updating elements of the 1982 UNCLOS treaty, clarifying ambiguities (such as the treatment and management of marine genetic resources) and standardizing and strengthening requirements over Environmental Impact Assessment, particularly the need for comprehensive baselines and cumulative impact assessments (Interview respondent I)

However, an equally clear theme reflected the importance of not reinventing existing structures where these were in place and ensuring that the ILBI did not diminish or reduce the role of those existing institutions.

Presence of capacity building

Two interview respondents (A and D) highlighted that, if agreed, the BBNJ agreement will be adopted globally but will have to be applied across different States with variable resources and implementation capabilities, making capacity building a key feature of collaboration between more and less economically developed countries.

Existing relationships and structures

Interview respondents A and D stated that, contrary to popular belief, UN agencies are well versed in working together, particularly when directed by States (as may be the case under the BBNJ agreement), and a number of global instruments already exists which may prove compatible with and complementary to the ILBI, such as the IMO’s Particularly Sensitive Sea Area (PSSA) designation and existing instruments on marine genetic resources through CITES and the CBD. A further example is the GloLitter partnership, which aims to support developing countries to identify opportunities for the prevention and reduction of marine litter. Importantly, this initiative involved the establishment of a joint coordination unit linking across private donors, MARPOL, the London Protocol and FAO instruments.

Neutral parties to advise on boundary implications

At a global level, when specific issues raise scientific or jurisdictional concerns, the UN family of agencies (including ISA) often commission the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) to provide independent and impartial

¹³⁷ There was consensus among interviewees that the proposed creation of the BBNJ organs (CoP, Scientific Committee etc) are unlikely to interface well with the existing institutions, and will require a further process to articulate, understand, align and harmonise roles and responsibilities between the treaty and implementation levels.

advice. This is reflected in some regions, with the ICES and its equivalent body, PICES (the North Pacific Marine Science Organisation) offering scientific advice “without advocacy” (Interview respondent K)

Expanding issues, integrative mechanisms?

Ardron *et al.* (2014) suggests that international ocean governance agreements can be – with the exception of UNCLOS – be grouped into two broad categories, the first being sector-specific agreements for the management of marine resource exploitation and maritime activities and their associated institutions and parties, and the second being conservation-oriented agreements and their associated institutions. Both categories of agreement find expression globally and regionally. Since this categorisation was made, there have arguably been developments both regionally (e.g. the Cooperation Arrangement between OSPAR and NEAFC) and globally (the growing importance of the Kyoto/Paris international climate change agreements to the oceans, and the role of SDG14 to act as an integrative mechanism for sectorally-focussed agreements) which suggest the emergence of a third or fourth category (climate and integrative approaches)

This view was corroborated by interview respondent A, who described the emerging sector of carbon capture and sequestration, which spans both the London Protocol (dumping waste at sea) and the UNFCCC.

Neutral factors

As with Stage 1 of the research identifying but choosing to discount consideration of preconditions, in considering wider factors that influence cooperation it is important to acknowledge that RFMOs and (to a lesser extent) RSCAPs are structures designed to reflect and implement the requirements of their Contracting Parties, or Members, and the degree to which these parties reach consensus can dramatically influence institutional performance.

Conclusions

The aim of this case study was to analyse the phenomenon of institutional interplay among High Seas bodies operating in the Northern Atlantic, with a view to both characterizing the nature of interplay but also attempting an explanation of the forces and factors that encourage or impede collaboration. Understanding the factors that affect the ability of institutions to collaborate is critical to the success of the BBNJ ILBI. There are 3 critical points of importance:

- Critical in the sense of delivering the aims of the negotiating text, which reflects a “broad consensus among Governments, IGOs, and civil society that the new implementing agreement to UNCLOS should *not undermine* existing relevant legal instruments and frameworks and relevant global, regional and sectoral bodies, but should organise coordination among these institutions” (Scovazzi, 2015; Semedo, 2015)
- Critical in terms of short-term implementation - if the BBNJ ILBI is to be implemented effectively without undermining existing law, the current set of organisations within the North Atlantic BBNJ institutional complex may need to collaborate in order to overcome limits of mandate, governance gaps and resource constraints, and
- Critical in terms of longer-term effectiveness – Long term challenges such as climate change, warming oceans and continued high levels of pollution are re-drawing jurisdictional boundaries and creating new and different challenges for existing institutions.

These critical forces and factors were analysed through the lens of inter-institutional interplay, or interplay management, informed by literature review, documentary analysis and elite interviews.

The overarching conclusion based on these insights is that the current BBNJ negotiations on the ‘package deal’ elements of ABMT, EIA, MGR and capacity building may be successful in addressing gaps in existing conventions and agreements yet fall short in terms of delivering effective implementation of the outcome of conservation and sustainable use of marine BBNJ, even within the relatively mature institutional context of the Northern Atlantic.¹³⁸ Several interview respondents highlighted the lack of clarity over implementation arrangements and suggested a ‘twin-track’ approach of focussing the legally binding BBNJ instrument on persistent or intractable issues while also maximising the potential of existing agreements and institutional mandates to deliver the outcome.

Extending this point, several elite respondents highlighted the potential for maximizing synergies and harmonising governance between “novel geographies”, such as IMO special zones, EBSAs, VMEs, IBAs, PSSAs, OECMs and LMEs (Duda and Sherman, 2002) as they overlap to a degree, and all have associated governance structures and management objectives. Similarly, the literature (Rochette *et al.*, 2015) concludes that two factors are crucial in improving the currently fragmented, overlapping and ineffective BBNJ regime, these being (1) revisions to the mandates of key institutions, and (2) promoting informal cooperation and coordination agreements.

The successful negotiation of the BBNJ ILBI is unlikely to replace the need for improved implementation of existing agreements and improved coordination between existing regimes (Ardron *et al.* 2014). Rather, the ‘do not undermine’¹³⁹ commitment underlines the importance of *existing* institutions, and the prevailing political mood away from both supra-national institutions and their financing underlines the importance of working *within* and *between* established arrangements.

¹³⁸ It is important to not extend the findings from this case study to other ocean governance contexts. As interview respondent B stated, “*the problems in the Northern Atlantic are wholly different from those in the South Pacific...In the Northern Atlantic, the fishing fleets are moderated by national interests in participating in, shaping and complying with a rules-based order. In other parts of the world, the island states often have no commercial fishing fleets and no means of administering or enforcing rules across a vast area.*”

¹³⁹ The commitment to “not undermine” was introduced in United Nations General Assembly Resolution 69/292.

Governing the High Seas: Effective Institutional Arrangements for the Conservation and Sustainable Use of Biodiversity beyond National Jurisdiction

Chapter 8: Conclusion

During 2018-23, a new internationally legally binding instrument (“ILBI”) emerged from the UN-led International Governmental Conference (IGC) process. This instrument places the protection and sustainable use of biodiversity beyond national jurisdiction on a legal footing, filling shortfalls within UNCLOS and complementing analogue agreements (such as the UN Straddling Fish Stocks Agreement).

Beyond its entry into statute, the instrument will take an as-yet-unknown institutional form (although a CoP with subsidiary structures seems most likely). However, whichever institutional form the ILBI assumes, it will need to recognise and “not undermine” (UNGA BBNJ PrepComm Chair’s Summary document) existing agreements under UNCLOS and relevant international law.

To achieve its goal of conservation and sustainable use of biodiversity beyond national jurisdiction, the emergent ILBI will therefore need two processes to occur simultaneously: Firstly, the agreement will need to be implemented effectively by *existing* institutions, and secondly, due in part to the migratory nature of biodiversity in the High Seas and persistent gaps in governance, existing institutions will need to *work together effectively*. This study has attempted to address the questions behind each component.

To the former component, from both an academic and policy perspective, the key research question is: ‘*What are the key conditions for effective inter-institutional governance of BBNJ?*’

The analysis in Chapter 4 into candidate conditions of effectiveness identified five (latterly four) conditions: **Access to/management of data**; **Stakeholder engagement**; **Adaptive management**; **Inclusive, equitable approach**; and **Multi-party coordination**. These were then calibrated and tested empirically through application of QCA, evaluated against RFMO and RSCAP performance).

The resulting QCA analysis (Chapter 6) indicated a parsimonious solution that the successful conservation and sustainable use of marine biodiversity beyond national jurisdiction (CSU/BBNJ) occurs in the presence of **access to/management of data**, **adaptive management** and **multi-party coordination** (this configuration of conditions being sufficient for the outcome), and that **multi-party coordination** is a necessary condition for the successful outcome of CSU/BBNJ¹⁴⁰.

To the latter component, the key research question asks ‘*What are the forces and factors influencing inter-institutional cooperation amongst ocean governance institutions.*’

Although less precise than the QCA results, the application of an embedded case study examining the institutional complex in the Northern Atlantic returned deep, rich data relating to the **type and expression of interplay** and the **factors enabling and impeding** institutional cooperation.

¹⁴⁰ Expressed formally, we find that $MPC \leftarrow CSU/BBNJ$, and that $DATA*ADAPT*MPC \rightarrow CSU/BBNJ$

Summarised, the study finds issues of **trust, clarity, capacity building, ‘filling gaps but not reinventing wheels’, strength of existing relationships** and the **role of neutral parties** to be key enablers of inter-institutional cooperation.

Set against these the study finds **differing competencies, rules-based limitations, constitutive constraints, timing tensions, absence of forums, unresponsive governance structures, ‘sanction-free’ frameworks** and **institutional ‘misfit’** to be the key impediments to institutional cooperation.

These formulations – and the evidence and arguments that underpin them – provide useful starting points for those bodies charged with implementing the new agreement (such as the proposed BBNJ Implementation and Compliance Committee), as well as informing more effective and evidence-based approaches to High Seas governance in general.

The final IGC negotiating text offers a genuine opportunity to introduce legally binding measures that will help to address some of challenges to High Seas governance, but *inter-institutional cooperation* and a focus on *pragmatic implementation* will be key to the ILBI’s success.

Contributions to existing theory

From a scholarly perspective, this study breaks new ground in applying the QCA methodology to the High Seas context. In addition, the work offers an original contribution to the academy through:

- 1) The study provides new empirical research into ocean governance on the “horizontal” interactions between institutions. This has often not been conducted due to the challenges of accessing elite subjects or has mostly focussed on the vertical relationships between “functionally specialized” institutions (Gehring and Oberthür, 2008) and their Contracting Parties (states).
- 2) The study contributes to the literature on the less well-developed core element of *implementation* (Evans, 2011) by theorising and testing factors for effective collaboration. This complements scholarly debates which have draw predominantly on legal and international relations concepts and the first two elements of global environmental governance: *process* (international meetings and agreements) and *architecture* (institutions created to enact the agreements).
- 3) The research makes timely and original contributions to theory in the under-researched areas of institutional cooperation in ABNJ (Kimball, 2005; Barnes, 2012; Grip 2016) and institutional theory in a marine context (Oberthür 2011), as well as contributions to environmental geography, and related disciplines (such as law, political ecology and International Relations).
- 4) More broadly, governance of the global commons has been recognised by the academic community as a critical research frontier because of globalisation and the expansion of activities into the oceans (Heikkilä *et al*, 2011; Ostrom, 2009)

Key recommendations for policy and practice

Looking to the future, it is clear that the current configuration of governance arrangements – imperfect as they are – will need to undergo further change. A compelling example of this can be seen when considering the challenge of climate change for ocean governance.

Climate change was not well understood in the 1970s and 1980 when UNCLOS was agreed, and the ‘constitution of the oceans’ is largely ‘climate silent’, but its effects are now re-drawing the functional geographies of RFMOs as species migrate to cooler, deeper waters. Similarly, where RFMOs are operating well, one of the main impacts on the High Seas is pollution from land-based sources, which is outside of the jurisdiction of many of the institutions charged with protecting the oceans (institutional ‘misfit’).

Key insights for policy and practice emerging from this research include:

- 1) *Greater use of empirical methods and systematic approaches to support claims of effectiveness* - As Sumaila *et al.* (2021) argue, the finance ‘gap’ for supporting sustainable ocean initiatives is large, and State budgets (and their corresponding contributions to multinational processes) are easily diverted from issues of indirect importance, such as reforming ocean governance institutions. A key insight from this research is the importance of applying empirical methods and more systematic approaches to understand ‘what works’, allowing limited resources to be directed to those areas mostly likely to deliver the desired outcomes.
- 2) *‘Wicked’ issues driving more integrative solutions* - Ardron *et al.* (2014)’s grouping of ocean governance agreements into either marine use/exploitation or marine conservation (Chapter 7) still holds, but is increasingly being challenged by the complex, overlapping and systemic nature of ocean resource management issues. The review of institutional forms and their interplay in this research highlights the emergence (and importance) of more integrative mechanisms to address the wicked problem of conserving and managing the High Seas, while acknowledging the challenges in introducing such processes (e.g. adaptive management) into institutions with rigid rules and overly procedural governance.
- 3) *Growing recognition of informal pathways to governance* – This research deliberately focussed on forms of cooperation that could operate without formal sanction or require significant legal reform, in order to explore pathways to action that could be rapidly implemented (the ILBI requires ratification and institutional organs will need to be established before actions can take place). Policymakers are increasingly turning to faster, more flexible forms of governance and more informal modalities to address “the complex problems raised by deepening interdependence” (Roger, 2020). Informal governance–informed by ‘what works’ - allows States to potentially move faster and achieve more, reflecting the shortening timescale for action on governing the High Seas.
- 4) *Importance of inclusivity* - Although the QCA calibration process (Chapter 5) merged the candidate condition of ‘inclusive, equitable approaches’ into a consolidated ‘inclusive stakeholder engagement’ condition, this should not be taken to mean a lessening of the importance of inclusivity. For an agreement that applies to 43% of the planet, ensuring equitable and inclusive governance approaches is a necessity not an option for successful implementation of the BBNJ agreement.
- 5) *The importance of evidence in informing ‘effectiveness’* – Assessing performance and effectiveness fundamentally relies on up-to-date and consistently measured evidence. The majority of official performance data is either out-of-date and/or includes significant gaps (RSCAPs and RFMOs) or simply does not exist (other international ocean governance bodies), hampering the ability of States and other actors to implement (1)-(3) above. A key future action involves establishing, strengthening, and standardising an ocean governance performance framework.

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Appendices

Appendix A	Ethical Approval Forms
Appendix B	Elite interview semi-structured questionnaire (Stage 1)
Appendix C	Elite interview semi-structured questionnaire (Stage 2)
Appendix D	Elite interview respondents (Stage 1 and Stage 2)
Appendix E	Raw data to inform calibration and SMV judgements.

Appendix A Ethical Approval Forms (1 of 2)



University of St Andrews

University Teaching and Research Ethics Committee School of Geography and Geosciences

31st October 2017

James Luger

Geography and Geosciences

Ethics Reference No:	GG13147
Project Title:	Governing the High Seas: Effective institutional arrangements for marine Biodiversity Beyond National Jurisdiction (BBNJ)
Researchers Name(s):	James Luger
Supervisor(s):	Dr Tim Stojanovic

Thank you for submitting your application which was considered by the Geography and Geosciences School Ethics Committee on the date specified below. The following documents were reviewed:

- | | |
|----------------------------------|------------------------------|
| 1. Ethical Application Form | 18 th August 2017 |
| 2. Participant Information Sheet | 18 th August 2017 |
| 3. Consent Form | 18 th August 2017 |

The University Teaching and Research Ethics Committee (UTREC) approves this study from an ethical point of view. Please note that where approval is given by a School Ethics Committee that committee is part of UTREC and is delegated to act for UTREC.

Approval is given for three years. Projects, which have not commenced within two years of original approval, must be re-submitted to your School Ethics Committee. You must inform your School Ethics Committee when the research has been completed. If you are unable to complete your research within the 3 three year validation period, you will be required to write to your School Ethics Committee and to UTREC (where approval was given by UTREC) to request an extension or you will need to re-apply.

Any serious adverse events or significant change which occurs in connection with this study and/or which may alter its ethical consideration, must be reported immediately to the School Ethics Committee, and an Ethical Amendment Form submitted where appropriate.

Approval is given on the understanding that the 'Guidelines for Ethical Research Practice' (<http://www.st-andrews.ac.uk/media/UTRECguidelines%20Feb%2008.pdf>) are adhered to.

Yours sincerely,

Dr. Matt Southern
Convenor of the School Ethics Committee

UTREC School of Geography and Geosciences Convenor, Irvine Building, North Street, St Andrews, KY16 9AL. Email: ggethics@st-andrews.ac.uk Tel: 01334 463897

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Ethical Approval Forms (2 of 2)



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School of Geography & Sustainable Development Ethics Committee

17 May 2023

Dear James

Thank you for submitting your ethical application which was considered at the School Ethics Committee meeting on 2nd August 2021. The School of Geography & Sustainable Development Ethics Committee, acting on behalf of the University Teaching and Research Ethics Committee (UTREC), has approved this application:

Approval Code:	GG13147	Approved on:	2 nd August 2021	Approval Expiry:	2 nd August 2026
Project Title:	Governing the High Seas: Effective institutional arrangements for marine Biodiversity Beyond National Jurisdiction (BBNJ)				
Researcher(s):	James Luger				
Supervisor(s):	Dr Timothy Stojanovic				

The following supporting documents are also acknowledged and approved:

1. Participant Information Sheet
2. Interview questions/focus group guide
2. Participant consent form
3. Approved risk assessment

Approval is awarded for 5 years, see the approval expiry data above. If your project has not commenced within 2 years of approval, you must submit a new and updated ethical application to your School Ethics Committee. If you are unable to complete your research by the approval expiry date you must request an extension to the approval period. You can write to your School Ethics Committee who may grant a discretionary extension of up to 6 months. For longer extensions, or for any other changes, you must submit an ethical amendment application.

You must report any serious adverse events, or significant changes not covered by this approval, related to this study immediately to the School Ethics Committee. Approval is given on the following conditions:

- that you conduct your research in line with:
 - the details provided in your ethical application
 - the University's [Principles of Good Research Conduct](#)
 - the conditions of any funding associated with your work
- that you obtain all applicable additional documents (see the ['additional documents' webpage](#) for guidance) before research commences.

You should retain this approval letter with your study paperwork.

Yours sincerely - Dr Antje Brown (SEC Convener)

School of Geography & Sustainable Development Ethics Committee

Telephone: 01334 462394 Email: ggethics@st-andrews.ac.uk

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Governing the High Seas: Effective institutional arrangements for marine Biodiversity Beyond National Jurisdiction (BBNJ)

RESEARCH PARTICIPANT QUESTIONS

IOG and RIOG institutions

Q1-12

Academic and NGO organisations

Q1 – 8, Q9, Q10 - 12

Q1. I'd like to start by asking your views on the outcome(s) of the recent UN PrepComm process?

Q2. Giving reasons why, what are the key pressures facing BBNJ? Please include current and future pressures in your response

Q3. At a high level, what are the main challenges for IOG institutions in dealing with the pressures above?

Q4. In your view, do (a) and (b) raise particular implementation challenges for IOG institutions?

- (a) being the ILBI's institutional arrangements (e.g. decision-making body) and
- (b) being the ILBI's constituent measures (e.g. EIA/SEA, benefit sharing process)

Q5. Could you briefly describe the policy framework your organisation operates in?

Q6. Which (if any) other IOG institutions do you interact with?

Q7. With reference to *type* (formal, informal) and *nature* (information exchange...), how would you characterise that interaction?

Q8. What steps are you either taking or planning to take in advance of ILBI implementation?

Q9. What challenges will ILBI implementation pose for your organisation?


Q9. What challenges will ILBI implementation pose for IOG/RIOG institutions?

Q10. In your view, what are the key factors influencing effective interactions between IOG institutions, and why?

Q11. Given the specific objective of the ILBI (*conservation and sustainable use of BBNJ*) what other factors might be important, and why?

Extension question (if time allows)

Q12. Please comment on the significance (or otherwise) of SDG14 for implementation of the ILBI



Governing the High Seas: Effective institutional arrangements for marine Biodiversity Beyond National Jurisdiction (BBNJ)

University of
St Andrews

RESEARCH PARTICIPANT QUESTIONS

Please note that questions 2-8 are framed within a Northern Atlantic context (this provides an opportunity to discuss global-to-regional interactions, as well as global-to-global where these occur):

Q1. I'd like to start by asking your views on the current BBNJ Intergovernmental negotiations? E.g., progress, prospects, relevance to your institution.

Q2. With reference to the diagram (Mahon et al. 2015), I'd like to ask which (within the Northern Atlantic) are the organisations you primarily interact with on BBNJ issues?

Q3. What is/are the reason(s) for these interactions? If there are multiple organisations/interactions, please provide reasons for the 'top 3' most significant interactions

Q4. How would you describe the nature of the relationship(s) between your organisation and each of those identified above? E.g., Principal-Agent, peer-to-peer etc.

Q5. What is (are) the main mechanism(s) (or 'pathways') for these interactions? How do they operate in practice? If each example is different, please describe the 'top 3'

Q6. What have these interactions achieved? (Specifically, or in summary)

Q7. How have these interactions evolved over time?
If there are multiple organisations/interactions, please describe the changing relationship with the 'top 3' most significant interactions.

Q8. Are there any institutions – within the case boundary or elsewhere – that you currently do not interact with over BBNJ issue but perceive value in doing so, and why?
For the final two questions, I'd now like to widen the discussion and consider the implications of the current BBNJ negotiations for your institution.

Q9. Thinking about analogues of the BBNJ ILBI (see examples below, where relevant), has implementing or complying with one or more of the following raised any implementation issues?

- UNCLOS Part XI (The 'Area' and International Seabed Authority)
- Article 5 of the Convention on Biological Diversity (Duty to cooperate)
- UNCLOS Fish Stocks Agreement

Q10. From your institutional perspective, what do you see as the key issues facing successful implementation of the ILBI?

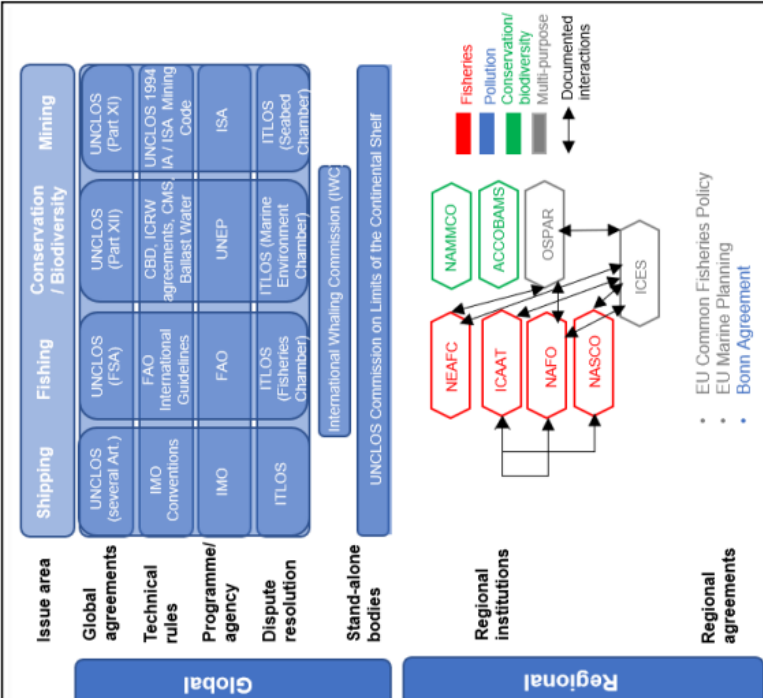


Diagram adapted from: Mahon, R., Fanning, L., Gjerde, K., Young, O., Reid, M. & Douglas, S. (2015). Transboundary Waters Assessment Programme (TWAP) Assessment of Governance Arrangements for the Ocean, Volume 2: Areas Beyond National Jurisdiction. UNESCO-IOC, Paris. IOC Technical Series, 119: 91 pp

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Appendix D**Elite interview respondents****Stage 1**

Interview Respondent (Code)	Organisation
Respondent A	Global Ocean Forum (GOF)
Respondent B	IDDRI
Respondent C	IASS
Respondent D	Seascope Consultants
Respondent E	UNEP-WCMC
Respondent F	The Commonwealth
Respondent G	IUCN Global and Polar Programme
Respondent H	University of Wollongong
Respondent I	SPRFMO
Respondent J	OSPAR
Respondent K	IWC

Stage 2

Interview Respondent (Code)	Organisation
Respondent A	International Maritime Organisation (IMO)
Respondent B	International Seabed Authority (ISA)
Respondent C	International Whaling Commission (IWC)
Respondent D	<i>Food and Agriculture Organisation (FAO) - *</i>
Respondent E	NAFO
Respondent F	OSPAR
Respondent G	ICAAT
Respondent H	NEAFC
Respondent I	NAMMCO
Respondent J	ASCOBANs
Respondent K	ICES

*Views offered in a personal capacity and not representative of the institution.

Appendix E Raw data to inform calibration and SMV judgements

The following tables set out the initial calibration score for the cases (with supporting rationale and references) mapped to the theoretical conditions of effectiveness (DATA, INC-STAKE, ADAPT, MPC) and the outcome of interest (CSU/BBNJ). The crisp set calibration rubric is repeated below from Chapter 5, Table 5.

CCAMLR	SEAFO	IATTC	NAFO	GFCM	MAP	NEAFC
OSPAR	NPFC	NPAFC	WCPFC	SPRFMO	SPREP	SIOFA

Crisp set calibration rubric

Presence ('1')	Absence ('0')	Indicators	Evaluation
Condition 1: Access to / management of data (DATA)			
Availability of adequate key scientific data (e.g., EIA baselines)	Absence of key scientific data; partial data sets	Open source data (e.g. GOOS); tailored data sets available	Two or more indicators present = 1
[Scientific/ technical capability] + [access to decision data]	One but not the other, or absence of both scientific capability/access to data	Evidence of [Data literacy/capability] + [accessibility of decision data], form could take individual Science Officer, Committee structures etc	Zero or one indicator present = 0
Effective flow and sharing of data between supra-national and international bodies	Poor / limited flow and sharing of data between supra-national and international bodies.	Evidence of good 'two-way' data flows between (for example FAO and RFMOs); opportunities for regional bodies to influence/input to data held by supra-national body	
Effective flow and sharing of data between equivalent bodies (e.g., RFMO-RFMO)	Minimal or no sharing of data across jurisdictional boundaries	Existence of data sharing forums, MoUs, protocols	

Shared engagement in technical, scientific and research and development programmes	Minimal or no shared engagement in technical, scientific and research and development programmes	Shared programme documentation, agreed schedule of works; working group sessions
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Condition 2: *Inclusive Stakeholder engagement (INC-STAKE)*

Flexibility [of processes, timings, means/methods of engagement]	Rigid, inflexible means/methods of engagement	Differing approaches to engagement visible across stakeholder engagement processes	Two or more indicators present = 1
Early engagement	Late and/or overly onerous engagement requirements	Adequate timescales and support mechanisms for all parties (particularly from developing countries)	Zero or one indicator present = 0
Openness to public concerns shaping the end process	Perfunctory, ‘knowledge transfer’ type consultation	Discernable changes between consultation and final decision documents	
Transparency [of processes, timings, means/methods of engagement]	Closed processes; invitational-only engagement	Use of innovative methods of outreach and engagement; active/purposive engagement plan	
Vertical and horizontal stakeholder engagement	Engagement focused on one main audience / one ‘institutional tier’	Cross-section of institutions and communities of actors visible in lists of consultees	

Condition 3: *Adaptive management (ADAPT)*

Dynamic management processes in place (“learning by doing”), consistent with the adaptive management cycle.	Static (“passive”) management processes in place; absence of feedback loops and reflexive processes.	Evidence of most of the following: iterative planning, implementation, auditing/review of outcomes, and adaptive planning in response to review	Two or more indicators present = 1
Stakeholder engagement at appropriate levels (to inform learning processes and decision-making)	Limited or no stakeholder engagement that feeds through to decision-making; ‘closed, one-way’ structures for decision-making and implementation	Data and experience sharing mechanisms / arrangements;	Zero or one indicator present = 0

Management/decision-maker tolerance of uncertainty and approximate data	Management/decision-maker insistence on certainty prior to implementation of actions	Documentary evidence of decision making under uncertainty and/or iterative approaches	
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Condition 4: *Multi-party coordination* (MPC)

Aligned mandates, duties and responsibilities between parties in respect of IOG and/or marine conservation ¹	Functionally separate jurisdictions or ‘weak’ alignment between parties in respect of IOG and/or marine conservation.	Shared or coterminous jurisdictional boundaries; evidence of joint projects	Two or more indicators present = 1
Significant ² political alliances and/or coalitions of interest within IOG collaborations and/ contracting parties	There are no observable significant alliances or coalitions within cases (recognizing that some may exist but are too marginal to influence outcomes)	Documentary evidence of significant collaboration (e.g. regular bi-lateral meetings, joint memoranda etc) ; Policy leaders or ‘entrepreneurs’ acting as drivers of change.	Zero or one indicator present = 0
‘Fairness’ and legitimacy – mutual ‘acceptance’ between parties of another's right to participate and take action	Imbalanced power dynamics between IOG bodies / parties ; Partial or no compliance efforts between adjacent parties (as they do not accept the other as legitimate)	Documentary evidence of working partnerships ; joint initiatives ; ‘equal’ representation at governing forums	
Capabilities within IOG bodies that exceed minimum legal requirements (e.g. capacity and capability to engage with collaborative activities)	IOG body secretariats limited to statutory mandate only.	Evidence of <u>more than one</u> joint activity/endeavour going beyond legal mandate	

NAFO

The NAFO Convention was agreed in 1978, entered into force in 1979 and was amended in 2006. NAFO is responsible for the conservation and management of fisheries in the Northwest Atlantic. Sedentary species and species managed under other international treaties are excluded. The amended convention asserts that NAFO's objective is to ensure the long-term conservation and sustainable use of the fishery resources in the convention area and, in so doing, to safeguard the marine ecosystems in which these resources are found. NAFO has authority to adopt conservation and management measures in all parts of the convention area, but measures for areas under national jurisdiction are conditional on the relevant coastal State proposing and supporting them. Thus, in practice NAFO is largely focused on the parts of the convention area that are beyond national jurisdiction, referred to as the “regulatory area”. (Løbach, *T et al*, 2020)

The constituent bodies of NAFO are: the Commission, Scientific Council and the Secretariat, of which the specific functions are set out in the Convention and the Rules of Procedure. The Convention has been amended four times, on 1 January 1980, on 9 October 1987, on 13 September 1996 and on 18 May 2017. The first three sets of amendments modified some of the boundaries of Subareas, Divisions and Subdivisions of the Convention Area contained in Annex I of the Convention. The fourth (18 May 2017) set of amendments were comprehensive, designed to modernize NAFO, particularly by incorporating an ecosystem approach to fisheries management. The fourth set of amendments also streamlined NAFO's decision-making process, strengthened the obligations of Contracting Parties, flag States and port States, and instituted a formal dispute settlement mechanism. (NAFO website – accessed 21/06/22 - <https://www.nafo.int/Home/NAFO-Governance>)

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	0.5	Source 1: Parties to UNCLOS (1994), UN FSA (1995) and FAO Code of Conduct (1995) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information; FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data; and FAO Code of Conduct for Responsible Fisheries (1995) Article 12 (Fisheries research).	Source 1: UNCLOS (1994), UNFSA (1995), FAO (1995)

	1	Source 2: NAFO has developed indicators to monitor application of FAO guidelines and protection of VMEs. Led by their Scientific Council and their overall ecosystem approach to fishing (EAF), the indicator suite encompasses data that could potentially increase the effectiveness of a specific fishing region (e.g. plankton blooms) and feeds that into decisions over what level of commercial activity will be sustainable.	Source 2: Sustainable Ocean Initiative (2021) <i>Intersessional Workshop for the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organisations and Regional Fishery Bodies</i> (29 September-1 October 2021). Organised by the Convention for Biological Diversity (CBD) Secretariat, in collaboration with FAO, UNEP and Republic of Korea Ministry of Oceans and Fisheries. Annex 3
	1	Source 3: In its follow-up to the 2011 performance review, FAO found that NAFO collects data from the entire convention area (corresponding to FAO Statistical Area 21), not just the regulatory area. Data include catch and effort data from members, biological data from observers on fishing vessels, and VMS data. Logbooks may be submitted by certain members to designated experts, and the scientific council creates catch estimates for every meeting. The FAO was impressed by the comprehensiveness of NAFO's statistical data holdings. (p47)	Source 3: FAO. 2015. <i>The implementation of performance review reports by regional fishery bodies, 2004–2014</i> , by Péter D. Szigeti and Gail L. Lugten. FAO Fisheries and Aquaculture Circular No. 1108. Rome, Italy
Condition 2: INC-STAKE	1	<p>Source 1: The issue of transparency is two-fold – internal (i.e. whether decisions within NAFO are made in a transparent manner) and external (i.e. openness towards other organizations and civil society). In relation to decision making processes, the 2018 Panel highlights that, since the first Performance Review, significant improvements in transparency have been achieved. These improvements were facilitated by the adoption of multiannual management measures; the establishment of WGs allowing for focused discussions before decisions are taken; and by a change of mindset among delegations. (p36)</p> <p>In relation to other organizations and civil society access to NAFO's work, the Panel recognizes NAFO allows representatives from other intergovernmental and non-governmental organizations to take part in its meetings, including many WG meetings. The Panel finds that the procedures</p>	Source 1: NAFO Performance Review (2018)

		<p>for such participation are not unduly restrictive and that all interested intergovernmental and non-governmental organizations have timely access to final documents.</p> <p>One of the most important tools to enhance NAFO transparency is its website. NAFO has completed the update of the public pages of the NAFO website (Phase I) which was launched in October 2016. As part of Phase II, the Website Re-design Ad hoc virtual Working Group has been working to develop standards and guidelines for access to documentation contained on secure portals.</p>	
	1	<p>Source 2: The FAO follow-up review (to the 2011 performance review) found that “NAFO ... expends considerable effort into ensuring that information is made publicly available in a timely manner”, although the information “could be better linked and more ‘user friendly’.” (p47). Transparency was also praised, with comments relating to the comprehensiveness of NAFO’s public website, and the volume of information published relating to itself and fisheries science in the North Atlantic. NAFO also has a public relations policy in place, and allows attendance by NGOs, IGOs and non-members at meetings. (p48)</p>	<p>Source 2: FAO. 2015. <i>The implementation of performance review reports by regional fishery bodies, 2004–2014</i>, by Péter D. Szigeti and Gail L. Lugten. FAO Fisheries and Aquaculture Circular No. 1108. Rome, Italy</p>
Condition 3: ADAPT	1	<p>Source 1: Specific mention of ecosystem approach in RFMO convention</p>	<p>Source 1: RFMO treaties that refer to the precautionary and ecosystem approach (Table 3) p15 in Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). <i>Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017</i>. https://doi.org/10.4060/ca7843en.</p>
	0.5	<p>Source 2: NAFO/ICES formal collaboration has helped to embed the ecosystem approach into fisheries management.</p>	<p>Source 2: Elite interview</p>
	1	<p>Source 3: A performance assessment was conducted of regional fisheries management organizations’ (RFMOs’) bycatch governance, one element of an ecosystem approach to fisheries management. Scoring was applied over</p>	<p>Source 3: Gilman, E., Passfield, K., Nakamura, K. (2014) <i>Performance of regional fisheries management organizations: ecosystem-based</i></p>

		five criteria, including management measures, use of data and surveillance, with NAFO scoring over the mean (>25%)	<i>governance of bycatch and discards</i> . Fish and Fisheries, 2014, 15, 327-351.
	1	Source 4: Combined score (across management measures relevant to adaptive management in ‘Ability to Achieve’ and ‘Ecological Well-being’ categories)	Source 4: Fletcher, W.J. 2020. <i>A review of the application of the FAO ecosystem approach to fisheries (EAF) management within the areas beyond national jurisdiction (ABNJ)</i> . Rome, FAO. https://doi.org/10.4060/cb1509en
Condition 4: MPC	1	Source 1: NAFO has a MoU with the OSPAR Commission for the Protection of the Marine Environment in the North-East Atlantic ¹⁴¹ . NAFO also has a formal working arrangement (MoU, joint working groups) with NEAFC ¹⁴² NAFO also cooperates with FAO, UNDOALOS, NAMMCO, SEAFO, NEAFC, ICES, NPAFC, and a number of other organizations working in marine science and statistics. However, the convention contains no provisions on assisting developing States (p46 FAO, 2015).	Sources: Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). <i>Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017</i> . https://doi.org/10.4060/ca7843en ; FAO. 2015. <i>The implementation of performance review reports by regional fishery bodies, 2004–2014</i> , by Péter D. Szigeti and Gail L. Lugten. FAO Fisheries and Aquaculture Circular No. 1108. Rome, Italy
	1	Source 2: In addition to the above, there are cooperative activities between NAFO and other regional organizations: NEAFC, ICES, and other regional	Source 2: Sustainable Ocean Initiative (2021) <i>Intersessional Workshop for the Sustainable Ocean Initiative Global</i>

		bodies (e.g., ICCAT, NASCO, WECAFC), as well as a possible MoU with Sargasso Sea Commission on scientific research	<i>Dialogue with Regional Seas Organisations and Regional Fishery Bodies</i> (29 September-1 October 2021). Organised by the Convention for Biological Diversity (CBD) Secretariat, in collaboration with FAO, UNEP and Republic of Korea Ministry of Oceans and Fisheries. Annex 3
	0.5	Source 3: MPC interactions are structurally limited as there is no RSCAP in the North-West Atlantic, leaving the only collaborations to the east in the North-East Atlantic (NAFO is often consulted on OSPAR proposals that would border the NAFO regulatory area). There is scope for potential collaboration with the Sargasso Sea Commission as southern part of NAFO area overlaps with Sargasso.	Source 3: Sustainable Ocean Initiative (2021) <i>Intersessional Workshop for the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organisations and Regional Fishery Bodies</i> (29 September-1 October 2021). Organised by the Convention for Biological Diversity (CBD) Secretariat, in collaboration with FAO, UNEP and Republic of Korea Ministry of Oceans and Fisheries. Annex 3
Outcome: CSU/BBNJ	1	Source 1: In their comparative analysis of RFMO management of demersal species, Bell <i>et al</i> (2019) applied three assessments of how effectively RFMOs had adopted mitigation measures to prevent significant impacts on vulnerable marine ecosystems. These assessments examined the relative performance of RFMOs against their ability to implement management measures ('capacity'), the number and effectiveness of measures implemented ('action'), and the intensity and spatial extent of activities regulated ('need'). NAFO was consistently amongst the highest scoring organizations for capacity and action, with commensurately low scores in need	Source 1: Bell, J. B., Guijarro-Garcia, E., & Kenny, A. (2019). Demersal Fishing in Areas Beyond National Jurisdiction: A Comparative Analysis of Regional Fisheries Management Organisations. <i>Frontiers in Marine Science</i> , 6. https://doi.org/10.3389/fmars.2019.00596
	1	Source 2: NAFO has closed important areas to bottom fishing to allow species and habitat recovery	Source 2: Gianni, M Fuller, S.D., Currie, D, Schleit, K, Goldsworthy, L, Pike, B, Weeber, B, Owen, S, Friedman, A. <i>How Much Longer Will it Take? A Ten-Year</i>

			<i>Review of the Implementation of United Nations General Assembly Resolutions 61/105, 64/72 and 66/68 on the Management of Bottom Fisheries in Areas beyond National Jurisdiction, 2016</i>
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Notes

- The NAFO and NEAFC convention areas cover ABNJ and EEZ; however, their regulatory areas cover only ABNJ. With the consent of relevant coastal States, these RFMOs also establish measures within those States' EEZ.
- NAFO and NEAFC have established joint working groups to harmonize reporting requirements

CCAMLR

CCAMLR was established through the Convention on the Conservation of Antarctic Marine Living Resources, which entered into force in 1982. Its objective is “the conservation of Antarctic marine living resources”, which include populations of finfish, molluscs, crustaceans and all other species of living organisms, including birds, found south of the Antarctic convergence. The convention area comprises a vast area in the Southern Ocean (Løbach, *T et al*, 2020)

CCAMLR has been subject to two performance reviews, concluded in 2008 and 2017.

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	0.5	Source 1: Parties to UNCLOS (1994), UN FSA (1995) and FAO Code of Conduct (1995) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information; FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data; and FAO Code of Conduct for Responsible Fisheries (1995) Article 12 (Fisheries research).	Source 1: UNCLOS (1994), UNFSA (1995), FAO (1995)
	1	Source 2: CCAMLR has established a data collection system. The first data collection measure was adopted in 1991, and since then several additional measures have been adopted for different fisheries. The requirements for data submission vary depending on the region and whether the fishery is established or exploratory; for some fisheries, daily reporting of catch and effort data is required, while for others reporting is required on a five-day, ten-day or monthly basis.	Source 2: FAO 2020 p20-21
	0.5	Source 3: While acknowledging the costs and difficulties of carrying out research surveys in the Southern Ocean, the 2017 Performance Review highlighted the limitations of data collection by commercial fishing vessels only, and proposed greater coordination (in terms of the research activities and surveys) among the Commission’s Members. Further recommendations called for improvements to data in the areas of precautionary catch limits, spatial and temporal harvest strategies and catch composition.	Source 3: CCAMLR Performance Review (2017), pp18-20

Condition 2: INC-STAKE	0	Source 1: Clark <i>et al</i> (2015) combined transparency assessment score	Source 1: Clark, N. A., Ardron, J. A., & Pendleton, L. H. (2015). <i>Evaluating the basic elements of transparency of regional fisheries management organizations</i> . Marine Policy, 57, 158–166.
	0.5	<p>Source 2: IGOs and NGOs may attend the meetings of the Commission as observers unless a member of the Commission objects. The meeting reports of the Commission, the subsidiary bodies and working groups are all available on CCAMLR’s website.</p> <p>In its 2015 follow-up to the 2008 Performance Review, the FAO approved of CCAMLR’s approach to transparency, noting working arrangements with a wide range of organisations (see below) and adequate arrangements for non-members and assistance to developing States (p10)</p>	Source 2: FAO 2020 p23; FAO. 2015. <i>The implementation of performance review reports by regional fishery bodies, 2004–2014</i> , by Péter D. Szigeti and Gail L. Lugten. FAO Fisheries and Aquaculture Circular No. 1108. Rome, Italy
	0.5	Source 3: CCAMLR has built capacity within developing States to help implement conservation management measures. For example, it has provided targeted assistance and training to Mauritius to support implementation of the Catch Documentation Scheme (CDS)	Source 3: Willock, A. and Lack, M. (2006). <i>Follow the leader: Learning from experience and best practice in regional fisheries management organizations</i> . WWF International and TRAFFIC International.
Condition 3: ADAPT	1	Source 1: CCAMLR has improved the conservation of target species by adopting an adaptive approach, allowing for fishery closures and target species prohibitions to be applied in line with catch levels.	Source 1: Kock, K-H (Ed) (2000) <i>Understanding CCAMLR’s approach to management</i> . Institut für Seefischerei, Thünen Institut (a federal research institute under the auspices of the German Ministry of Food, Agriculture and Consumer Protection)

	0.5	Source 2: No specific mention of ecosystem approach in CCAMLR convention ¹⁴³ but it does state that it specifies that any harvesting in the convention area shall be conducted following principles of conservation which include preventing changes or minimizing the risk of changes in the marine ecosystem, taking account of direct and indirect impacts of harvesting, introduction of alien species and associated activities on the marine ecosystem, and considering the effects of environmental changes.	Source 2: FAO 2020 p20
	0.5	<p>Source 3: The 2017 Performance Review queried whether the network of MPAs established (and in the process of being established by CCAMLR) are in line with MPA best practices (e.g. the Ross Sea MPA has a designation lifetime of 35 years, a shorter time period than “<i>the life histories of many birds, mammals and fish that the MPA sets out to protect</i>”, and called for the design characteristics of future MPA designations to better reflect the regions species and ecosystem processes.</p> <p>Recommendation 6 of the 2017 Performance Review called for the CCAMLR Scientific Committee to evaluate options for ecosystem-based management of all CCAMLR fisheries, taking into account ecosystem and climate change and the types of data that can be reliably obtained.</p> <p>Recommendation 7 highlighted that the CCAMLR management procedures (for setting catch limits for fisheries, including data collection and subsequent analyses, rules for deciding on harvest controls based on the analyses, and implementation) <i>needed to be evaluated for how well they work under current and future ecosystem scenarios. This evaluation (often termed Management Strategy Evaluation in other forums) is necessary for the Commission to be confident that those procedures will enable the Commission to meet the objective of the Convention, despite incomplete data. Adopted procedures are vulnerable to failure if the science required to underpin them (data and analyses) is not assured.</i></p>	Source 3: CCAMLR Performance Review (2017), pp16-18

¹⁴³ RFMO treaties that refer to the precautionary and ecosystem approach (Table 3) p15 in Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). *Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017*. <https://doi.org/10.4060/ca7843en>.

	1	Source 4: Combined score (across management measures relevant to adaptive management in ‘Ability to Achieve’ and ‘Ecological Well-being’ categories)	Source 4: Fletcher, W.J. 2020. <i>A review of the application of the FAO ecosystem approach to fisheries (EAF) management within the areas beyond national jurisdiction (ABNJ)</i> . Rome, FAO. https://doi.org/10.4060/cb1509en
	1	Source 5: A performance assessment was conducted of regional fisheries management organizations’ (RFMOs’) bycatch governance, one element of an ecosystem approach to fisheries management. Scoring was applied over five criteria, including management measures, use of data and surveillance, with CCAMLR scoring over the mean (>25%)	Source 5: Gilman, E., Passfield, K., Nakamura, K. (2014) <i>Performance of regional fisheries management organizations: ecosystem-based governance of bycatch and discards</i> . Fish and Fisheries, 2014, 15, 327-351.
	1	Source 6: CCAMLR’s application of an ecosystem approach is supported by the CCAMLR Ecosystem Monitoring Programme, which has been in place since 1985	Source 6: Willock, A. and Lack, M. (2006). <i>Follow the leader: Learning from experience and best practice in regional fisheries management organizations</i> . WWF International and TRAFFIC International. P18
Condition 4: MPC	1	Source 1: Formal cooperation arrangements (MoU, working groups) between CCAMLR and other RFMOs (CCSBT, SEAFO, SIOFA, SPRFMO and WCPFC) ¹⁴⁴ . CCAMLR has also established a MoU with the secretariat of the Agreement on the Conservation of Albatrosses and Petrels (ACAP) ¹⁴⁵ . By 2017, CCAMLR had established formal arrangements to cooperate with the following RFMOs: CCSBT (2015), SEAFO (2017), SPRFMO (2016) and WCPFC (2013). ⁴ CCAMLR has formal arrangements for collaboration with CWP and FIRMS. CCAMLR observes meetings of	Source 1: FAO 2020

		the other RFMOs IATTC, IWC and SEAFO and the RFABs FFA and SPC. These organizations regularly attend CCAMLR meetings as well. CCAMLR also signed an MoU with the ACAP secretariat in 2015. In 2018, CCAMLR and SIOFA agreed on an arrangement for cooperation.	
	0.5	<p>Source 2: The 2017 Performance Review highlighted opportunities for improving communication and collaboration between CCMLAR and the governing body for the Antarctic Treaty System (the Antarctic Treaty Consultative Meeting (ATCM) / ATCM Consultative Parties), with a recommendation that work be undertaken with the ATCM to <i>“identify priority matters of shared interest and/or responsibility with the Commission, and to enhance collaboration on those matters”</i> (p13).</p> <p>Whilst acknowledging the unique status of the ATS in the area of international cooperation, the 2017 Performance Review Panel noted that there are a variety of institutions outside the Antarctic community, including the United Nations (UN), Convention on Biological Diversity (CBD), IWC, RFMOs and CITES, with which CCAMLR could <i>“benefit from more effective communication”</i> (Para 63, p27). The Panel also noted that <i>“CBD is the leading organisation working on biodiversity issues in other regions of the world, yet there is no clear or cooperative relationship with CCAMLR”</i>. The Panel further noted that that cooperation with the IWC would <i>“facilitate joint assessments of the recovery of whale species feeding on krill or finfishes in waters under CCAMLR jurisdiction”</i></p> <p>The Panel questioned whether CCAMLR had appropriate cooperative agreements in place and whether the agreements that are in place were being implemented effectively. The Panel noted that in some cases these agreements do not provide for the adequate exchange of relevant information needed by CCAMLR to discuss and adopt better conservation and management measures in the Convention Area. The Panel, therefore, examined whether CCAMLR should consider setting out arrangements in a different, clearer way (Para 64, p27)</p>	Source 2: CCAMLR Performance Review (2017), pp13-28

		In the same context, the Panel examined the appropriateness and efficacy of the relationships between CCAMLR and the regional fisheries bodies whose jurisdictional management areas are adjacent to the Convention Area. The Panel observed that more active cooperation with these bodies (e.g. through sharing of data needed to address changes in stock structure, by-catch and environmental and climate change impacts), as well as with 28 organisations like the Agreement on the Conservation of Albatrosses and Petrels (ACAP) and CITES which also govern overlapping species of interest, would enhance the ability of CCAMLR to meet its objective (Para 65, pp27-28)	
Outcome: CSU/BBNJ	1	Source 1: 100% Cullis-Suzuki and Pauly ‘performance in practice’ score	Source 1: Cullis-Suzuki, S., & Pauly, D. (2010). <i>Failing the high seas: A global evaluation of regional fisheries management organizations</i> . Marine Policy, 34(5), 1036–1042. https://doi.org/10.1016/j.marpol.2010.03.002
	1	Source 2: In their comparative analysis of RFMO management of demersal species, Bell <i>et al</i> (2019) applied three assessments of how effectively RFMOs had adopted mitigation measures to prevent significant impacts on vulnerable marine ecosystems. These assessments examined the relative performance of RFMOs against their ability to implement management measures (‘capacity’), the number and effectiveness of measures implemented (‘action’), and the intensity and spatial extent of activities regulated (‘need’). CCAMLR was consistently amongst the highest scoring organizations for capacity and action, with commensurately low scores in need (<i>this corresponds with the higher level of actions taken, reducing need</i>)	Source 2: Bell, J. B., Guijarro-Garcia, E., & Kenny, A. (2019). Demersal Fishing in Areas Beyond National Jurisdiction: A Comparative Analysis of Regional Fisheries Management Organisations. <i>Frontiers in Marine Science</i> , 6. https://doi.org/10.3389/fmars.2019.00596
	0	Source 3: The Panel noted that there was a sense that CCAMLR had become less focused on proactive precautionary ecosystem-based management measures, and more focused on responding to fisheries and fisheries research proposals submitted by its Members. The Panel observed that for CCAMLR to maintain its international reputation as a leading	Source 3: CCAMLR Performance Review (2017), p11

		conservation-focused organisation, it needed to regain its proactivity on all aspects of its work	
	1	Source 4: According to Elliot's (2020) study, the Commission for the Conservation of Antarctic Living Marine Resources (CCAMLR) received one of the highest scores (across RFMOs) in relation to bycatch mitigation effort.	Source 4: Elliot, B. 2020. <i>A Review of Regional Fisheries Management Organization Efforts in Addressing Cetacean Bycatch: Report to the International Whaling Commission</i> . Paper CC/68A/06.4.2/01

SEAFO

The SEAFO Convention was agreed in 2001 and entered into force in 2003. SEAFO manages fishery resources in the high seas of the south-eastern Atlantic Ocean, but excludes highly migratory species (typically tuna and tuna-like fish). Its objective is to ensure the long-term conservation and sustainable use of the fisheries resources. (Løbach, *T et al*, 2020)

SEAFO has been subject to two performance reviews, in 2010 and 2016.

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	0.5	Source 1: SEAFO has established a system for collecting and sharing complete and accurate data concerning fishing activities related to all target and non-target species within the convention area, including reporting of logbooks, positions and catch reports (aggregated weekly and quarterly).	Source 1: FAO, 2020, p55
	0.5	Source 2: Parties to UNCLOS (1994), UN FSA (1995) and FAO Code of Conduct (1995) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information; FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data; and FAO Code of Conduct for Responsible Fisheries (1995) Article 12 (Fisheries research).	Source 2: UNCLOS (1994), UNFSA (1995), FAO (1995)
	0	Source 3: The FAO follow-up report to the 2010 RFMO performance reviews found there to be a “general lack of data on fishing effort and biological information (length, sex ratio, and maturity)” and that “the Scientific Committee has not provided information on the status of stocks for the fishery resources, nor has it presented a clear strategy for assessing the resources.” Given that “the scientific basis for advice on fisheries exploitation is weak [and SEAFO reports] are not very informative in identifying the bases for recommendations on a TAC”, there is a limit to the value of the recommendations that SEAFO gives” (p54)	Source 3: FAO. 2015. <i>The implementation of performance review reports by regional fishery bodies, 2004–2014</i> , by Péter D. Szigeti and Gail L. Lugten. FAO Fisheries and Aquaculture Circular No. 1108. Rome, Italy

	0.5	<p>Source 4: According to the 2016 Performance Review, SEAFO maintains a Scientific Committee, but the data governance structures are not supported by specialist sub-Committees or technical Working Groups. It is unclear as to the extent of independent external scientific advice (possibly due to the small number of stocks under management. A Scientific Sub-Committee exists but the absence of other structures is do with the fact that there are only two target species and low levels of fisheries so it would be disproportionate. (p9)</p> <p>The quality of Stock status reports is up to the best standards given the information and data available. The data and the analysis provided are presented in a transparent way (p29)</p>	Source 4: SEAFO Performance Review (2016)
Condition 2: INC-STAKE	1	Source 1: Representatives from non-contracting parties, IGOs and NGOs may participate in the meetings of the Commission, Scientific Committee and Compliance Committee as observers. SEAFO has established a website, which provides meeting reports of the Commission, subsidiary bodies and working groups. I	Source 1: FAO, 2020 p56
	1	Source 2: Clark <i>et al</i> (2015) combined transparency assessment score	Source 2: Clark, N. A., Ardrón, J. A., & Pendleton, L. H. (2015). <i>Evaluating the basic elements of transparency of regional fisheries management organizations</i> . Marine Policy, 57, 158–166.
	0.5	Source 3: In order to aid developing member States to fulfil their obligations, SEAFO established a special requirements fund in 2009 (p54)	Source 3: FAO. 2015. <i>The implementation of performance review reports by regional fishery bodies, 2004–2014</i> , by Péter D. Szigeti and Gail L. Lugten. FAO Fisheries and Aquaculture Circular No. 1108. Rome, Italy
	1	Source 4: Transparency is a hallmark of the organisation, and it has good practices in place to ensure representation at its meetings. There are the Annual meetings of the Commission and of the Science, Compliance and the Finance committees. All of these Committees have nominated chairs and all are supported with documentation from members and the	Source 4: SEAFO Performance Review (2016)

		Secretariat. The Commission has a very good website, and the papers and reports of meetings are readily available to observers and members alike (p48)	
Condition 3: ADAPT	0	Source 1: *No specific mention of ecosystem approach in RFMO convention ¹⁴⁶ , but it does refer to taking due account of the impact of fishing operations on ecologically related species such as seabirds, cetaceans, seals and marine turtles. Furthermore, it mentions that the Commission shall assess the impacts of fishing activities on species belonging to the same ecosystem or dependent upon or associated with the target stocks, to ensure that fishery practices and management measures take due account of the need to minimize harmful impacts on living marine resources as a whole and to protect biodiversity in the marine environment.	Source 1: FAO, 2020, p55
	0	Source 2: The 2016 SEAFO performance review found that the Scientific Committee should develop ecosystem status reports regarding the interactions between fisheries and the marine ecosystem within the convention area. The ecosystem status report(s) should provide information and scientific advice as required by the Commission to fulfil its role in relation to ensuring that fisheries impacts on the marine ecosystem are acceptable. <i>Postscript:</i> A 2020 SEAFO submission to the 15 th Informal Consultations of States Parties to the United Nations Fish Stocks Agreement confirmed that ecosystem status reports have not yet been adopted due to proportionality issues.	Source 2: SEAFO Performance Review (2016); 2020 SEAFO submission to 15th ICSFSA
	1	Source 3: Combined score (across management measures relevant to adaptive management in ‘Ability to Achieve’ and ‘Ecological Well-being’ categories	Source 3: Fletcher, W.J. 2020. <i>A review of the application of the FAO ecosystem approach to fisheries (EAF) management within the areas beyond national</i>

¹⁴⁶ RFMO treaties that refer to the precautionary and ecosystem approach (Table 3) p15 in Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). *Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017*. <https://doi.org/10.4060/ca7843en>. Table

			<i>jurisdiction (ABNJ)</i> . Rome, FAO. https://doi.org/10.4060/cb1509en
	0	Source 4: A performance assessment was conducted of regional fisheries management organizations' (RFMOs') bycatch governance, one element of an ecosystem approach to fisheries management. Scoring was applied over five criteria, including management measures, use of data and surveillance, with SEAFO scoring below the mean (<25%)	Source 4: Gilman, E., Passfield, K., Nakamura, K. (2014) <i>Performance of regional fisheries management organizations: ecosystem-based governance of bycatch and discards</i> . Fish and Fisheries, 2014, 15, 327-351.
Condition 4: MPC	0.5	Source 1: SEAFO also has a formal working arrangement (MoU, joint working groups) with CCAMLR ¹⁴⁷ . It also participates in meetings of the Benguela Current Commission, ICCAT, NAFO, NAMMCO and NEAFC. SEAFO has formal arrangements for collaboration with CWP and FIRMS	Source 1: FAO, 2020. P56
	0.5	Source 2: Cooperation has occurred in recent years with the following organisations: Meetings, workshops at FAO and the UN including the Regional Fishery Body Secretariats Network meeting facilitated by the FAO at COFI and also meetings of other appropriate RFMOs/RFB including CCAMLR, ICCAT, NAFO, NEAFC, NAMMCO, and the Benguela Current Commission (BCC). It should be noted that SEAFO (due to limited resources) is unable to attend stakeholder meetings on a regular basis.(p52)	Source 2: SEAFO Performance Review (2016)
	1	Source 3: The FAO follow-up report to the 2010 RFMO performance reviews found that levels of cooperation with other RFMOs were “satisfactory given the current human and financial resources of the SEAFO Secretariat, existing fishing activities in the Convention Area and the standard forms of cooperation among RFMOs.” SEAFO has a working relationship with NAFO, NEAFC, ICCAT and CCAMLR, in addition to FAO and the UN system, and ACAP.	Source 3. FAO. 2015. <i>The implementation of performance review reports by regional fishery bodies, 2004–2014</i> , by Péter D. Szigeti and Gail L. Lugten. FAO Fisheries and Aquaculture Circular No. 1108. Rome, Italy
	--	‘Performance in practice’ scores not assessed by Cullis-Suzuki and Pauly	-

Outcome: CSU/BBNJ	1	Source 1: In their comparative analysis of RFMO management of demersal species, Bell <i>et al</i> (2019) applied three assessments of how effectively RFMOs had adopted mitigation measures to prevent significant impacts on vulnerable marine ecosystems. These assessments examined the relative performance of RFMOs against their ability to implement management measures ('capacity'), the number and effectiveness of measures implemented ('action'), and the intensity and spatial extent of activities regulated ('need'). SEAFO scored highly across the measures, often outperforming other RFMOs (on a relative measure) in terms of its willingness to take precautionary measures given its capacity.	Source 1: Bell, J. B., Guijarro-Garcia, E., & Kenny, A. (2019). Demersal Fishing in Areas Beyond National Jurisdiction: A Comparative Analysis of Regional Fisheries Management Organisations. <i>Frontiers in Marine Science</i> , 6. https://doi.org/10.3389/fmars.2019.00596
	0.5	Source 2: SEAFO has closed important areas to bottom fishing to allow species and habitat recovery	Source 2: Gianni, M Fuller, S.D., Currie, D, Schleit, K, Goldsworthy, L, Pike, B, Weeber, B, Owen, S, Friedman, A. <i>How Much Longer Will it Take? A Ten-Year Review of the Implementation of United Nations General Assembly Resolutions 61/105, 64/72 and 66/68 on the Management of Bottom Fisheries in Areas beyond National Jurisdiction</i> , 2016
	0.5	Source 3: A recent SEAFO decision extended the closure of an area adjacent to Valdivia Bank Seamount for all gears except pots and longlines	Source 3: Briefing Note for Agenda Item 5.3: <i>Opportunities for regional collaboration in the targets of the Post-2020 Global Biodiversity Framework</i> Virtual Intersessional Workshop for the Sustainable Ocean Initiative (SOI) Global Dialogue with Regional Seas Organizations and Regional Fishery Bodies 29 September - 1 October 2021
	0.5	Source 4: There are ongoing concerns regarding the incidental catch of seabirds in the longline fisheries (p13) and an increase in shark catches and the development of shark trunk markets, as sharks often have a long stock recovery time, if over-fished, and low recruitment relationship.	Source 4: SEAFO Performance Review (2016)

		<p>Assessment of shark stocks and biological information is limited and hampered by lack of data in many fisheries. The Commission adopted Conservation Measure 04/06 on the Conservation of Sharks Caught in Association with Fisheries Managed by SEAFO and Recommendation 1/2008 which places a voluntary ban on the catch of deep water sharks. The Commission, following the advice of the Scientific Committee, has consistently applied a precautionary approach in the adoption of conservation and management measures. The advice from the SC has largely been followed. The main areas of measures relate to: - Closing of areas for all fishing and protocols, closure of areas for bottom-fishing, setting annual TACs for target or former target species, measures to reduce bycatch of sharks, turtles and seabirds and requirements to report incidents of encounter of organisms associated with VMEs. (p35)</p>	
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SPREP

SPREP is the regional organisation established by the Governments and Administrations of the Pacific charged with protecting and managing the environment and natural resources of the Pacific. Established in 1993, SPREP's mandate is to promote cooperation in the Pacific region and provide assistance in order to protect and improve its environment and to ensure sustainable development for present and future generations (www.sprep.org)

Theoretical conditions of effectiveness and outcome	Initial calibration score	Rationale	References/sources
Condition 1: DATA	1	Source 1: SPREP (via the GEF Regional Inform Project) has developed a core set of environmental indicators, established data portals in 14 Pacific Island countries (PICs) linked to the SPREP regional Pacific Environmental Portal and completed State of Environment Reports for the Republic of Marshall Islands (RMI), Cook Island and Niue, with Tonga, Solomon Islands, Federated States of Micronesia and Papua New Guinea under development (as of Sept 2019)	Source 1: UNEP (2019) Progress Report on the implementation of the Regional Seas Strategic Directions 2017 – 2020 p1 https://wedocs.unep.org/bitstream/handle/20.500.11822/29556/COBSEA%20-%20reporting%20RSSD%202017-2020.pdf?sequence=4&isAllowed=y
	0.5	Source 2: Parties to UNCLOS (1994) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information	Source 2: UNCLOS (1994)
	0.5	Source 3: RSCAPs are required to establish an ecological baseline situation which is communicated through regular regional seas state of the marine environment reporting (also called Quality Status Report, State of the Coast Report, depending on the region). RSCAPs are also working towards regionally harmonised data collection, assessment and monitoring of indicators relevant to the SDGs (14.1.1, 14.2.1 and 14.5.1) and have collectively adopted a Regional Seas Core Indicators set (adopted at the 17th Global Meeting of RSCAPs)	Source 3: UN Environment (2017): <i>Moving to Strategy and Action: Regional Seas Outlook for the Implementation of the Sustainable Development Goals</i> . Regional Seas Reports and Studies 200.

Condition 2: INC-STAKE	0.5	Source 1: The development of the Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016-2025 by 21 Pacific island countries, territories and organisations (incl SPREP) involved exchange of knowledge between Government, civil society, industry, community and donors.	Source 1: UNEP (2019) Progress Report on the implementation of the Regional Seas Strategic Directions 2017 – 2020 p1
	0.5	Source 2: SPREP’s work is well aligned to the (wider Pacific) Regional Goals. Due to the broad nature of the Regional Goals however, the Independent Corporate review found that there is a sense that SPREP is trying to cover too many bases and serve too many stakeholders. (pg vi)	Source 2: Independent Corporate Review of SPREP (2021) https://www.sprep.org/sites/default/files/documents/circulars/Cir21-108_Final%20Report_0.pdf
	1	Source 3: SPREP has a substantive list of partners and there is great diversity in the types of organisations that SPREP works with. Partners of all types have typically described working with SPREP as a positive experience. (pg vi)	Source 3: Independent Corporate Review of SPREP (2021)
Condition 3: ADAPT	0.5	Source 1: Project-level reporting on impact demonstrates that the Secretariat has high capacity to assess impact and apply lessons learned using a continuous improvement/adaptive management approach (p64). However, the review also highlighted a disconnect between data and management responses, resulting from “ <i>a lack of organisational investment in, or attention to, a results focused monitoring and evaluation system that is in turn informing SPREP’s work through adaptive management and learning</i> ”.	Source 1: Independent Corporate Review of SPREP (2021)
	0.5	Source 2: SPREP has developed <i>Strengthening EIA Guidelines</i> (2015-) and Strategic Environmental Assessment Guidelines (under development) for PICs, both of which require the ecosystem approach as a component	Source 2: UNEP (2019) Progress Report on the implementation of the Regional Seas Strategic Directions 2017 – 2020 p6
	0.5	Source 1: SPREP participates in the Pacific-European Union Marine Partnership Programme.	Source 1: UNEP (2019) Progress Report on the implementation of the Regional Seas Strategic Directions 2017 – 2020 p7
	0.5	Source 2: SPREP helped with convening regional pre-CoP meetings to establish agreed positions prior to MEA CoPs: CBD, UNFCCC, CITES	Source 2: UNEP (2019) Progress Report on the implementation of the

Condition 4: MPC			Regional Seas Strategic Directions 2017 – 2020 p7
	1	Source 3: The SPREP Secretariat has a unique role within the regional architecture defined in the SPREP mandate: to promote co-operation in the Pacific region and provide assistance in order to protect and improve its environment and to ensure sustainable development for present and future generations. ⁵	Source 3: SPREP Strategic Plan (2017-2026) p6
	1	Source 4: As part of the 2021 Corporate Review, SPREP identified a list of 58 currently active agreements dating back to 2017. These agreements are in various forms, Memoranda of Understanding (MOUs), Letter of Agreement (LOAs), Partnership Agreement (PAs), Grant Agreement (GAs). The list highlights the diversity of types of partnership and the diversity of organisations that SPREP partners with including: governments, international and local non-governmental actors.	Source 4: Independent Corporate Review of SPREP (2021)
Outcome: CSU/BBNJ	0.5	Source 1: SPREP operates an Environmental Monitoring and Governance Programme which provides capacity building and training on (marine) EIA, and has developed various guidance tools of relevance to the BBNJ outcome (such as <i>Strengthening EIA Guidelines</i> in Pacific island countries and territories and <i>EIA Guidelines for coastal tourism</i> 2015 with <i>Strategic Environment Assessment Guidelines</i> under formulation)	Source 1: UNEP (2019) Progress Report on the implementation of the Regional Seas Strategic Directions 2017 – 2020 p7
	0	Source 2: SPREP's Strategic Plan (2017-26) measures Ecosystem and Biodiversity Protection in terms of Climate Change Resilience metrics, and has an over-focus on activity (or process) indicators rather than outcomes. If the Secretariat were to report on outcomes and impacts, achievement rates would be much lower. "The current approach has a tendency to exaggerate effectiveness". (p35)	Source 2: Independent Corporate Review of SPREP (2021)
	0	Source 3: A snapshot of the status of the Region's environment is provided by the Regional State of the Environment and Conservation Report (SoE) (SPREP, 2020). The 2020 Pacific Regional Environment Indicator Status report also provides a worrying overview. The 31 Natural Solutions Pacific indicators span the themes of: environmental governance, conservation and	Source 3: Independent Corporate Review of SPREP (2021); Pacific Regional Environment Indicator Status Report (2020) - https://pacific-data.sprep.org/dataset/regional-

		protection, land, coastal and marine, biodiversity, atmosphere and climate, and the built environment. The current state of most of these indicators are “poor to fair” (p37)	environmental-indicator-assessments-2020-report
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MAP

MAP was established in 1975 as a multilateral environmental agreement in the context of the Regional Seas Programme of the United Nations Environment Programme (UNEP). Mediterranean countries and the European Community approved MAP as the institutional framework for cooperation in addressing common challenges of marine environmental degradation. Under the auspices of UNEP/MAP, a framework convention dedicated to the Protection of the Mediterranean Sea against Pollution was adopted in 1976 and amended two decades later to encompass the key concepts adopted at the landmark 1992 Rio Conference and to include coasts in its scope. The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) was adopted in 1995.

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	0.5	Source 1: Parties to UNCLOS (1994) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information	Source 1: UNCLOS (1994)
	0.5	Source 2: The MedProgramme is a holistic GEF funded programme, designed to support the action of UNEP/MAP over the period 2019-2024. The MedProgramme aims to become a knowledge hub in the Mediterranean basin to scale up successful practices, encourage broader adoption, promote knowledge sharing and support the common objectives of the contracting parties of the Barcelona Convention. Relevant objectives of the programme are to: a) Leverage and systematically share knowledge assets generated by projects with the intended beneficiaries and audiences; b) strengthen the science-policy interface (SPI) and influence decision-making through data and information sharing, capacity building, and regional stakeholder engagement;	Source 2: UNEP (2019) <i>Report for the UNEP Regional Seas Programme 21st Annual meeting held on 2-5 October 2019 in Berlin, Germany.</i> UNEP/WBRS.21/1 p20
	0.5	Source 3: RSCAPs are required to establish an ecological baseline situation which is communicated through regular regional seas state of the marine environment reporting (also called Quality Status Report, State of the Coast	Source 3: UN Environment (2017): <i>Moving to Strategy and Action: Regional Seas Outlook for the</i>

		Report, depending on the region). RSCAPs are also working towards regionally harmonised data collection, assessment and monitoring of indicators relevant to the SDGs (14.1.1, 14.2.1 and 14.5.1) and have collectively adopted a Regional Seas Core Indicators set (adopted at the 17th Global Meeting of RSCAPs)	<i>Implementation of the Sustainable Development Goals</i> . Regional Seas Reports and Studies 200.
Condition 2: INC-STAKE	1	Source 1: The MAP has mobilised a wide range of partners and stakeholders providing access to complementary expertise as well as opportunities to influence partners' initiatives.(p44)	Source 1: Humphrey, S. and L. S. (2015). <i>Outcome Evaluation of Barcelona Convention/ United Nations Environment Programme - Mediterranean Action Plan (UNEP - MAP) Five Year Programme of Work 2010-2014</i> . UNEP
	0.5	Source 2: To improve synergy and avoid overlapping and duplication of activities, collaboration will be enhanced with relevant intergovernmental and non-governmental organisations and other regional, national and local stakeholders, as well as the MAP Components. Many of the regional partners collaborating in marine conservation issues rely very much on technical tools, strategic documents and other outputs produced within the Barcelona Convention context.(p134)	Source 2: Decision IG.25/1 UNEP/MAP Medium-Term Strategy 2022-2027 https://wedocs.unep.org/bitstream/handle/20.500.11822/37123/21ig25_27_2501_eng.pdf
Condition 3: ADAPT	1	Source 1: In 2008, the Contracting Parties reached an important milestone by committing to apply the Ecosystem Approach principle. Through Decision IG.17/6 , they adopted the Ecosystem Approach Roadmap to achieving the Good Environmental Status (GES) of the Mediterranean Sea and Coast.	Source 1: List of UNEP-Map decision, UNEP website https://www.unep.org/unepmap/
	0.5	Source 2: In order for the Medium-Term Strategy (MTS) to be flexible enough to respond to emerging challenges, it should be developed and implemented with an <i>adaptive management</i> approach. In a number of cases, the MTS will integrate new concerns by increasing its cooperation with others leading or specialised organisations. Enhanced cooperation is key to improving integrated ocean management and ensuring that all key issues are properly addressed.(p157)	Source 2: Decision IG.25/1 UNEP/MAP Medium-Term Strategy 2022-2027

Condition 4: MPC	0.5	Source 1: UNEP-MAP has an MoU with GFCM ¹⁴⁸ ;	Source 1: Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). <i>Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017</i> . https://doi.org/10.4060/ca7843en . p18
	1	Source 2: UNEP/MAP operates a number of regional partnerships and cooperation, particularly with the GFCM (e.g. collaborative project Post-2020 SAPBIO (2022-2030+) for sustainable fisheries and aquaculture in the Mediterranean, focusing on bycatch as a priority issue) and Black Sea Commission, having signed MoUs with both. There are also on-going prospects of tripartite cooperation with the Black Sea and Caspian Sea, and discussions for a potential flagship project under the UN Decade on Ecosystem Restoration. Looking ahead, opportunities for further spatial management synergies for the conservation and sustainable use of the Mediterranean are envisaged between GFCM, UNEP/MAP, ACCOBAMS and IUCN.	Source 2: Sustainable Ocean Initiative (2021) <i>Intersessional Workshop for the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organisations and Regional Fishery Bodies</i> (29 September-1 October 2021). Organised by the Convention for Biological Diversity (CBD) Secretariat, in collaboration with FAO, UNEP and Republic of Korea Ministry of Oceans and Fisheries. Annex 3
Outcome: CSU/BBNJ	0	Source 1: Calibration informed by an aggregate assessment of the biodiversity of the Mediterranean Sea. The report sets out the current state (2019) and trends across 8 species groups (Seals, cetaceans, birds, bony fish, sharks and rays, reptiles, cephalopods and other invertebrates), habitats (pelagic and benthic) and ecosystem (based on IPBES ¹⁴⁹ current and past trends), and finds that the aggregate state of Mediterranean Sea biodiversity is 'Bad' with a strong declining trend, with insufficient supporting data (either limited data or limited coverage) across all areas assessed. To note that the report was published ahead of EU Member State updates under Art.17 of the Marine Strategy Framework Directive (MSFD), so draws on	Source 1: Vaughan D., Korpinen S., Nygård H., Andersen J.H., Murray C., Kallenbach E., Jensen N.J., Tunesi L., Mo G., Agnesi S., Klančnik K., Herbon C., Singleton G., Pagou K., Borja Á., Reker J. (2019), <i>Biodiversity in Europe's seas</i> . ETC/ICM Technical Report 3/2019: European Topic Centre on Inland and Marine Waters, 92pp. Table 3.1

¹⁴⁹ The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services - <https://ipbes.net/>

		assessments by the Regional Seas Conventions and other regional and international sources.	
	0	Source 2: Published in Nov 2020, the State of the Environment and Development in the Mediterranean found that at least 78 marine species assessed by IUCN are threatened with extinction, especially cartilaginous fish, marine mammals, reptiles and corals, due to interaction with fisheries, overfishing and other anthropogenic pressures. From 1950-2011, the Mediterranean lost 41% of top predators, including marine mammals. Projections suggest that more than 30 endemic species will become extinct by the end of the century.	Source 2: State of the Environment and Development in the Mediterranean (2020) Plan Bleu - https://planbleu.org/en/soed-2020-state-of-environment-and-development-in-mediterranean/#

OSPAR

OSPAR is the mechanism by which 15 Governments & the EU cooperate to protect the marine environment of the North-East Atlantic. OSPAR started in 1972 with the Oslo Convention against dumping and was broadened to cover land-based sources of marine pollution and the offshore industry by the Paris Convention of 1974. These two conventions were unified, updated and extended by the 1992 OSPAR Convention. The new annex on biodiversity and ecosystems was adopted in 1998 to cover non-polluting human activities that can adversely affect the sea.

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	1	Source 1: OSPAR actually monitor the MPAs in High Seas, and use the Madrid Criteria' for assessing the ecological coherence of the OSPAR MPA network (p105) :	Source 1: See UNEP Global Manual on Ocean Statistics Appendix 2
	0.5	Source 2: Parties to UNCLOS (1994) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information	Source 2: UNCLOS (1994)
	0.5	Source 3: RSCAPs are required to establish an ecological baseline situation which is communicated through regular regional seas state of the marine environment reporting (also called Quality Status Report, State of the Coast Report, depending on the region). RSCAPs are also working towards regionally harmonised data collection, assessment and monitoring of indicators relevant to the SDGs (14.1.1, 14.2.1 and 14.5.1) and have collectively adopted a Regional Seas Core Indicators set (adopted at the 17th Global Meeting of RSCAPs)	Source 3: UN Environment (2017): <i>Moving to Strategy and Action: Regional Seas Outlook for the Implementation of the Sustainable Development Goals</i> . Regional Seas Reports and Studies 200.
Condition 2: INC-STAKE	0.5	Source 1: Guidance for communicating with stakeholders in the establishment and management of MPAs has been produced by OSPAR (OSPAR, 2008). However, a 2017 assessment of the OSPAR MPA Network recommended that further effort is required by Contracting Parties to progress and expand existing arrangements and MoUs, and to raise awareness of OSPAR MPAs with relevant stakeholders (OSPAR, 2017). Broad stakeholder engagement would	Source 1: OSPAR Commission. 2017. 2016 Status Report on the OSPAR Network of Marine Protected Areas. Available at: https://www.ospar.org/documents?v=37521

		likely require additional human and financial capacity and may increase the complexity of decision-making. For some tools, it could therefore prove challenging to deliver upon stakeholder engagement objectives in ABNJ	
	1	Source 2: The OSPAR Commission allows an extensive range of official and semi-official observers to participate in both working groups and the meetings of the Commission.	Source 2: OSPAR website https://www.ospar.org/organisation/observers
Condition 3: ADAPT	0.5	Source 1: The formal and informal dialogue between OSPAR and NEAFC has helped to embed the ecosystem approach into fisheries management	Source 1: Elite interview
	1	Source 2: <i>“To ensure that the ecosystem approach is employed effectively we apply adaptive management to continually improve our policies and practices, in light of changes in knowledge, circumstances and environmental characteristics”.</i> (Sec 3.1)	Source 2: Strategy of the OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic 2030. Part I: Vision and Strategic Objectives, Sec. 3.1
	1	Source 3: Recommendation 5: <i>“Monitoring programmes need to be adaptive to enable appropriate reaction on e.g. changes in the marine environment, new understanding and emerging issues”</i> (p13)	Source 3: OSPAR report (2013) <i>Coordination of monitoring in the North-east Atlantic</i> . https://www.ospar.org/documents?v=7347
Condition 4: MPC	1	Source 1: The OSPAR Commission for the Protection of the Marine Environment in the North-East Atlantic has MoUs with IMO, NAFO, NEAFC, ICES, NASCO, ISA and the Sargasso Sea Alliance. OSPAR also maintains close working relationships with the European Commission and its agencies. The Collective Arrangement between OSPAR and NEAFC is perhaps the most well-known and widely quoted example of collaboration between regional organisations without contravening respective competencies.	Source 1: OSPAR website https://www.ospar.org/about/international-cooperation ; UNEP Information Paper on the process of forming a Cooperative Mechanism between NEAFC and OSPAR - https://www.ospar.org/documents?v=35111
	1	Source 2: Evidence of MPC can be identified through the process of engagement between OSPAR and other parties in the establishment of a MPA in ABNJ. The process of engagement involved consultation (with NEAFC and ICCAT) and requests to ICES from both NEAFC and OSPAR for common scientific advice, helping to build consensus before Ministerial agreements.	Source 2: Sustainable Ocean Initiative (2021) <i>Intersessional Workshop for the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organisations and Regional Fishery Bodies</i> (29 September-1 October 2021). Organised by the

			Convention for Biological Diversity (CBD) Secretariat, in collaboration with FAO, UNEP and Republic of Korea Ministry of Oceans and Fisheries. Annex 3
	1	Source 4: Cooperation exists between the Secretariats of OSPAR and the Cartagena Convention for the Protection and Development of the Wider Caribbean Region (CEP) to facilitate the sharing of experiences and best practices on the ecosystem approach, MPAs, marine litter and nutrient pollution.	Source 4: UNEP (2019) Progress Report on the implementation of the Regional Seas Strategic Directions 2017 – 2020
Outcome: CSU/BBNJ	0	Source 1: The report sets out the current state (2019) and trends across 8 species groups (Seals, cetaceans, birds, bony fish, sharks and rays, reptiles, cephalopods and other invertebrates), habitats (pelagic and benthic) and ecosystem (based on IPBES ¹⁵⁰ current and past trends), and finds that the aggregate state of North-East Atlantic biodiversity is 'Poor' with a moderate declining trend, with moderate to poor supporting data (either limited data or limited coverage) across all areas assessed. To note that the report was published ahead of EU Member State updates under Art.17 of the Marine Strategy Framework Directive (MSFD), so draws on assessments by the Regional Seas Conventions and other regional and international sources.	Source 1: Vaughan D., Korpinen S., Nygård H., Andersen J.H., Murray C, Kallenbach E., Jensen N.J., Tunesi L., Mo G., Agnesi S., Klančnik K., Herbon C., Singleton G., Pagou K., Borja Á., Reker J. (2019), <i>Biodiversity in Europe's seas</i> . ETC/ICM Technical Report 3/2019: European Topic Centre on Inland and Marine Waters, 92pp. Table 3.1

¹⁵⁰ The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services - <https://ipbes.net/>

SPRFMO

The SPRFMO Convention was agreed in 2010 and entered into force in 2012. SPRFMO manages fishery resources in high-sea areas of the southern Pacific Ocean, excluding sedentary species, highly migratory species listed in Annex I of UNCLOS, anadromous and catadromous species, marine mammals and marine reptiles. The objective of the SPRFMO Convention is to ensure, through the application of the precautionary approach and an ecosystem approach to fisheries management, the long-term conservation and sustainable use of fishery resources and, in so doing, to safeguard the marine ecosystems in which these resources occur. . (Løbach, *T et al*, 2020)

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	0.5	Source 1: In 2013, the Commission adopted a measure on standards for the collection, reporting, verification and exchange of data concerning fishing activities and the impacts of fishing, observer data and VMS data.	Source 1: FAO 2020 p59
	0.5	Source 2: Parties to UNCLOS (1994), UN FSA (1995) and FAO Code of Conduct (1995) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information; FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data; and FAO Code of Conduct for Responsible Fisheries (1995) Article 12 (Fisheries research).	Source 2: UNCLOS (1994), UNFSA (1995), FAO (1995)
	1	Source 3: The SPRFMO 2018 Performance Review sets out a number of observations relevant to the DATA condition: SPRFMO has a Scientific Committee, supported by a number of Technical Working Groups, including “a Habitat Definition, Description, and Monitoring Working Group with the main objective of providing environmental indicators to complement fisheries management decisions” (p6). However, the largest fishery in the convention area (Jumbo flying squid fishery) has not had a	Source 3: SPRFMO 2018 Performance Review

		<p>management decision applied to it, and there are serious gaps in data on this fishery (p15).</p> <p>Process-wise, SPRFMO has established Conservation and Management Measure on Standards for the Collection, Reporting, Verification and Exchange of Data, CMM 02-2018. It has amended this CMM annually based on advice received from SC. In addition, the Commission has adopted data collection requirements for new and exploratory fisheries (CMM 13-2016), and for specific fisheries. (p18)</p> <p>The Panel considers that existing formats and specifications for fisheries data are within accepted global practice, and the process of regular review and amendment of the data standards appears to be working well (p18).</p> <p>P19 - There is no specific guidance given to the Secretariat on the sharing of datasets. Understandably, the Secretariat seeks specific permission from all owners of the data prior to sharing. However, this process inhibits the sharing of data not only with SC, but also with external researchers and other organisations (p19)</p>	
Condition 2: INC-STAKE	0.5	Source 1: The Convention specifies that representatives from non-contracting parties, IGOs and NGOs may participate in the meetings of SPRFMO as observers. SPRFMO has established a website, which provides meeting reports of the Commission and its subsidiary bodies and working groups.	Source 1: FAO 2020 p60
	0	Source 2: Clark <i>et al</i> (2015) combined transparency assessment score	Source 2: Clark, N. A., Ardron, J. A., & Pendleton, L. H. (2015). <i>Evaluating the basic elements of transparency of regional fisheries management organizations</i> . Marine Policy, 57, 158–166. https://doi.org/10.1016/j.marpol.2015.03.003

	1	<p>Source 3: The Commission Rules of Procedure provide for the participation of observers of non-members which participated in the International Consultations on the Establishment of SPRFMO, have jurisdiction over waters adjacent to the Convention Area, or which have an interest in the work of the Commission and are invited by the Commission; the FAO, specialised agencies, RFMOs, and other intergovernmental organisations (IGOs) invited by the Commission; and non-governmental organisations (NGOs) invited by the Commission in accordance with the rules of procedure. (p72)</p> <p>Rule 9 also provides for NGOs to provide 50 days' advance notice of interest, and participation is accepted unless a simple majority of Members objects. Observer status remains in effect for future meetings unless the Commission decides otherwise. Observers are able to present information papers to meetings, participate in deliberations, and are to be given timely access to all documents subject to any rules relating to the confidentiality of certain data and other commercially sensitive information that the Commission may decide. In practice observers are able to participate in all meetings, including subsidiary bodies, except Heads of Delegation meetings.(p73)</p> <p>The Commission has established a Special Requirements Fund to facilitate the effective participation of developing States in the region (p82)</p>	Source 3: SPRFMO 2018 Performance Review
Condition 3: ADAPT	1	<p>Source 1: Specific mention of ecosystem approach in RFMO convention. The convention text calls for decision-making based on the best available scientific advice, application of the precautionary approach as described in UNFSA, and the wide use of an ecosystem approach in order to protect fishery resources and preserve the marine ecosystems in which they occur.</p>	<p>Source 1: RFMO treaties that refer to the precautionary and ecosystem approach (Table 3) p15 in Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). <i>Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017</i>. https://doi.org/10.4060/ca7843en.; FAO 2020 p59</p>

	0.5	Source 2: The precautionary approach and an ecosystem approach are accorded particular weight in the Convention. According to Article 3 of the Convention, the Contracting Parties, Commission and subsidiary bodies are to take into account international best practice in the application of the precautionary approach and to apply the ecosystem approach widely to conservation and management through an integrated approach which safeguards the marine ecosystems (p4), However, observers note that SPRFMO has only partly incorporated an ecosystem approach (p15) and over the longer term SPRFMO could look towards adopting a more comprehensive ecosystem approach to fisheries (Exec Summary)	Source 2: SPRFMO 2018 Performance Review
	0.5	Source 3: SPRFMO Scientific Committee has detailed Ecosystem Approach to Fisheries components and their current status in SPRFMO.	Source 3: Briefing Note for Agenda Item 5.3: <i>Opportunities for regional collaboration in the targets of the Post-2020 Global Biodiversity Framework</i> Virtual Intersessional Workshop for the Sustainable Ocean Initiative (SOI) Global Dialogue with Regional Seas Organizations and Regional Fishery Bodies 29 September - 1 October 2021 – Online, accessed:
	1	Source 4: Combined score (across management measures relevant to adaptive management in ‘Ability to Achieve’ and ‘Ecological Well-being’ categories	Source 4: Fletcher, W.J. 2020. <i>A review of the application of the FAO ecosystem approach to fisheries (EAF) management within the areas beyond national jurisdiction (ABNJ)</i> . Rome, FAO. https://doi.org/10.4060/cb1509en
Condition 4: MPC	0.5	Source 1: SPRFMO conservation management measure 01-2018 which sets out how the management of a straddling stock (jack mackerel) will be managed between SPRFMO on the High Seas and the Chilean government within its EEZ.	Source 1: SPRFMO website

	1	Source 2: SPRFMO also has a formal working arrangement (MoU, joint working groups) with CCAMLR and FIRMS ¹⁵¹ . SPRFMO has also established a MoU with the secretariat of the Agreement on the Conservation of Albatrosses and Petrels (ACAP).	Source 2: FAO 2020
	0.5	Source 3: An MoU with the Permanent Commission for the South Pacific (CPPS) is currently being negotiated	Source 3: Second meeting of the Sustainable Ocean Initiative (2018) ‘Seoul Outcome+2’ <i>Global Dialogue with Regional Seas Organizations and Regional Fishery Bodies on Accelerating Progress towards the Aichi Biodiversity Targets and Sustainable Development Goals</i> (10-13 April 2018). P7
	1	Source 4: SPRFMO has two cooperation Memorandum of Understanding (MOUs) with the Secretariats of ACAP and CCAMLR. The objective of the MOU with ACAP is to facilitate cooperation between the two Secretariats with a view to supporting efforts to minimise the incidental by-catch of albatrosses and petrels within the SPRFMO Convention Area. The objective of the Arrangement with CCAMLR is to facilitate cooperation between SPRFMO and CCAMLR in order to advance their respective objectives, particularly with respect to stocks and species which are within the competence and/or mutual interest of both organisations (p80) Cooperation, coordination and consultation agreements have been formalized with SPC, FFA, CCSBT, IATTC, IOTC, ISC, SPREP, ACAP, and NPAFC (pg 222)	Source 4: SPRFMO 2018 Performance Review
Outcome: CSU/BBNJ	0	Source 1: In 2018-19, SPRFMO revised its bottom fishing rules to allow fishing to potentially continue even when encountering	Source 1: Rabone, M., Harden-Davies, H., Collins, J. E., Zajderman, S., Appeltans, W., Droege, G., Brandt, A., Pardo-Lopez, L.,

		vulnerable marine ecosystems (as assessed by observers), rather than implementing UNGA recommendations.	Dahlgren, T. G., Glover, A. G., & Horton, T. (2019). <i>Access to marine genetic resources (Mgr): Raising awareness of best-practice through a new agreement for biodiversity beyond national jurisdiction (bbnj)</i> . <i>Frontiers in Marine Science</i> , 6(AUG). https://doi.org/10.3389/fmars.2019.00520 . p2
	0.5	Source 2: SPRFMO banned large-scale and deep-water gillnets in 2013. It adopted measures for minimizing bycatch of seabirds in 2014 and measures for the management of new and exploratory fisheries in 2016.	Source 2: FAO 2020 p59; STRONG High Seas - Dialogue Workshop 1 (2018) <i>Opportunities for strengthening Ocean Governance in the Southeast Pacific</i> (13-14 June 2018) Columbia. P4
	-	Source 3: Performance in practice' scores not assessed by Cullis-Suzuki and Pauly	-
	0	Source 4: In their comparative analysis of RFMO management of demersal species, Bell <i>et al</i> (2019) applied three assessments of how effectively RFMOs had adopted mitigation measures to prevent significant impacts on vulnerable marine ecosystems. These assessments examined the relative performance of RFMOs against their ability to implement management measures ('capacity'), the number and effectiveness of measures implemented ('action'), and the intensity and spatial extent of activities regulated ('need'). SPRFMO fell below the 0.5 performance threshold across several of the assessments.	Source 4: Bell, J. B., Guijarro-Garcia, E., & Kenny, A. (2019). Demersal Fishing in Areas Beyond National Jurisdiction: A Comparative Analysis of Regional Fisheries Management Organisations. <i>Frontiers in Marine Science</i> , 6. https://doi.org/10.3389/fmars.2019.00596
	0.5	Source 5: The need to preserve marine biodiversity, avoid adverse impacts on the marine environment, maintain the integrity of marine ecosystems, and minimise the risk of long-term or irreversible effects of fishing activities are specifically referenced in the Preamble to the SPRFMO Convention. SPRFMO has prohibited the use of large scale pelagic nets and deepwater gill nets (CMM 08-2013) and adopted a CMM on minimising impact on seabirds (CMM 09-2017). It has also	Source 5: SPRFMO 2018 Performance Review

		<p>gone part way to addressing vulnerable marine ecosystems through the interim bottom fishing CMM (CMM 03-2017). However, SPRFMO does not have a specific CMM to address marine biological diversity on a spatial scale. Information was presented to SC1 on areas in the Western and South Pacific region that met the criteria developed by the Convention on Biological Diversity (CBD) for Ecologically or Biologically Significant Marine Areas. 91 SC participants recognised the need for greater coordination between these parallel processes to identify and protect EBSAs and VMEs in the SPRFMO Area, in particular the requirement for greater coordination between spatial management planning processes that might result under the CBD and SPRFMO in response to identification of EBSAs and VMEs.⁹² The impact of fishing activities on EBSAs and on VMEs was discussed further by SC in 2014 and 2015, which noted its awareness of EBSAs within the Convention Area and that any conservation needs for EBSAs would be addressed through CMMs. (p35-6)</p>	
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IATTC

IATTC was established by the Convention for the Establishment of an InterAmerican Tropical Tuna Commission in 1949. That convention was replaced in 2003 by the Antigua Convention, which entered into force in 2010. The objective of the Commission is to ensure the long-term conservation and sustainable use of the fish stocks covered by this Convention. IATTC manages tuna and tuna-like species in the Eastern Pacific Ocean. (Løbach, *T et al*, 2020)

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	0.5	Source 1: Parties to UNCLOS (1994), UN FSA (1995) and FAO Code of Conduct (1995) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information; FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data; and FAO Code of Conduct for Responsible Fisheries (1995) Article 12 (Fisheries research).	Source 1: UNCLOS (1994), UNFSA (1995), FAO (1995)
	0.5	Source 2: IATTC has been using drones to improve the estimation of dolphin abundance in the Eastern Tropical Pacific (reflecting dynamic aggregations of dolphins and tunas).	Source 2: Sustainable Ocean Initiative (2021) <i>Intersessional Workshop for the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organisations and Regional Fishery Bodies</i> (29 September-1 October 2021). Organised by the Convention for Biological Diversity (CBD) Secretariat, in collaboration with FAO, UNEP and Republic of Korea Ministry of Oceans and Fisheries. Annex 3
	1	Source 3: The science program of the IATTC is unique among tuna tRFMOs. Most of the tRFMO programs mainly focus on modelling and assessments supported by data collection from the fishery and some indicator based research and tagging. The IATTC approach stems from the original 1949 Agreement, which placed responsibilities on IATTC	Source 3: IATTC 2016 Performance Review p8-29

		<p>to undertake a range of scientific functions including “<i>promote, carry out and coordinate scientific research concerning the abundance, biology and biometry in the Convention area of fish stocks covered by the Convention and, as necessary, of associated or dependent species and the effects of natural factors and human activities on the population of these stocks</i>” (Article V11). As such, IATTC has, since the 1950s, had an internal research program that was designed to meet its obligations under the Convention. To do this it built a long-term program to undertake serious biological research, ecosystem (including bycatch), data collection, tagging and stock assessment. (p29)</p> <p>This is borne out by the scientific staff of the IATTC being awarded in 2015 the Outstanding Group Achievement Award of the American Institute of Fishery Research Biologists, in recognition of the IATTC’s “<i>dedication to nurturing excellence in fishery science, as a most important factor for the achievement of its objectives under the Antigua Convention.</i>”</p> <p>The one countervailing view (which has by now probably been addressed) is that the Review found that the IATTC’s procedures for managing information requests is inefficient. The scientific staff and Director are responsible for responding to a large volume of research and data requests. Requests come into the Scientific Director rather than being analysed by an administrator and triaged/prioritised (p20).</p>	
Condition 2: INC-STAKE	1	Source 1: Clark <i>et al</i> (2015) combined transparency assessment score	<p>Source 1: Clark, N. A., Ardron, J. A., & Pendleton, L. H. (2015). <i>Evaluating the basic elements of transparency of regional fisheries management organizations</i>. Marine Policy, 57, 158–166.</p> <p>https://doi.org/10.1016/j.marpol.2015.03.003</p>

	0.5	<p>Source 2: Although referring to internal engagement of Members, the IATTC Performance Review highlighted that “<i>Engaging a large number of multi-national, appointed officials with varying levels of experience and knowledge is a difficult task. Many commissioners and representatives reported a desire for more insightful information to be provided on a more frequent basis, especially for financial and key policy matters. (p12)</i></p> <p>Also “a Capacity Building Fund has been established to provide training to build stronger knowledge and capacity in science for members to allow them to participate more effectively in the science discussions and decision making in the Commission”.(p10)</p>	Source 2: IATTC Performance Review (2016)
Condition 3: ADAPT	1	Source 1: Specific mention of ecosystem approach in RFMO convention	Source 1: RFMO treaties that refer to the precautionary and ecosystem approach (Table 3) p15 in Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). <i>Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017</i> . https://doi.org/10.4060/ca7843en .; IATTC website 2018
	0	Source 2: Similar to other tRFMOs, the IATTC and AIDCP governing bodies operate under a consensus model, as outlined in Article IX of the Antigua Convention. In a survey of IATTC commissioners and AIDCP representatives, “ <i>problem solving methods</i> ” were rated the least efficient area of the Commission and “ <i>decision-making processes</i> ” were rated the third least efficient. (p9) Further aspects of IATTC’s structure that may mitigate against adaptive management includes the absence of a “strategic plan or multi-year work plan to guide annual activities. Instead, research programs and other project requests are frequently developed during annual meetings. As a result, it can be challenging to establish annual work plans and budgets to make steady progress towards multi-year goals. Without the continuity provided by a plan to guide decision-making over a multi-year period, work can	Source 2: IATTC Performance Review (2016)

		become diluted and priorities unclear. The lack of clear, prioritized goals and transparent outcomes in reporting also contributes to challenges with the budget approval process”.(p18)	
	1	Source 3: A performance assessment was conducted of regional fisheries management organizations’ (RFMOs’) bycatch governance, one element of an ecosystem approach to fisheries management. Scoring was applied over five criteria, including management measures, use of data and surveillance, with IATTC scoring over the mean (>25%)	Source 3: Gilman, E., Passfield, K., Nakamura, K. (2014) <i>Performance of regional fisheries management organizations: ecosystem-based governance of bycatch and discards</i> . Fish and Fisheries, 2014, 15, 327-351.
Condition 4: MPC	1	Source 1: IATTC has a formal working arrangement (MoU, working group) with WCPFC ¹⁵² governing mutual conservation measures	Source 1: FAO 2020
	0.5	Source 2: A joint work plan exists between CPPS and IATTC to improve the skills and capacities of researchers in the region in order to generate scientific information and improve the management and sustainability of shark fisheries. The work involves capacity building in the assessment of the shark population, conceptual modelling for delimitation of shark population units, and the use of technological platforms	Source 2: Sustainable Ocean Initiative (2021) <i>Intersessional Workshop for the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organisations and Regional Fishery Bodies</i> (29 September-1 October 2021). Organised by the Convention for Biological Diversity (CBD) Secretariat, in collaboration with FAO, UNEP and Republic of Korea Ministry of Oceans and Fisheries. Annex 3
	1	Source 3: IATTC self-reports that cooperation is well established with the international regimes dealing with seabirds and turtles, namely ACAP, and the Inter-American Sea Turtle Convention (IAC). Collaborative and cooperative efforts with other institutions in the fisheries sector also occur, such as with the Western and Central Pacific Fisheries Commission (WCPFC), the Pacific Community (SPC), and the Central American Fisheries and Aquaculture Organization (OSPESCA), as well as with the fisheries agencies of the	Source 3: Second meeting of the Sustainable Ocean Initiative (2018) ‘Seoul Outcome+2’ <i>Global Dialogue with Regional Seas Organizations and Regional Fishery Bodies on Accelerating Progress towards the Aichi Biodiversity Targets and Sustainable Development Goals</i> (10-13 April 2018) p7

		coastal states in the eastern Pacific Ocean, including an ongoing GEF-FAO areas beyond national jurisdiction (ABNJ) pilot project to monitor and sample shark landings in Central America.	
	0.5	Source 4: The advent of the Western and Central Pacific Fisheries Commission (WCPFC) led to confusion over the physical area of competence of the IATTC and WCPFC. The two tRFMOs successfully negotiated a working arrangement over the so-called “overlap area” to the satisfaction of both Commissions (p8)	Source 4: IATTC Performance Review (2016)
Outcome: CSU/BBNJ	0.5	Source 1: In their 2018 study, Juan- Jordá <i>et al</i> found that while all tRFMOs delivered some elements of EBFM, IATTC performed slightly higher against the review criteria, demonstrating evidence of having implemented (at least partially) all ecological components of EBFM	Source 1: Juan-Jordá, M. J., Murua, H., Arrizabalaga, H., Dulvy, N. K., & Restrepo, V. (2018). Report card on ecosystem-based fisheries management in tuna regional fisheries management organizations. <i>Fish and Fisheries</i> , 19(2), 321–339. https://doi.org/10.1111/faf.12256
	0	Source 2: 33.3% Cullis-Suzuki and Pauly ‘performance in practice’ scores	Source 2: Cullis-Suzuki, S., & Pauly, D. (2010). <i>Failing the high seas: A global evaluation of regional fisheries management organizations</i> . Marine Policy, 34(5), 1036–1042.
	0.5	Source 3: With regard to conservation and sustainable use, the IATTC has shown a willingness to interpret its mandate widely. For example, the IATTC and IOTC are working together with RSCAPs to explore options to reduce marine debris from fishing, including the use of biodegradable materials for fish aggregating devices and mitigation measures to reduce bycatch of sea turtles.	Source 3: Second meeting of the Sustainable Ocean Initiative (2018) ‘Seoul Outcome+2’ <i>Global Dialogue with Regional Seas Organizations and Regional Fishery Bodies on Accelerating Progress towards the Aichi Biodiversity Targets and Sustainable Development Goals</i> (10-13 April 2018). P14
	1	Source 4: According to Elliot’s (2020) study, the IATTC received one of the highest scores (across RFMOs) in relation to bycatch mitigation effort.	Source 4: Elliot, B. 2020. <i>A Review of Regional Fisheries Management Organization Efforts in Addressing Cetacean Bycatch: Report to the International Whaling Commission</i> . Paper CC/68A/06.4.2/01

	<p>0.5</p> <p>Source 5: P25 - By any measure, the approaches taken by the IATTC since 1977 should be considered outstanding. In November 2005, the FAO recognized the “unqualified success” of the Dolphin Conservation Programme (AIDCP) and awarded it the Margarita Lizárraga award in recognition of its “comprehensive, sustainable and catalytic initiatives” in support of the Code of Conduct for Responsible Fisheries. Under the approaches taken by the IATTC pre-AIDCP and through the AIDCP, the mortalities of dolphins in the Agreement Area have reduced from around 132,000 in 1986 to 975 in 2014. The 2015 report on the performance of the AIDCP indicates continued improvements with 11,382 sets monitored and 975 mortalities, with an average mortality of 0.086 mortalities per set.</p> <p>P35 – Based on 2016 data, the stocks of the main species under the governance of the IATTC (Yellowfin tuna, bigeye tuna, skipjack tuna and billfish) are in reasonable condition, apart from Pacific Bluefin which has been fished to a very low level and needs urgent joint WCPFC and IATTC management action. The mandate for the assessment of the Pacific Bluefin stock is with the WCPFC and IATTC.</p> <p>P39 – There is also concern about bycatch and the need for improvement in data collection of shark, seabird, and turtle mortalities particularly from the longline and artisanal fleets.</p>	<p>Source 5: IATTC Performance Review (2016)</p>
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Notes

- Many of the tuna RFMOs are still operating under what might be termed the ‘pre UNECD/FSA’ conditions, and improvements are being sought via the Kobe process (starting in 2007).

WCPFC

WCPFC was established by the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, which entered into force in 2004. The objective of the Convention is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks in this area, except sauries. (Løbach, *T et al*, 2020)

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	0.5	Source 1: Parties to UNCLOS (1994), UN FSA (1995) and FAO Code of Conduct (1995) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information; FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data; and FAO Code of Conduct for Responsible Fisheries (1995) Article 12 (Fisheries research).	Source 1: UNCLOS (1994), UNFSA (1995), FAO (1995)
	0.5	Source 2: The WCPFC utilises data from the Secretariat of the Pacific Community's Oceanic Fisheries Programme (SPC OFP), with operational catch data levels at 51.2% , although significant data gaps exist (related to fisheries in the Philippines, Indonesia and the distant-water fleets of Korea, China and Japan), exacerbated by the information lag between measurement and reporting, uncertainty (in respect of identification of species) and IUU fishing. (p11)	Source 2: Contribution from the Secretariat of the Western and Central Pacific Fisheries Commission to the United Nations Review Conference on the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (New York, 22-26 May 2006) p5
	0.5	Source 3: WCPFC provides open access to amalgamated data records with high spatial resolution	Source 3: Gilman,E, Passfield, K, Nakamura, K (2014) <i>Performance of regional fisheries management organizations: ecosystem-based governance of bycatch and discards</i> , Fish. 15 (2014) 327–351

	0.5	<p>Source 4: Under Article 11 of the Convention, the Commission created three subsidiary bodies: the Scientific Committee (SC), the Technical and Compliance Committee (TCC), and the Northern Committee (NC). Since its foundation, much of the scientific work required by WCPFC has been carried out by the SPC (the Secretariat of the Pacific Community) which is contracted to provide independent scientific advice to be considered by SC members. In the case of the northern stocks, scientific advice has been usually provided by the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC).(p15)</p> <p>The 2012 performance review encouraged the WCPFC to expand data collection for potential fisheries and ecosystem interactions, to provide priority information on such interactions, to monitor interaction extent, mitigation effects and interaction effects. The WCPFC was further encouraged to consider other effects likely to arise from fishing operations on the WCPO ecosystem. Such effects include lost, or abandoned, fishing gear and potential marine ecosystems risks. At sea monitoring may be necessary before such risks are identified. (p24)</p> <p>To a large measure, the Panel considers information on data submission requirements to be adequate. However, data gaps on key species still exist, and in this context, serious consideration should be given to providing an enduring, and detailed, 'Data Submission' item on the WCPFC Website as a 'one-stop shop' for all data submission information. (p25)</p>	Source 4: WCPFC Performance Review (2012)
Condition 2: INC-STAKE	1	Source 1: Clark <i>et al</i> (2015) combined transparency assessment score	Source 1: Clark, N. A., Ardron, J. A., & Pendleton, L. H. (2015). <i>Evaluating the basic elements of transparency of regional fisheries management organizations</i> . Marine Policy, 57, 158–166. https://doi.org/10.1016/j.marpol.2015.03.003
	1	Source 2: The WCPFC Convention specifically recognises the special requirements of developing States (Art 30), providing financial assistance for the participation of developing State members and to support improved	Source 2: Contribution from the Secretariat of the Western and Central Pacific Fisheries Commission to the United Nations Review

		data and information collection and monitoring (in the Philippines and Indonesia)	Conference on the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (New York, 22-26 May 2006) p1, p8
Condition 3: ADAPT	0.5	Source 1: Specific mention of ecosystem approach in RFMO convention. However, despite the Convention giving ample scope for development and implementation of the Ecosystem Approach to Fisheries (EAF), the 2012 performance review suggested that the “institutional mechanisms established to facilitate implementation should be reviewed” (p16, WCPFC)	Source 1: RFMO treaties that refer to the precautionary and ecosystem approach (Table 3) p15 in Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). <i>Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017</i> . https://doi.org/10.4060/ca7843en .; WCPFC Performance Review (2012)
	1	Source 2: A performance assessment was conducted of regional fisheries management organizations’ (RFMOs’) bycatch governance, one element of an ecosystem approach to fisheries management. Scoring was applied over five criteria, including management measures, use of data and surveillance, with WCPFC scoring over the mean (>25%)	Source 2: Gilman, E., Passfield, K., Nakamura, K. (2014) <i>Performance of regional fisheries management organizations: ecosystem-based governance of bycatch and discards</i> . Fish and Fisheries, 2014, 15, 327-351.
Condition 4: MPC	1	Source 1: WCPFC also has a formal working arrangement (MoU, joint working groups) with CCAMLR, IATTC, IOTC and NPAFC WCPFC has also established a MoU with the secretariat of the Agreement on the Conservation of Albatrosses and Petrels (ACAP), and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), the Pacific Islands Forum Fisheries Agency (PIFFA) and the Secretariat of the Pacific Community (SPC)	Source 1: Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). <i>Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017</i> . https://doi.org/10.4060/ca7843en .
	1	Source 2: The WCPFC Convention (Article 22) specifically provides for cooperation with other organisations with related competence, as well as with other RFMOs whose area of competence overlaps with the WCPFC (to avoid duplication of effort).	Source 2: Contribution from the Secretariat of the Western and Central Pacific Fisheries Commission to the United Nations Review Conference on the Agreement for the Implementation of the Provisions of the

			United Nations Convention on the Law of the Sea 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (New York, 22-26 May 2006) p8
	0.5	Source 3: The WCPFC cooperates with the FFA, the Secretariat of the Pacific Community (SPC), the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC), the Secretariat of the Pacific Regional Environment Programme (SPREP), ACAP, IATTC, CCAMLR, CCSBT, IOTC and NPAFC, as well as FAO and Te Vaka Moana.(p59)	Source 3: FAO. 2015. <i>The implementation of performance review reports by regional fishery bodies, 2004–2014</i> , by Péter D. Szigeti and Gail L. Lugten. FAO Fisheries and Aquaculture Circular No. 1108. Rome, Italy
	0	Source 4: The 2012 Performance Review identified a breakdown in cooperation between WCPFC and IATTC and encouraged the Commission to urgently resolve the outstanding issues relating to cooperation with the IATTC as they are extremely important for ensuring harmonious management of the area shared by the two organizations, including the cost-effective deployment of observers. (pg33)	Source 4: WCPFC Performance Review (2012)
Outcome: CSU/BBNJ	1	Source 1: In their 2018 study, Juan- Jordá <i>et al</i> found that while all tRFMOs delivered some elements of EBFM, WCPFC performed slightly higher against the review criteria, demonstrating evidence of having implemented (at least partially) all ecological components of EBFM	Source 1: Juan-Jordá, M. J., Murua, H., Arrizabalaga, H., Dulvy, N. K., & Restrepo, V. (2018). Report card on ecosystem-based fisheries management in tuna regional fisheries management organizations. <i>Fish and Fisheries</i> , 19(2), 321–339. https://doi.org/10.1111/faf.12256
	1	Source 2: (66.7% Cullis-Suzuki and Pauly ‘performance in practice’ score)	Source 2: Cullis-Suzuki, S., & Pauly, D. (2010). <i>Failing the high seas: A global evaluation of regional fisheries management organizations</i> . Marine Policy, 34(5), 1036–1042
	1	Source 3: The WCPFC’s governance and decision-making structures include an Ecosystem and By-Catch Specialist Working Group (EB-SWG)	Source 3: Contribution from the Secretariat of the Western and Central Pacific Fisheries Commission to the United Nations Review

			Conference on the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (New York, 22-26 May 2006) p4
	1	Source 4: According to Elliot's (2020) study, the Western and Central Pacific Ocean Fisheries Convention (WCPFC) received one of the highest scores (across RFMOs) in relation to bycatch mitigation effort.	Source 4: Elliot, B. 2020. <i>A Review of Regional Fisheries Management Organization Efforts in Addressing Cetacean Bycatch: Report to the International Whaling Commission</i> . Paper CC/68A/06.4.2/01

Notes

- As Freestone (2010) points out, as RFMOs these bodies are required by UNCLOS to incorporate environmental concerns into their management regimes, but as they were established following the 1992 UN Conference on Environment and Development (UNCED) and the 1995 UN Fish Stocks Agreement, they are also bound by provisions (introduced by the UNCED and enacted through the UNFSA) to address ecosystem maintenance and conservation of biological diversity concerns.

GFCM

GFCM was established in 1949 under the provisions of Article XIV of the FAO Constitution and entered into force in 1952. It manages fisheries in the Mediterranean, Black Sea and connecting waters. Its objective is to promote the development, conservation, rational management and best utilization of living marine resources. GFCM applies to all living resources in its area of competence. Since 1996 the Commission has collaborated with ICCAT on matters concerning tuna resources. The GFCM Agreement has been amended four times, most recently in 2014. (Løbach, *T et al*, 2020)

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	0.5	Source 1: Parties to UNCLOS (1994), UN FSA (1995) and FAO Code of Conduct (1995) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information; FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data; and FAO Code of Conduct for Responsible Fisheries (1995) Article 12 (Fisheries research).	Source 1: UNCLOS (1994), UNFSA (1995), FAO (1995)
	0.5	Source 2: GFCM and ACCOBAMS have established common indicators to help reduce the reporting burden across different data points and different countries and improve reporting flows.	Source 2: Sustainable Ocean Initiative (2021) <i>Intersessional Workshop for the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organisations and Regional Fishery Bodies</i> (29 September-1 October 2021). Organised by the Convention for Biological Diversity (CBD) Secretariat, in collaboration with FAO, UNEP and Republic of Korea Ministry of Oceans and Fisheries. Annex 3
	0.5	Source 3: GFCM operates a number of scientific and specialist sub-committees (including Stock Assessment, Statistics and Information, Economics and Social Sciences and Marine Environment and Ecosystems), each supported by technical Working Groups (WGs). However, the “ <i>small pelagic and demersal fisheries in the GFCM area</i> ,	Source 3: GFCM Performance Review (2011) pp7-81 <i>To note – the performance review findings are a minimum of 10years out of date, so this has</i>

		<p>accounting for close to 90% of landings, are generally conducted by small fishing units relatively close to their home ports. This complicates the interpretation of fishery data to a great extent”(p23). The Review goes on to conclude that the GFCM approach to data does not appear to appreciate the ways in which neighbouring countries manage their national jurisdiction fisheries may influence GFCM areas.</p> <p>Consequently, the Review highlights the need for GFCM to update its basic functions to better “<i>promote, coordinate and, as appropriate, undertake the collection, exchange and dissemination of scientific, biological, socio-economic, legal and environmental data and information, including information on common challenges and solutions to fisheries and aquaculture in the Region, as well as their analysis or study.</i>” (p32)</p> <p>With regards to data availability and websites, the Review finds that “<i>the GFCM website itself is comprehensive, and information relating to meetings, Recommendations and other decisions of GFCM is comprehensive and easily found. The Compendium of GFCM decisions is a valuable information tool and can easily be downloaded. There is a well organized list of partner organizations, networks etc. with which GFCM work is carried out. The Contact webpage shows the composition of the Secretariat and the positions covered</i>” (p81).</p>	<p>been factored in and a presumption towards some improvement applied in arriving at the SMV.</p>
Condition 2: INC-STAKE	-	Source 1: Not assessed as part of Clark <i>et al</i> (2015) combined transparency assessment score	-
	0.5	<p>Source 2: On page 11, the Review finds that the GFCM Working Groups are “widely open to ensure the greatest participation”, while membership of the subcommittees is more controlled, particularly in terms of ensuring a regular attendance of institutes and scientists. This is addressed by a recommendation for GFCM to update its basic functions to better “<i>enhance communication and consultation with civil society organizations concerned with fisheries and aquaculture in the Region.</i>” (p32).</p>	<p>Source 3: GFCM Performance Review (2011) pp11-38</p> <p><i>To note – the performance review findings are a minimum of 10years out of date, so this has been factored in and a presumption towards some improvement applied in arriving at the SMV.</i></p>

		At the time of the 2011 Review, there was no provision “relating to transparency and openness, as provided in the international fisheries instruments and the Agreements of FAO and non-FAO bodies” (p38). Participation by observers is addressed in Rule XII of the Amended Rules of Procedure, but this does not refer to civil society organizations (only to FAO Members or Associate Members or international organizations).	
	0	Source 3: In its 2015 follow up to the 2011 Performance Review, the FAO found that the GFCM convention lacked “basic governance provisions such as obligations of Members (including flag State duties and port State measures), observers, information, and special requirements of developing States do not appear”, even if the GFCM does in practice adhere by these values and principles. (p21)	Source 3: FAO. 2015. <i>The implementation of performance review reports by regional fishery bodies, 2004–2014</i> , by Péter D. Szigeti and Gail L. Lugten. FAO Fisheries and Aquaculture Circular No. 1108. Rome, Italy
Condition 3: ADAPT	0.5	Source 1: Specific mention of ecosystem approach in RFMO convention	Source 1: RFMO treaties that refer to the precautionary and ecosystem approach (Table 3) p15 in Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). <i>Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017</i> . https://doi.org/10.4060/ca7843en .
	0.5	Source 2: A general feature of the GFCM that mitigates against an adaptive approach to management is the recognition in the 2011 Performance Report that “ <i>The provisions of the GFCM Agreement are essentially standard FAO “template” provisions that were largely crafted over half a century ago. They provide a broad basis for the work currently being carried out by GFCM but as described below, are often undefined, outmoded, conflicting, confusing, inappropriate or technically unsound.</i> ” (p32). The Review also finds that decision making is slow and opaque, with the objections-mechanism leading to lengthy delays (120 days for an objection to be raised, and 60 days for responses to the objection). Additionally, members are not required to give effect to a [management] measure if more than one-third of members have objected (p36).	Source 2: GFCM Performance Review (2011) pp32-36 To note – the performance review findings are a minimum of 10years out of date, so this has been factored in and a presumption towards some improvement applied in arriving at the SMV. UNEP (2016) <i>Regional Oceans Governance: Making Regional Seas Programmes, Regional Fishery Bodies and Large Marine Ecosystem Mechanisms Work Better together</i> . Authors Raphaël Billé, Lucien Chabason, Petra

		However, a more recent study (2016) found that, at least in the case of non-target species, such as sharks, rays, marine mammals, GFCM was demonstrating a “ <i>precautionary and a de facto ecosystem approach to fisheries</i> ” (UNEP, 2016, p91)	Drankier, Erik J. Molenaar, Julien Rochette. UNEP Regional Seas Report and Studies No. 196. P91
	1	Source 3: Combined score (across management measures relevant to adaptive management in ‘Ability to Achieve’ and ‘Ecological Well-being’ categories)	Source 3: Fletcher, W.J. 2020. <i>A review of the application of the FAO ecosystem approach to fisheries (EAF) management within the areas beyond national jurisdiction (ABNJ)</i> . Rome, FAO. https://doi.org/10.4060/cb1509en
	0	Source 4: A performance assessment was conducted of regional fisheries management organizations’ (RFMOs’) bycatch governance, one element of an ecosystem approach to fisheries management. Scoring was applied over five criteria, including management measures, use of data and surveillance, with GFCM scoring below the mean (<25%)	Source 4: Gilman, E., Passfield, K., Nakamura, K. (2014) <i>Performance of regional fisheries management organizations: ecosystem-based governance of bycatch and discards</i> . Fish and Fisheries, 2014, 15, 327-351.
Condition 4: MPC	0.5	Source 1: GFCM has an MoU with UNEP-MAP, operates across 24 members and cooperates with other non-member riparian States and with other organisations through MoUs. Formal cooperation arrangements (MoU, working groups) exist between GFCM and other RFMOs (ICCAT).	Source 1: Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). <i>Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017</i> . https://doi.org/10.4060/ca7843en . p18
	0.5	Source 2: As of November 2010, five FAO regional projects were operating in cooperation with GFCM: <ul style="list-style-type: none"> - Adriamed "Scientific Cooperation to Support Responsible Fisheries in the Adriatic Sea" - ArtFiMed “Sustainable Development of Artisanal Mediterranean Fisheries in Morocco and Tunisia” - Copemed II “Coordination to Support Fisheries Management in the Western and Central Mediterranean” - EastMed “Scientific and Institutional Cooperation to Support Responsible Fisheries in the Eastern Mediterranean” 	Source 2: GFCM Performance Review (2011) pp12-37 To note – the performance review findings are a minimum of 10years out of date, so this has been factored in and a presumption towards some improvement applied in arriving at the SMV.

		<ul style="list-style-type: none"> - Medfisis "Mediterranean Fishery Statistics and Information System" - Medsudmed "Assessment and Monitoring of the Fishery Resources and the Ecosystems in the Straits of Sicily" (p13) <p>With regards to wider cooperation, <i>"Although the Agreement requires the Commission to "cooperate closely with other international organizations in matters of mutual interest" it does not refer to modern forms of cooperation, including with other IGOs and institutions. It does not empower the Commission to enter into agreements with such organizations and institutions and promote complementarity or avoid duplication and conflict"</i> (p37)</p> <p>Formal MoUs exist with ICCAT, IUCN, CIHEAM/IAMZ (Mediterranean Agronomic Institute of Zaragoza) and the UNEP/RAC-SPA.(p37)</p>	
	1	<p>Source 3: A more recent development (2016) has seen GFCM (as part of its Mid-Term Strategy) extend cooperation in line with GFCM Constitution Article 16 and the FAO Strategy for Partnerships with Civil Society Organizations to a wide array of other bodies, including regional seas conventions, neighbouring regional fisheries bodies, non-governmental organizations, academic institutions, ACCOBAMS, ATLAFCO, BSC, CIHEAM-IAMZ, Eurofish, ICES, IUCN-Med, MedPAN, OceanCare, UNEP-MAP and WWF-Med.</p>	<p>Source 3: GFCM website - <i>GFCM:40/2016/Inf.6 GFCM framework for cooperation and arrangements with non-Contracting Parties and party organizations</i></p>
	0	<p>Source 1: Calibration informed by an aggregate assessment of the biodiversity of the Mediterranean Sea. The report sets out the current state (2019) and trends across 8 species groups (Seals, cetaceans, birds, bony fish, sharks and rays, reptiles, cephalopods and other invertebrates), habitats (pelagic and benthic) and ecosystem (based on IPBES¹⁵³ current and past trends), and finds that the aggregate state of Mediterranean Sea biodiversity is 'Bad' with a strong declining trend, with insufficient supporting data (either limited data or limited coverage) across all areas</p>	<p>Source 1: Vaughan D., Korpinen S., Nygård H., Andersen J.H., Murray C, Kallenbach E., Jensen N.J., Tunesi L., Mo G., Agnesi S., Klančnik K., Herbon C., Singleton G., Pagou K., Borja Á., Reker J. (2019), <i>Biodiversity in Europe's seas</i>. ETC/ICM Technical Report 3/2019: European Topic Centre on Inland and Marine Waters, 92pp. Table 3.1</p>

¹⁵³ The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services - <https://ipbes.net/>

Outcome: CSU/BBNJ		assessed. To note that the report was published ahead of EU Member State updates under Art.17 of the Marine Strategy Framework Directive (MSFD), so draws on assessments by the Regional Seas Conventions and other regional and international sources.	
	0	Source 2: 33.3% Cullis-Suzuki and Pauly ‘performance in practice’ scores;	Source 2: Cullis-Suzuki, S., & Pauly, D. (2010). <i>Failing the high seas: A global evaluation of regional fisheries management organizations</i> . Marine Policy, 34(5), 1036–1042. https://doi.org/10.1016/j.marpol.2010.03.002
	0.5	Source 3: In their comparative analysis of RFMO management of demersal species, Bell <i>et al</i> (2019) applied three assessments of how effectively RFMOs had adopted mitigation measures to prevent significant impacts on vulnerable marine ecosystems. These assessments examined the relative performance of RFMOs against their ability to implement management measures (‘capacity’), the number and effectiveness of measures implemented (‘action’), and the intensity and spatial extent of activities regulated (‘need’). GFCM fell below the 0.5 performance threshold across a number of the assessments, particularly the relationship between capacity and action. A score of 0.5 is given due to the mitigating factor of GFCM’s competence/ability to take unilateral action likely being heavily limited by the surrounding coastal States.	Source 3: Bell, J. B., Guijarro-Garcia, E., & Kenny, A. (2019). Demersal Fishing in Areas Beyond National Jurisdiction: A Comparative Analysis of Regional Fisheries Management Organisations. <i>Frontiers in Marine Science</i> , 6. https://doi.org/10.3389/fmars.2019.00596
	0	Source 4: In terms of target species, the GFCM has competence over all “living marine resources”, but as regards tuna and tuna-like species occurring within the GFCM’s regulatory area and the fisheries that target these, it has so far deferred to ICCAT by endorsing the latter’s decisions, raising questions of primacy and dispute resolution between co-operating RFMOs (Willock, A & Lack, M 2006)	Source 4: the Compendium of GFCM Decisions (doc. COC:VII/2013/Inf.6), section 1.4 “ICCAT Recommendations relevant to the Mediterranean”; Willock, A. and Lack, M. (2006). <i>Follow the leader: Learning from experience and best practice in regional fisheries management organizations</i> . WWF International and TRAFFIC International (p9)

NEAFC

NEAFC was originally established in 1959, but a new convention entered into force in 1982, which has since been amended twice, in 2004 and 2006. NEAFC's objective is to ensure the long-term conservation and optimum utilization of the fishery resources in the convention area, providing economic, environmental and social benefits. NEAFC has authority to adopt conservation and management measures in all parts of the convention area, but its management role within areas under national jurisdiction is conditional on the relevant coastal State proposing and supporting such measures. Thus, in practice NEAFC is largely focused on the parts of the convention area that are beyond national jurisdiction, referred to as the "regulatory area". (Løbach, *T et al*, 2020)

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	0.5	Source 1: Parties to UNCLOS (1994), UN FSA (1995) and FAO Code of Conduct (1995) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information; FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data; and FAO Code of Conduct for Responsible Fisheries (1995) Article 12 (Fisheries research).	Source 1: UNCLOS (1994), UNFSA (1995), FAO (1995)
	1	<p>Source 2: NEAFC cooperates with the International Council for the Exploration of the Sea (ICES), applying to ICES for information and advice on biology and population dynamics of fish species concerned, the state of fish stocks, the effect of fishing on those stocks and measures for their conservation and management. NEAFC itself does not conduct any scientific activity, thus separating the scientific work within a highly respected international scientific organisation (p17)</p> <p>While data is generally good, the Panel noted that Timely and accurate submissions of fishery-dependent catch and effort data underpin the effectiveness of NEAFC in terms of monitoring, control and surveillance (enforcement) activities, and support effective decision making based on accurate stock assessments. While generally providing accurate data, in</p>	Source 2: NEAFC Performance Review (2014)

		<p>some cases these data are not timely and may have inconsistencies, particularly with respect to area and volume of catch. More effective catch reporting systems and procedures are clearly warranted. To this end, the panel encourages NEAFC members to consider a more proactive role for the Secretariat in data monitoring. (Pg41)</p> <p>Data is mostly provided through fisheries reporting and scientific advice via ICES (p42).</p>	
Condition 2: INC-STAKE	0	Source 1: Clark <i>et al</i> (2015) combined transparency assessment score	Source 1: Clark, N. A., Ardron, J. A., & Pendleton, L. H. (2015). <i>Evaluating the basic elements of transparency of regional fisheries management organizations</i> . Marine Policy, 57, 158–166. https://doi.org/10.1016/j.marpol.2015.03.003
	0.5	Source 2: In its follow up to the 2014 performance review, the FAO found NEAFC’s mechanisms of approving cooperating non-member status and dealing with non-cooperating non-members to be adequate, but advised that improvements in transparency (both regarding coastal members’ allocation talks, and the relationship with NGO observers) would be welcome (p42)	Source 2: FAO. 2015. <i>The implementation of performance review reports by regional fishery bodies, 2004–2014</i> , by Péter D. Szigeti and Gail L. Lugten. FAO Fisheries and Aquaculture Circular No. 1108. Rome, Italy
	0	Source 3: The Panel noted that steps had been already taken to improve transparency of information and decisions within NEAFC, but it noted also that some improvements could be made by providing more transparency to meetings between coastal States on allocation issues and by giving further consideration to providing documents to NGOs prior to Commission meetings. The Panel indicated it could see no specific reasons to restrict NGO access to information prior to Commission meetings, except in special circumstances of confidentiality and considered that in most instances provision of such information would	Source 3: NEAFC Performance Review (2014)

		<p>help inform debate rather than detract from it. In addition, the Panel considered that the development of an annual report on the status of the Convention Area stocks would help improve overall transparency.</p> <p>There are some issues with governance structures and transparency of decision-making (ie decisions should be able to be tracked back to the scientific advice but this is often opaque) (Pg 111)</p> <p>(pg188) There are no developing States in NEAFCs membership, so there are no special arrangements to ensure attendance and participation. However, NEAFC does acknowledge that there are benefits to sharing information and knowledge (capacity building) with other parties, and “some effort” is being made in this regard (<i>ref: 5 Doc. PRP Inf.-21, Special requirements of developing States: A note by the NEAFC Secretariat for the Performance Review Panel</i>)</p>	
Condition 3: ADAPT	1	Source 1: Specific mention of ecosystem approach in RFMO convention	Source 1: RFMO treaties that refer to the precautionary and ecosystem approach (Table 3) p15 in Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). <i>Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017</i> . https://doi.org/10.4060/ca7843en .
	1	Source 2: Combined score (across management measures relevant to adaptive management in ‘Ability to Achieve’ and ‘Ecological Well-being’ categories)	Source 2: Fletcher, W.J. 2020. <i>A review of the application of the FAO ecosystem approach to fisheries (EAF) management within the areas beyond national jurisdiction (ABNJ)</i> . Rome, FAO. https://doi.org/10.4060/cb1509en
	1	Source 3: A performance assessment was conducted of regional fisheries management organizations’ (RFMOs’) bycatch governance, one element of an ecosystem approach to fisheries management. Scoring was applied over five criteria, including management measures, use of data and surveillance, with NEAFC scoring over the mean (>25%)	Source 3: Gilman, E., Passfield, K., Nakamura, K. (2014) <i>Performance of regional fisheries management organizations: ecosystem-based governance of bycatch and</i>

			<i>discards</i> . Fish and Fisheries, 2014, 15, 327-351.
Condition 4: MPC	1	Source 1: NEAFC has a MoU with the OSPAR Commission for the Protection of the Marine Environment in the North-East Atlantic. NAFO and NEAFC have established joint working groups to harmonize reporting requirements	Source 1: FAO (2020)
	1	Source 2: NEAFC is at the early stage of developing cooperation with the International Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean and have also recently agreed on an MoU with GFCM in the Mediterranean.	Source 2: Sustainable Ocean Initiative (2021) <i>Intersessional Workshop for the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organisations and Regional Fishery Bodies</i> (29 September-1 October 2021). Organised by the Convention for Biological Diversity (CBD) Secretariat, in collaboration with FAO, UNEP and Republic of Korea Ministry of Oceans and Fisheries. Annex 3
	0.5	Source 3: The 2015 FAO review observed that NEAFC cooperates with a number of other international organizations, including FAO, ICES, ICAAT and SEAFO, and that ties are particularly close with NAFO and the OSPAR Commission (p42)	Source 3: FAO. 2015. <i>The implementation of performance review reports by regional fishery bodies, 2004–2014</i> , by Péter D. Szigeti and Gail L. Lugten. FAO Fisheries and Aquaculture Circular No. 1108. Rome, Italy
	1	Source 4: NEAFC works with OSPAR and CBD on the issue of biodiversity. This includes cooperation and coordination to ensure that measures adopted by one organisation do not undermine measures adopted by another, and also includes cooperation regarding Ecologically and Biologically Significant Marine Areas (see report PRP Inf.-20). (p37) NAFO and NEAFC are geographic neighbours with straddling RAs and all NEAFC CPs are also NAFO CPs. Cooperation includes harmonization of technical regulations that would allow vessels to conduct fishing activities in the RA of each RFMO. NEAFC and NAFO manage jointly the "shallow pelagic" redfish in the Irminger Sea.	Source 4: NEAFC Performance Review (2014)

		<p>NEAFC is helping also NAFO in software development regarding the inspectors' part of NAFO website and the two RFMOs have recently established a joint structure called the “Joint Advisory Group on Data Management” (JAGDM) , as a successor to the previous AGDC which was formally a NEAFC body even though it was open to participation by other RFMOs. They also cooperate on regulations regarding the protection of vulnerable marine ecosystems (VMEs). NEAFC has regular informal cooperation with SEAFO, at the level of both Secretariats and NEAFC has supported the development of SEAFO in various ways since its establishment. It is also hosting SEAFO's VMS database. Several regulations in SEAFO are based on those in force in NEAFC. NEAFC has had some cooperation with ICCAT on the management of shark species, which are taken as by-catch in fisheries managed by both organizations. (pg 117)</p> <p>Cooperation with other relevant international organizations. NEAFC has regular close cooperation with international organizations, such as ICES and the OSPAR Commission. ICES is the organization in charge of providing scientific advice to NEAFC, since the signing of a Memorandum of Understanding (MOU) between NEAFC and ICES. NEAFC cooperates also with the OSPAR Commission in recent years in two major issues. The first issue is the adoption of a "collective arrangement" between NEAFC and OSPAR to formalize cooperation and coordination of actions between two organizations with different legal mandates. The second one is the identification of candidate areas for nomination as “Ecologically or Biologically significant marine Areas” (EBSAs). EBSAs are a process initiated by the Convention on Biological Diversity (CBD), which relies on regional mandate for identifying such areas. PECMAS is the NEAFC interlocutor for these two international organizations. (Pg 118)</p>	
Outcome: CSU/BBNJ	1	<p>Source 1: (72.2% Cullis-Suzuki and Pauly ‘performance in practice’ score)</p>	<p>Source 1: Cullis-Suzuki, S., & Pauly, D. (2010). <i>Failing the high seas: A global evaluation of regional fisheries management</i></p>

			<p>organizations. Marine Policy, 34(5), 1036–1042.</p> <p>https://doi.org/10.1016/j.marpol.2010.03.002</p>
	1	<p>Source 2: In their comparative analysis of RFMO management of demersal species, Bell <i>et al</i> (2019) applied three assessments of how effectively RFMOs had adopted mitigation measures to prevent significant impacts on vulnerable marine ecosystems. These assessments examined the relative performance of RFMOs against their ability to implement management measures (‘capacity’), the number and effectiveness of measures implemented (‘action’), and the intensity and spatial extent of activities regulated (‘need’). NEAFC was consistently amongst the highest scoring organizations for capacity and action, with commensurately low scores in need (<i>this corresponds with the higher level of actions taken, reducing need</i>)</p>	<p>Source 2: Bell, J. B., Guijarro-Garcia, E., & Kenny, A. (2019). Demersal Fishing in Areas Beyond National Jurisdiction: A Comparative Analysis of Regional Fisheries Management Organisations. <i>Frontiers in Marine Science</i>, 6. https://doi.org/10.3389/fmars.2019.00596</p>
	1	<p>Source 3: NEAFC has closed important areas to bottom fishing to allow species and habitat recovery</p>	<p>Source 3: Gianni, M Fuller, S.D., Currie, D, Schleit, K, Goldsworthy, L, Pike, B, Weeber, B, Owen, S, Friedman, A. <i>How Much Longer Will it Take? A Ten-Year Review of the Implementation of United Nations General Assembly Resolutions 61/105, 64/72 and 66/68 on the Management of Bottom Fisheries in Areas beyond National Jurisdiction</i>, 2016</p>
	1	<p>Source 4: NEAFC has clearly demonstrated the ability to set management measures for the responsible management of the fish stocks for which it has competence. The main stumbling block for full success in adopting comprehensive management measures for all the relevant fish stocks is the inability of the Contracting Parties and primarily the Coastal States in some cases to agree on an allocation key. In other words, while they usually agree on how much should be caught, the Coastal States and Contracting Parties sometime disagree on how to share that catch among themselves. (Pg21). The primary pelagic stocks regulated by NEAFC are considered to be in relatively good shape and/or recovering from overexploitation. (Pg30)</p>	<p>Source 4: NEAFC Performance Review (2014)</p>

		In addition to the regime regarding bottom fisheries closures, NEAFC has a number of measures relating to biodiversity and ecosystem considerations. These include area management regulations (species-specific closure areas), seasonal closures (to protect spawning species or juveniles) and prohibitions to fish with certain gear. (Pg36-37) –	
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Notes

- The NAFO and NEAFC convention areas cover ABNJ and EEZ; however, their regulatory areas cover only ABNJ. With the consent of relevant coastal States, these RFMOs also establish measures within those States' EEZ.
- Although established prior to the UNECD and UNFSA, the contracting parties to the North-East Atlantic Fisheries Convention (NEAFC) took the voluntary decision in 2005 to retrospectively incorporate these concerns into their management regime.

NPAFC

The North Pacific Anadromous Fish Commission (NPAFC) is an inter-governmental organization established by the Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean. The Convention was signed on February 11, 1992, and took effect on February 16, 1993. The objective of the Commission is to promote the conservation of anadromous stocks (Pacific salmon and steelhead trout) in the Convention Area. The Convention Area includes the international waters of the North Pacific Ocean and its adjacent seas north of 33° North beyond the 200-mile zone (exclusive economic zones) of the coastal States.

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	0.5	Source 1: Parties to UNCLOS (1994), UN FSA (1995) and FAO Code of Conduct (1995) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information; FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data; and FAO Code of Conduct for Responsible Fisheries (1995) Article 12 (Fisheries research).	Source 1: UNCLOS (1994), UNFSA (1995), FAO (1995)
	0.5	Source 2: Following a recommendation from the 2010 performance assessment, progress was made in synthesising and preparing NPAFC Unified Statistical Data Files, which (from 2014) are now uploaded on the Commission's website	Source 2: List of Actions on Prioritized Recommendations from the NPAFC Performance Review Report (updated June 2022) https://npafc.org/wp-content/uploads/confidential/enfo_members/List-of-Actions-on-Prioritized-Recommendations-2022.pdf
	0.5	Source 3: During 2019 the IYS expedition collected valuable data on macro-and microplastic distribution in the Gulf of Alaska. In 2022, the Pan-Pacific High Seas Research Expedition continued this microplastics study. NPAFC has also - under the auspices of the Data Mobilisation Project – worked with partners to make salmon data discoverable, accessible, and reusable.	Source3: <i>Results of the 2021 Survey on Collaboration between Regional Seas Organizations (RSOs) and Regional Fishery Bodies (RFBs).</i> Virtual Intersessional Workshop for the Sustainable Ocean Initiative Global

			Dialogue with RSOs and RFBs 29 September - 1 October 2021
Condition 2: INC-STAKE	-	Source 1: Not assessed as part of Clark <i>et al</i> (2015) combined transparency assessment score	-
	0.5	Source 2: Under the NPAFC Rules of Procedure, Contracting Parties are entitled to be accompanied by advisers, experts and observers to public sessions of the Commission. INGOs can be invited as Observers by the Commission subject to consensus agreement by all Parties.	Source 2: NPAFC Rules of Procedure, 1993 - https://npafc.org/wp-content/uploads/Public-Documents/Handbook/Handbook-3rd-E-RoP-Only-English.pdf
	0	Source 3: In the North Pacific Anadromous Fish Commission (NPAFC) Performance Review Panel Report (10 September 2010), the Commission were invited to consider reducing the notice period for allowing observers to participate in meeting, and other ways in “ <i>which to make the Commission more open to individuals or representatives of other organisations</i> ”.	Source 3: North Pacific Anadromous Fish Commission (NPAFC) Performance Review Panel Report 10 September 2010 - https://npafc.org/wp-content/uploads/Performance-Review-Report.pdf
Condition 3: ADAPT	0	Source 1: A performance assessment was conducted of regional fisheries management organizations’ (RFMOs’) bycatch governance, one element of an ecosystem approach to fisheries management. Scoring was applied over five criteria, including management measures, use of data and surveillance, with NPAFC scoring below the mean (<25%)	Source 1: Gilman, E., Passfield, K., Nakamura, K. (2014) <i>Performance of regional fisheries management organizations: ecosystem-based governance of bycatch and discards</i> . Fish and Fisheries, 2014, 15, 327-351.
	0.5	Source 2: The primary goal of the NPAFC Science Plan (2016-2022) is to understand variations in Pacific salmon productivity in a changing climate, and to use that understanding to promote the conservation of anadromous populations in the North Pacific Ocean, allow for better forecasts of salmon production trends in the future, and enhance the sustainable fisheries management, food security, and economic security in member nations	Source 2: The Science Sub-Committee (SSC). 2016. <i>North Pacific Anadromous Fish Commission Science Plan 2016–2022</i> . NPAFC Doc. 1665 (Rev. 1). 8 pp. The Science Sub-Committee (SSC), the Committee on Scientific Research and Statistics (CSRS) (Available at https://npafc.org).
Condition 4: MPC	0.5	Source 1: NPAFC also has a formal working arrangement (MoU, joint working groups) with WCPFC	Source 1: FAO (2020)
	0.5	Source 2: NPAFC has worked to increase bilateral/multilateral partnerships/projects, e.g., the Pan-Pacific Fisheries Compliance Network	Source 2: <i>Results of the 2021 Survey on Collaboration between Regional Seas Organizations (RSOs) and Regional Fishery Bodies (RFBs)</i> . Virtual Intersessional Workshop

			for the Sustainable Ocean Initiative Global Dialogue with RSOs and RFBs 29 September - 1 October 2021
	1	Source 3: NPAFC is part of the North Pacific Partnership which includes PICES, NPAFC and NOWPAP. NPAFC has formal MoUs with PCIES, WCPFC and NPFC, and an agreement with ICES is under development. The International Year of the Salmon (2016-22) programme is governed by NASCO and NPAFC, and engages more than 40 partners from academia, NGOs and indigenous peoples' organisations across NPAFC member countries.	Source 3: Sustainable Ocean Initiative (2021) <i>Intersessional Workshop for the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organisations and Regional Fishery Bodies</i> (29 September-1 October 2021). Organised by the Convention for Biological Diversity (CBD) Secretariat, in collaboration with FAO, UNEP and Republic of Korea Ministry of Oceans and Fisheries. Annex 3
Outcome: CSU/BBNJ	1	Source 1: (77.8% Cullis-Suzuki and Pauly 'performance in practice' score)	Source 1: Cullis-Suzuki, S., & Pauly, D. (2010). <i>Failing the high seas: A global evaluation of regional fisheries management organizations</i> . Marine Policy, 34(5), 1036–1042. https://doi.org/10.1016/j.marpol.2010.03.002
	1	Source 2: The NPAFC Convention prohibits directed fishing for Pacific salmon and steelhead trout in Convention waters, except for scientifically reviewed and approved research fishing. The five member countries (Canada, Japan, the Republic of Korea, the Russian Federation, and the United States of America) conduct directed fisheries and stock enhancement activities within their own waters, and they report salmon and steelhead catch and enhancement statistics to NPAFC.	Source 2: NPAFC website https://npafc.org/about/

NPFC

Informal consultations on the formation of a new Commission to address the gap in management of fisheries issues in the North Pacific Ocean commenced in 2006 and after formal consultations and preparatory conferences the *Convention on the Conservation and Management of the High Seas Fisheries Resources in the North Pacific Ocean* was adopted on 24th February 2012 and came into force 180 days after receipt of the 4th ratification on 19 July 2015. The *objective of the Convention* is to ensure the long-term conservation and sustainable use of the fisheries resources in the Convention Area while protecting the marine ecosystems of the North Pacific Ocean in which these resources occur.

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	0.5	Source 1: Parties to UNCLOS (1994), UN FSA (1995) and FAO Code of Conduct (1995) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information; FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data; and FAO Code of Conduct for Responsible Fisheries (1995) Article 12 (Fisheries research).	Source 1: UNCLOS (1994), UNFSA (1995), FAO (1995)
	1	Source 2: The Scientific Committee (and its Technical Working Groups) regularly plan, conduct and review the scientific assessments of the status of fisheries resources in the Convention Area, identify actions required for their conservation and management, and provide advice and recommendations to the Commission	Source 2: North Pacific Fisheries Commission Scientific Committee 2021-2025 Research Plan - https://www.npfc.int/system/files/2021-03/SC%20Research%20and%20Work%20Plans.pdf
Condition 2: INC-STAKE	1	Source 1: Article 18 (Transparency) of the Convention requires that the Commission promote transparency in its decision-making processes and other activities. Representatives from intergovernmental organizations and non-governmental organizations concerned with matters relevant to the implementation of this Convention shall be afforded the opportunity to participate in the meetings of the Commission and its subsidiary bodies as observers or otherwise as members of the Commission deem appropriate	Source 1: NPFC Convention on the Conservation and Management of High Seas Fisheries Resources in the North Pacific Ocean

		and as provided for in the Rules of Procedure that the Commission shall adopt. The procedures shall not be unduly restrictive in this respect.	
		The intergovernmental organizations and non-governmental organizations shall be given timely access to pertinent information subject to the rules and procedures that the Commission may adopt. Any conservation, management and other measures or matters that are decided by the Commission or subsidiary bodies shall be made publicly available unless otherwise decided by the Commission.	
	1	Source 2: The NPFC routinely invites expert stakeholders to advise on improvements to processes (e.g. a meeting of the Technical Working Group took place in 2020, involving invited experts and NGOs and agreeing actions to continue stakeholder engagement on the development of management strategy evaluation tools (MSE))	Source 2: NPFC Yearbook 2020 – https://www.npfc.int/system/files/2021-05/2020%20Yearbook.pdf p27-28
Condition 3: ADAPT	1	Source 1: Specific mention of ecosystem approach in RFMO convention	Source 1: RFMO treaties that refer to the precautionary and ecosystem approach (Table 3) p15 in Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). <i>Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017</i> . https://doi.org/10.4060/ca7843en .
	1	Source 2: Article 10 (Scientific Committee) of the Convention, para 4 (d-h) requires that the Committee assess the impacts of fishing activities on fisheries resources and species belonging to the same ecosystem or dependent upon or associated with the target stocks; develop a process to identify vulnerable marine ecosystems, including relevant criteria for doing so, and identify, based on the best scientific information available, areas or features where these ecosystems are known to occur, or are likely to occur, and the location of bottom fisheries in relation to these areas or features, taking due account of the need to protect confidential information, and review any assessments, determinations and management measures and make any necessary recommendation in order to attain the objective of this Convention	Source 2: NPFC Convention on the Conservation and Management of High Seas Fisheries Resources in the North Pacific Ocean

	0	Source 3: Combined score (across management measures relevant to adaptive management in ‘Ability to Achieve’ and ‘Ecological Well-being’ categories)	Source 3: Fletcher, W.J. 2020. <i>A review of the application of the FAO ecosystem approach to fisheries (EAF) management within the areas beyond national jurisdiction (ABNJ)</i> . Rome, FAO. https://doi.org/10.4060/cb1509en
Condition 4: MPC	1	Source 1: A Memorandum of Cooperation exists between NPAFC and NPFC. In addition, the Commissions agreed to develop a five-year work plan that identifies key activities, timelines and deliverables. The MoC recognized participation in scientific research activities of mutual benefit as one the mechanisms for enhanced collaboration between the Commissions.	Source 1: NPFC website - https://www.npfc.int/cooperation-between-npfc-and-npafc
	1	Source 2: A joint PICES-NPFC Study Group for Scientific Cooperation in the North Pacific Ocean (PICES-NPFC SG) exists, guided by a framework to enhance collaboration between the two organizations. The Framework identifies three broad areas of joint interest to PICES and the NPFC: (i) support for stock assessment for priority species; (ii) vulnerable marine ecosystems; and (iii) ecosystem approach to fisheries.	Source 2: NPFC–PICES Framework for Enhanced Scientific Collaboration in the North Pacific https://www.npfc.int/system/files/2019-08/NPFC%E2%80%93PICES%20Framework%20for%20Enhanced%20Scientific%20Collaboration.pdf
Outcome: CSU/BBNJ	1	Source 1: In their comparative analysis of RFMO management of demersal species, Bell <i>et al</i> (2019) applied three assessments of how effectively RFMOs had adopted mitigation measures to prevent significant impacts on vulnerable marine ecosystems. These assessments examined the relative performance of RFMOs against their ability to implement management measures (‘capacity’), the number and effectiveness of measures implemented (‘action’), and the intensity and spatial extent of activities regulated (‘need’). NPFC was consistently amongst the highest scoring organizations for capacity and action, with commensurately low scores in need (<i>this corresponds with the higher level of actions taken, reducing need</i>)	Source 1: Bell, J. B., Guijarro-Garcia, E., & Kenny, A. (2019). Demersal Fishing in Areas Beyond National Jurisdiction: A Comparative Analysis of Regional Fisheries Management Organisations. <i>Frontiers in Marine Science</i> , 6. https://doi.org/10.3389/fmars.2019.00596
	0	Source 2: According to Elliot’s (2020) study, NPFC received one of the lowest scores (across RFMOs) in relation to bycatch mitigation effort.	Source 2: Elliot, B. 2020. <i>A Review of Regional Fisheries Management Organization Efforts in Addressing Cetacean Bycatch: Report to the International Whaling Commission</i> . Paper CC/68A/06.4.2/01

SIOFA

SIOFA was adopted in 2006 and entered into force in 2012. It concerns the management of fishery resources on high-sea areas in the southern part of the Indian Ocean, excluding sedentary species and highly migratory species listed in Annex I of UNCLOS. Its objective is to ensure the long-term conservation and sustainable use of the resources under its auspices, through regular studies of the fish stocks and the impact of fishing on the environment as well as the implementation of conservation and management measures. (Løbach, *T et al*, 2020)

Theoretical conditions of effectiveness and outcome	<u>Initial</u> calibration score	Rationale	References/sources
Condition 1: DATA	0.5	Source 1: Parties to UNCLOS (1994), UN FSA (1995) and FAO Code of Conduct (1995) are obliged to have regard to UNCLOS Part XII (on the Protection and preservation of the marine environment), Section 2, Art.200 on Studies, research programmes and exchange of information; FSA (1995) Art.5 (b) scientific evidence, (d) data-driven assessment of fish stocks and (j) catch data; and FAO Code of Conduct for Responsible Fisheries (1995) Article 12 (Fisheries research).	Source 1: UNCLOS (1994), UNFSA (1995), FAO (1995)
	1	Source 2: The SIOFA Secretariat receives data submissions from Contracting Parties on their fishing activities, biological sampling, observer reports as per CMM 2021/02 (Conservation and Management Measure for the Collection, Reporting, Verification and Exchange of Data relating to fishing activities in the Agreement Area). The SIOFA databases include ‘Aggregated Catch Effort’, which contains catch (and sometimes effort) aggregated at different spatial resolutions, varying from the whole SIOFA area to 20’ squares, from 2000 to 2019 – ‘HBH Catch Effort’, which contains haul-by-haul catch and effort at a spatial accuracy varying from degrees to seconds, from 1998 to 2020 and ‘Observer’, which contains observer-collected biological sampling and operational data, from 2012 to 2020	Source 2: Overview of SIOFA fisheries 2022 http://apsoi.org/sites/default/files/files/Overview%20of%20SIOFA%20Fisheries%202022_0.pdf

Condition 2: INC-STAKE	-	Source 1: Not assessed as part of Clark <i>et al</i> (2015) combined transparency assessment score ¹⁵⁴	-
	1	Source 2: The Meeting of the Parties (to SIOFA) is open to official and NGO observers. At the 7th MoP (2020), new non-Contracting Party observers were welcomed (USA) alongside the Environmental Justice Foundation as a new non-governmental organisation observer. The Meeting of the Parties also welcomed the following longstanding observers to SIOFA: UN Food and Agriculture Organization, the Southwest Indian Ocean Fisheries Commission, the Commission for the Conservation of Antarctic Marine Living Resources, the Agreement on the Conservation of Albatrosses and Petrels, the Southern Indian Ocean Deepsea Fishers Association and the Deep Sea Conservation Coalition.	Source 2: Minutes of the 7 th Meeting of the Parties (MoPs) to SIOFA - http://www.apsoi.org/sites/default/files/documents/meetings/SIOFA%20MoP7%20adopted%20report.pdf
	1	Source 3: Article 14 (Transparency) of the SIOFA Agreement requires Contracting Parties to “promote transparency in decision making processes and other activities carried out under this Agreement”.	Source 3: The final Act of the Conference on the Southern Indian Ocean Fisheries Agreement(the ‘SIOFA Agreement’) http://www.apsoi.org/node/3
Condition 3: ADAPT	1	Source 1: Specific mention of ecosystem approach in RFMO convention	Source 1: RFMO treaties that refer to the precautionary and ecosystem approach (Table 3) p15 in Løbach, T., Petersson, M., Haberkon, E., & Mannini, P. (2020). <i>Regional Fisheries management organisations and advisory bodies: Activities and developments, 2000-2017</i> . https://doi.org/10.4060/ca7843en .
	0	Combined score (across management measures relevant to adaptive management in ‘Ability to Achieve’ and ‘Ecological Well-being’ categories)	Source 4: Fletcher, W.J. 2020. <i>A review of the application of the FAO ecosystem approach to fisheries (EAF) management within the areas beyond national jurisdiction (ABNJ)</i> . Rome, FAO. https://doi.org/10.4060/cb1509en

¹⁵⁴ At the time of the 2015 study SIOFA (a relatively new agreement, established in 2012) did not have a website and there was not enough publicly available information to complete the questionnaire for the organization so it was removed from the analysis.

Condition 4: MPC	0.5	Source 1: SIOFA also has a formal working arrangement (MoU, joint working groups) with CCAMLR	Source 1: FAO (2020)
	0.5	Source 2: Collaboration can be identified between a number of regional bodies active in the fisheries and environmental management incl. the Nairobi Convention, IOTC, SWIOFC, SIOFA, WIOMSA, and a number of Regional Economic Communities and IGOs.	Source 2: Sustainable Ocean Initiative (2021) <i>Intersessional Workshop for the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organisations and Regional Fishery Bodies</i> (29 September-1 October 2021). Organised by the Convention for Biological Diversity (CBD) Secretariat, in collaboration with FAO, UNEP and Republic of Korea Ministry of Oceans and Fisheries. Annex 3
	1	Source 3: The SIOFA Convention text requires that Contracting Parties “ <i>Shall cooperate closely with other international fisheries and related organisations in matters of mutual interest, in particular SWIOFC and any other regional fisheries management organisation with competence over the High Seas waters adjacent to the Area</i> ”	Source 3: SIOFA Convention, Article 16
Outcome: CSU/BBNJ	0	Source 1: In their comparative analysis of RFMO management of demersal species, Bell <i>et al</i> (2019) applied three assessments of how effectively RFMOs had adopted mitigation measures to prevent significant impacts on vulnerable marine ecosystems. These assessments examined the relative performance of RFMOs against their ability to implement management measures (‘capacity’), the number and effectiveness of measures implemented (‘action’), and the intensity and spatial extent of activities regulated (‘need’). SIOFA fell below the 0.5 performance threshold across several of the assessments.	Source 1: Bell, J. B., Guijarro-Garcia, E., & Kenny, A. (2019). Demersal Fishing in Areas Beyond National Jurisdiction: A Comparative Analysis of Regional Fisheries Management Organisations. <i>Frontiers in Marine Science</i> , 6. https://doi.org/10.3389/fmars.2019.00596
	1	Source 2: The SIOFA Convention Article 6 acknowledges the need to adopt conservation and management measures which take into account the need to protect marine biodiversity. In 2018, SIOFA declared five new Protected Areas in the high seas at its 5th Meeting of the Parties (MoP5). These closures apply only to bottom trawling and do not cover other fishing gear such as bottom long lining and trap fisheries which,	Source 2: SIOFA 5th meeting of the Parties, https://www.iucn.org/news/marine-and-polar/201807/progress-southern-indian-ocean-towards-better-protection-biodiversity-high-seas

		nevertheless, will have the obligation to have observers on board 100% of the time if fishing in the designated areas.	
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