

# Can Sustainable Development Goal 14 Effectively Protect the Ocean Biodiversity?

Nathaniel John Maynard<sup>1</sup>, Yi-Yuan Su<sup>2</sup>

<sup>1</sup>International Doctoral Program in Asia-Pacific Studies, National Chengchi University, Taiwan

<sup>2</sup>Department of Law, National Chung Hsing University, Taiwan

E-mail: [suyiyuan@nchu.edu.tw](mailto:suyiyuan@nchu.edu.tw)

## ABSTRACT

*The world ocean faces significant ecological damage from climate change, overfishing, and land based pollution. Sustainable Development Goal 14, Life Under Water, seeks to address many of these impacts and creates a framework for unified action. Global development goals leverage the creation of common legal frameworks, create international cooperation opportunities, and refocus on funding. While the goals will likely generate increased awareness, our analysis indicates that many of the targets lack focus and may instead delay meaningful action with unclear causal linkages. For example, less than half of the targets address the root causes of biodiversity loss. However, most targets do create a potential for future improvement, only two targets fail all our criteria. Our initial analysis suggests that it will be up to NGOs and academic institutions to build upon this initial foundation to increase the strength of the targets related to marine protection and land based pollution so Goal 14 can live up to its ambition of protecting life under water.*

## INTRODUCTION

The ocean faces deep declines from synergistic increasing global impacts of overfishing, land based pollution, and climate change (Halpern et al., 2015). Conserving marine biodiversity fulfills ethical obligations of preserving public goods and also confers large sustained economic benefits (Rachel D. Cavanagh et al., 2016). Without proper conservation, especially the implementation of large scale marine protected areas (MPAs) the ocean will continue to decline (Worm, 2016). One such way to catalyze the needed support for large scale change rests with international collaboration through development initiatives.

The United Nations (UN) has created Sustainable Development Goal 14 to protect life underwater. The sustainable development goals are the next evolution of the millennium development goals and cover most major development issues from peace to healthcare to education (United Nations Economic and Social Council, 2016). Each goal covers a broad social good with accompanying targets and indicators to measure success. Analyzing how the goals define sustainability may yield useful lessons.

International development goals set a strong foundation for policy action and collaboration. Through creating common criteria, organizations across the globe can share best practices, assess new types of funding, cooperate across common frameworks, and in general work more effectively. However, when goals or targets differ from reality or fail to address root causes, inefficiencies arise. Previous critiques have noted that setting goals or targets at the international level may even inhibit progress (Shepherd et al., 2015). Improving design and implementation of

international goals can therefore net numerous benefits while building on previously supported consensus.

Then what defines a good goal? Existing analysis of SDG targets suggest that implementation, consistent with international law and measurability made up of strong scientific criteria ensure good goals (Stevance & Beth Fulton, Martin Visbeck, 2015). We believe expanding this analysis to also measure the capacity for targets to: leverage future change, set realistically achievable targets, and address the root cause of the problem, will create a more holistic picture of progress. In addition to the above criteria previous work in the healthcare sector has noted the importance of goal integration (Nunes, Lee, & O’Riordan, 2016). Therefore, our research analyzes sustainable development goal 14 and its targets to determine the extent which these targets match these criteria.

### **Description of threats**

Each target of goal 14 attempts to address a key threat to ocean biodiversity or a sub-threat. For our purposes the main threats can be categorized as: climate change, ocean acidification, overfishing (high seas and coastal), land based pollution (nutrient, heavy metals, and plastic), and habitat destruction.

Each of these threats has distinct causes and perceived solutions. While ocean acidification is a direct outcome of increased atmospheric carbon dioxide concentrations, it should be considered a separate threat as research, restoration, and adaptation are distinct from the other impacts of climate change. Furthermore, each of these threats has one or more pre-existing international frameworks for mitigation.

### **Existing goals**

The UN has worked for several decades to create forums for establishing shared legal norms and conservation practices to help address these cross-border oceanic issues. For each major topic, there exists at least one major international forum ranging from: The UNFCCC, Conventions on Biological Diversity, CITIES, FAO and RFMOs, MARPOL, AARHUS Convention, and the Regional Seas Initiatives. Due to the large number of international initiatives, government agencies, and NGOs working in this space, it is important to focus on the common ground of international forums. As the precedents set at this level will have cascade effects globally.

<b>Target</b>	<b>Threat Type</b>	<b>International Forum</b>
1	Pollution	AARHUS, MARPOL,
2	Habitat degradation / Overfishing	CBD, CITIES,
3	Climate change	UNFCC
4	Overfishing	FAO, CBD, CITIES
5	Overfishing	FAO, CBD
6	Overfishing	FAO, CBD, CITIES
7	Overfishing	SIDS, FAO
A	Capacity	UNESCO, various
B	Overfishing	Various
C	All	UNCLOS

## **Target review**

### ***Great targets***

Through our analysis, several targets stand out for their effectiveness, primarily targets 14.7, 14.a, 14.4, and 14.6. Two of these targets focus on fisheries, and two enable capacity building. For the fisheries targets, both build upon a growing international consensus to intelligently manage fisheries, including the removal of subsidies (Sumaila et al., 2016). They directly address the root cause and in doing so unlock more funding and support for future conservation efforts.

The two capacity building targets directly address the human elements of conservation. In both cases they provide tools to communities which historically lacked them, and will surely lead to stronger conservation outcomes (Bennett & Dearden, 2014). Letting communities close to their resources manage them, tends to lead to better conservation outcomes (Ferse, Máñez Costa, Máñez, Adhuri, & Glaser, 2010). Lastly, these goals also help accomplish other SDGs related to food security, education, livelihoods, and more. Linking up multiple SDGs can reduce implementation costs and maximize benefits.

### ***Poor targets***

While many targets fall between great and poor. Two stand out for their ambiguity relative to the scale of the challenge, targets 14.1 and 14.5.

While marine protected areas have been shown to increase biodiversity, they have been placed in poor locations and are seldom enforced appropriately. Setting MPAs as a target will encourage their creation for the sake of hitting a target without achieving larger fisheries sustainability (Edgar et al., 2014). Lastly, this target is weaker than existing international MPA goals.

The pollution target is equally disappointing in scope. By 2050, potentially there will be more plastic than fish by weight in the ocean, yet despite the severity of the problem this target uses weak and vague language (Ellen MacArthur Foundation, 2016). It provides no mechanism to reduce the amount of pollution, and does not engage with industrial processes or terrestrial sources.

For our analysis, the three criteria are not necessarily equal in importance. Rather they descend in order of importance. Dealing with the root cause of a biodiversity impact remains paramount, after that or should addressing the root cause remain elusive, you can then leverage future change for a remedy in the future. Lastly, can even this goal be achieved? Targets such as 14.3 that deal with ocean acidification still make a good effort to leverage change even though they cannot address the root cause from their action framework.

Merely having any ocean SDG is a great success and although some of the targets are less than ideal, simply having them at all signals a shift in global conservation ideology. COP 21 in Paris was the first climate change negotiation to have a major section dedicated to the ocean. As the international development community continues to acknowledge the oceans great importance, it remains critical to identify viable paths forward for conservation.

## CONCLUSION

In general, the targets under SDG goal 14 are mostly effective. Out of the ten targets, four do not address root causes, and of those four two of them do not set realistic targets. Four targets also meet all criteria, while the rest fall somewhere in between.

Target	Leverage Future Change	Realistic Target	Addresses Root Cause
14.1	No	No	No
14.2	Maybe	No	Yes
14.3	Yes	Yes	No
14.4	Yes	Yes	Yes
14.5	Maybe	No	No
14.6	Yes	Yes	Yes
14.7	Yes	Yes	Yes
14.a	Yes	Yes	Yes
14.b	Maybe	Maybe	No
14.c	Yes	Maybe	Maybe

Unfortunately, the targets that failed to meet our criteria also cover some of the largest and most complex problems of marine protected areas and land based pollution. These targets need either further specification or significant changes to help reach their goals. Land-based pollution remains complex as this target has co-related targets in other goals 6, 9, 11, 12, which all have targets related to land-based pollution. Perhaps, linking this ocean SDG target with the other targets will lead to stronger outcomes.

All four successful targets focus on a precise problem, aim for catalyzing full system change, and provide clear language to explain the purpose of the trajectory. Looking from the lens of collective impact one can see how these targets stand above the others (Hanleybrown, Kania, & Kramer, 2012). The UN in this case acts as the supporting organization while institutions across the world must work together to meet these goals. The clearer the goals and indicators, the less work on the part of the coordinating organization is required. Therefore, efforts should focus on improving the remaining targets and indicators to help catalyze larger scale change.

### Recommendations

All SDGs lack accompanying monitoring and evaluation criteria. As of this writing, many targets and indicators remain in development across various international agencies. How these indicators are measured or collected remain critical. For example, on target 14.1 covering pollution, do we measure nutrient pollution, mercury, or plastic? More precise indicators lead to great management effectiveness. The supplementary indicators do not offer a high level of

clarification which thus puts the SDGs out of reach for those outside the current discussion process.

Some targets, especially 14.5, fall below current international goals. By raising these minimum values to existing international standards, we can create a strong consensus and help align international cooperation. A target at a minimum should leverage future change, thus all targets, that do not meet these criteria should include language for the creation of funding or forums to spur work on these challenges.

The last recommendation is for those working on marine biodiversity conservation or any kind of development work. Unite current work with the existing SDGs, while the targets and indicators may not be ideal they form a solid basis for adaptation at a local level. By aligning research and conservation efforts with a broad international platform, success stories and new strategies can easily reach a wider audience.

To summarize, goal 14 as it stands remains a massive success for ocean biodiversity awareness. Naturally, all international norm setting criteria will have flaws and fail to meet certain criteria. However, based on the existing work of the millennium development goals and of the UNs long past of setting international targets, the targets for goal 14 should receive amendments to shore up their effectiveness.

Two targets fully lack meaningful attributes and those unfortunately cover crucial areas for marine biodiversity. The SDGs remain merely goals for the broader international community. It remains up to the public and private sectors to truly implement these changes, as many of these impacts remain outside the targets of goal 14. We welcome the continued adoption and implementation of goal 14 targets and look forward to making progress towards achieving them.

## REFERENCES

- Bennett, N. J., & Dearden, P. (2014). From measuring outcomes to providing inputs: Governance, management, and local development for more effective marine protected areas. *Marine Policy*, 50(PA), 96–110. <https://doi.org/10.1016/j.marpol.2014.05.005>
- Edgar, G. J., Stuart-Smith, R. D., Willis, T. J., Kininmonth, S., Baker, S. C., Banks, S., ... Thomson, R. J. (2014). Global conservation outcomes depend on marine protected areas with five key features. *Nature*, 506(7487), 216–20. <https://doi.org/10.1038/nature13022>
- Ellen MacArthur Foundation. (2016). *The New Plastics Economy: Rethinking the future of plastics*. *The World Economic Forum*. Geneva, Switze.
- Ferse, S. C. a., Máñez Costa, M., Máñez, K. S., Adhuri, D. S., & Glaser, M. (2010). Allies, not aliens: increasing the role of local communities in marine protected area implementation. *Environmental Conservation*, 37(1), 23–34. <https://doi.org/10.1017/S0376892910000172>
- Fletcher, C. S., Taylor, B. M., Rambaldi, A. N., Harman, B. P., Heyenga, S., Ganegodage, K. R., ... McAllister, R. (2013). *Costs and coasts: An empirical assessment of physical and institutional climate adaptation pathways*. *National Climate Change Adaptation Research Facility*. Retrieved from [http://apo.org.au/sites/default/files/docs/McAllister-2013-Costs-Coasts-Climate-Adaptation-WEB\\_0.pdf](http://apo.org.au/sites/default/files/docs/McAllister-2013-Costs-Coasts-Climate-Adaptation-WEB_0.pdf)
- Halpern, B. S., Frazier, M., Potapenko, J., Casey, K. S., Koenig, K., Longo, C., ... Walbridge, S. (2015). Spatial and temporal changes in cumulative human impacts on the world's ocean. *Nature Communications*, 6(May), 7615. <https://doi.org/10.1038/ncomms8615>
- Hanleybrown, F., Kania, J., & Kramer, M. (2012). Channeling Change: Making Collective Impact Work. *Stanford Social Innovation Review*, 9, Blog. Retrieved from

[http://www.ssireview.org/pdf/Channeling\\_Change\\_PDF.pdf](http://www.ssireview.org/pdf/Channeling_Change_PDF.pdf)

- Nunes, A. R., Lee, K., & O’Riordan, T. (2016). The importance of an integrating framework for achieving the Sustainable Development Goals: the example of health and well-being. *BMJ Global Health*, 1(3), e000068. <https://doi.org/10.1136/bmjgh-2016-000068>
- Rachel D. Cavanagh, Stefanie Broszeit, Graham M. Pillin, Susie M. Grant, Eugene J. Murphy, & Melanie C. Austen. (2016). Valuing biodiversity and ecosystem services: a useful way to manage and conserve marine resources? *Proc. R. Soc. B*, 283(20161635). <https://doi.org/10.1098/rspb.2016.1635>
- Stevance, A., & Beth Fulton, Martin Visbeck, K. H. (2015). *Review of Targets for the Sustainable Development Goals: The Science Perspective*. Paris. <https://doi.org/978-0-930357-97-9>
- Sumaila, U. R., Lam, V., Le Manach, F., Swartz, W., & Pauly, D. (2016). Global fisheries subsidies: An updated estimate. *Marine Policy*, 69, 189–193. <https://doi.org/10.1016/j.marpol.2015.12.026>
- United Nations Economic and Social Council. (2016). *Progress towards the Sustainable Development Goals Report of the Secretary-General*.
- Worm, B. (2016). Averting a global fisheries disaster. *Proceedings of the National Academy of Sciences*, 113(18), 201604008. <https://doi.org/10.1073/pnas.1604008113>

Date submitted: Nov. 13, 2017

Reviewed, edited and uploaded: Dec. 20, 2017