



Connecting SDG 14 with the other Sustainable Development Goals through marine spatial planning

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A B S T R A C T

This article endeavours to contribute to the growing body of scholarship on SDG linkages by placing at the centre of its focus SDG 14 on the “conservation and sustainable use of the oceans, seas and marine resources for sustainable development.” This article conceptualises the intricate interconnections between SDG 14 and other Goals based on the diverse benefits provided to humankind by marine ecosystems (in other words, through an ecosystem services lens). It explores how this understanding may facilitate the transition to an “environment for well-being” approach to development through marine spatial planning (MSP), on the basis of emerging international guidance under the Convention on Biological Diversity (CBD). By bringing marine ecosystem services and MSP into the discussion on SDG linkages, this article seeks to investigate the role of the ecosystem approach, and of fair and equitable benefit-sharing within it, in fostering participatory knowledge production, data-gathering and -sharing, mapping, strategic assessment and area-based management in the context of intensifying uses, multiple scales, needs and values around the marine environment. The article will assess to what extent MSP, building upon these tools and drawing on ecosystem services mapping, should be used to promote equity and prevent conflicts between stakeholders with contradictory demands for marine space and ecosystem services, with a view to enhancing synergies between SDG 14 and other SDGs.

1. Setting the scene

Internationally agreed goals and targets are increasingly accepted as having a significant political and instrumental value, insofar as they provide a “globally shared normative framework” that complements international conventions and other tools of international law by catalysing action, mobilising stakeholders and fostering collaboration between the members of the international community [1, p. 9]. Based on this rationale [2], the outcome document of the 2012 UN Conference on Sustainable Development (UNCSD or Rio + 20) called for an inclusive and transparent intergovernmental process for elaborating a set of action-oriented and universally applicable goals on sustainable development. The elaboration of these goals was expected to build upon and contribute to the implementation of the outcomes of major sustainable development summits [3, paras 245–252], ensuring fair, equitable and balanced geographical representation, as well as the involvement of all relevant stakeholders, including civil society, the scientific community and the UN system [3, para 248]. Ultimately, 17 Sustainable Development Goals (SDGs) and 169 targets were integrated into the 2030 Sustainable Development Agenda [4], intended as a driver for realizing

and mainstreaming sustainability throughout the UN system as a whole [3, para 246].

The SDGs represent a significant departure from the Millennium Development Goals (MDGs) in terms of substantive, as well as geographical, reach [5–7]. Whereas the MDGs were predominantly ‘social’ in nature, endeavouring to reduce poverty and galvanise human development in developing States [8], the SDGs “aim to cover the whole sustainable development universe, which includes basically all areas of the human enterprise on Earth” [9, p. 11]. This is particularly evident in the fact that environmental sustainability, rather than being relegated into one goal,¹ now spans across several SDGs that are explicitly targeting major global environmental issues, including SDG 6 (clean water and sanitation), SDG 13 (climate action), SDG 14 (life below water), and SDG 15 (life on land) [10].

However, even though the SDGs were presented as an “integrated and indivisible” whole that strikes a balance between the three dimensions of sustainable development [4], early commentators observed that the overall level of integration achieved was significantly lower than what was aimed for throughout the goal-framing process [10,11]. The Goals were thus widely regarded as a ‘siloed’ list of thematic,

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¹ See MDG 7, ‘Ensure Environmental Sustainability’, found at: <http://www.un.org/millenniumgoals/environ.shtml> (Accessed 5 June 2017).

equally significant global priorities, many of which do not adequately account for all three dimensions of sustainability or provide a representative depiction of the multifaceted interactions between the issues addressed [9,10,12]. Some attributed this compartmentalisation to the manner in which the SDGs were negotiated, whereby constellations of relatively narrow actionable targets gradually formed around overarching, aspirational objectives, with little attention being paid to the latter's inherent intersectorality [13]. Others ascribed it to the fragmented political and institutional realities that underpin national, regional and international systems [10].

A common thread running through many of these early commentaries is the view that the persistence of silos risks undermining the internal consistency of the 2030 Agenda and, by extension, its transformational potential, i.e. its ability to articulate a compelling “narrative of change” that captures the drivers of — as well as the systemic and structural barriers to — the transformation sought [10]. This could ultimately jeopardise the capacity of the 2030 Agenda for serving as a normative framework to catalyse action towards sustainable development [10,12,14]. Growing efforts have therefore been devoted to map out the complex interactions between the social, economic and environmental dimensions of sustainability both *across* and *within* the individual SDGs [15, p. 1], and to identify existing, as well as potential linkages among the Goals with a view to stimulating synergies and overcoming perceived trade-offs [16].

This article endeavours to contribute to the growing body of scholarship on SDG linkages by placing at the centre of its focus SDG 14 on the “conservation and sustainable use of the oceans, seas and marine resources for sustainable development.” It has been argued that SDG 14 largely revolves around environmental considerations, falling short of addressing the wide range of socioeconomic issues raised throughout the goal-framing process [17, pp. 4–6]. In response to this claim, this article conceptualises the intricate interconnections between SDG 14 and other Goals based on the diverse benefits provided to humankind by marine ecosystems (in other words, through an ecosystem services lens). It explores how this understanding may facilitate the transition to an “environment for well-being” approach to development [18, p. 123] through marine spatial planning (MSP), on the basis of emerging international guidance under the Convention on Biological Diversity (CBD).²

By bringing marine ecosystem services and MSP into the discussion on SDG linkages, this article seeks to investigate the role of the ecosystem approach [19], and of fair and equitable benefit-sharing within it [20], in fostering participatory knowledge production, data-gathering and -sharing, mapping, strategic assessment and area-based management in the context of intensifying uses, multiple scales, needs and values around the marine environment. The article will assess to what extent MSP, building upon these tools and drawing on ecosystem services mapping, should be used to promote equity and prevent conflicts between stakeholders with contradictory demands for marine space and ecosystem services, with a view to enhancing synergies between SDG 14 and other SDGs.

2. SDG 14: a compelling narrative of change for the world's oceans?

Despite widespread international recognition of the role played by the ocean in the realisation of each of the three pillars of sustainable development [3, para 158, 21], SDG 14 seems to emphasize environmental protection [22,23], without adequately factoring in the contribution of the ocean to poverty alleviation (SDG 1) [18, p. 123], the fight against hunger (SDG 2)³ and human health (SDG 3).

Consequently, even though the explicit incorporation of the ocean into a stand-alone SDG can be hailed as a much-needed step forward compared to the MDGs, SDG 14 may ultimately fall short of addressing the limitations of traditional, sector-specific approaches to marine management [25] and the chronic fragmentation of international ocean governance [26].

The SDG 14 targets and means of implementation (MoIs) that feature an explicit socioeconomic component can be grouped into two categories. First, commitments aimed at furthering the process of sustainable development in developing States include target 14.7, which calls for increasing the economic benefits accruing to Small Island Developing States (SIDS) and least developed countries (LDCs) from the sustainable use of marine resources, and MoI 14.a, which provides for increasing scientific knowledge, building research capacity and transferring marine technology, with a view to enhancing the contribution of marine biodiversity to the development of developing States [27]. The second category encompasses commitments relating to the sustainable development of the fisheries sector. It includes target 14.6, which provides for “appropriate and effective special and differential treatment” of developing States and LDCs in negotiating limitations to harmful fisheries subsidies, and MoI 14.b, which calls for the provision of access to marine resources and markets to small-scale artisanal fishers.⁴ These significant targets and MoIs may, however, arguably embody a rather narrow transformational vision, focusing either on the needs of developing States or the sustainable development of a single economic sector, while failing to incorporate multifaceted elements such as participatory coastal management, gender equality and human rights [5], which were repeatedly highlighted during the goal-setting process (e.g., [28]).

Human rights, in particular, were considered as a means of enhancing accountability for the implementation of the legal and regulatory framework that has evolved around the UN Convention on the Law of the Sea (UNCLOS),⁵ as well as an essential element of any future effort to strengthen the “unfinished business” of MDG 8 on effective and just global governance systems [29]. Human rights agreements were also mentioned during the SDG negotiations as a means of ensuring that the designation of marine protected areas (MPAs) does not harm local communities, and that the regulation of ocean-based economic activities is conducive to the protection of the rights of women and children, indigenous peoples, migrants and refugees, and other at-risk and marginalised groups [7,29–34]. Even without explicit references to human rights standards, however, Knox has remarked that SDG 14 could provide the substantive environmental standards to determine whether States fulfil their international obligations to protect against human rights interference arising from environmental harm, and whether an acceptable balance between environmental protection and economic development has been achieved [35]. Such a reading implies proactively interpreting those SDG 14 targets that reiterate existing international commitments in conformity with the equity dimension of relevant international normative guidance.⁶

More systematic efforts to connect SDG 14 and other SDGs appear necessary to achieve the widest possible range of co-benefits and multiplier effects, thus enhancing across-the-board synergies [37]. A growing number of commentators are suggesting that efforts to connect the SDGs are more effective when they go beyond a “political

⁴ The emphasis placed on the socioeconomic dimension of the fisheries sector is also evident in SDG 2 (zero hunger), target 2.3, which calls for doubling the productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to productive resources and inputs, knowledge, financial services, markets, and opportunities for value addition.

⁵ United Nations Convention on the Law of the Sea, 21 ILM 1261 (1982) (hereinafter, UNCLOS).

⁶ Such is the case of target 14.5, which echoes the provisions of Aichi Biodiversity Target 11 for the conservation of at least 10% of marine and coastal areas through the establishment of MPAs by 2020: CBD [36].

² Convention on Biological Diversity, 31 ILM 818 (1992) (hereinafter, the CBD).

³ Fisheries and aquaculture provide at least 50% of animal protein to millions of people in low-income countries: FAO [24, p. 5].

mapping” focusing solely on the text of the 2030 Agenda [9, pp. 13, 14]. Instead, a conceptual framework that places the emphasis on the biophysical or socioeconomic factors that influence the substantive complementarity of different targets is better equipped to showcase the full spectrum of scientifically meaningful interconnections between the SDGs [13,38,39]. In the case of SDGs 1 (no poverty) and 14, for instance, such an approach more readily reveals that healthy and resilient oceans and sustainable use of marine resources are a prerequisite for ocean ecosystem services to contribute to the alleviation of income poverty and multidimensional poverty, environmentally sustainable economic growth, and human well-being in coastal communities [40].

In response to this conceptual approach, this article argues that existing knowledge on the wide range of benefits that humans derive from the ocean, as well as the contribution of these benefits to sustainable development, can be incorporated into the discourse surrounding SDG linkages in a more concerted fashion. To this end, the article proposes that, as a participatory tool for integrated marine management, MSP should be explored as a mechanism for mainstreaming considerations regarding equity and the synergistic pursuit of the SDGs into relevant decision-making processes and strategic frameworks for action. The timeliness of this line of inquiry is evidenced by the recent adoption by the Directorate General for Maritime Affairs and Fisheries of the European Commission (DG MARE) and the Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO) of a Joint Roadmap to accelerate MSP processes at the global level [41], which was submitted as a joint voluntary commitment to the UN Ocean Conference [42].

3. SDG synergies through marine spatial planning

The finite nature of marine resources can give rise to two distinct types of conflicts: ‘user vs user’ conflicts, which occur when the uses of ocean space required for the development of different maritime sectors are incompatible or have adverse effects on each other; and ‘user-environment’ conflicts, which arise from the cumulative impacts of anthropogenic activities on the marine environment, especially with regard to the degradation of water quality and the loss of marine habitats [43]. The fact that such conflicts have traditionally been dealt with reactively and on an *ad hoc*, sectoral basis has prompted commentators to argue that the deteriorating state of the marine environment is largely attributable to a “failure of governance” [44, p. 3]. As “an instrument for managing other instruments of governance” [44, p. 5], MSP holds the potential to catalyse the elaboration and implementation of integrated management approaches that address the cumulative and interactive consequences of human activities over space and time [45], thus contributing to the “[maximization and conservation of] ecosystem services” [46, p. 44]. MSP has thus transcended its origins as a conservation-oriented instrument whose goal was first and foremost to facilitate the designation of MPAs, and is now being used by a growing number of States as a mechanism for expediting and streamlining the synergistic implementation of sectoral policies [47] in a manner that fosters “a more rational and wise use of limited ocean space” [48, p. 157].⁷ In effect, MSP is now most commonly defined as “a public process of analysing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives that usually have been specified through a political process” [43, p. 18].

As an integrated, area-based management tool in itself [50], multi-objective MSP is also increasingly acknowledged as one of the most pragmatic options for implementing the ecosystem approach [51].⁸ Accordingly, this article suggests that recent normative developments under the CBD, which highlight the reliance of the ecosystem approach

on ecosystem services and on fair and equitable benefit-sharing, may serve as guidance for integrating equity considerations into MSP processes, with a view to strengthening the implementation of SDG 14 in synergy with other Goals. As a prelude to this analysis, the subsequent section provides an overview of the basic concepts that have emerged from the ecosystem services debate of the past two decades, and highlights some key parameters of policy and scholarly attempts to link ecosystem services to MSP.

3.1. Ecosystem services and SDGs

The influential paper published by Costanza et al. in 1997 suggested that the services derived from natural capital are not fully ‘captured’ in commercial markets or adequately quantified in terms comparable with economic services and manufactured capital, which leads to their being given too little weight in political decision-making [52]. The authors’ conservative estimate of the total value of the services provided by the biosphere amounted to US\$33 trillion per year, which was 1.8 times the global gross national product (GNP) at the time. This striking number is largely thought to have kick-started the popularisation of the concept of ‘ecosystem services’ and a concerted effort by scientists, economists and policy-makers to attribute (monetary) values to the diverse benefits provided to humans by natural systems, with a view to better integrating environmental and socioeconomic interdependencies into regulatory and management tools and processes [53].

At the same time, Costanza et al.’s study stirred a considerable amount of controversy in both academic and policy circles [54]. Critics consider that the valuation of ecosystem services and the subsequent employment of market-based mechanisms to ensure the continuity of their provision may lead to the privatisation or commodification of nature [55,56]. Critics have also voiced concerns over the accuracy and practicality of the attributed economic values, which have been deemed too high and difficult to translate into meaningful policy instruments [57]. Perhaps the most oft-raised criticism is the one rooted in the realm of environmental ethics, which assumes the existence of a conflict between, on the one hand, a ‘biocentric’ paradigm that gives precedence to the intrinsic values of nature, and, on the other, a ‘utilitarian’ (anthropocentric) paradigm, whereby ecosystems have value to human societies only insofar as people derive utility from their use, whether directly or indirectly [55,58,59]. Deep ecologists have criticised the ‘ecosystem services’ concept for being based on the latter paradigm, thus failing to value and protect nature “for nature’s sake” [56].

Despite the contestation it was met with, the economic calculus devised by Costanza et al. and other proponents of the environmental economics school was quick to transition into mainstream scientific and political thinking [60]. A significant milestone came in 2001, when former UN Secretary-General Kofi Annan launched the Millennium Ecosystem Assessment, i.e. a four-year international work program designed to meet the needs of decision-makers for scientific information on the links between ecosystem change and human well-being. The conceptual framework put forward by the Assessment endorsed the utilitarian value paradigm, defining ecosystem services as the “benefits that humans obtain from ecosystems” [61, p. 4]. Based on their functional contribution to human welfare, ecosystem services were further classified into four categories, namely, provisioning (e.g., food and water); regulating (e.g., regulation of floods, drought, land degradation, and disease); supporting (e.g., soil formation and nutrient cycling); and cultural (e.g., recreational, spiritual, religious and other nonmaterial benefits) – a classification that has been consistently upheld by the relevant academic and policy literature.⁹

Human well-being, on the other hand, is defined by the Assessment as a context- and situation-dependent state comprising multiple

⁷ However, it has been observed that the majority of small-scale marine spatial planning initiatives are sectoral in nature and “do not demonstrate a broader commitment to cross-sectoral or ecosystem-based management”: Thomas et al. [49].

⁸ CBD Decision XIII/9, para 2.

⁹ It should, however, be noted that alternative classifications have been proposed, which are thought to better fit the purposes of specific fields such as environmental accounting, landscape management and valuation: Fisher et al. [62], and Hejnovic and Rudd [63].

constituents, including the basic materials for a good life, health, good social relations, security, and freedom of choice and action. These constituents can be distinguished from the “determinants of or means to well-being,” many of which are provided by ecosystem services (e.g. food, fibre, fuel, clean water, materials for shelter, marketed crops, livestock, forest products, and minerals) [61, pp. 73, 74]. Thus understood, human well-being is highly vulnerable to the cascading consequences arising from the degradation of ecosystems and the overexploitation of their living and non-living resources. In turn, the intensity of these consequences depends on a variety of social and personal factors, including geography, ecology, age, gender, and culture [61]. The Assessment concludes that there is a causal relationship between well-being and poverty, as “the wealthy control access to a greater share of ecosystem services, consume those services at a higher *per capita* rate, and are buffered from changes in their availability (often at a substantial cost) through their ability to purchase scarce ecosystem services or substitutes” [61, pp. 4–6]. Human well-being is thus thought to lie at the opposite end of a “multidimensional continuum from poverty” [61, pp. 73, 74, 64].

More than a decade after the publication of the Millennium Ecosystem Assessment, a significant degree of divergence between approaches, methodologies and conceptualisations vis-à-vis ecosystem services still prevails [65]. According to Nahlik et al., the number and the ambiguity of existing definitions has led ‘ecosystem services’ to become a “catchall” phrase that is used interchangeably to signify ecosystem functions or properties, goods, contributions to human well-being, or even economic benefits [57]. However, some commentators have argued that the debate on ecosystem services does not have as its goal the elaboration of a single, consistent system of classification, but a “pluralism of typologies that will each be useful for different purposes” [66, p. 351]. Hermeneutical versatility can be one of the strengths of the ecosystem services concept, allowing it to be contextualized and tailored to different regulatory or managerial objectives. Nevertheless, it remains necessary to develop a shared understanding of the principles associated with the ecosystem services concept and the policy objectives that may benefit from its operationalisation, especially between the stakeholders partaking in the same policy universe. This may allow the ecosystem services doctrine to reach its full potential as an “organising principle to consider multi-scale and cross-sectoral synergies and tradeoffs” [67, p. 69].

In the context of the 2030 Agenda, the relevance of these observations becomes readily apparent, as the achievement of virtually all SDGs depends to varying degrees on the contribution of the processes, products and features of ecosystems to human well-being in its many facets [68]. This is reflected in SDG 15 on terrestrial ecosystems, which appears to have incorporated most of the socioeconomic considerations that were expressed in connection to the joint focus area on oceans – seas and forests – biodiversity, by calling for the integration of “ecosystem and biodiversity values into [...] poverty reduction strategies” (target 15.9). Owing to its capacity to link the mutually interdependent and constantly co-evolving natural and human systems and to account for the absolute reliance of the latter upon the carrying capacity of the former, the concept of ecosystem services may therefore be used to introduce analogous considerations into the implementation of SDG 14. Ecosystem services could thus serve as a guiding concept in the process of identifying linkages and areas of reciprocity between the components of the 2030 Agenda. This proposition is increasingly supported by scholarly and policy literature, where it is argued that the characteristics that make the environment an enabling factor for improving human prosperity – including high diversity, viable populations of service-providing species, and managed variability – are often the same as those needed to meet conservation objectives [18]. The need to strengthen specific ecosystem service-related targets in SDGs 1–3 [18,69] is also reflected in the findings of the First World Ocean Assessment in relation to the dependence of human well-being on the

carrying capacity of the biophysical system [67, p. 68].¹⁰

This article suggests that this relationship should be further scrutinised through the lens of ‘equity’ — an element which was not adequately taken into consideration by the Millennium Ecosystem Assessment [70,71], and still eludes ecosystem services scholarship [65]. The Millennium Ecosystem Assessment indicated that one of the constituents of human well-being is the freedom of choice and action, i.e. the capability to achieve that which an individual values doing and being. However, it considered that the emergence of conflicts and trade-offs between individuals or groups was part of “the sphere of values” and therefore the “realm for decision-makers,” thus falling outside its scope [61, p. 75]. The Assessment thus limited itself to the remark that an appropriate approach to the prevention and mitigation of conflicts and trade-offs relating to ecosystem services would combine the concepts of “equity, sustainability, livelihood, capability, and ecosystem stewardship,” which are related to a “value-based notion of well-being in which socially and ecologically responsible behavior plays a part” [61, p. 75].

3.2. Ecosystem services and marine spatial planning

This tentative proposition can serve as an entry point for reflecting on the link between ecosystem services and MSP. The CBD Secretariat has described MSP as a “planning framework that focuses on the unique and dynamic spatial planning requirements in marine ecosystems to sustain the goods and services society needs or desires from these environments over time” [51, p. 6]. UNESCO’s seminal step-by-step guide to MSP further notes that it can be used “to select appropriate management strategies to maintain and safeguard necessary ecosystem services” [43, p. 19].

Despite the broad recognition of the close connection between ecosystem services and MSP, however, the integration of relevant considerations into the planning process is an issue that scholars and decision-makers are still grappling with. In line with the pervasive perception of MSP as a tool for conflict resolution and consensus-building, some commentators have attempted to illuminate the role of ecosystem services in the emergence of tensions and the forging of synergies between different marine and maritime uses. Lester et al., for instance, remark that ecosystem services “exhibit complex interactions that generate tradeoffs in the delivery of one service relative to the delivery of others” [72, p. 80]. In cases where it is not possible to maximize all interacting services simultaneously, society is forced to hierarchize between different functions and uses of marine space [72]. MSP may thus serve as a future-oriented public process for decision-makers to determine the mix of goods and services that will be produced in a specific marine area, prioritize among them, and safeguard their continuing availability [43].

On the other hand, there is an emerging trend in the MSP scholarship, which questions the assumption that science-based knowledge and broad stakeholder participation will unfailingly deliver rational, adaptive, holistic and consensual solutions to conflicts between incompatible uses of marine space and associated interests [73–75]. Scholars are increasingly noting that MSP is not a neutral process, as it inevitably intervenes in power relations among stakeholders and influences the manner in which benefits and burdens are distributed among them [74]. More specifically, the plurality of images, values and norms by which stakeholders are guided, the instruments that they employ to frame an issue, and the roles to which they are institutionally assigned, can all contribute to the occurrence or exacerbation of power imbalances [74] by “[shaping] the inclusion and exclusion of actors and

¹⁰ The Assessment is a comprehensive report of the findings of the first cycle of the United Nations’ ‘Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects’: <http://www.worldoceanassessment.org/>. (Accessed 5 June 2017).

legitimate topics of MSP processes” [73, p. 133]. Interestingly, using the ecosystem services concept to frame MSP-related information has been identified as a policy choice that “may come with consequences for particular social groups (and will affect how social groups perceive the planning process)” [51, p. 26].

These concerns are reflected in the conceptual framework adopted by the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) in 2017, which uses the term ‘nature’s contributions to people’ to refer to “all the positive contributions or benefits, and occasionally negative contributions, losses or detriments, that people obtain from nature” [76, p. 15].¹¹ This terminology encompasses the Millennium Ecosystem Assessment’s narrative on ecosystem services, but goes further “by explicitly embracing concepts associated with other worldviews on human-nature relations and knowledge systems” [76, pp. 8, 9]. In addition, the IPBES framework defines ‘nature’ as the non-human world, including co-produced features, as well as within the context of other knowledge systems, ‘Mother Earth’ and ‘systems of life’. This plurality allows placing greater emphasis on the “strategic integration of social and ecological spheres” [63, p. 15], and promotes a more inclusive approach to the ecosystem services doctrine, which accounts for differences and commonalities among the perceptions of different societies, and different individuals within them, regarding what constitutes a ‘good quality of life’ [77].

In light of these considerations, a more critical approach towards MSP should acknowledge the challenges that the planning process poses in connection to distributive and procedural fairness, and encourage the integration of different knowledge and value systems into decision-making, with a view to ensuring that all legitimate stakeholders are genuinely engaged and have real influence [74]. The following section will explore to what extent these considerations are reflected in the international guidance agreed upon by 196 Parties under the CBD¹² on MSP and its equity dimensions.

4. Achieving equity through marine spatial planning: the CBD way

While SDG 14 explicitly mentions the UN Convention on the Law of the Sea (UNCLOS), because it provides the legal framework for the conservation and sustainable use of the ocean and its resources (SDG 14, MoI 14.c), we propose to focus on the CBD due to the different degree to which the ecosystem approach and its equity dimensions have been advanced in the interpretation of these conventions.

The ecosystem approach is implicit in the Preamble of UNCLOS, which underscores the interrelatedness of the problems of ocean space and the need to consider them as a whole. Elements of the ecosystem approach can also be inferred from UNCLOS obligations for coastal States to consider the effects of measures geared towards the conservation and management of species harvested in their exclusive economic zones on associated or dependent species¹³; to prevent, reduce and control pollution resulting from the intentional or accidental introduction of alien species¹⁴; and to protect and preserve rare or fragile ecosystems.¹⁵ However, neither the regime on marine living resources or the one on the protection of the marine environment are based upon the ecosystem approach [78]. As for equity, the Preamble of UNCLOS refers to the equitable and efficient utilisation of the resources of the oceans and seas for the “realisation of a just and equitable international economic order.” Nevertheless, UNCLOS operative provisions only reserve limited scope for equity in natural resource management.¹⁶ And although equity is quite central to the provisions on

marine scientific research and technology transfer [79,80], these focus on promoting equity at the inter-State level and are only implemented to a limited extent [27, 81, particularly paras 28, 57–63]. Admittedly, the UN Fish Stocks Agreement reflects an ecosystem approach to fisheries [78, pp. 743–744],¹⁷ while developments under the Food and Agriculture Organisation of the UN (FAO),¹⁸ the UN General Assembly [e.g., [82, para 119]], and the Regional Seas Conventions have also expanded upon the ecosystem approach as a guiding principle for marine management. In addition, by acknowledging the beneficiaries of sustainable fisheries, including small-scale fishers, women fishworkers, and indigenous peoples in developing States,¹⁹ the UN Fish Stocks Agreement and FAO’s Small-scale Fisheries Guidelines²⁰ have expanded the concept of equity under UNCLOS to the intra-State level [83].

On the other hand, the ecosystem approach has been significantly elaborated upon by CBD Parties as the ‘primary framework for action’,²¹ through successive interpretations of obligations relating to the conservation and sustainable use of biodiversity.²² CBD Parties have defined the ecosystem approach as “a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way”.²³ This fundamentally challenges the long-embedded sectoral and fragmented approach to environmental law-making and implementation at national and international levels [84,85], and has the potential to help address sectoral divisions among SDGs.

Equity emerges in the CBD guidance on the ecosystem approach in the recognition that human beings, and their cultural diversity, are an integral component of many ecosystems.²⁴ Such recognition in turn calls for a decentralised, social process to understand and factor in societal choices, rights and interests, particularly of indigenous peoples and local communities, as well as intrinsic, tangible and intangible values attached to biodiversity, in a balance between different interests surrounding environmental management.²⁵ Moreover, CBD guidance on the ecosystem approach points to fairly and equitably sharing benefits arising from ecosystem stewardship and from the use of the traditional knowledge of indigenous peoples and local communities, as will be discussed in the sub-sections below.

4.1. Fair and equitable benefit-sharing from ecosystem stewardship

CBD guidance on the ecosystem approach promotes the fair and equitable sharing of benefits arising from ecosystem stewardship with the stakeholders responsible for managing ecosystems and supporting ecosystem services.²⁶ It may therefore be argued that CBD Parties envisage benefit-sharing as a component of the ecosystem approach for rewarding stakeholders that are responsible for the management and restoration of valuable ecosystem functions.²⁷ In view of this reciprocal

(footnote continued)

exploitation of the non-living resources of the outer continental shelf: Article 82(4).

¹⁷ Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 34 ILM 1542 (1995), Article 7(2)(d) (hereinafter, the UN Fish Stocks Agreement), Article 5(d), (e) and (g).

¹⁸ See, e.g., FAO, Code of Conduct for Responsible Fisheries (1995) FAO Doc 95/20/Rev/1, paras 6–7, 9–10, 12.

¹⁹ UN Fish Stocks Agreement, Article 24.

²⁰ FAO, Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (2014) FAO Doc COFI/2014/Inf.10.

²¹ CBD Decision II/8 (1995) para 1.

²² CBD Decision II/8 (1995) para 1.

²³ CBD Decision V/6 (2000) Annex, para A(1).

²⁴ CBD Decision V/6 (2000) para 2.

²⁵ CBD Decision V/6 (2000) Annex, Principle 1.

²⁶ Thus, a different notion of benefit-sharing than that at CBD Arts. 1 and 15 in relation to the use of genetic resources: Morgera [20].

²⁷ CBD Decision V/6 (2000) para 9; Diz et al. [65]. In the marine context, this rationale is further substantiated by the provisions of such instruments as the Food and Agriculture Organisation (FAO) Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries, which are meant to support “the equitable distribution of the benefits yielded from responsible management of fisheries and ecosystems” (para 5.1).

¹¹ IPBES-5/1 (2017), III, paras 8–9.

¹² On the legal relevance of soft-law CBD COP decisions, see Morgera [20].

¹³ UNCLOS, Article 61(4).

¹⁴ UNCLOS, Article 196.

¹⁵ UNCLOS, Article 194(5).

¹⁶ E.g., the provision of access to the surplus of the living resources of the EEZ: Articles 62(3), 69(1) and 70(1); mineral resources in the Area: Articles 136 and 140; and

relationship between sustaining ecosystem services and rewarding environmental stewardship, the ecosystem approach may thus serve for mainstreaming equity considerations into the ecosystem services framework [65].

In turn, the CBD suggests that enhancing benefit-sharing would require, *inter alia*, the proper valuation of ecosystem services, the removal of perverse incentives that lead to their devaluation and, where appropriate, the replacement of such incentives with local mechanisms that encourage good management practices [65]. However, valuation exercises come with their own set of challenges. A common concern among commentators relates to the fact that the value of intermediate services (e.g., regulating and supporting services) and cultural services (e.g., spiritual values, cultural identity and traditional knowledge) is normally not accounted for in valuation exercises, which may result in weakening respective outcomes in decision-making processes [86–88]. Moreover, the valuation of ecosystem services is particularly arduous in the marine context, insofar as the diversity of human values and perceptions vis-à-vis ocean uses renders societal preferences exceptionally difficult to pinpoint and quantify [71]. An additional complicating factor arises from the fact that many key marine ecosystem goods and services (e.g., recreation, wildlife viewing, protection from shoreline erosion) are not traded in markets [45,63].

Challenges also arise in connection to the design and implementation of ‘payment for ecosystem services’ (PES) schemes as a mechanism for translating the outcome of valuation exercises into concrete benefits for stakeholders [89]. PES can be defined as “a transfer of resources between social actors, which aims to create incentives to align individual and/or collective land use decisions with the social interest in management of natural resources” [90, p. 1205]. Equity remains a real concern for the implementation of PES schemes, however, as control over the targeted ecosystem service tends to be linked to property rights and control over land, “and thus inversely related to at least one dimension of poverty” [91, p. 11]. By focusing on stakeholders with formally recognised control over the targeted service and overlooking broader power issues, PES schemes may allow for the further entrenchment of existing inequities as well as the reworking of traditional socio-natural relations [92,93].

In the marine context, the State is often considered as the provider of ecosystem services, although regulatory measures employed to implement the outcomes of MSP processes (e.g., community-based management, ocean zoning) can gradually confer property/access/use rights to non-State actors, thus including them in the pool of eligible ecosystem service providers [94]. However, there is a real possibility that the adoption of a cost-efficient approach to the design of PES schemes will lead to poor coastal communities being identified as the preferred providers of ecosystem services, as they are in a position to provide such services in exchange for very low payments. Inequitable outcomes may also stem from PES schemes that “lock” communities into agreements that prevent them from pursuing more profitable uses of their resources. Considerations relating to distributive justice and equity should thus be incorporated into the development of PES schemes [91,94], particularly for poor coastal communities that “rely disproportionately on ecosystem services for their livelihoods and have few means for alternatives, but often are also the ones with the lowest opportunity costs (in absolute monetary amount) to changing resource use” [94, p. 9]. MSP, as a deliberative and participatory decision-making process that may lead to the creation of new rights over marine space and resources – and, as a result, to the creation of new ecosystem service providers that are eligible to participate in PES schemes – should aim to ensure that ecosystem services valuation and PES lead to equitable outcomes [95].

PES schemes, however, are just one form of benefit-sharing, and the ecosystem approach under the CBD, as well as other relevant CBD guidance, provides for a variety of benefit-sharing modalities, such as profit-sharing, information-sharing, scientific and commercial cooperation, joint management of natural resources, and technical

support, as well as the legal recognition of communities’ sustainable practices, the provision of guidance and support to improve the environmental sustainability of community practices, and the proactive identification of opportunities for better/alternative livelihoods in these endeavours.²⁸ Benefit-sharing may also encompass access to marine resources [97] and to markets [98], which are the other socio-economic dimensions specifically addressed by SDG 14 (MoI 14.b). The specific benefits to be shared are ultimately left to a case-by-case determination, and so does the concretization of fairness and equity. Potential modalities for operationalising benefit-sharing from ecosystem stewardship in the context of MSP are discussed further below, after considering another, linked rationale for benefit-sharing, namely the integration of traditional knowledge into MSP.

4.2. Fair and equitable benefit-sharing from the integration of traditional knowledge into marine spatial planning

Traditional knowledge may not always fit the traditional division between biological and human uses, but rather represents a more holistic perspective on marine and coastal areas and resources.²⁹ The integration of the traditional knowledge of indigenous peoples and local communities into MSP, both as a source of information in its own right and as a tool for validating and adding value to existing scientific information,³⁰ is supported by the guidance elaborated under the CBD in relation to the ecosystem approach.³¹ The integration of traditional knowledge is subject to the CBD obligation to encourage the sharing of benefits arising from the use of traditional knowledge for conservation and sustainable use.³² The integration of traditional knowledge into MSP processes is also in line with the conceptual framework adopted by IPBES with regard to nature’s benefits to people, as briefly discussed above (Section 3.1.)

In light of other sources of CBD interpretation,³³ as well as relevant international human rights standards, it should be highlighted that traditional knowledge can only be used after seeking prior informed consent from indigenous peoples and local communities. Critically, genuine efforts to implement the requirements for prior informed consent and fair and equitable benefit-sharing entail a “*continual* process of building mutually beneficial, *ongoing* arrangements” between users and holders of traditional knowledge, in order to “build trust, good relations, mutual understanding, intercultural spaces, knowledge exchanges, create new knowledge and reconciliation”.³⁴ This is a key clarification about the need for an iterative process, not a one-off exercise in giving traditional holders voice in relevant decision-making processes and their views and preferences understood and addressed in that context [100].

As indigenous and local communities are often consulted during the final stages of the planning process, which limits their full engagement in the development and implementation of marine spatial plans,³⁵ CBD Parties have emphasized the full and effective participation of indigenous peoples and local communities in MSP processes,³⁶ which can

²⁸ This is a synthesis of a series of CBD Decisions analysed in Morgera and Tsioumani [96].

²⁹ Report of the Expert Workshop to Provide Consolidated Practical Guidance and a Toolkit for Marine Spatial Planning, Annex IV, para 38 (hereinafter, the Report of the Expert Workshop). CBD Parties have been invited to take into account in the implementation of MSP: CBD Decision XIII/9, paras 1 and 3(a).

³⁰ Report of the Expert Workshop, Annex IV, para 37.

³¹ CBD Decision V/6 (2000) Annex, Principle 11.

³² CBD Article 8(j). See also CBD Decision IX/20 (2008) para 27.

³³ CBD Decision XIII/18 (2016). See also Morgera [99].

³⁴ CBD Decision XIII/18 (2016) Annex, para 8.

³⁵ Report of the Expert Workshop, Annex VI, para 8(h).

³⁶ CBD Decision XIII/9 (2016) para 3(b). See also Annex VI, para 39 of the Report of the Expert Workshop, which notes that “[r]especting ownership of traditional knowledge is important to reassure stakeholders that their knowledge will be used in an appropriate manner.” On the need to ensure the involvement of stakeholders early and continually in all stages of the MSP process see also Pomeroy and Douvère [101].

be facilitated through, *inter alia*, legislative frameworks, resource mapping and the promotion of recreational, commercial and cultural activities.³⁷ In turn, the fuller and more effective engagement of such stakeholder groups may allow MSP to integrate traditional knowledge in a manner that valorises the plurality of knowledge systems on the understanding that best available scientific information includes traditional knowledge.³⁸

However, if the incorporation of different knowledge types into MSP processes is to be genuinely equitable in practice, it will also be necessary to examine how relevant institutions and their forms of stakeholder representation and participation determine whose knowledge is integrated and how [74]. To this end, it is important to look beyond the MSP process and towards the cultural, political and socioeconomic environment within which it operates, with a view to identifying such contextual factors as power/knowledge relations, which may hinder the fundamental elements of synergy creation, namely, stakeholder empowerment, capacity-building, and respectful, interactive learning [74].

4.3. Paving the way for benefit-sharing in the context of marine spatial planning

By placing a sharper focus on the identification of stakeholder roles and interests, and by promoting a deeper understanding of their dependence on ecosystem services, the guidance elaborated under the CBD in relation to MSP can facilitate the operationalisation of benefit-sharing with ecosystem stewards and traditional knowledge holders in this context. Cross-sectoral engagement may be expected to focus on identifying the cultural dimensions of MSP and enhancing collaboration with different cultures; demonstrating fairness, transparency and inclusiveness, including by addressing ethical issues; and employing a long-term historical perspective on how current conditions and issues evolved in a given area in order to build a common narrative among the institutions and stakeholders involved in the MSP process, to provide context for defining goals and objectives, and to assist in building trust.³⁹

Mapping has been identified as one possible tool for characterizing different uses of ecosystem services, rights and equity aspects, and for generating information on interconnections between different stakeholders in national or local economies. Participatory mapping, in particular, has been linked to capturing socio-cultural values and resolving conflicts by visualizing the consequences of various courses of action.⁴⁰ In addition, stakeholder baselines could be used to describe past and future anticipated use of ecosystem services, expectations of future roles, traditional use of resources and access to ecosystem services.⁴¹ Moreover, stakeholder trust and buy-in into the MSP process can be enhanced through the use of common data collection protocols, ethical codes for the use of traditional knowledge and information, and standardized approaches for monitoring and assessment of ecosystem health or valuation of ecosystem services (including non-use services, such as cultural, social and aesthetic values).⁴² As long as these tools can be put into practice as a continual process of respectful engagement with ecosystem stewards and traditional knowledge holders to co-create knowledge and build genuine partnerships for coastal and ocean management, they can provide an “appropriate and effective” approach to MSP, according to the UN Ocean Conference’s Call for Action.⁴³

5. Conclusions

This article has provided a pragmatic approach for connecting SDG 14 to other Goals, in an attempt to transcend the perceived policy silos within the 2030 Agenda. It argues that focusing on marine ecosystem services and their contribution to different facets of human well-being may provide an opportunity to operationalise an element of the ecosystem approach - fair and equitable benefit-sharing with ecosystem stewards and traditional knowledge holders - that remains largely unexplored in international legal and policy discourse, outside the framework of the CBD, while accounting for the linkages between biophysical and human-social systems through MSP [87].⁴⁴ The guidance that is currently being elaborated under the CBD⁴⁵ could be instrumental in gathering the consensus of 196 Parties on the normative underpinnings of MSP with respect to the effective inclusion of ecosystem stewards and traditional knowledge holders in decision-making processes through prior, informed consent and fair and equitable benefit-sharing.

But while the concept of ecosystem services may help connecting different SDGs in the context of MSP, the practice of ecosystem services valuation needs to be furthered to effectively explore non-provisioning services, as well as drawing from different knowledge systems, with a view to clarifying different monetary and non-monetary benefits arising from marine ecosystem stewardship [95]. Equally, the documented shortcomings of benefit-sharing practices to effectively contribute to its stated objectives of fairness and equity should be given full consideration in the context of the coastal and marine environment [20,102].

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References

- [1] SDSN, Getting started with the sustainable development goals: A guide for stakeholders, Sustainable Development Solutions Network (SDSN), 2015.
- [2] D. French, The global goals: formalism foregone, contested legality and “re-imaginings” of international law, *Ethiopian Yearbook of International Law*, 2017.
- [3] UNGA, The future we want (UN Doc A/RES/66/288, 27 July 2012).
- [4] UNGA, Transforming our world: The 2030 agenda for sustainable development (UN Doc A/RES/70/1, 25 September 2015).
- [5] A. Norton, A. Scott, P. Lucci, W. Avis, *Taking the Sustainable Development Goals from ‘Main Basis’ to Effective Vision – What’s the Roadmap? Overseas Development Institute (ODI), London, 2014.*
- [6] UN, Review of the contributions of the MDG agenda to foster development:

⁴⁴ The link between benefit-sharing and marine spatial planning is also pointed out in GEF [51]. Moreover, the Draft Protocol on Integrated Coastal Zone Management to the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean Region explicitly acknowledges the “sustainable and equitable use and benefit sharing of coastal and marine resources” as one of the objectives of integrated coastal zone management: First Negotiated Draft Protocol on Integrated Coastal Zone Management in Western Indian Ocean Region (UN Doc. UNEP(DEPI)/EAF/NEG2/ICZM/3a/en, 15 February 2016), Article 6(e). See also Ferreira et al. [88], where an indicator on benefit-sharing is suggested.

⁴⁵ CBD Decision XIII/9, paras 4–5, particularly 4(a) and 6(a).

³⁷ Report of the Expert Workshop, Annex VI, para 8(h).

³⁸ Report of the Expert Workshop, Annex VI, para 38.

³⁹ Report of the Expert Workshop, Annex VI, para 10.

⁴⁰ Report of the Expert Workshop, Annex VI, para 33. See also GEF [51, p. 26].

⁴¹ Report of the Expert Workshop, Annex VI, para 14.

⁴² Report of the Expert Workshop, Annex VI, para 16.

⁴³ Our Ocean, Our Future: Call for Action, para 13(j). Available online at: <https://oceanconference.un.org/callforaction> (Accessed 18 June 2017).

- Lessons for the Post-2015 UN development agenda, UN Task Team on the Post-2015 UN Development Agenda, 2012.
- [7] E. Brooker, E. Devenport, C.R. Hopkins, S. Hennige, J.M. Roberts, C. Duncan, Scotland as a case study for how benefits of marine ecosystem services may contribute to the commercial fishing industry, *Mar. Policy (Spec. Issue SDG Synerg. Sustain. Fish. Poverty Alleviation)* (2017).
- [8] B. Griffith, Poverty traps and the MDGs, in: R. Nallari, S. Yusuf, B. Griffith, R. Bhattacharya (Eds.), *Frontiers in Development Policy: A Primer on Emerging Issues*, World Bank, Washington, D.C., 2011, pp. 25–37.
- [9] D. Le Blanc, Towards integration at last? The sustainable development goals as a network of targets, *UN Dep. Econ. Social. Aff. (UN Department of Economic and Social Affairs)* (2015).
- [10] ICSU, ISSC, *Review of Targets for the Sustainable Development Goals: The Science Perspective*, International Council for Science (ICSU), Paris, 2015.
- [11] M. Loewe, N. Rippin, *The Sustainable Development Goals of the Post-2015 Agenda: Comments on the OWG and SDSN Proposals*, German Development Institute/Deutsches Institut für Entwicklungspolitik (DIE), Bonn, 2015.
- [12] R.E. Kim, The nexus between international law and the sustainable development goals, *Rev. Eur. Community Int. Environ. Law* 25 (1) (2016) 15–26.
- [13] N. Weitz, M. Nilsson, M. Davis, A. Nexus, Approach to the post-2015 agenda: formulating integrated water, energy, and food SDGs, *SAIS Rev. Int. Aff.* 34 (2) (2014) 37–50.
- [14] M. Miller-Dawkins, *Global Goals and International Agreements: Lessons for the Design of the Sustainable Development Goals*, Overseas Development Institute (ODI), London, 2014.
- [15] D. Le Blanc, Mapping the linkages between oceans and other sustainable development goals: a preliminary exploration, *UN Dep. Econ. Social. Aff. (UN Department of Economic and Social Affairs)* (2017).
- [16] R.B. Gibson, Beyond the pillars: sustainability assessment as a framework for effective integration of social, economic and ecological considerations in significant decision-making, *J. Environ. Assess. Policy Manag.* 8 (3) (2006) 259–280.
- [17] K. Houghton, A sustainable development goal for the ocean: moving from goal framing towards targets and indicators for implementation, *IASS Potsdam* (2014).
- [18] S.L. Wood, F. DeClerck, Ecosystems and human well-being in the sustainable development goals, *Front. Ecol. Environ.* 13 (3) (2015) 123.
- [19] E. Morgera, The ecosystem approach and the precautionary principle, in: E. Morgera, J. Razzaque (Eds.), *Biodiversity and Nature Protection Law*, Edward Elgar Publishing, Cheltenham, 2017.
- [20] E. Morgera, The need for an international legal concept of fair and equitable benefit sharing, *Eur. J. Int. Law* 27 (2) (2016) 353–383.
- [21] UN, *A new global partnership: Eradicate poverty and transform economies through sustainable development*, Report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda, New York.
- [22] J.D. Sachs, *Goal-Based Development and the SDGs: Implications for Development Finance*, Oxford Review of Economic Policy 31 (2015) 268–278.
- [23] J. Waage, C. Yap, S. Bell, C. Levy, G. Mace, T. Pegram, E. Unterhalter, N. Dasandi, D. Hudson, R. Kock, S. Mayhew, C. Marx, *Governing the UN sustainable development gGoals: interactions, infrastructures, and institutions*, *Lancet Glob. Health* 3 (5) (2015) e251–e252.
- [24] FAO, *The State of Food and Agriculture: Climate Change, Agriculture and Food Security*, Food and Agriculture Organization of the UN (UN FAO), Rome, 2016.
- [25] R.G. Aisi, Statement delivered on behalf of the Pacific Small Island Developing States at the 10th Session of the OWG, 31 March–4 April 2014.
- [26] Global Ocean Commission, *From decline to recovery: A rescue package for the Global Ocean*, Global Ocean Commission, Oxford, 2014.
- [27] E. Morgera, M. Ntona, Linking small-scale fisheries to international obligations on marine technology transfer, *Mar. Policy (Spec. Issue SDG Synerg. Sustain. Fish. Poverty Alleviation)* (2017).
- [28] WWF, *Beyond 2015, Coastal and Marine Union (EUCC), DIVA, Global Ocean Commission, High Seas Alliance (Representing 29 NGOs and the IUCN), Pew Charitable Trusts, the Women's Major Group, Draft text for SDG 14 Submitted to the 12th Session of the OWG, 16–20 June 2014.*
- [29] N. Nabulivou, Statement delivered on behalf of Major Groups of Women, Children and Youth, Indigenous Peoples, and NGOs at the 9th Session of the OWG March 2014.
- [30] B. Fisher, T. Christopher, Poverty and biodiversity: measuring the overlap of human poverty and the biodiversity hotspots, *Ecol. Econ.* 62 (1) (2007) 93–101.
- [31] H. Gjertsen, Can habitat protection lead to improvements in human well-being? Evidence from Marine Protected Areas in the Philippines, *World Dev.* 33 (2) (2005) 199–217.
- [32] P.J.S. Jones, Equity, justice and power issues raised by no-take marine protected area proposals, *Mar. Policy* 33 (5) (2009) 759–765.
- [33] S. Rees, N.L. Foster, O. Langmead, S. Pittman, D. Johnson, Defining the qualitative elements of Aichi biodiversity target 11 with regard to the marine and coastal environment in order to strengthen global efforts for marine biodiversity conservation outlined in the United Nations sustainable development goal 14, *Mar. Policy (Spec. Issue SDG Synerg. Sustain. Fish. Poverty Alleviation)* (2017).
- [34] D. Diz, D. Johnson, M. Riddell, S. Rees, J. Battle, K. Gjerde, S. Hennige, J.M. Roberts, Mainstreaming marine biodiversity into the SDGs: the role of other effective area: conservation measures (SDG 14.5), *Mar. Policy (Spec. Issue SDG Synerg. Sustain. Fish. Poverty Alleviation)* (2017).
- [35] J.H. Knox, Human rights, environmental protection, and the sustainable development goals, *Wash. Int. Law J.* 24 (3) (2015) 517–536.
- [36] CBD, *Strategic plan for biodiversity 2011–2020: Further information related to the technical rationale for the Aichi Biodiversity Targets, including potential indicators and milestones (UN Doc UNEP/CBD/COP/10/INF/12/Rev.1, 14 March 2011).*
- [37] UNDP, *UNDP Support to the implementation of the 2030 agenda for sustainable development*, UN Development Programme (UNDP), New York, 2016.
- [38] P. Lucci, S. Lally, *Starting Strong: the First 1000 Days of the SDGs*, Overseas Development Institute (ODI), London, 2016.
- [39] M. Nilsson, D. Griggs, M. Visbeck, Policy: map the interactions between sustainable development goals, *Nature* 534 (7607) (2016) 320–322.
- [40] S. Schmidt, B. Neumann, Y. Waweru, C. Durussel, S. Unger, M. Visbeck, SDG 14: conserve and sustainably use the oceans, seas and marine resources for sustainable development, in: M. Nilsson, D. Griggs, A.-S. Stevance, D. McCollum (Eds.), *A Guide to SDG Interactions: From Science to Implementation*, International Council for Science (ICSU), Paris, 2017.
- [41] IOC-UNESCO, DG MARE, *Joint roadmap to accelerate maritime/marine spatial planning processes worldwide (MSP)*, in: *Proceedings of the 2nd International Conference on Marine/Maritime Spatial Planning*, Paris, France, 2017.
- [42] UNGA, *United Nations conference to support the implementation of sustainable development goal 14: Conserve and sustainably use the Oceans, Seas and Marine resources for sustainable development (UN Doc A/RES/70/226, 12 February, 2016).*
- [43] C. Ehler, F. Douvère, *Marine Spatial Planning: A Step-by-step Approach toward Ecosystem-based Management*, Intergovernmental Oceanographic Commission (IOC) and Man and the Biosphere Programme, Paris, 2009.
- [44] N. Soinen, D. Hassan, *Marine spatial planning as an instrument of sustainable ocean governance*, in: D. Hassan, T. Kuokkanen, N. Soinen (Eds.), *Transboundary Marine Spatial Planning and International Law*, Taylor and Francis, Florence, 2015, pp. 3–20.
- [45] B.S. Halpern, K.L. McLeod, A.A. Rosenberg, L.B. Crowder, Managing for cumulative impacts in ecosystem-based management through ocean zoning, *Ocean Coast. Manag.* 51 (3) (2008) 203–211.
- [46] T. Potts, *Marine spatial planning and various uses and interests relating to the marine environment*, in: H. Daud, T. Kuokkanen, N. Soinen (Eds.), *Transboundary Marine Spatial Planning and International Law*, Taylor and Francis, Florence, 2015, pp. 42–59.
- [47] G. Scarff, C. Fitzsimmons, T. Gray, The new mode of marine planning in the UK: aspirations and challenges, *Mar. Policy* 51 (2015) 96–102.
- [48] M. Young, Building the blue economy: the role of marine spatial planning in facilitating offshore renewable energy development, *Int. J. Mar. Coast. Law* 30 (1) (2015) 148–174.
- [49] H.L. Thomas, S. Olsen, O. Vestergaard, *Marine spatial planning in practice – transitioning from planning to implementation. An analysis of global marine spatial planning experiences*, UN Environment Programme (UNEP) and Scientific and Technical Advisory Panel of the Global Environment Facility (GEF STAP), Nairobi, 2014.
- [50] N. Schaefer, V. Barale, *Maritime spatial planning: opportunities & challenges in the framework of the EU integrated maritime policy*, *J. Coast. Conserv.* 15 (2) (2011) 237–245.
- [51] GEF, *Marine spatial planning in the context of the convention on biological diversity: A study carried out in response to CBD COP 10 decision X/29, CBD Technical Series No. 68, CBD Secretariat and the Scientific and Technical Advisory Panel of the Global Environment Facility (GEF STAP)*, Montreal, 2012.
- [52] R. Costanza, R. D'Arge, R. De Groot, S. Farber, M. Grasso, B. Hannon, K. Limburg, S. Naeem, R.V. O'Neill, J. Paruelo, R.G. Raskin, P. Sutton, M. Van Den Belt, *The value of the world's ecosystem services and natural capital*, *Nature* 387 (6630) (1997) 253–260.
- [53] J.B. Ruhl, J. Salzman, The law and policy beginnings of ecosystem services, *J. Land Use Environ. Law* 22 (2) (2007) 157–172.
- [54] M. Schröter, E.H. Zanden, A.P.E. Oudenhoven, R.P. Remme, H.M. Serna-Chavez, R.S. Groot, P. Opdam, *Ecosystem services as a contested concept: a synthesis of critique and counter-arguments*, *Conserv. Lett.* 7 (6) (2014) 514–523.
- [55] D.J. Mccauley, Selling out on nature, *Nature* 443 (7107) (2006) 27–28.
- [56] E. Turnhout, C. Waterton, K. Neves, M. Buizer, *Rethinking biodiversity: from goods and services to “living with”*, *Conserv. Lett.* 6 (3) (2013) 154–161.
- [57] A.M. Nahlik, M.E. Kentula, M.S. Fennessy, D.H. Landers, *Where is the consensus? A proposed foundation for moving ecosystem service concepts into practice*, *Ecol. Econ.* 77 (2012) 27–35.
- [58] M. Sagoff, On the economic value of ecosystem services, *Environ. Values* 17 (2) (2008) 239–257.
- [59] K.H. Redford, W.M. Adams, *Payment for ecosystem services and the challenge of saving nature*, *Conserv. Biol.* 23 (4) (2009) 785–787.
- [60] Anonymous, *Natural value*, *Nature* 457 (7321) (2009) 764.
- [61] J. Alcamo, E.M. Bennett, *Ecosystems and Human Well-being: A Framework for assessment*, Island Press, Washington, D.C., 2003.
- [62] B. Fisher, R.K. Turner, P. Morling, *Defining and classifying ecosystem services for decision making*, *Ecol. Econ.* 68 (3) (2009) 643–653.
- [63] A.P. Hejnovic, M.A. Rudd, *The value landscape in ecosystem services: value, value where art thou value? Sustainability* 9 (5) (2017).
- [64] R. Kanbur, C.M. Calvo, M. Das Gupta, C. Grootaert, V. Kwakwa, N. Lustig, *World Development Report 2000/2001: Attacking Poverty*, World Bank, Washington, D.C., 2000.
- [65] D. Diz, E. Morgera, M. Wilson, *MARINE BENEFITS Legal Report, forthcoming on SSRN.*
- [66] R. Costanza, *Ecosystem services: multiple classification systems are needed*, *Biol. Conserv.* 141 (2) (2008) 350–352.
- [67] M. van den Belt, P. Bernal, E. Granek, F. Gaill, B. Halpern, M. Thorndyke, *Scientific understanding of ecosystem services*, in: UN (Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs) (Ed.), *The First Global Integrated*

- Marine Assessment – World Ocean Assessment I, Cambridge University Press, Cambridge, 2017.
- [68] UNECA, *Africa's Blue Economy: A Policy Handbook*, UN Economic Commission for Africa (UNECA), Addis Ababa, 2016.
- [69] L. Brander, C. Baulcomb, How do Marine and Coastal Ecosystem Services Support the SDGs?, in: C. Neumann, T. Bryan, L. Pendleton, A. Kaup, J. Glavan (Eds.), *The Ocean and Us*, AGEDI Abu Dhabi, UAE/GRID-Arendal, Arendal, 2015.
- [70] S. Lele, Environmentalisms, justices and the limits of ecosystem services frameworks, in: T. Sikor (Ed.), *The Justices and Injustices of Ecosystem Services*, Routledge, Abingdon, Oxon, 2013, pp. 119–139.
- [71] J.K. Summers, L. Smith, The role of social and intergenerational equity in making changes in human well-being sustainable, *AMBIO* 43 (6) (2014) 718–728.
- [72] S.E. Lester, C. Costello, B.S. Halpern, S.D. Gaines, Evaluating tradeoffs among ecosystem services to inform marine spatial planning, *Mar. Policy* 38 (2013) 80–89.
- [73] W. Flannery, G. Ellis, G. Ellis, W. Flannery, M. Nursey-Bray, J.P.M. van Tatenhove, C. Kelly, S. Coffen-Smout, R. Fairgrieve, M. Knol, S. Jentoft, D. Bacon, A.M. O'Hagan, Exploring the winners and losers of marine environmental governance/Marine spatial planning: Cui bono?/"More than fishy business": epistemology, integration and conflict in marine spatial planning / Marine spatial planning: power and scaping/Surely not all planning is evil?/Marine spatial planning: a Canadian perspective/Maritime spatial planning – "ad utilitatem omnium"/Marine spatial planning: "it is better to be on the train than being hit by it"/Reflections from the perspective of recreational anglers and boats for hire/ Maritime spatial planning and marine renewable energy, *Plan. Theory Pract.* 17 (1) (2016) 121–151.
- [74] S. Jentoft, Small-scale fisheries within maritime spatial planning: knowledge integration and power, *J. Environ. Policy Plan.* (2017).
- [75] R.V. Tafon, Taking power to sea: towards a post-structuralist discourse theoretical critique of marine spatial planning, *Environ. Plan. C: Polit. Space* 0 (0) (2017) 1–16.
- [76] U. Pascual, P. Balvanera, S. Díaz, G. Pataki, E. Roth, M. Stenseke, R.T. Watson, E.B. Dessane, M. Islar, E. Kelemen, V. Maris, Valuing nature's contributions to people: the IPBES approach, *Curr. Opin. Environ. Sustain.* 26–27 (2017) 7–16.
- [77] S. Díaz, S. Demissew, J. Carabias, C. Joly, M. Lonsdale, N. Ash, A. Larigauderie, J.R. Adhikari, S. Arico, A. Báldi, A. Bartuska, I.A. Baste, The IPBES conceptual framework — connecting nature and people, *Curr. Opin. Environ. Sustain.* 14 (2015) 1–16.
- [78] R. Wolfrum, N. Matz, The Interplay between the United Nations convention on the Law of the Sea and the convention on biological diversity, *Max Planck Yearbook of United Nations Law*, vol. 4, 2000, pp. 445–480.
- [79] M. Ntona, Benefit-sharing and Marine Scientific Research, BeneLex blog post, 2015. Available online at: <http://www.benelexblog.law.ed.ac.uk/2015/11/01/benefit-sharing-and-marine-scientific-research/>. (Accessed 5 June 2017).
- [80] M. Ntona, The transfer of Marine Technology as Benefit-sharing, BeneLex blog post, 2015. Available online at: <http://www.benelexblog.law.ed.ac.uk/2015/11/04/the-transfer-of-marine-technology-as-benefit-sharing/>. (Accessed 5 June 2017).
- [81] UNGA, Report on the Work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its eleventh meeting (UN Doc A/65/164, 23 July 2010).
- [82] UNGA, Oceans and the Law of the Sea (UNGA Res 61/222, 16 March 2007).
- [83] D. Diz, Introducing the Marine Benefits Project: Benefit-sharing and Small-scale Fisheries, BeneLex blog post, 2015. Available online at: <http://www.benelexblog.law.ed.ac.uk/2015/10/19/introducing-the-marine-benefits-project-benefit-sharing-and-small-scale-fisheries/>. (Accessed 5 June 2017).
- [84] C.M. Finlayson, N. Davidson, D. Pritchard, G.R. Milton, H. Mackay, The Ramsar convention and ecosystem-based approaches to the wise use and sustainable development of wetlands, *J. Int. Wildl. Law Policy* 14 (3–4) (2011) 176–198.
- [85] F.M. Platjouw, The need to recognize a coherent legal system as an important element of the ecosystem approach, in: C. Voigt (Ed.), *Rule of Law for Nature: New Dimensions and Ideas in Environmental Law*, Cambridge University Press, Cambridge, 2013, pp. 158–174.
- [86] K.M.A. Chan, A.D. Guerry, P. Balvanera, S. Klain, T. Satterfield, X. Basurto, A. Bostrom, R. Chuenpagdee, R. Gould, B.S. Halpern, N. Hannahs, J. Levine, B. Norton, M. Ruckelshaus, R. Russell, J. Tam, U. Woodside, Where are cultural and social in ecosystem services? A framework for constructive engagement, *BioScience* 62 (8) (2012) 744–756.
- [87] M.A. Ferreira, C. Pereira Dal Silva, H.V. Campbell, F. Conway, F. Andrade, D. Johnson, Gold rush or pandora's box? Toward a transparent and measured approach to marine spatial planning in Portugal, *Int. J. Mar. Coast. Law* 30 (3) (2015) 418–444.
- [88] M.A. Ferreira, D. Johnson, C. Pereira da Silva, T. Ramos, Developing a performance evaluation mechanism for Portuguese Marine spatial planning, 2017, (forthcoming).
- [89] UNEP, *Payments for Ecosystem services: Getting started, A Primer*, Forest Trends, The Katomba Group and the UN Environment Programme (UNEP), 2008.
- [90] R. Muradian, E. Corbera, U. Pascual, N. Kosoy, P.H. May, Reconciling theory and practice: an alternative conceptual framework for understanding payments for environmental services, *Ecol. Econ.* 69 (6) (2010) 1202–1208.
- [91] M. van Noordwijk, B. Leimona, L. Emerton, T.P. Tomich, S.J. Velarde, M. Kallesoe, M. Sekher, B. Swallow, Criteria and indicators for environmental service compensation and reward mechanisms: realistic, voluntary, conditional and pro-poor, World Agroforestry Centre, Nairobi (2007).
- [92] M. Barbesgaard, Blue Growth: Saviour or Ocean Grabbing?, *Global Governance/ politics, Climate Justice & Agrarian/social Justice: Linkages and Challenges*, International Institute of Social Studies (ISS), The Hague, 2016.
- [93] K. McAfee, The contradictory logic of global ecosystem services markets, *Dev. Change* 43 (1) (2012) 105–131.
- [94] W.W.Y. Lau, Beyond carbon: conceptualizing payments for ecosystem services in blue forests on carbon and other marine and coastal ecosystem services, *Ocean Coast. Manag.* 83 (2013) 5–14.
- [95] D. Diz, E. Morgera, M. Wilson, Sharing the benefits of sustainable Fisheries: From Global to Local Legal Approaches to Marine Ecosystem Services for Poverty Alleviation (Science – Policy Analysis), SCELG Working Paper No. 7, 2017. Available online at: <https://ssrn.com/abstract=2944330>. (Accessed 5 June 2017).
- [96] E. Morgera, E. Tsioumani, The evolution of benefit sharing: linking biodiversity and community livelihoods, *RECIEL* 15 (2) (2010) 150–173.
- [97] E. Morgera, Under the Radar: Fair and Equitable Benefit-Sharing and the Human Rights of Indigenous Peoples and Local Communities Related to Natural Resources, BeneLex Working Paper N. 10 (Rev January 2017), 2016. Available online on SSRN: <https://ssrn.com/abstract=2887803>. (Accessed 5 June 2017).
- [98] E. Tsioumani, Access to Markets for Smallholders and Fair and Equitable Benefit-sharing: Mapping the Linkages, BeneLex blog post, 2016. Available online at: <http://www.benelexblog.law.ed.ac.uk/2016/10/10/access-to-markets-for-smallholders-and-fair-and-equitable-benefit-sharing-mapping-the-linkages/>. (Accessed 5 June 2017).
- [99] E. Morgera, Reflections on 2016 UN Biodiversity Conference (Part II): Assessing the Mo'otz kuxtal guidelines on benefit-sharing from the use of traditional knowledge, BeneLex blog post, 2017. Available online at: <http://www.benelexblog.law.ed.ac.uk/2017/03/01/reflections-on-2016-un-biodiversity-conference-part-ii-assessing-the-mootz-kuxtal-guidelines-on-benefit-sharing-from-the-use-of-traditional-knowledge/>. (Accessed 5 June 2017).
- [100] E. Morgera, Fair and equitable benefit-sharing at the cross-roads of the human right to science and international biodiversity law, *Laws* 4 (4) (2015) 803–831.
- [101] R. Pomeroy, F. Douvère, The engagement of stakeholders in the marine spatial planning process, *Mar. Policy* 32 (5) (2008) 816–822.
- [102] R. Wynberg, M. Hauck, *Sharing Benefits from the Coast: Rights, Resources and Livelihoods*, UCT Press, Cape Town, South Africa, 2014.