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CHAPTER 11
ACTIVE MARINE RESTORATION AND LAW

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RÉSUMÉ: *Les perspectives à long terme de l'abondance des ressources marines vivantes dans les eaux de l'océan mondial sont incertaines. Les temps ont changé rapidement. Certains États ont réagi au déclin des ressources marines avec deux stratégies génériques. Les premiers États ont désigné diverses aires marines protégées (AMP), en partie pour répondre à l'objectif 14.5 des objectifs de développement durable (ODD) visant à «conserver au moins 10% des zones côtières et marines». D'autre part, les États investissent dans de meilleurs programmes de surveillance et de lutte contre la fraude pour lutter contre la pêche illégale (INN-IUU). Ces solutions peuvent atténuer certaines pressions humaines sur les écosystèmes, mais ne contribuent pas directement à l'amélioration des valeurs écologiques marines. La restauration marine active correspond aux efforts coordonnés d'individus ou de groupes visant à faire revivre les structures et les fonctions des systèmes écologiques. Cela pourrait inclure des efforts ciblés pour restaurer les habitats endommagés par la plantation active d'herbes marines ou la greffe de récifs coralliens. Cela pourrait inclure le lâcher de poissons ou d'autres animaux marins dans une zone pour augmenter la population reproductrice. Certains États participent activement aux efforts de restauration du milieu marin. Mais le nombre d'États qui entreprennent de tels projets est limité.*
Ce chapitre présente trois propositions politiques ayant des implications juridiques pour poursuivre la restauration marine active et améliorer les performances de l'État au titre des obligations existantes en matière de restauration des stocks et des écosystèmes marins. Premièrement, les États doivent renforcer leur coopération en matière de recherche scientifique marine, afin d'améliorer les mesures qui soutiennent la «restauration marine active», notamment en intégrant de

nouveaux types de connaissances pour contribuer au rétablissement de l'écosystème. La deuxième restauration marine active, axée sur l›accélération des efforts de restauration, devrait être intégrée à la stratégie de développement internationale de «l'économie bleue». Enfin, étant donné que les océans ont des limites géopolitiques perméables, une restauration marine active et efficace peut nécessiter une nouvelle approche institutionnelle qui ne soit pas fondée sur l'État, mais sur le gardien. Si un Conseil Gardien des Océans devait se réunir et se voir conférer le pouvoir par les États de protéger les intérêts des océans, indépendamment de leurs intérêts, les priorités associées à la gouvernance des océans pourraient être très différentes de celles qui existent aujourd'hui.

Mots-clés: *restauration marine active; droit.*

ABSTRACT: *The long-term outlook for global ocean abundance of living marine resources is uncertain. Times have changed quickly. Some States have reacted to the decline in marine resources with two generic strategies. First States have been designating a variety of marine protected areas in part to respond to SDG target 14.5 to «conserve at least 10% of coastal and marine areas». Second, States have been investing in better monitoring and enforcement programs to address illegal fishing. These solutions may ameliorate certain human pressures on ecosystems, but do not directly contribute to the enhancement of marine ecological values. Active marine restoration is the coordinated efforts by individuals or groups to revive the structures and functions of ecological systems. This might include targeted efforts to revive habitat that is damaged through active planting of seagrasses or grafting of coral reefs. This might include releasing fish or other marine animals into an area to increase the breeding population. Some States are engaged in active marine restoration efforts. But the number of States undertaking such projects is limited.*

This chapter offers three political proposals with legal implications to further active marine restoration and improve state performance under existing duties to restore marine stocks and ecosystems. First, States need to enhance their existing marine scientific research cooperation to improve measures that support «active marine restoration» including incorporating new types of knowledge into assisting in ecosystem recovery. Second active marine restoration focused on accelerating restoration efforts should be mainstreamed as an international «blue economy» development strategy. Finally, given that oceans have permeable geopolitical boundaries, effective active marine restoration may require a new institutional approach that is not state-based but guardian-based. If an Ocean Guardian Council was to convene and be given powers by States to protect ocean interests independent of State interests, the priorities associated with ocean governance might be very different than those which exist today.

Keywords: *active marine restoration; law.*

The long-term outlook for global ocean abundance of living marine resources is uncertain. Times have changed quickly. Once, iconic fish such as cod were so plentiful that at least one seafarer claimed that the sea was «swarming with

fish»[1]. Today, cod stocks have plummeted from their historic abundance with additional pressures from warming oceans[2]. The reported amount of all types of fish captured at sea has decreased[3]. The number of vessels ranging from state of the art trawlers to unmotorized vessels remains around 4.6 million[4]. Fish and fish products remain one of the most traded food items in the world even though at least some fishing stocks are being fished at unsustainable levels[5]. The overall percentage of overfished stocks as proportion of fishery stocks has increased since 1975 when FAO first made calculations[6].

States have been aware of this ongoing trend and have responded with proposals to rebuild stocks. The UN Convention on the Law of the Sea (UNCLOS) orders coastal States to develop «proper conservation and management measures» within the exclusive economic zone that will «maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified» by both human needs («economic needs of coastal fishing communities» and «fishing patterns») and biological needs («the interdependence of stocks»)[7]. The 1995 Straddling Stocks Agreement, implementing UNCLOS includes as one of its general principles the expectation that fisheries conservation and management measures be «designed» to «maintain or restore stocks» at the levels mandated under the UNCLOS. Elaborating on the ecosystem based approach to fisheries managements, States are expected to also maintain or restore populations of «species belonging to the same ecosystem or associated with or dependent upon the target stocks [...] above levels at which their reproduction may become seriously threatened»[8]. Even though the legal standard of implementing conservation and management measures in order to restore populations to numbers just above levels at which a population might collapse seem to be a low threshold, it does offer clearer guidance about when States must apply the precautionary principle to their activities. Members of the treaty are expected to identify scientifically based reference points that can serve as «precautionary reference points» to «trigger preagreed conservation and management action»[9].

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[1] Hinds, B. (ed.), *Calendar of State Papers, Milan*, Vol. I (HMSO, 1912), nº 552, 336-338. English Translation from Italian (quoting from a letter from Raimondo di Soncino to the Duke of Milan in 1497 that in the waters of what is today Eastern Canada «the sea there is swarming with fish, which can be taken not only with a net but in baskets let down with a stone, so that it sinks in the water»).

[2] Whittle, P. (2018), «Historic Cod Fishery Had Worst Year in History in 2017», Associated Press, July 27, *https://www.usnews.com/news/best-states/maine/articles/2018-07-27/historic-cod-fishery-had-worst-year-in-history-in-2017* (Noting that a peak of 21 million pounds of cod were captured in 1991 but in 2017 only 79, 816 pounds were landed in 2017).

[3] FAO (2018), «The State of the World Fisheries and Aquaculture», 4 (Some of the decreases is attributable to El Nino conditions).

[4] *Ibid.,* 5.

[5] *Ibid.,* 15 and 41.

[6] *Ibid.,* 40.

[7] United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 UNTS 397, Art. 61(3).

[8] United Nations 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, Sept. 8, 1995, 2167 UNTS 88.

[9] *Ibid.,* Annex II.

Concerned that many States have not prioritized restoration efforts, States agreed in Sustainable Development Goal target 14.4 to «effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices [...] in order to restore fish stocks in the shortest time feasible» to levels producing maximum sustainable yield [10]. If this target was to be met and overfished stocks could be rebuilt to levels allowing for additional fishing effort, marine fisheries could contribute 16.5 million tonnes and $2 billion dollars additional income for States [11]. In the meantime, the decline in stocks and the increase in vessels are particularly acute in developing States.

Some States have reacted to the decline in marine resources with two generic strategies. First States have been designating a variety of marine protected areas in part to respond to SDG target 14.5 to «conserve at least 10% of coastal and marine areas» [12]. The purpose of some of these areas is to provide a temporary spatial solution to overfishing and to enhance habitat by giving ocean areas a chance to recover. The working theory is that a formal legal closure of an area will improve the performance of an ecosystem as target species plus associated species recover. Ideally, an MPA will encompass surface to seabed protection, but such expansive MPAs are rare due to competing uses. The challenge has been that designating MPAs is unlikely to have positive ecological benefits unless uses within a new reserve that compete with conservation and restoration needs can be effectively eliminated or limited. When human needs for food resources compete with the ability of an ecosystem to begin recovery, a «fully protected» MPA will fail if social considerations are ignored [13]. In particular, developing States struggle with effectively enforcing MPA provisions to allow for a reversal of conditions that have led to ecological decline.

Second, States have been investing in better monitoring and enforcement programs to address illegal fishing. With estimates of up to $23 billion of revenue being generated by illegal fishing, States have been reacting by improving port state inspections of vessels or deploying coast guard patrols. Eliminating illegal fishing is critical for stabilizing stocks from further declines but it is unlikely to lead to restoration of stocks. Legal fishing ventures contribute to overfishing particularly in zones where there is intense competition between fleets. Discard practices and excessive by catch undermine efforts to improve conservation and management measures.

One difficulty with both of these existing solutions as a means of returning abundance to the oceans is that States are largely only responding by restraining marine activities *e. g.* preventing parties from fishing in area where they previously

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[10] FAO (2018), *supra* 43, note.

[11] *Id.* at 44.

[12] This same goal was reflected in the Aichi Biodiversity Targets.

[13] Christie, P. *et al.,* «Starting point or solution? Community-based Marine Protected Areas in the Philippines», *Journal of Environmental Management,* 66, 441-454 (Describing how supportive community members unable to access an area previously used for fishing may have turned into poachers).

fished or ending fishing practices. These solutions may ameliorate certain human pressures on ecosystems, but do not directly contribute to the enhancement of marine ecological values. The natural recovery of individual areas made possible by implementing MPAs is important, but it does not fully address, however, the rapid loss of ecological systems. Natural recovery takes time and may not be sufficient in light of ongoing environmental pressures including problems that lack adequate responses such as acidification and warming oceans. A continued fixation of natural recovery has led to States missing opportunities to coordinate broad-based and long-term human efforts to accelerate marine ecosystem recovery. States must invest extensively in active marine and coastal restoration. While NGOs and communities can provide support in the form of local governance, States to meet legal obligation to achieve ecological restoration for areas under their jurisdiction must prioritize restoration as part of its development planning strategies.

Active marine restoration is the coordinated efforts by individuals or groups to revive the structures and functions of ecological systems. This might include targeted efforts to revive habitat that is damaged through active planting of seagrasses or grafting of coral reefs. This might include releasing fish or other marine animals into an area to increase the breeding population. This might also include removing conduits pollution such as point sources from dumping into marine waters. If successful, active marine restoration can «(1) [...] accelerate, recovery in the case of slow natural recovery [...] (2) [...] enable recovery when systems are stuck in alternative, less desirable states [...] or (3) [...] change the structure and/or function in cases of extreme decline of ecosystem services to form a healthy ecosystem» [14].

Some States are engaged in active marine restoration efforts. But the number of States undertaking such projects is limited. Restoration has been regarded primarily as part of a conservation strategy that has prioritized MPAs and combatting illegal, destructive fishing. Restoration has not yet been approached as a «marine development» strategy like a port development project. This general failure to conceive of restoration work as national development is a lost opportunity particularly in light of the variety of ecosystem services associated with oceans including food resources, flood protection, carbon sequestration, pollution reduction (filter feeders), and sand formation. Some States are engaged in a «blue economy» effort but only a few States have politically conceived of «active restoration» as a component of that economy [15].

This paper offers three political proposals with legal implications to further active marine restoration and improve state performance under existing duties to restore marine stocks and ecosystems. First, States need to enhance their existing marine scientific research cooperation to improve measures that support «active

[14] Abelson, A.; Halpern, B. S.; Reed, D. C., *et al.* (2016), «Upgrading Marine Ecosystem Restoration Using Ecological-Social Concepts», *Bioscience,* 66(2), 156-163 (159), doi:10.1093/biosci/biv171.

[15] Bleaching of coral in the Seychelles led the State to undertake active restoration efforts for coral reefs in hopes of improving the number of juvenile corals that might adapt to changing ecosystem conditions.

marine restoration» including incorporating new types of knowledge into assisting in ecosystem recovery. Second active marine restoration focused on accelerating restoration efforts should be mainstreamed as an international «blue economy» development strategy. Finally, given that oceans have permeable geopolitical boundaries, effective active marine restoration may require a new institutional approach that is not state-based but guardian-based.

1. INTERNATIONAL COOPERATION AND MARINE RESTORATION ECOLOGY

The UNCLOS treaty provides a potential legal framework for States to pursue programs for «active marine restoration». Four articles encompass aspects of marine restoration. First, Art. 197 of UNCLOS articulates an obligation for States to cooperate globally, or where appropriate regionally in «formulating and elaborating international rules, standards and recommended practices and procedures [...] for the protection and preservation of the marine environment». Second wealthier States are expected to assist developing States in the promotion of programs designed to assist with «the protection and preservation of the marine environment»[16]. Third, States, are expected to promote international cooperation in marine scientific research and to give other States «a reasonable opportunity» to obtain «information necessary to prevent and control damage [...] to the marine environment»[17]. Finally, States are expected to promote «actively the development and transfer of marine science and marine technology on fair and reasonable terms and conditions» which includes «the acquisition, evaluation and dissemination of marine technological knowledge»[18].

Taken together, these four obligations under UNCLOS support an increase in global investment in marine restoration ecology research to better understand the dynamics of marine restoration that can contribute to «protection and preservation of the marine environment». Restoration ecology is the study of ecological systems and how a degraded ecosystem can recover after damage to structures and functions. Basic science investments in restoration ecology research is essential because ecologists are still learning about how complex marine systems operate, what causes them to fail, and why recovery can be challenging. Findings from restoration ecology can contribute to successful future implementation of restoration policies. For example, a recent study finding that species diversity appears to be a critical factor for restoration of seagrass meadows in the Coral Triangle may inform future projects in other regions[19].

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[16] UNCLOS *supra*, 7, note, Art. 202.

[17] *Ibid.,* Art. 242.

[18] *Ibid.,* Art. 266 and 268.

[19] Williams, S. *et al.* (2017), «Species Richness Accelerates Ecosystem Restoration in the Coral Triangle», *PNAS,* 114 (45), November 7, 11986-11991 (Noting that challenges remain in managing ongoing human disturbances to restoration sites such as trampling, anchoring, and marine debris).

Even though Sustainable Development Goal Target 14A calls for States «to increase scientific knowledge, develop research capacity and transfer marine technology», the ability of many States to operate even basic research programs is undermined by financial constraints. Funding of basic ocean research has either declined or been stagnant in at least some of the major maritime powers[20]. Without basic ocean research, it is difficult to make advances in marine technology. For example, if scientists don't really know how coral reefs respond to certain restoration interventions, they are less likely to be able to develop breeding or grafting technologies that will be effective. Even where there may be proprietary marine technical know-how, States should facilitate access to and fair use of those technologies, which are likely to protect and preserve the marine environment.

Shaping active marine restoration programs based on shared findings from restoration would be a key contribution of the UNCLOS regime to restoring ocean resources. Developing international rules, standards and recommended practices and procedures that are capable of supporting salvage restoration efforts are likely to become increasingly important as States grapple with a combination of warming and acidifying oceans. Some of these rules might include technical rules indicating best practices for reef replenishment or connectivity. Other rules might include reducing certain types of land-based runoff to ensure good water quality for the re-establishment of coral communities.

Developing States host a large proportion of marine biodiversity in waters under their jurisdiction, particularly in tropical and semi-tropical regions. Without adequate international cooperation by wealthier States, many developing States are unable to support marine protection programs including restoration programs. While private support from non-governmental organizations is to be applauded, wealthy States should be underwriting marine scientific research expeditions in developing States designed not just to collect data but to strengthen domestic scientific communities in the countries where expeditions are taking place.

2. ACTIVE MARINE RESTORATION AND THE BLUE ECONOMY

Natural capital refers to those resources that form the basis of human life including soil, air, water, and biodiversity. This concept anchors efforts to reimagine business accounting to include environmental assets so that businesses will incorporate the environment into their corporate decision-making. In the marine sphere, there are numerous habitats including coral reefs, oyster reefs, seagrass, and coastal wetlands that contribute to natural capital particularly as breeding, spawning, and feeding grounds for marine species that humans rely upon for subsistence and livelihoods.

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[20] «Four Decades of Funding of U.S. Marine Biology: Are We in Trouble?» (November 26, 2012) *http://www.deepseanews.com/2012/11/four-decades-of-funding-of-u-s-marine-biology-are-we-in-trouble/*.

There is some evidence that «active restoration» offers a cost-effective means of reviving abundance in certain ecosystems particularly when measured on a decadal timescale. For example, in a model based on seagrass meadows and catchment areas in Queensland, Australia, a group of researchers explored the trade-offs between restoration and protection actions across complex land-sea systems. They discovered «controversially» that active marine restoration was the most cost-effective approach to recovering certain ecological values even though it involved initially higher costs[21].

The challenge has been in linking active marine restoration to the current dynamics of a market-driven economy. Bridging the need for abundant fisheries resources and healthy marine habitats with the desire of consumers looking for cheap market deals has often resulted in a normative disconnect. The financial viability of investing in «active restoration» in an economy (blue, green, or otherwise) remains largely untested as entrepreneurs and policymakers invest in new approaches such as aquaculture to meet fisheries needs. In a number of corners of the globe, however, there are some fledgling business and community efforts to support active marine restoration to improve fisheries resources. For example, Reef Design Labs has placed 3-D-printed coral reefs into the Maldives in hopes of helping to rebuild damaged coral[22].

Both domestic and international legal systems can create law and policy frameworks to enabling conditions for active restoration. At the domestic level, governments might fund community capacity building efforts to ensure that restoration projects are properly implemented. For some States, active restoration projects such as reforestation and invasive species removal provide dual benefits of reducing poverty and facilitating ecological restoration outcomes. Governments might also regulate marine based industries to require these industries to engage in active restoration of renewable resources or habitat after extraction or construction activities.

Existing «blue economy» policies and law have largely not incorporated any explicit objectives to restore damaged ecosystems within a State's maritime jurisdiction. The focus of existing first-generation «blue economy» policies has primarily been on linking general concepts of sustainability and planning with either enhancing or creating economic sectors for coastal tourism, fisheries and aquaculture, energy production, mining production, transport, and carbon markets. Opportunities may exist for domestic States to consider how active marine restoration investments could generate appropriate livelihoods and economic growth. The state of Quintana Roo in Mexico that depends heavily on tourism is banking

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[21] Saunders, M. I.; Bode, M.; Atkinson, S.; Klein, C. J.; Metaxas, A.; Beher, J., *et al.* (2017), «Simple rules can guide whether land- or ocean-based conservation will best benefit marine ecosystems», *PLoS Biol,* 15(9), 1-22(6), e2001886, *https://doi.org/10.1371/journal.pbio.2001886.*

[22] «A New Approach to Marine Restoration: 3-D Printing Coral Reefs with Ceramic», *Pacific Standard*, September 7, 2018, *https://psmag.com/environment/a-new-approach-to-marine-restoration-3-d-printing-coral-reefs-with-ceramic.*

on maintaining community livelihoods through active restoration investments. The model they have chosen is an indirect model using insurance products to provide funding to repair damages. In early 2018, the Quintana Roo government, the hotel owners association in Cancun and Puerto Morelos, and the Nature Conservancy purchased a parametric insurance policy for a portion of the Mesoamerican Reef to protect against coral loss due to storm damage[23].

Funding is available for marine restoration projects through the Global Environmental Facility but these funds are limited compared to other financial transfers[24]. International financial institutions can encourage coastal States seeking international loans or grants to develop poverty reduction strategy papers (PRSP) that consider the long-term value of investing in active marine restoration as a means of recovering ecosystem services. Protection of marine resources through community restoration has not been identified as a specific strategy for PRSP drafters. Within PRSP's collected by IMF[25], there are descriptions of environmental restoration objectives but these reference terrestrial restoration projects involving particularly reforestation and recovery of soil on agricultural lands. Active marine restoration (in the form of mostly habitat restoration) should be an investment targeted to both protect natural capital and enable new livelihoods.

«Blue economy» principles can be incorporated into restoration objectives as demonstrated by the Indonesian Pemuteran Bay Coral Protection Foundation. This organization has designed 75 artificial biorock reefs to restore fish stocks while also creating youth jobs for implementing biorock reef restoration technology[26]. Sufficient capital investment by the State could provide a boost to spreading the restoration technology as appropriate.

3. OCEAN GUARDIAN COUNCIL

In the last decade, there is an increasing understanding of the human impacts on ocean resources caused by fishing, cargo transport, land-based pollution, and fossil fuel combustion. We understand that marine abundance cannot be taken for granted. Yet, States continue to make governmental decisions that substitute short-term economic gains for long-term economic losses. There are few effective checks and balances on State domestic decision-making regarding coastal and marine resources under their jurisdiction that may have international implications.

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[23] Tercek, M. (2018), «Business to the Rescue: Insurance for Reef Restoration» (March 8, 2018), *https://www.nature.org/en-us/about-us/who-we-are/our-people/mark-tercek/business-to-the-rescue--insurance-for-reef-restoration/.*

[24] UN Development Programme (2017), *Making Waves: Community Solutions, Sustainable Oceans*. (Describing a 850 hectare mangrove restoration project in Mexico that had created 60 direct jobs and benefited 170 individuals).

[25] Poverty Reduction Strategy Papers, *https://www.imf.org/external/np/prsp/prsp.aspx* (The subject of fisheries has been mainstreamed into a number of the Poverty Reduction Strategy Papers as a subject for development).

[26] *Supra* note 24 at p. 42.

The largely State-centric nature of existing ocean governance is reflected in Art. 193 of UNCLOS declaring that «States have the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment»[27]. The question of institutions has become a subject for debate among State delegation to the current negotiations to protect marine biodiversity in Areas Beyond National Jurisdiction (ABNJ). Some delegates and interest groups have raised the question of whether coordination with existing regional institutions is most appropriate or whether a new international agency should be created to address the administration of regions of ABNJ[28]. While there is no consensus around this meta-issue of having a sectoral, global, or hybrid approach, it is probably safe to predict that the institution, as a creature of an inter-state compromise will predominantly represent State interests associated with the ocean.

While the first two recommendations to improve implementation of «active marine restoration» efforts may be difficult to conceive of in terms of coordination and financial investment, the last recommendation calls for a re-imagination of how we do decision-making around restoration objectives. What if the «we the peoples of the United Nations»[29] were to acknowledge that the ocean as a living system has rights independent of the rights of States and independent of the rights of individual humans? A number of legal systems have recognized that nature has rights independent of other systems of rights and obligations[30]. One reason for recognizing inherent rights of the ocean as a system to be protected and restored is to protect our (*e. g.* «we the peoples of the United Nations») existing and future relationship with the ocean.

Under our current ocean governance system, there is an assumption that the ocean is an object to be managed by various institutions, sectoral or global. The ocean has not been considered by delegations to be a legal subject capable of sustaining legal personality. In part, this may be the product of the utilitarian nature of international negotiations where the need for State consent presupposes that the State is the only source of rights and authority. Yet, as New Zealand has demonstrated there are alternatives ways to conceptualize of governance. In response to settlement agreements under the Treaty of Waitangi, the New Zealand Parliament concluded the Te Awa Tupua Act of 2017, which grants legal personhood to the Whanganui River and the river basin[31]. Rights are vested in Te Awa Tupua and a guardian Te Pou Tupua, composed of two individuals, acts on behalf of the river's interests. The State of New Zealand has assigned NZ $30 million to support implementation of the Act.

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[27] UNCLOS, *supra* note 7, Art. 193.

[28] Wahlen, C. (2018), «Conference Addresses Management Tools for Marine Biodiversity Areas Beyond National Jurisdiction», September 25, *http://sdg.iisd.org/news/conference-addresses-management-tools-for-marine-biodiversity-areas-beyond-national-jurisdiction/*.

[29] Charter of the United Nations, 24 October 1945, 1 UNTS XVI, Preamble.

[30] Cano Pecharroman, L. (2018), «Rights of Nature: Rivers that Can Stand in Court», Resources, 1-14: doi:10.3990/resources7010013 (Noting recognition by India, Ecuador, Colombia, and New Zealand).

[31] New Zealand Parliament, Te Awa Tupua (Whanganui River Claims Settlement Act 2017, nº 7).

What if we could envision a similar system for the oceans. If an Ocean Guardian Council was to convene and be given powers by States to protect ocean interests independent of State interests, the priorities associated with ocean governance might be very different than those which exist today. There would be likely more emphasis on investing in restoration efforts and less on resource allocation and exploitation such as deep seabed mining. The political hurdles are obvious in creating any institution to support rights of the ocean as a subject of law, but this proposal offers the type of paradigm shift that might be needed to accelerate restoration efforts. If an Ocean Guardian Council could be created, then there would be another source of authority to manage our living relationships.

Accepting that this vision of a world where the ocean has rights may be too threatening to the existing sovereign world order, there may still be some opportunities in interstate negotiations to consider how to institutionalize ocean ecosystem needs. One of the topics in the ABNJ package negotiations is requiring environmental impact assessments (EIA) of certain ocean activities. While it is unclear what standards of thresholds might trigger an international EIA process, there is an opportunity to think about what kinds of stakeholder bodies could participate in the process. One possibility might be to have a UN Ombudsperson appointed to solely represent the interest of the oceans in an EIA process. In the context of proposed exploitation activities, this Ombudsperson would be expected to address not only impacts but also the financial and ecological viability of restoration to address specific impacts.

While any such office of an Ombudsperson would be limited in their powers to information-sharing, there are advantages in having such an office created. While many non-governmental organizations are committed to ocean protection, these organizations cannot be said to only represent the interests of the oceans because they have other parties involved directly and indirectly in how they do their representation including funders. The advantage of introducing an Ombudsperson would be to have one steady voice documenting the nature and extent of the human relationship to the oceans. Perhaps, reports from such an Ombudsperson might simply operate as a voice of conscience reminding us repeatedly of the interconnectivity of ocean ecosystems or such reports might slowly change the norms of ocean governance decision-making. Through the role of a person «who speaks for the oceans», the concept of «marine restoration» as a possibility for managing the human relationships with an already damaged ocean may gain political legitimacy.

4. CONCLUSION

While legal standards for marine restoration under existing treaties are generally limited to protecting the fisheries management target of maximum sustainable yield, there is an increasing awareness that conservation and regulatory enforcement efforts alone may not achieve this target and certainly will not recover historical levels of ocean resource abundance. States or groups delegated authority

by States will need to undertake active marine restoration efforts to protect the interests of human communities. Active marine restoration has not received much investment as a conservation and management measure because of questions about the success rate of restoration projects and the upfront costs associated with initiating a project. This paper offered three political proposals with legal implications for strategically and broadly implementing active marine restoration.

Can we return to abundance? It depends on the commitments that are possible to restrain exploitation but also revive resources through cooperative restoration efforts. Reflecting on the unravelling of the web of life in the oceans, author Callum Roberts comments: «[I[f you are wondering whether it matters that life in the sea has gone down, the answer is yes. In the long term, it is a matter of life and death to all of us [...] The oceans have colossal importance in keeping our planet habitable. If they fail so do we»[32].

These are not the words of a cynic, but words of warning that regrettably we have a limited window for action before we no longer hope to recover values that matter to us today and will probably matter to future generations. Seven billion people may need to reimagine our relationship with the oceans which will require more cooperation in understanding the possibilities of restoration ecology for marine ecosystems, more international and domestic investment in restoration activities, and more respect for the interests and possibly the rights of the ocean ecosystems to be protected and restored.

[32] Roberts, C. (2015), «Our Seas Are Being Degraded, Fishing Are Dying, But Humanity is Threatened Too», *The Guardian*, September 19 (Noting that over the course of 45 years we have half the wildlife left in the oceans than we had historically).