A Sustainable Development Goal for the Ocean: Moving from Goal Framing Towards Targets and Indicators for Implementation

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Potential Points for Discussion

GOAL FRAMING	
1	What needs to be done to ensure that the SDGs remain consistent with pathways set by the MDGs to reduce global poverty?
2	What are the benefits of a standalone ocean SDG (Goal 14) given that conservation of biodiversity (Goal 15) is covered in a different goal (as well as other issues highly relevant for the ocean such as climate)? When biodiversity is not explicitly mentioned in Goal 14 and Goal 15 emphasizes terrestrial biodiversity is there a danger that the protection of marine biodiversity could be relegated?
3	How can an Ocean SDG be formulated to ensure that its implementation respects the jurisdictional zones set out in the law of the sea and areas of shared competences and therefore areas of potentially overlapping implementation? Challenges include the creation of high seas marine protected areas, the realization of integrated coastal zone management, the division of the water column and the seafloor in the EEZ and continental shelf as well as the issues of the small island developing States (SIDS) which are intimately bound with the marine environment.
TARGETS	
4	Does the package of targets for Goal 14 proposed by the Open Working Group (OWG) reflect the overall urgency of the selected issues or allow States to prioritize their own implementation strategies to address local needs?
5	Does the target package allow a phased approach which also links existing goals under other legal and policy instruments such as the Convention on Biological Diversity's Aichi Targets and is geared toward a larger transformation toward ocean sustainability or are they merely ends in and of themselves? Can we construct a coherent and compelling vision of transformation for the oceans out of this package of targets? What could a transformation process for the oceans look like?
6	Are effective financial and institutional structures in place for each target to ensure its implementation?
INDICATORS	
7	How can indicators be designed to ensure that the broad momentum for sustainable development on more socially-related issues generated at the sub-State and local levels (particularly through civil society and the private sector), and more recently at the regional level, is channeled into ocean-relevant actions?
8	How can we design indicators for an Ocean SDG that have manageable data and reporting requirements, provide a cohesive and compelling sustainability narrative for a broad group of stakeholders and uphold a strong version of sustainability? How can we address sectors where consensus on indicators cannot be reached?
9	Are the identities and needs of the end users of the information taken into account from start in the design an indicator package for an Ocean SDG?
10	What can we learn from other examples of indicators and indices such as the Ocean Health Index?
11	While the ultimately responsibility for reporting on the implementation of indicators on paper and in diplomatic practice rests with States, the realization of sustainability falls onto the shoulders of a much broader range of societal actors. Monitoring, as a critical element in the efficacy of indicators, is not satisfied by reliance on government institutions to engage in reporting, but also requires continuous advocacy and increasingly the use of the legal system to challenge the shortcomings of State implementation. How can we design an indicator package which ensures not just reporting and monitoring but also the accountability of the responsible institutions?

POLICY RELEVANCE FOR SUSTAINABLE DEVELOPMENT	
12	How can we foster integrated action through interlinkages and partnerships between SDGs? What would we lose if a dedicated Ocean SDG is not included in the final SDG package? Can we envisage a "Plan B" to ensure that ocean sustainability remains prominent in the post-2015 development agenda even if it is removed from the final package of SDGs?
13	How can we obtain a reasonable cost estimate for the implementation of an Ocean SDG with a revised set of targets?

1. From the MDGs to the SDGs: A Paradigm Shift in Sustainable Development for the Ocean?

The Millennium Development Goals (MDGs), a global goal-setting process initiated in the Millennium Declaration of 2000[1] and intended for the period until 2015, were designed as a policy lever to direct development cooperation from the Global North to address consistently and egregiously neglected issues of poverty in the Global South. Although the MDGs included Goal 7 (ensure environmental sustainability) which contains several ocean-related elements (*Table 1*), their emphasis has clearly been on the human dimensions of poverty such as hunger, education, child mortality and maternal health. While the MDGs can certainly be commended for mobilizing action on a body of critical development issues and achieving notable progress in a number of areas, the urgent need for development action to address poverty requires a much broader focus on good governance, accountability, peacebuilding, the realization of human rights and the transformation of economies to allow for more inclusive growth.[2] "Most seriously, the MDGs fell short by not integrating the economic, social and environmental aspects of sustainable development as envisaged in the Millennium Declaration, and by not addressing the need to promote sustainable patterns of consumption and production. The result was that environment and development were never properly brought together. People were working hard – but often separately – on interlinked problems."[3] Nonetheless, the ocean-related issues identified in MDG 7 do represent cornerstones in protecting and preserving the natural resource base for sustainable development which continue to be pivotal issues for the ocean.

***Table 1*: Ocean-related Elements of MDG 7 – Ensure Environmental Sustainability**	
Target 7.A	Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources
Target 7.B	Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss
Indicator 7.4	Proportion of fish stocks within safe biological limits
Indicator 7.6	Proportion of terrestrial and marine areas protected
Indicator 7.7	Proportion of species threatened with extinction

[1] United Nations (2000) The Millennium Declaration. UN Doc. A/RES/55/L.2 of 8 September 2000.
[2] United Nations (2013) A New Global Partnership: Eradicate Poverty and Transform Economies Through Sustainable Development. The Report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda, 7.
[3] Ibid., 7.

As States came together in 2012 at Rio+20 to discuss the post-2015 development agenda, it was agreed that a new set of development goals, now referred to as the Sustainable Development Goals (SDGs), would be developed to augment and continue the critical development dialogue begun with with MDGs. As can be seen in the requirements and features of the SDGs as agreed by States (*Table 2*), the intentions and scope of the SDGs are potentially much broader.

***Table 2*: Requirements and Essential Features of the SDGs as Agreed by States at Rio+20[4]**
• Be based on Agenda 21 and the Johannesburg Plan of Implementation. • Fully respect all the Rio Principles. • Be consistent with international law. • Build upon commitments already made. • Contribute to the full implementation of the outcomes of all major summits in the economic, social and environmental fields. • Focus on priority areas for the achievement of sustainable development, being guided by the outcome document. • Address and incorporate in a balanced way all three dimensions of sustainable development and their interlinkages. • Be coherent with and integrated into the United Nations development agenda beyond 2015. • Not divert focus or effort from the achievement of the Millennium Development Goals. • Include active involvement of all relevant stakeholders, as appropriate, in the process. • Be action-oriented, concise and easy to communicate, limited in number, aspirational, global in nature and universally applicable to all countries, taking into account different national realities, capacities and levels of development and respecting national priorities.

In contrast to the MDGs, the SDGs are intended to address sustainable development processes universally – that is, in developed countries just as much as in developing countries – and to facilitate action by all actors at all levels as consistently urged in international policy documents such as Agenda 21 of 1992 and the Johannesburg Plan of Implementation of 2002. The SDG process has also sought to increase the participation of civil society, the private sector and science in the design of the future goal package from the very start in order to strengthen the capacity of the State to achieve sustainable development. It is hoped that this new interactional framework provides the conditions necessary for developing a coherent and compelling sustainability narrative to support the post-2015 development agenda which builds on the efforts undertaken to eradicate poverty and expands these into a much broader sustainability agenda.

With specific regard to the ocean, the SDG process may provide an opportunity to step up action on the individual ocean-related issues set out in MDG 7 and expand the profile of the ocean in the post-2015 development agenda. It should be noted that the SDG process initiated at Rio+20 and the various international policy efforts surrounding the post-2015 development agenda are happening in the same context as a number of critical junctures in international environmental law which could significantly and mutually influence each other's success – particularly on ocean-related issues. These junctures include the 21st meeting of the Conference of the Parties to the UNFCCC in 2015, the 2014 entry into force of the Nagoya Protocol on Access and Benefit-Sharing to the CBD and the pending decision to embark on negotiations toward a new legal instrument under UNCLOS on the conservation and sustainable use of biodiversity in areas beyond national jurisdiction expected in autumn 2015. If the SDG

[4] United Nations Conference on Sustainable Development (2012) Outcome Document: Rio+20 „The Future We Want", UN Doc. A/RES/66/288 of 11 September 2012, paras. 246-247.

process is able to make strategic use of this environmentally-focused legal momentum, a notable step could be made in integrating all three dimensions of sustainable development across the law-policy divide which could make goal-setting exercises such as the SDGs ultimately more meaningful.

2. Towards a Standalone SDG for the Ocean

In February 2014, several proposals for a standalone Ocean SDG were made by various civil society organizations and the academic community during the eighth session of the UN Open Working Group for the SDGs which also included individual targets and indicators. *Table 3* below presents three of these proposed goals which each emphasized slightly different aspects of ocean sustainability in their framing but display a number of commonalities in their efforts to balance both human and ecological issues. Each proposal referenced interconnections between the marine and terrestrial environments, the life-sustaining functions of the ocean and the role of ocean resources in providing a basis for human and economic development. The proposals differed whether they specifically included biodiversity as a further field of action in addition to ocean resources, the extent to which they included the built coastal environment in their purview and how they articulated what sustainable development could mean in their specific contexts ("inclusive economic and human development", "blue wealth", "equitable access", "sustainable and resilient coastal communities", "blue growth", "prosperous and resilient peoples and communities"). Such distinctions at the goal-framing stage have much deeper implications when extrapolated into corresponding targets and indicators at later stages.

Table 3: **Goal-Framing in Selected Proposals for an Ocean SDG**		
Sustainable Development Solutions Network	Goal 9: Secure biodiversity and Ensure Good Management of Water, Oceans, Forests and Natural Resources[5]	Biodiversity, marine and terrestrial ecosystems of local, regional, and global significance are inventoried, managed, and monitored to ensure the continuation of resilient and adaptive life support systems and to support sustainable development. Water, oceans, forests, and other natural resources are managed sustainably and transparently to support inclusive economic and human development.
Future Ocean – GEOMAR/University of Kiel	SDG Ocean and Coasts[6]	Secure blue wealth by ensuring a healthy and productive marine environment with all basic provisioning, support, regulation, and cultural services. Provide equitable access to ocean resources, and ensure that neither pollution nor the harvesting and extraction of animate and inanimate resources impair the basic functions of the ecosystem. Facilitate the development of sustainable and resilient coastal communities. Harmonize national and regional maritime policies, and encourage cooperation in coastal and global marine spatial planning.
Global Ocean Forum	SDG on Oceans and Seas[7]	Exercise stewardship of the oceans and seas, protect their vital role in sustaining life on Earth, and promote "blue growth" to achieve prosperous and resilient peoples and communities.

[5] Sustainable Development Solutions Network (2014), available at: http://unsdsn.org/resources/goals-and-targets/goal-9-secure-biodiversity-and-ensure-good-management-of-water-oceans-forests-and-natural-resources/.
[6] M Visbeck et al (2014) Securing blue wealth: The need for a special sustainable development goal for the ocean and coasts. 48 Marine Policy 184-191.
[7] Global Ocean Forum (2014), available at: https://globaloceanforumdotcom.files.wordpress.com/2014/02/gof-proposal-for-sdg-on-oceans-and-seas-april-17-2014.pdf.

After extensive negotiations over as many as 500 proposals on various topics from highly diverse stakeholders, the UN Open Working Group on Sustainable Development Goals (OWG), tasked with leading an inclusive and transparent intergovernmental process to propose a package of SDGs to the General Assembly, ultimately included a standalone Ocean SDG in its July 2014 outcome document alongside an additional standalone SDG addressing conservation, forest management, desertification, land degradation and biodiversity loss[8] (*Table 4*). The language used in Goal 14 is extremely sparse in contrast to the three earlier proposals and while certainly a succinct and non-objectionable statement, offers little to articulate a compelling sustainability narrative for the ocean that has not already be repeated in numerous other texts. While the OWG does provide a set of targets corresponding to Goal 14 which will be discussed later in Section IV, there is little dialogue between the framing of Goal 14 and the proposed targets which could be used as a basis for designing a development trajectory. Without coherent dialogue between goal-framing and target-setting, it will prove increasingly difficult to determine appropriate indicators to gather appropriate information to mark progress along that trajectory.

***Table 4*: Goals 14 and 15 as Agreed in the OWG Proposal**
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development. **Goal 15**. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

The global ocean community and the SIDS certainly welcomed the inclusion of its agenda in the next stages of the SDG deliberation process given the increased visibility the ocean is likely to gain in the crucial political processes of 2015 and beyond. The advantages of consolidating ocean issues into one potentially high profile SDG could foster increased policy coherence by referencing other existing goals, targets and indicators and communicating a sustainability narrative with the potential to reach a broader political audience beyond the ocean community. At the same time, this visibility may come at the expense of content and comprehensiveness in the goal itself, which could ultimately weaken its potential impacts. This issue could, however, be counteracted if ocean issues are well integrated into other SDGs as discussed in Section VI below.

One of the first indications that political trade-offs may have begun to erode the content of an Ocean SDG, however, is the lack of a specific reference to marine biodiversity in Goal 14 and the creation of Goal 15 as a dedicated biodiversity goal with a decidedly terrestrial emphasis. The existence of these two goals unfortunately reflects the classic chasm in ocean governance between the use of the ocean and its provisioning of resources for human development and the conservation of those resources and the marine environment in general for intergenerational and intrinsic reasons. Finding a balance between conservation and use of the ocean is one of the paramount challenges in efforts toward achieving ocean sustainability and could be hindered if targets and indicators are not carefully selected to ensure deep interconnections with Goal 15 (as well as further SDGs with potential ocean-related synergies) and the explicit inclusion of marine ecosystems and biodiversity in its framing. As it currently

[8] Introduction to the Proposal of the Open Working Group for Sustainable Development Goals of 19 July 2014, available at: http://sustainabledevelopment.un.org/content/documents/4518SDGs_FINAL_Proposal%20of%20OWG_19%20July%20at%201320hrsver3.pdf.

stands, this goal clearly underlines terrestrial concerns in natural resource management and biodiversity conservation and contains only one phrase "biodiversity loss" which could be construed to also include the protection of marine biodiversity, albeit as a subsidiary concern. It should be mentioned that "halting [marine] biodiversity loss" is an entirely different political and legal endeavor than the much more general "conservation of the oceans…" which generally implies efforts, at least at first, to address pollution and targets different spatial scales, actors, institutions and international legal obligations.

3. Spatial Considerations in Framing the Ocean SDG

Sustainable development issues are typically addressed within an individual State's physical territory encompassing the terrestrial and marine environment, its built environment and in regard to the population present within its territory, using its existing institutions and based on the principle of State sovereignty. Ocean sustainability involves action at entirely different – often global – scales and requires balancing the needs of ecosystems against often diffuse and remote human needs as well as institutional capacities. Compounding this, the ocean spans a number of different jurisdictions – even global commons – requiring cooperation and decision-making between sovereign States within a much more heterogeneous institutional landscape which frequently lacks the mandate or resources to take appropriate action where it is needed. An Ocean SDG would, on the one hand, certainly be global in nature and universally applicable to all countries, however a number of spatial issues must be considered in order to ensure that it can truly be action-oriented.

One initial concern with the design of the Ocean SDG is the relationship of the coastal zone to marine space ("oceans, seas and marine resources") in the primary focus of the goal. National policies and strategies frequently define coastal zones differently and therefore their responsible institutions may take entirely different approaches to management in the ocean-coast interface. It is well understood that many impacts on the ocean are caused by land-based activities (eutrophication, marine litter, damage to coastal habitats due to the expansion of human settlements and economic activities, CO_2 emissions from industry). At the same time, it is quite evident that previously terrestrial activities are increasingly moving into marine space as the next frontier of development. This can particularly be seen with offshore oil and gas production, renewable energies, carbon capture and storage, aquaculture and land reclamation, which all blur the boundaries between marine and terrestrial space. Coastal development issues such as ports, fish processing industries and tourist facilities are all highly connected to sustainable development trajectories in the ocean. Likewise, the small island developing States (SIDS) frequently underline their dependence on a sustainable ocean for their future development. While many of these issues fall under the exclusive jurisdiction of the coastal State as long as they remain within the territorial sea, their potential for transboundary influences and effects is rapidly increasing. The need for new governance tools such as marine spatial planning will increase as ocean activities expand into areas where States do not enjoy exclusive jurisdiction.

Spatially, the high seas (also referred to as areas beyond national jurisdiction) represent one of the most glaring problems standing in the way of ocean sustainability[9]. Human development activities are

[9] The terms "high seas" and "areas beyond national jurisdiction" have generally been used synonymously, however there is a need to engage in detailed legal discussion of their usage in UNCLOS, the CBD, CITES and other international treaties on interacting subject matter to ensure that these terms are in fact legally compatible

still largely concentrated in coastal areas at the intersections between the terrestrial and marine environments and sustainability efforts are logically concentrated there but they continue to expand into increasingly remote marine environments. These areas, representing 64% of the Earth's surface area and 95% of the ocean's volume, are governed a global commons subject to only minimum international regulation and therefore a *tabula rasa* for action toward sustainability. Due to the structure of the law of the sea, action can only be taken collectively yet there are few institutional mechanisms in place which can engage in active management at this scale and these are largely sectoral. Regional governance efforts are beginning to emerge to fill these needs, as sub-State and local processes have similarly emerged on land, however the international system has only just begun to recognize and foster what regional processes can contribute to sustainable development for the ocean. An Ocean SDG must take these unique issues of scale duly into account if it is to address the ocean holistically.

4. Designing Targets for the Ocean SDG: From Goal-Framing to Implementation

Due to general formulations and the repetition of existing commitments and established principles of international law and policy, consensus can normally be found relatively easily among diverse stakeholders at the goal-framing stage. This is particularly the case when the policy instrument in question, for example Agenda 21 or the Johannesburg Plan of Implementation, was intended as a comprehensive work program detailing potential actions within a broad institutional landscape rather than as a time-bound implementation strategy emphasizing financial mechanisms and measurable outputs targeted to more specific actors. In contrast to the previous grand strategies of sustainable development and likely the post-2015 development agenda yet to come, the SDG process has emphasized a concise, limited and actionable focus from the outset which consequently requires well-designed targets for its implementation.

Targets serve an important function in sustainable development strategies as they bring together the necessary components to enable action on a given goal: a predetermined time frame, a quantifiable outcome, financial resources and an institutional framework with the mandate and capacity for performing the action. Considering that the SDGs are only intended to be operational for a limited period of time (2016-2030), it is essential that careful attention is paid to the design of corresponding targets for each goal to ensure that all these features are clearly represented.

The OWG has produced a list of proposed targets for the Ocean SDG (*Table 5*) which raise a number of questions.

***Table 5*: Proposed Targets for Goal 14 in the OWG Proposal**	
14.1	By 2025, prevent and significantly reduce marine pollution of all kinds, particularly from land-based activities, including marine debris and nutrient pollution.
14.2	By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration, to achieve healthy and productive oceans.

and/or interchangeable. See K Houghton (2014) Identifying new pathways for ocean governance: The role of legal principles in areas beyond national jurisdiction. 48 Marine Policy 118-126.

14.3	Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels.
14.4	By 2020, effectively regulate harvesting, and end overfishing, illegal, unreported and unregulated (IUU) fishing and destructive fishing practices and implement science-based management plans, to restore fish stocks in the shortest time feasible at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.
14.5	By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on best available scientific information.
14.6	By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, and eliminate subsidies that contribute to IUU fishing, and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the WTO fisheries subsidies negotiation.
14.7	By 2030 increase the economic benefits to SIDS and LDCs from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism.
14.a	Increase scientific knowledge, develop research capacities and transfer marine technology taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular SIDS and LDCs.
14.b	Provide access of small-scale artisanal fishers to marine resources and markets.
14.c	Ensure the full implementation of international law, as reflected in UNCLOS for states parties to it, including, where applicable, existing regional and international regimes for the conservation and sustainable use of oceans and their resources by their parties.

When examining these targets for the Ocean SDG proposed by the OWG it quickly becomes apparent that there are a number of shortcomings in their current design despite the value of their thematic content. Some targets do not include a timeframe (14.3, 14.a.-c.) while others involve measurement of poorly quantifiable subject matter (14.2) or where baselines do not necessarily exist (14.1, 14.4). Other targets require clarification of the institutional framework within which action would take place (14.3, 14.6, 14.b). Regarding temporal issues, it appears that starting points for individual targets were chosen as the "here and now", taking up new policy impulses or extending existing political commitments which have not yet been met, without taking a scientifically verifiable baseline into account. Likewise, the endpoints for some targets appear rather arbitrary, linked to other on-going political processes or funding periods rather than ecological or social features (ecosystem recovery or human generations) of the process they are intended to measure. Only one target (14.7) coincides with the operational period of the SDG itself.

It should be noted that the OWG's proposed Ocean SDG targets are by no means a completed endeavor and can still be augmented with concepts and strategies developed under other Ocean SDG proposals such as those contained in *Table 3* above and whose corresponding targets are elaborated in *Table 6* below. As with the OWG proposals, however, timeframes, appropriate quantifications, institutional capacities and financial mechanisms must be identified for virtually all of these targets.

***Table 6*: Proposed Targets from other Ocean SDG Proposals**	
Sustainable Development Solutions Network	
9a.	Ensure resilient and productive ecosystems by adopting policies and legislation that address drivers of ecosystem degradation, and requiring individuals, businesses and governments to pay the social cost of pollution and use of environmental services.

9b.	Participate in and support regional and global arrangements to inventory, monitor, and protect biomes and environmental commons of regional and global significance and curb trans-boundary environmental harms, with robust systems in place no later than 2020.
9c.	All governments and businesses commit to the sustainable, integrated, and transparent management of water, agricultural land, forests, fisheries, mining, and hydrocarbon resources to support inclusive economic development and the achievement of all SDGs.
Future Ocean – GEOMAR/University of Kiel (adapted from the proposal, not enumerated)	
-	Establish a "World Ocean Public Trust" by 2030
-	Establish marine protected areas covering 10 percent of the ocean by 2020
-	Reduce overfishing, stop IUU fishing and curb marine pollution from both marine and land-based sources
-	Harmonize local and regional marine spatial planning and integrated coastal management by 2020
-	Ensure that all development activities respect planetary (and ocean) boundaries and conform with safe minimum standards of conservation
-	Ensure that the ocean's role as the most important carbon sink in the global carbon cycle is fully represented in climate policy
-	Increase the resilience and adaptive capacity of both the human and natural coastal subsystems, especially in developing countries, in order to ensure sustainable coastal development
-	Foster global approaches to ocean management, including monitoring at the global scale, which provide an overarching framework for regional, national and local implementation
-	Assemble all current and future requirements for the ocean and coasts and facilitate the identification both of current and future crisis hotspots and of new opportunities for development using a bespoke marine spatial planning methodology ("Future Ocean Spatial Planning") applicable to all maritime zones
-	Ensure full operationalization of the precautionary principle, the ecosystem approach, and intra- and inter-generational equity in the conservation and sustainable use of the ocean at all governance levels
Global Ocean Forum	
1	Achieve healthy marine ecosystems and marine biodiversity by establishing and applying integrated and ecosystem-based management approaches and measures, at the sub-national, national, and regional levels as appropriate, to ensure the basic life-sustaining and regulating functions of the ocean (oxygen production, key processes in the climate system and in the hydrological cycle).
2	Safegraurd the world's fisheries by ensuring that all fish stocks are being fished sustainably and effectively.
3	Reduce the incidence and impacts of marine pollution (marine debris, plastics, POPs, heavy metals, nitrogen-based compounds) from marine and land-based sources and enhance the implementation of regional global pollution protocols.
4	Establish and effectively manage ecologically representative and well-connected systems of marine protected areas in areas within and beyond national jurisdiction, covering at least 10 per cent of coastal and marine areas.
5	Improve cooperation and coordination at all levels, especially regional cooperation on oceans and seas, and the implementation of regional protocols on integrated and ecosystem-based ocean and coastal management to guide actions at national and regional levels.
6	Build the capacity of nations (including on marine management and on marine natural and social sciences) to sustainably and equitably manage the oceans and coasts under national jurisdiction.
7	Address the special needs of least developing countries, African countries, and small island developing states in the management of coastal and marine resources and enhance the economic and social benefits derived from these resources.
8	Develop the public's capacity to exercise ocean stewardship by improving awareness, literacy, and opportunities for action regarding critical ocean issues.

9	Integrate the principles and strategies of "blue growth/blue economy" in national economies to help eradicate poverty, move toward a low-carbon economy, enhance social inclusion, improve human welfare, and create job opprtunities in coastal and island communities, while maintaining healthy oceans.
10	Improve the management of oceans and coasts under national jurisdiction by scaling up successful national and sub-national efforts in integrated and ecosystem-based management to cover all coasts and ocean areas within national jurisdiction, and strengthen integrated institutions and ocean and coastal decision-making processes, including through the enactment of ocean coastal laws.
11	Ensure that coastal and island communities have adequate resources and management capacity in place for effective adaptation to the impacts of ocean warming and ocean acidification, including climate change-induced displacement of coastal and island peoples.

In addition to these more holistically oriented targets, *Table 7* contains two additional packages of targets to address more specialized thematic and spatial features of ocean sustainability which also deserve to be explored in more detail when designing a target package for an Ocean SDG.

***Table 7*: Targets Packages Addressing Biodiversity and the High Seas**	
Aichi Biodiversity Targets (part of the Strategic Plan 2011-2020 of the Convention on Biological Diversity)[10]	
1	By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.
2	By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.
3	By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions.
4	By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.
5	By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.
6	By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.
7	By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.
8	By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.
9	By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.
10	By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.
11	By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective areas-based conservation measures, and integrated into the wider landscapes and seascapes.

[10] Conference of the Parties of the Convention on Biological Diversity (2010) Decision X/2: Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets.

12	By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.
13	By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.
14	By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communties, and the poor and vulnerable.
15	By 2020, ecosystem resilience and contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation to combating desertification.
16	By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.
17	By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.
18	By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity and their customary use of biological resources are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities at all relevant levels.
19	By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.
20	By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resources Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.
Global Ocean Commission – High seas elements for a possible Ocean SDG[11] (proposed targets and indicators) including elements of SIDS Ocean SDG Proposal[12]	
-	Ensure that all fish stocks are being fished sustainably - Percentage of tonnage of fish landed within optimum sustainable yield (OSY) - Percentage of commercial fish stocks operating under science-based management plans - Number of data-deficient stocks being fished - Fleet size and capacity of flag States - Percentage of total subsidies reduced for distant water/high seas fishing fleets - Number of flag States freezing, capping or reducing fleet size
-	Protect vulnerable marine areas - Percentage of high seas in protected areas - International Seabed Authority requires Environmental Impact Assessments (EIAs) prior to leasing for exploitation - Number of RFMOs effectively implementing the ecosystem approach and the precautionary principle - Percentage of bottom fisheries operating pursuant to EIAs
-	Reduce biodiversity loss - Proportion of marine species assessed as threatened on the IUCN Red List - Proportion of threatened marine species effectively protected at the national, regional or international levels
-	Eliminate illegal, unreported and unregulated fishing - Number of flag States and RFMOs requiring IMO numbers and transponders for all fishing vessels more than 24 meters or 100 tonnes - Number of RFMOs having established satellite monitoring programmes

[11] Global Ocean Commission (2014) High seas elements for a possible Ocean SDG. Available at: http://www.globaloceancommission.org/wp-content/uploads/SDG-Global-Ocean-targets-and-indicators-Global-Ocean-Commission-High-Seas.pdf

[12] Available at: http://palauun.files.wordpress.com/2013/05/oceans-sustainable-development-goal-and-brief-palau-17-april-2013.pdf

	- Number of ratifications of the UN FAO Port States Measures Agreement and number of port States with supporting domestic implementing legislation - Percentage of high seas covered by RFMOs - Percentage of high-seas and straddling stocks under management by RFMOs
-	Reduce by [50%] quantities of plastic debris entering the marine environment - Number of countries with taxes and restrictions, including bans, on certain plastics uses - Number of local, national and other programmes to eliminate single use plastics and increase circular use - Increase in the number of and improvements to ports' waste disposal facilities

Although the SDGs are intended to pursue transformational change and therefore also include aspirational and intentionally broad elements, transformational change nonetheless consists of a series of small incremental changes which need to be systematically planned and coordinated across spatial, ecological and governance levels and timeframes. After decades of conceptual work on sustainable development, it is finally accepted that sustainable development is a process involving a series of input and output points along a longer-term development trajectory. A key function of targets is to establish the framework in which the relevant operational features of a development trajectory – here a sustainable ocean – can be defined. This enables the identification of where inputs in the form of financial resources, technologies, institutional capacities and scientific knowledge can be fed into the process and where incremental progress can be measured using well-designed indicators. Targets must therefore be viewed not only individually but also in relation to each other given their critical roles in the staging of activities for increased effectiveness and their prioritization of financial resources, institutional and human capacities within changing political landscapes. Each of these target packages offers unique approaches to this complex issue.

5. Designing Indicators for the Ocean SDG: Articulating the Science-Policy Interface

Goals, targets and indicators are essential elements in defining a development trajectory. While targets set out the time frames, financial resources and institutional structures necessary for achieving the overarching goal, indicators define input and output points for monitoring, advocacy, scientific information and communication with involved stakeholders. In end effect, indicators provide the "process space" for dynamic exchange between science and policy. Indicators can perhaps be considered the true narratives of sustainable development, providing mechanisms for overcoming the compartmentalization of science and policy. It is therefore highly notable that the OWG remained silent on indicators in its SDG Proposal.

There are many considerations involved in designing indicator packages and combining these to develop a meaningful index which reflects the values contained in the overarching goal they underpin. It is often difficult to agree on the types of indicators to be used, for example quantitative indicators for more science-oriented monitoring or proxy indicators to ensure that results can be broadly communicated to civil society and the media. It is also often difficult to agree what should actually be measured. Often the most important evidence of having achieved a goal or milestone involves unmeasurable, intrinsic features which are difficult to capture in an indicator. Scientific knowledge and capacity may also limit the extent to which certain features can be measured and whether these measurements can be replicated or compared in other settings. The demands on science for producing good data are likely to be immense and policymakers have been known to disregard science in decision-making, relying

instead on values and political pressure. It is also not resolved who should be responsible for conducting the measurements and monitoring the indicators. Indicators are certainly no longer the sole domain of the public sector – science-oriented advocacy organizations and private sector voluntary monitoring schemes have also become essential actors in data collection and analysis. Indeed, the involvement of non-State actors has greatly increased the profile of indicators in sustainable development processes and has made the discussion of transparency and accountability possible.

A fundamental question must also be addressed as to whether indicator packages should be regionally or locally determined or agreed universally. Regional and local indicators have the advantage that they might better reflect political priorities, human capacities and ecological conditions close to the point of action and involve a broader group of stakeholders, whereas universal indicators encourage comparability and provide a more coherent structure for financial mechanisms. For the ocean, however, universal, regional and local do not immediately correspond to ecosystems or institutions.

The purpose of the indicators also needs to be considered in this light. While the MDG process was directly linked to the provision of development assistance from the Global North to the Global South to address critical needs in the fight against poverty, the SDG process is not intended to be a State-based transfer mechanism *per se*. Instead, the SDGs are intended to engage new actors and societal innovators in transformation processes, not only through financial flows but also through new technologies, evolving business models which influence patterns of production and consumption and evolving institutional models to improve scalability and transferability of sustainability-focused actions. As seen in all other aspects of sustainable development, emphasis is clearly shifting to transnational, sub-national and regional level action. The roles of regional institutions, the private sector and individuals as well as novel tools such as voluntary commitments and industry self-regulation must also somehow be reflected in indicators and communicated as opportunities for more concerted action toward sustainability.

Finally, it needs to be determined where an indicator/monitoring framework for an Ocean SDG is intended to have an impact and how it can best be tailored to serve this purpose. Should it be designed to support management decisions at the local (ecosystem) scale or should it influence decision-making at other levels of governance, for example where financial decisions are made regarding resource prioritization and distribution? Should it feed into international diplomatic processes as reporting on the MDGs did in order to leverage development assistance? As discussed above in regard to institutions and financing mechanisms for targets, the identities and needs of the end users of the information must also be taken into account from start when designing an indicator package for an Ocean SDG. The task at hand now for truly operationalizing the Ocean SDG is therefore to develop an indicator package which can meet these challenges. Several indicator packages have already been proposed including the Ocean Health Index[13], the IUCN Red List[14], the Indicator Framework for the Aichi Biodiversity Targets[15] and a protected area overlay with biodiversity (yet to be developed), but each brings its own strengths and weaknesses regarding data availability, utility (and legitimacy) beyond its expert

[13] B Halpern et al (2012) An index to assess the health and benefits of the global ocean. 488 Nature: 615-620.
[14] IUCN (2009) A Users' Guide to the IUCN Red List Website. Available at: http://www.iucnredlist.org/news/iucn-red-list-site-made-easy-guide.
[15] Convention on Biological Diversity, Conference of the Parties, Decision XI/3: Monitoring progress in implementation of the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets: Indicator Framework. UN Doc. UNEP/CBD/COP/DEC/XI/3 of 5 December 2012.

community, inclusion of social, economic and environmental dimensions and its emphasis on measuring drivers vs. impacts. Perhaps the most widely discussed indicator packages for the Ocean SDG so far is the Ocean Health Index which sets out ten features with which to measure the ocean's capacity to deliver benefits to people which are then elaborated in a more extensive set of indicators (*Table 8*).

***Table 8*: Features of the Ocean Health Index**	
1	Food Provision (sustainable seafood harvesting, both captured and raised stocks)
2	Artisanal Fishing Opportunities (ensuring access at the small, local scale for communities dependent on fisheries)
3	Natural Products (sustainable harvesting of non-food resources)
4	Carbon Storage (amount of carbon stored in sea grasses, tidal marshes and mangroves)
5	Coastal Protection (protection against storm waves and flooding)
6	Coastal Livelihoods & Economies (livelihoods and stable economies through marine-related industries)
7	Tourism & Recreation (contributions to the economy from coastal and marine tourism, travel to coastal areas)
8	Sense of Place (iconic species and protected places for cultural, spiritual and aesthetic benefits)
9	Clean Waters – minimizing pollution (contamination by trash, nutrients, pathogens and chemicals)
10	Biodiversity – Healthy marine ecosystems (maintenance of the richness and variety of marine life, sub-goals concerning species and habitats)

At first glance, the Ocean Health Index addresses many of the issues set out in the OWG Ocean SDG and corresponding targets. It has already been producing results at the country level since 2012 using available data and is currently expanding its focus to include analyses of regions and various areas of the high seas. The Index assesses current status as well as the likely future, integrating reference points (representing ideal scores which can be adjusted to adapt to changing spatial, temporal and functional relationships), trends, pressures and sources of resilience according to a complex methodology[16]. The methodology also includes techniques for filling data gaps and alternative sources of data that can be integrated.

Scores for each individual feature in the Ocean Health Index can then be aggregated into an overall proxy score which can be easily communicated across the science-policy interface. On the one hand, this proxy score is an extremely useful tool for media and advocacy, but it raises one of the most fundamental issues in sustainability indicator design: weighting of individual components of an indicator package and their potential substitutability when aggregated. The Ocean Health Index methodology has already been criticized as it allows unlimited substitution between the assessed features of ocean health without allowing for differential weighting of areas of particular importance and intrinsic value; it has therefore been argued that it ultimately represents an extremely weak sustainability concept[17] despite many positive features. While we can only hope that the SDG process pursues the strongest possible conceptions of sustainability, we must ultimately accept that any indicator package ultimately

[16] Ocean Health Index (2014) Supplementary Methods. Available at: http://www.oceanhealthindex.org/About/Methods

[17] W Rickels, MF Quaas, M Visbeck (2014) How healthy is the human-ocean system? 9 Environ Res Lett 044013.

chosen for the Ocean SDG will be subjected to the brutal realities of bargaining and trade-offs in the political arena where only weaker conceptions of sustainability are likely to prevail. It can only be hoped that the indicator package for the SDG Ocean can be optimized to address substitutability concerns and carefully designed to mesh with other existing indicator packages where stronger sustainability concepts can be pursued at least in specific areas.

6. Fostering Integration Between and Across SDGs

For ocean sustainability, it is an extremely positive development that a dedicated Ocean SDG has been included in the OWG Proposal. Nonetheless, it should be recalled that one of the biggest criticisms of the MDG process was that the goals were essentially approached in isolation by their individual thematic communities. For the SDGs to be successful as a whole, attention must not only be paid to the design of each individual goal and its corresponding targets and indicators, but to also the systematic interconnections between all goals and their role in the larger context of sustainability. This requires not only integrated thinking but also a deep understanding of the three dimensions of sustainability which must permeate the science, decision-making and institutional structures involved in the implementation of the SDGs – both individually and collectively.

The myriad interactions between the various SDGs and their components are in themselves a critical element in the overarching sustainability narrative this process seeks to articulate. Rather than engaging in an endless analysis of gaps – a governance exercise which emphasizes the shortcomings of institutions and hinders holistic planning – attention should instead be paid to fostering conditions and contexts for coordinated action on cross-cutting topics. Synergies and mutually reinforcing structures can be identified not just at the level of goal-framing, but perhaps more critically in the target and indicator packages (even potentially shared indicators) which provide the true foundations for the realization of the given goal. Although this will pose considerable challenges in practice, the SDG process provides a forum to encourage cooperation and coordination amongst a diverse set of actors. Strategic and practical exchanges on the potential co-benefits of ocean sustainability for the non-ocean SDGs and the incorporation of successes from other fields could be valuable sources of innovative practice for the ocean. *Table 9* below contains some potential starting points for this essential discussion towards an integrated vision of ocean sustainability.

***Table 9*: Some Potential Interlinkages and Partnerships between the Ocean SDG (Goal 14) and other Proposed SDGs**	
Proposed SDGs	**Ocean-Relevant Issues**
Goal 2: End hunger, improve nutrition and promote sustainable agriculture	Science-based fisheries management, aquaculture, management of fertilizer run-off from agriculture
Goal 7: Ensure sustainable energy for all	Siting of offshore renewable energy facilities, risk management strategies for offshore oil and gas industries
Goal 8: Promote sustained, inclusive and sustainable economic growth	Modernization of on-shore ocean-dependent industries (fish processing, tourism), as well as economies largely dependent on ocean resources
Goal 9: Promote sustainable infrastructure and industrialization and foster innovation	Improve shipping efficiency, port design, energy and waste management of facilities, foster marine biotechnologies

Goal 11: Make cities and human settlements inclusive, safe and sustainable	Improve urban and spatial planning in coastal areas, integrate the natural environment in flood management, erosion control
Goal 13: Tackle climate change and its impacts	Ocean acidification, sea-level rise, ocean warming, dead zones
Goal 15: Protect and promote sustainable use of terrestrial ecosystems, halt desertification, land degradation and biodiversity loss	Marine species and ecosystem protection

Ultimately, we must also remain mindful that a dedicated Ocean SDG may not be included in the final package of SDGs for political reasons – irrespectively of how well it is crafted. The efforts we make to ensure the integration of ocean sustainability issues into the content of other SDGs may, however, prove to be our "Plan B" to ensure that the ocean nonetheless remains prominent in the post-2015 development agenda.

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