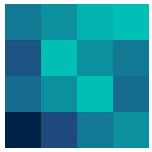


THE EARTH LAW FRAMEWORK FOR MARINE PROTECTED AREAS

ADOPTING A HOLISTIC, SYSTEMS,
AND RIGHTS-BASED APPROACH
TO OCEAN GOVERNANCE

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LETTER OF SUPPORT FOR Earth Law Framework for Marine Protected Areas Initiative

As an international environmental lawyer for more than 30 years, I have played a role in helping develop and apply legal principles and guidelines for marine protected areas (their species and ecosystems), recently through IUCN Guidelines for Protected Areas Legislation (2011) and its major new section devoted to special legal considerations for marine protected areas and networks. In recent years, I have seen a pronounced increase in law and policy activity to protect the Earth's biodiversity and ecosystem functions in the face of growing degradation, loss, and human-generated threats. At least two factors are propelling this upturn. First, renewed cultural commitments loudly voiced, especially among indigenous peoples, to respect and protect nature in its own right. Second, advances in science and technology have significantly improved understanding about the fundamental interdependences between human and non-human natural beings and the basic Earth processes critical for life.

This wave of heightened concern has come full force to our oceans (some 70 percent of the surface of the planet) at a time when science is finding alarming and accelerating rates of deterioration, threatening basic ecological functions (including climate stability) and life support systems. Networks of marine protected areas are being expanded as an essential part of conserving and restoring marine environments and biodiversity, particularly in national and coastal waters. Countries are enacting or strengthening laws and policies in these areas.

A persistent concern underlying these traditional legal efforts, however, and one especially appropriate for all Earth Days, is how to legally ensure the well-being of nature and the natural processes of Earth, independent of human use today or in the future. How to secure enduring respect and protection of the

inherent values and functions of nature on which all human life depends, regardless of shifts in human politics or global change, including climate change. This is what the Earth Law Framework for MPAs being launched today is all about. It provides a much-needed overarching policy framework to spearhead dialogue and develop global and national policies to protect the intrinsic value of the Earth's oceans. It recognizes legally-grounded marine protected areas as a principal tool for ocean conservation, and in that context, sets out several guiding principles of legal importance, including that the oceans have inherent rights and that to safeguard MPAs and the ecological systems of which they are a part, MPAs need an independent voice by human representatives properly empowered in law to speak on behalf of the particular MPA in legal and policy matters.

The time has come to recognize these legal principles, some of which are already being tested in countries, to ensure protection of our oceans' health and sustainability of their natural processes. I applaud the launch of the Earth Law Framework for MPAs and am hopeful that we will all come together to work toward its implementation as a framework and living document on oceans' rights.

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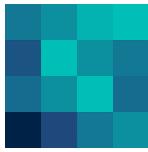
The views expressed above are mine alone and do not necessarily reflect the official policy or position of Mote Marine Laboratory



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Foreword

As the largest ecosystem on Earth, the ocean supports all life.

The ocean produces half of the world's oxygen, absorbs and sequesters one third of the carbon dioxide human activities emit, provides protection from extreme weather events, and provides a source of food and livelihoods. In fact, 20 percent of the human population depends on the ocean for their primary source of protein, and over seven percent rely on the ocean for jobs and income.¹ Additionally, the ocean provides key medicinal components and treatments, such as the anticancer drug, Ara-C² and an enzyme to treat asthma.³ Being near and on the ocean is proven to boost human mental and physical health.⁴ In short, human life and well-being depend on the ocean (UNEP, 2011).⁵ An estimated 50-80 percent of all life on Earth is found in the ocean.⁶

Overfishing, climate change, and plastic pollution⁷ have left the ocean in a rapid state of decline and in imminent danger of losing its capacity to support life.⁸ Society uses marine environments in many ways including fishing, tourism, aquaculture, and energy production. As a result, 60 percent of the world's major marine ecosystems are degraded or used unsustainably, leading to a decline in marine biodiversity of 49 percent, roughly half of what it was 50 years ago.⁹

Marine protected areas (MPA) can help conserve and protect this vital ecosystem. We can ensure effective implementation by legally ensuring these areas prevent degradation

beyond the point of natural restoration rather than continue to allow pollution and harm.

The Earth Law Framework is a guideline for adopting a holistic and rights-based approach to marine protected area governance. The aim of the framework is to help countries establish marine protected areas using an Earth Law approach. With this approach there is balance. Our laws and forms of development work together, with consideration of social, cultural, environmental and economic issues.

The framework is not intended to replace those guidelines already well established internationally and nationally, including the International Union for the Conservation of Nature's 'Guideline for Marine Protected Areas' or the National Oceanic and Atmospheric Organization's 'Framework for the National System of Marine Protected Areas of the United States of America.' Nor is it intended to provide in detail the various actions needed to make an effective MPA and the day-to-day management of MPAs, for the above guidelines already do so. Instead the framework serves as a guideline to evolve governance so that it incorporates a holistic and



rights-based approach into the designation and management of marine protected areas. It includes practical state-of-the-art guidance, with case studies and examples throughout, for those interested in strengthening marine protected area legislation. Those who will find this framework useful include policy-makers, planners and field managers, legal drafters, governmental and non-governmental stakeholders, and members of the scientific and academic community.

Law is well known for its inability to keep pace with scientific developments;¹⁰ significant lag time exists between once a threat is determined and when a law is enacted and implemented. Environmental and ocean law and policy is no different. Management structures put in place 20 years ago simply cannot keep pace with the growing threats the ocean faces. When employed, the Earth Law Framework allows humans to keep pace with and adapt to the varying management needs and challenges that may occur.

Extending the current framework by incorporating principles of Earth Jurisprudence will allow the ocean to restore and regenerate itself. In this document we outline the next evolution in ocean protection, with

basic principles, approaches, and examples to illustrate the practicalities.

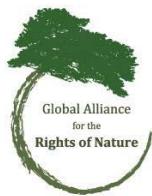
We call upon governments, stakeholders, managers and practitioners alike to evolve the current framework into one that recognizes the rights of all species and ecosystems, and properly balances human life and activities equally with the wellbeing and capacity of the ocean. We urge governments and organizations to implement into concrete action the various international conventions and resolutions they have adopted on the rights of nature and holistic ocean management.

We must protect the ocean for its own benefit, and for the benefit of the Earth, not just for humans, and recognize both the rights of future generations and the rights of the ocean itself. The ocean is not static and our laws should not be either.

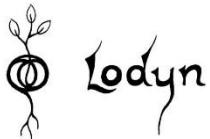
"In short, we can do better by listening to the sea." Robert Jay Wilder



Endorsements

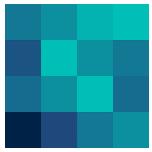


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EXECUTIVE SUMMARY

OUR VISION

A Future in which Humans and the Ocean Flourish Together

The Earth Law Framework for Marine Protected Areas serves as a guideline for an implemented approach to marine protected area governance that allows humans to live sustainably within the ocean's ecological limits. It calls for:

- A. the legal recognition of the marine protected area (the marine ecosystem and species within);
- B. the legal recognition of the rights of and values associated with the marine protected area;
- C. the appointment of guardians to represent the marine protected area's interests, i.e. "Office of the MPA";
- D. the right for humans to speak on behalf of the marine protected area in legal matters;
- E. the application of legal rights in the existing governance system;

There exist Eleven Guiding Principles for the Earth Law Framework for Marine Protected Areas:

- 1. Protected area umbrella legislation must recognize and protect the ocean's inherent rights and intrinsic value.
- 2. Protected area management must place us within the capacity of natural laws.
- 3. To effectively protect and restore the ocean we must adopt a true "systems-approach;" moving beyond maintaining an ecosystem simply to provide services to humans and moving towards maintaining an ecosystem to provide for the continued functions of its constituting elements in perpetuity.
- 4. Protected area legislation must prevent declaring the ocean as a "resource," and instead aim to define the ocean as a legal entity with all the rights, duties and responsibilities of a legal person.
- 5. Governance must aim to conserve and restore the ocean as the highest objective for management.
- 6. Management must aim to achieve a 'healthy ocean' where the definition of healthy is informed by science and defined by the ocean's own wellbeing and natural state, rather than by its utility to humans.
- 7. A significant proportion of the protected area must be set aside to exist without human disturbance.
- 8. Those enacting the protection process, and in particular managing offices, must be "Guardians;" human representatives of the ocean itself.
- 9. We have a collective responsibility and right to respect and protect the ocean, and we must be allowed to exercise that right.
- 10. The ocean is a complex interconnection of systems and processes and the absence of concrete information should not prevent protective and restorative action; and the burden of proof shall be placed on those wishing to undertake the extractive or exploitative activity.
- 11. Cetaceans play an important role in conserving the ocean and can help guide management decisions about conserving the ocean (see Box 2).



I BACKGROUND AND RATIONALE

CHANGING THE LANGUAGE OF CONSERVATION

There is a growing awareness of “the importance of language,” its role in determining our ethical and moral considerations towards nature, and how our perceptions and values drive conservation.¹¹ As Robert Jay Wilder noted in the late 1990s, “words and their meanings matter.”¹² Therefore, it is of great concern, that anthropocentric language dominates conservation, and in particular ocean law and policy.

For example, the language of sustainable development, “represents nature as having mainly instrumental value … making it impossible to articulate a compelling moral imperative against wanton species extinction.” The concept of sustainable development was:

taken up quickly because it falls back on the human-centered values that we best understand, and thus it seems not to require us to be rigorous in thinking through the ethical implications for nature. We understand the utilitarian dimension of the problem; loss in biodiversity impairs the capacity of ecosystems to provide services for human benefit. But the cost for humans is the primary issue, not the loss of abundance and variety of life forms (e.g., Worm et al., 2006).

There is, obviously, nothing wrong with conserving species for the sake of supporting

human needs, but that is not what has happened and it cannot be our primary concern. The values of [sustainable development] paid lip service to “nature first.” In practice, it reinforced the idea that humans are above other species in their needs and in their rights to fulfill those needs, by using or overrunning nature. The reverse is unthinkable, quite literally, because we cannot comprehend the nature of the values that would prioritize non-human life forms and allow humans to benefit from the spillover of abundance. We are immersed in a value paradigm that creates resistance to the very idea, like a muscle that seems unstretchable. Changing this not only requires complying with the scientific evidence of dependency of humanity on nature, but forces the conservation community to analyze its concept of nature and clarify the ethical grounds for valuing life.¹³

Indeed, the language of Sustainable Development Goal 14 to “conserve and sustainably use the oceans, seas and marine resources for sustainable development” equates the oceans value to human wants and needs, failing to mention conserving the ocean for use and enjoyment by the rest of the planet. It is now imperative, in order to prevent the “crisis of life” now evident,¹⁴ to evolve our perceptions and values, transitioning to language and law that represents the interconnectedness of ecological processes, that sees humans as embedded within nature, and listens to the sea.¹⁵

Why does nature have rights?

Earth Law (or Jurisprudence) and the Rights of Nature is an emerging paradigm transforming the governance systems of today’s societies. Earth Law explicitly recognizes that nature has rights and balances the needs of human beings against the needs of the planet.

This is in stark contrast to legal systems around the world, where nature is treated as “property.” As such,

environmental laws “actually legalize environmental harm by regulating how much pollution or destruction of nature can occur within the law” in order to protect property, human and corporate rights.

The United Nations Harmony with Nature initiative outlines four main principles guiding the philosophy of Earth Law:

- **subjectivity:** the Universe is a holism, with values and rights;
- **community:** everything is related and coexists with everything else;
- **lawfulness and order:** there are organizing patterns in the Universe and in the Earth community that we can detect and understand; and
- **wildness:** the order and lawfulness in the Universe remains dynamic, mysterious and unpredictable.¹⁶

Earth Law governs humans as co-equal partners with other Earth members due to the assumption that all beings have the same fundamental rights.¹⁷ This idea stems from a basic flow of logic set forth by historian and philosopher Thomas Berry: “Rights originate where existence originates. That which determines existence determines rights.”¹⁸ In particular, there are three rights for every member of the Earth community: the right to be, the right to habitat and the right to fulfill its role in the ever-renewing processes of the Earth community.¹⁹

Humans and the natural environment are mutually interdependent. Stemming from Buddhist thinking, “each human being exists within the context of interrelationships that include not only other human beings but all living beings and the natural world.”²⁰ This means that life and the environment are one, and that humans not only “shape our environment, but we are also products of our environment.”²¹

When the United Nations drafted the Universal Declaration of Human Rights, the drafting committee observed that “the supreme value of the human person ... did not originate in the decision of worldly power, but rather in the fact of existing.” Similarly, just as humans have rights due to existing, so too does other

life (plants, animals and by extension the ecosystems they create). Accordingly, Earth Law establishes, in environmental law and policy, nature’s inherent rights to exist, thrive and evolve.

The Rule of Law

The Rule of Law is a framework based on the idea “that societies should be governed by a set of fair rules and standards that applies to everyone equally.”²² The same principles of justice, accountability, and equality apply to all beings and is a “binding element within and between human well-being ... and sustainable development.” These same principles apply in the context of environmental conservation and protection and are essential to “peace, social and economic well-being.”²³

Different definitions of the Rule of Law exist, but there is a consensus that the successful application requires the identification and enforcement of legal rights and responsibilities,²⁴ and that “universal moral values and ethical norms of behavior” are essential to sustainable development.²⁵ In fact, the “Rule of law” is recognized as a major governance principle for protected areas by five out of seven international organizations.²⁶

If the Rule of Law requires that the same principles of rights, justice and equity apply to the environment, then nature must be recognized in law as a “legal entity” with the same rights as a legal person.

An Indigenous worldview

Rights of nature is in line with indigenous cultures’ traditional worldviews and conceptions. Rooted in deep indigenous knowledge, is a deep respect and understanding that nature and humans are intimately connected.²⁷ For centuries, indigenous peoples have lived in harmony with the ecosystems they are a part of.²⁸

The Quechua peoples of the Andes approach development through the concept of “sumak kawsay”

or “*buen vivir*.” Translating roughly to “good living” in English, the idea centers on living “well” rather than “better.”

The worldview “describes a way of life and a form of development that sees social, cultural, environmental and economic issues working together and in balance.”²⁹ In 2012, Bolivia passed the Framework Law of Mother Earth and Holistic Development for Living Well, aiming to link the concepts of rights of nature, holistic development and *buen vivir*; and in 2008, Ecuador amended its constitution to require “development in line with *buen vivir* in order to fulfill the rights of nature.”³⁰

Principle 22 of the Rio Declaration on Environment and Development notes that “indigenous people and their communities ... have a vital role in environmental management and development because of their knowledge and traditional practices.”³¹ With an emphasis on wholeness, connection and balance,³² *buen vivir* provides a basis for management which promotes a harmonious and balanced relationship between the needs of people and the capacity of the ocean.

THE WORLD IS CALLING FOR AN EARTH LAW APPROACH TO OCEAN GOVERNANCE

The Earth Law Framework for Marine Protected Areas serves as a guideline for adopting a holistic and right-based approach to ocean governance. Experts, governments and organizations worldwide agree that such a shift to holism and alternative forms of management is needed (Appendix A).

United Nations (UN)



In 1982, the United Nations adopted the World Charter for Nature (111 votes for, 1 vote against, 18 abstentions).³³ The Charter adopts principles of conservation guiding human conduct to be reflected in the laws of each State.³⁴ It acknowledges that “mankind is a part of nature” and that “living in harmony with nature gives man the best opportunities” for living well. Noting that “every life form ... warrant[s] respect regardless of its worth to man.” The Charter declares: “Nature shall be respected and its essential processes shall not be impaired.” The Charter calls upon a moral code of conduct to guide human action in a way that accords other organisms with respect. Additionally, a primary function of the agreement is to recognize that human needs can only be met “by ensuring the proper functioning of natural systems.” These principles must be adhered to in our decision making processes.

More recently, the United Nations launched the Harmony with Nature Initiative. The UN General Assembly has passed nine resolutions since 2009 calling for and defining a new, non-anthropocentric relationship with nature.³⁵ The Ninth resolution “calls for holistic and integrated approaches to sustainable development, in its three dimensions, that will guide humanity to live in harmony with nature and lead to efforts to restore the health and integrity of the Earth’s ecosystems.”³⁶

Additionally, in 2017, the UN hosted the first Ocean Conference which brought together governments, stakeholders, businesses, and civil society representatives worldwide to “reverse the decline in the health of our ocean for people, planet and prosperity.”³⁷ The Sustainable Development Knowledge Platform for Oceans and Seas states: “Human well-being cannot be achieved without the protection and conservation of the Earth’s ecosystem. To maintain the quality of life that the oceans have provided to humankind, while sustaining the integrity of their ecosystems, a change will be required in how humans view, manage and use oceans, seas and marine resources.”³⁸

International Union for the Conservation of Nature (IUCN)



In 2011, a joint workshop between the IUCN, the International Programme on the State of the Ocean (ISPO) and the World Commission on Protected Areas

concluded that current approaches to managing human activities are inadequate. To “maintain the goods and services [the ocean] has provided to humankind for millennia demands change in how we view, manage, govern and use marine ecosystems.” Additionally, experts conclude we must rapidly adopt “a holistic approach to sustainable management of all activities that impinge marine ecosystems.”³⁹

In 2012, the IUCN passed Resolution 100, “Incorporation of the Rights of Nature as the organizational focal point in IUCN’s decision making.”⁴⁰ There, the IUCN called for nature’s rights to be a “fundamental and absolute key element in all IUCN decisions.” In 2016, IUCN members included nature’s rights in its 2017-2020 program of work priorities, which “aims to secure the rights of nature.”⁴¹ The IUCN committed to specifically

supporting CITES and other wildlife conventions by “advance[ing] rights regimes related to the rights of nature” through a “rights-based approach to conservation.”

In order to achieve SDG 14 the IUCN’s Action Programme’s Target 15 commits to the following: “the pursuit of protected area governance systems that achieve the effective and equitable governance of natural resources are recognized (as best practices/pilot testing), supported and promoted, while respecting the rights of nature.”

Additionally, in 2017, the IUCN produced a guideline document for large-scale marine protected areas.⁴² The IUCN’s framework notes “[t]he key is for all players to commit to effective and equitable governance and management that seeks to conserve biodiversity in parallel with influencing, for the better, the economic, social and political drivers that affect ecosystem management, nature-based livelihoods, and the rights and responsibilities for nature (IUCN, 2012).” It further requires that human activities are managed holistically and the use of “a holistic management model that seeks to understand the relationship between nature, culture and the human dimension.”⁴³

National Oceanic and Atmospheric Administration (NOAA)



The National Oceanic and Atmospheric Administration, a leader in ocean research and management worldwide, acknowledges that “virtually all commercial fishing involves harvesting of a magnitude that is well beyond being fully sustainable”⁴⁴ leading to an “increasing number of failures of conventional approaches to fisheries management.”⁴⁵ NOAA calls upon the recognition of ecological interconnectedness and complexity as

crucial to managing marine ecosystems.⁴⁶ Also found to be crucial to sustainable management, the need for holism is highlighted throughout NOAA's work. In multiple reports, NOAA noted that a holistic approach is distinct from current approaches,⁴⁷ and to achieve the needed holism, we must reject and replace "many (but not all) of the processes upon which conventional management depends."⁴⁸

Food and Agriculture Organization (FAO)



The international Food and Agriculture Organization highlights the failures of traditional fishing methods. FAO named over 70 percent of the world's fish species as either fully exploited or

depleted,⁴⁹ and therefore unlikely to rebound to healthy populations. In providing technical guidelines for responsible fisheries, FAO recognizes the need to improve current fisheries management,⁵⁰ highlighting the use of marine protected areas and a holistic approach to doing so.⁵¹ However, FAO notes that marine protected areas must merge two converging paradigms: ecosystem management and fisheries management.⁵² Sustainable development can be achieved if the two "converge towards a more holistic approach that balances both human well-being and ecological well-being."⁵³

Shifting out of the dated governance paradigm

In sum, experts worldwide recognize the need to shift our approach to ocean conservation and management (*More examples can be found in Appendix A*). The Earth Law Framework for Marine Protected Areas serves as a guideline for achieving the holistic and ecosystem-minded approach desperately sought.

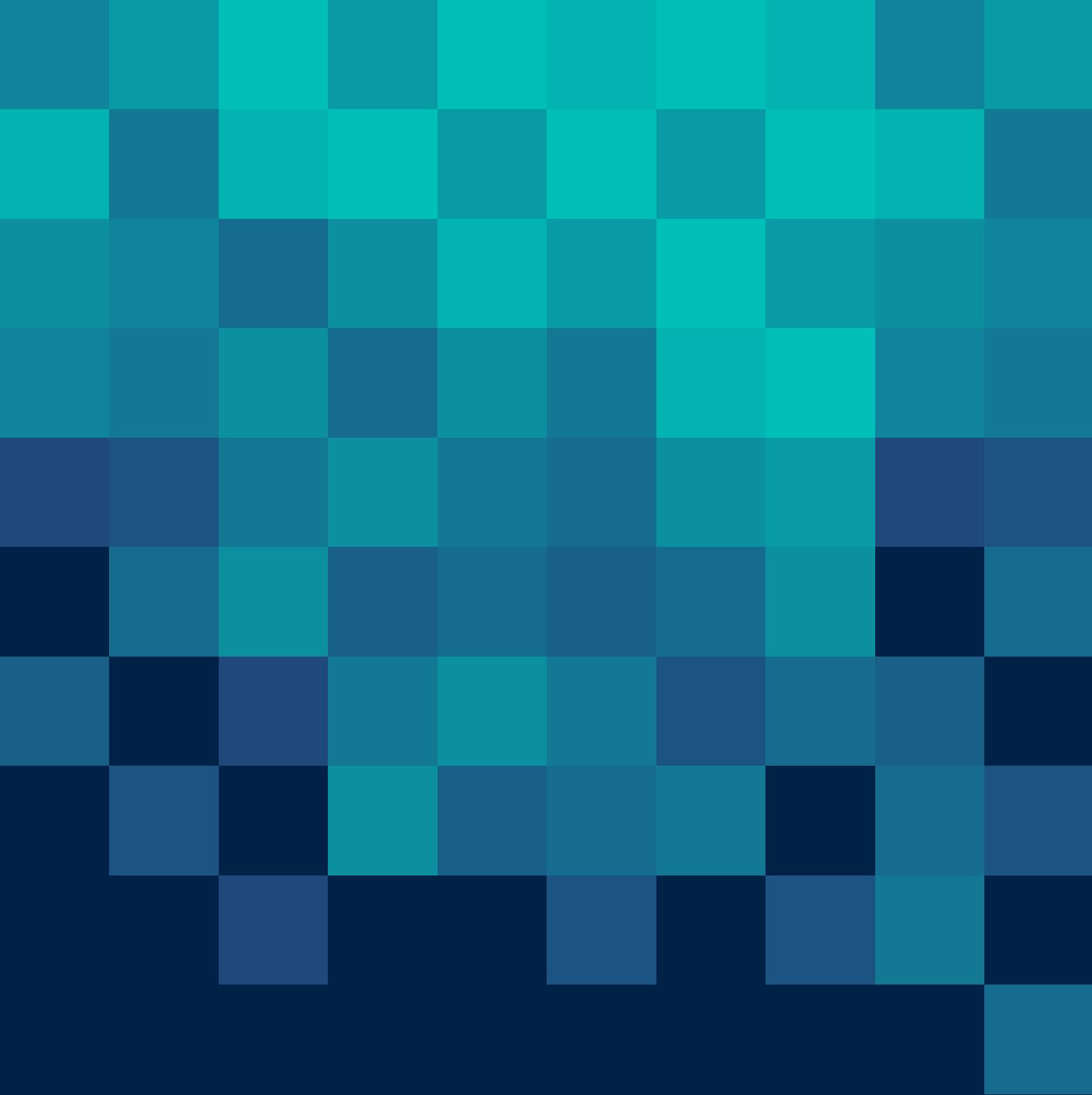
Economic considerations currently drive allowable activities, and the extent to which we create regulations. In a current framework where nature equals profit, the continual degradation and pollution

of the environment is allowed because nature is put into the market and, as long as the perceived benefits outweigh the costs, we accept the activity.

In order to be effective, environmental management must work within the constraints of natural law: fundamental physical laws and biological dynamics must constrain human institutions and desires, not the reverse.⁵⁴

The emerging threats to ocean health show the need for a paradigm shift.⁵⁵ The current paradigm (i.e., the accepted model or pattern which communities operate within)⁵⁶ is a century old notion originating from Gifford Pinchot, who sought to conserve forests by controlling their uses. He solidified the use of this paradigm characterizing the "nation's "conservation ethic" as the "controlled" use of natural "resources."⁵⁷ The ocean conservation community can encourage a revolutionary change in our worldview by persistently promoting a new paradigm. The new Earth paradigm is one where humans are a part of nature, where we respect and balance the needs of the ocean with that of humans, and where we are stewards of the ocean, not owners of it.

"You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete."
— R. Buckminster Fuller



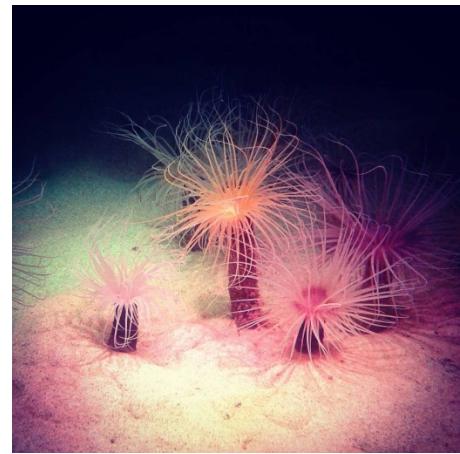
II MARINE PROTECTED AREAS

Marine protected areas, analogous to national parks, have expanded to over 5,000 to date,⁵⁸ covering four percent of the ocean.⁵⁹ The International Union for the Conservation of Nature (IUCN) defines a marine protected area (MPA) as: “A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.” Even though definitions of MPAs are not globally uniform, they all tend to share the same aims of protecting biodiversity, cultural heritage, and sustainable livelihoods (see Appendix B).

The shared conceptual framework of MPAs helps focus national and international efforts to halt ocean decline. As part of the 2011 Convention on Biological Diversity Aichi Targets, 193 countries agreed to “effectively and equitably” manage 10 percent of coastal and marine areas within MPAs and “other effective area-based conservation measures” by 2020.⁶⁰ A 10 percent conservation target for MPAs is also included within Goal 14 of the United Nations Sustainable Development Goals (SDGs).⁶¹

By managing human activity in defined areas, MPAs offer an opportunity to address threats to ocean health including overfishing, pollution, vessel traffic and noise, and oil and mineral extraction. Focused management of MPAs delivers several benefits:⁶² increasing biomass (size) and biodiversity (number of species), increasing ecosystem capacity to withstand

stress and change, protecting cultures that rely on subsistence fishing, boosting local economies through tourism and

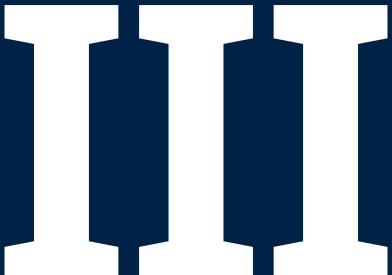


scientific advances, and helping commerce and leisure by increasing and perpetuating fish populations.⁶³ In fact, the net benefits (social, cultural, economic and ecological) far exceed the costs (start-up, operating, congestion and opportunity) by a magnitude of 3.17–19.77.⁶⁴ For example, fish populations of Apo Island in the Philippines have tripled since the MPA was created, leading to a 50 percent increase in catch per unit of effort for fishermen.⁶⁵

Limitations of marine protected areas

Despite the best intentions,⁶⁶ attention sometimes falls away after the creation of an MPA, resulting in paper parks. Formally designated but not implemented in practice, paper parks fail to achieve conservation of marine ecosystems.⁶⁷ This can result from a lack of community consultation (and thus support), a lack of funding, a lack of supporting legal, institutional and policy frameworks, and/or local coastal populations having limited livelihood alternatives.⁶⁸

A study in *Nature* found that over a quarter of the 433 MPAs evaluated did not provide protective benefit, suggesting the insufficiency of only designating a region or species as protected.⁶⁹ The study found that of those with management plans, approximately 50 percent were not being implemented⁷⁰ due to barriers including lack of governmental will; lack of clear objectives (including a primary aim of conservation); lack of consistent framework, data and funding; and the existence of commercial opposition.⁷¹



ENHANCING MARINE PROTECTED AREA EFFECTIVENESS

A unifying thread behind an effective MPA is the existence of a framework, or legal structure, providing the basis for “protection and enforcement of rights and responsibilities.”⁷² The management principles and guidelines embedded within the ecosystem-based management (EBM) and cultural landscape approach has largely guided the current, and constantly evolving, legal framework for marine protection.⁷³

EBM requires that humans consider the cumulative impacts and links between living and nonliving resources, and regard human activities “within the context of the broader ecological and physical environment.”⁷⁴ The cultural landscape approach provides “an analytical framework to understand places and their associated resources” as well as “human connections to MPAs” and “the important human influences on marine ecosystems over time.”⁷⁵ Together these frameworks aim to balance social and cultural needs with ecological health and economic development.⁷⁶

Often proposed as a way to achieve sustainable and optimal use of marine resources (i.e., human benefit and needs), MPAs sometimes miss their true purpose, which is to protect and restore ecosystems and their natural processes. Rather than protecting ecosystems and biodiversity, MPAs sometimes function merely as a tool for managing fisheries resources or protecting cultural sites.⁷⁷

In fact, defined by the National Oceanic and Atmospheric Administration as “a holistic way of managing fisheries and marine resources,” ecosystem-based management strives to “maintain ecosystems in a healthy, productive, and resilient condition so they can provide the services humans want and need (*emphasis added*).”⁷⁸

The current framework takes an important step by acknowledging the human relationship with the ocean and the complex interactions that exist within each ecosystem, but further enhancing MPA effectiveness requires prioritizing the ocean’s needs over human ones. This means we must manage human activities in a way that maintains healthy ecosystems based on the ocean’s wants and needs.

An Ocean-centric definition of ‘health’

In order to achieve a healthy ocean we need to not only manage our activities using a management structure that balances all interconnected parts but also to develop an ocean-centered benchmark criteria defining what is healthy.

A known impediment to ocean conservation is a lack of a singularly agreed upon definition of what a healthy ocean looks like.⁷⁹ Our laws strive towards the vision of a “healthy ocean” but the challenge emerges in setting baselines for “healthy” and creating measurable objectives to achieve it, over spatial and temporal scales.⁸⁰ Experts, including a member of the California Ocean Protection Council highlight the need for “a broad, conceptual, aspirational goal and statement that we could all point to and drive towards as a shared vision for ocean health, even in the context of our own agency mandates, jurisdictions and policies.”⁸¹

As observed recently by marine scientists,

health is a normative concept that implies judgment on the desirable state for an ecosystem. Such judgment is influenced by human values and needs, and thus definitions of OH have varied from human-centric views that focus primarily on the benefits



that oceans provide to people (e.g. Halpern et al. 2012), to nature-centric views that would rate ecosystems with the fewest human pressures as the healthiest (e.g., McCauley et al. 2013).⁸²

If we are to effectively implement ocean policies designed to protect marine biodiversity, we must work to understand what “healthy” natural systems look like from an ocean-centered point of view (i.e., what does the ocean need to continually regenerate its capacity to support life?). Because having no human pressures is unrealistic, this view would not equate the lack of human impact to healthy, but instead label healthy as a state in which the ocean can maintain its “normal form and function”⁸³ and therefore has the ability to “maintain its structure (organization) and function (vigor) over time in the face of external stress (resilience).”⁸⁴

An Earth-system approach as the solution

Evolving the current MPA framework to provide for “sustainable use of the ocean”⁸⁵ means thinking “comprehensively in terms of the interconnectedness of effects.”⁸⁶ A cumulative rather than isolated assessment of human activities and impacts on marine life is what is needed for a systems-based approach that aims to effectively protect and restore ocean health.⁸⁷

A systems approach goes beyond EBM by taking into account the physical and chemical interactions within and between the protected area and adjacent and

nearby ecosystems. Rather than only considering impacts and interactions among components of one marine ecosystem, we must expand policies to consider potential impacts to the marine protected area from outside of its boundaries, and how the health of the marine ecosystem contributes to the functioning of nearby species and ecosystems.

Importantly, this means ensuring cross-boundary and inter-agency coordination regulating land-based activities that may have the potential to impact the ocean. For example, as much as 80 percent of marine debris comes from land-based sources (e.g., plastic manufacturers, processors, landfills, sewage overflows, litter);⁸⁸ 75 percent comes from uncollected waste and 25 percent from within the waste management system.⁸⁹ Therefore, marine protected area regulations and authorities must overlap and work with those on land. In fact, “protective action in the MPA may be futile” if pollution from land is not managed.⁹⁰

A systems approach also takes into account both the present and future. Future generations have the same rights as the present one. When activities “have the potential to cause irreversible environmental damage that permanently reduces the welfare of future generations,” rights of future generations must take precedence over the desires of the present. A true systems approach will integrate social, cultural, political, ecological and economic dimensions with equity and complementarity.⁹¹

An Earth-systems approach extends the traditional methods of “resource” management⁹² to provide a clear legal mandate for managing protected areas as part of a system,⁹³ and as part of the whole that also includes humans. In the words of Peters (quoted in Dobbin, 1976), “Shall we have piecemeal systems based on random components that escalate us toward incompetence? Or shall we have a systems approach that utilizes our total knowledge ... to integrate our social and humanistic goals with our technological achievements and ecological needs? If we choose the latter, man’s greatest age of achievement lies ahead.”⁹⁴



IV

THE EARTH LAW FRAMEWORK ADVANCES MARINE PROTECTION

We can ensure effective management and protection of marine areas by evolving the framework we choose to deploy. This ultimately requires us to change our worldview and values, because our values shape the framework, and in turn determine the level of human activity regulation. The current framework largely values the ocean as a resource, and considers humans as separate from the system. Anthropocentric rules result, and we manage our activities by what benefits humans, rather than what benefits the ocean and Earth as a whole (see Appendix C, Part A).

Earth Law provides a legal framework and an overarching governance principle with a holistic and Earth-centered approach. Earth Law recognizes the interconnectedness of all life and it values nature for its intrinsic worth. Consequently, law and policies created within the Earth Law Framework focus on preserving the integrity of all

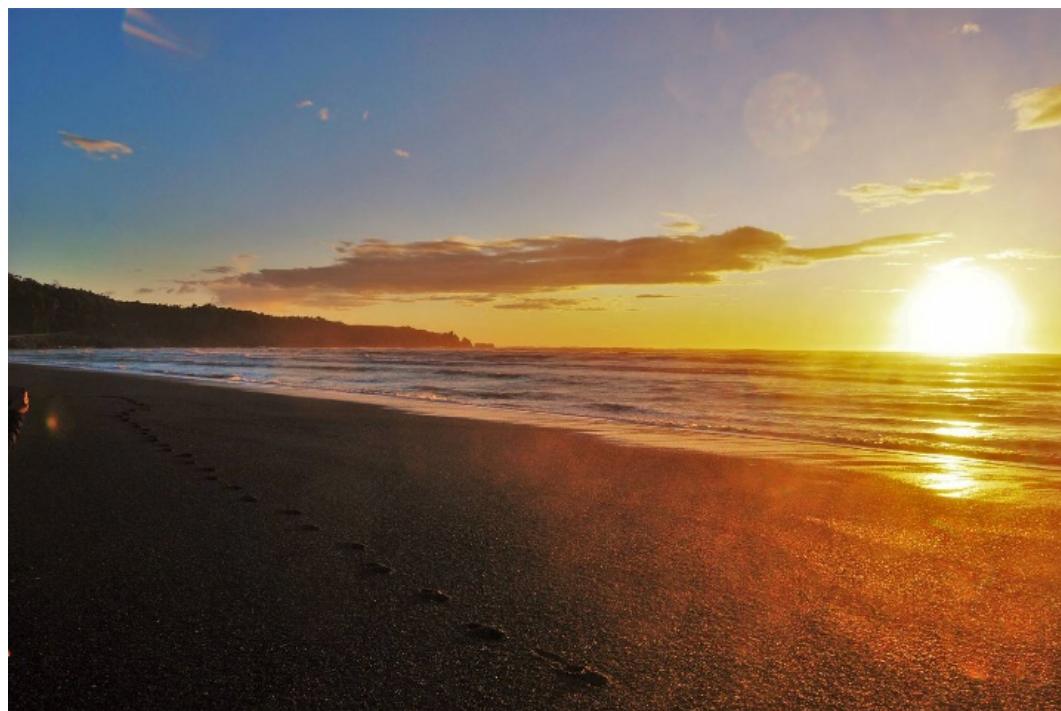
Earth's systems and processes, to ensure all species and ecosystems thrive, including humans.

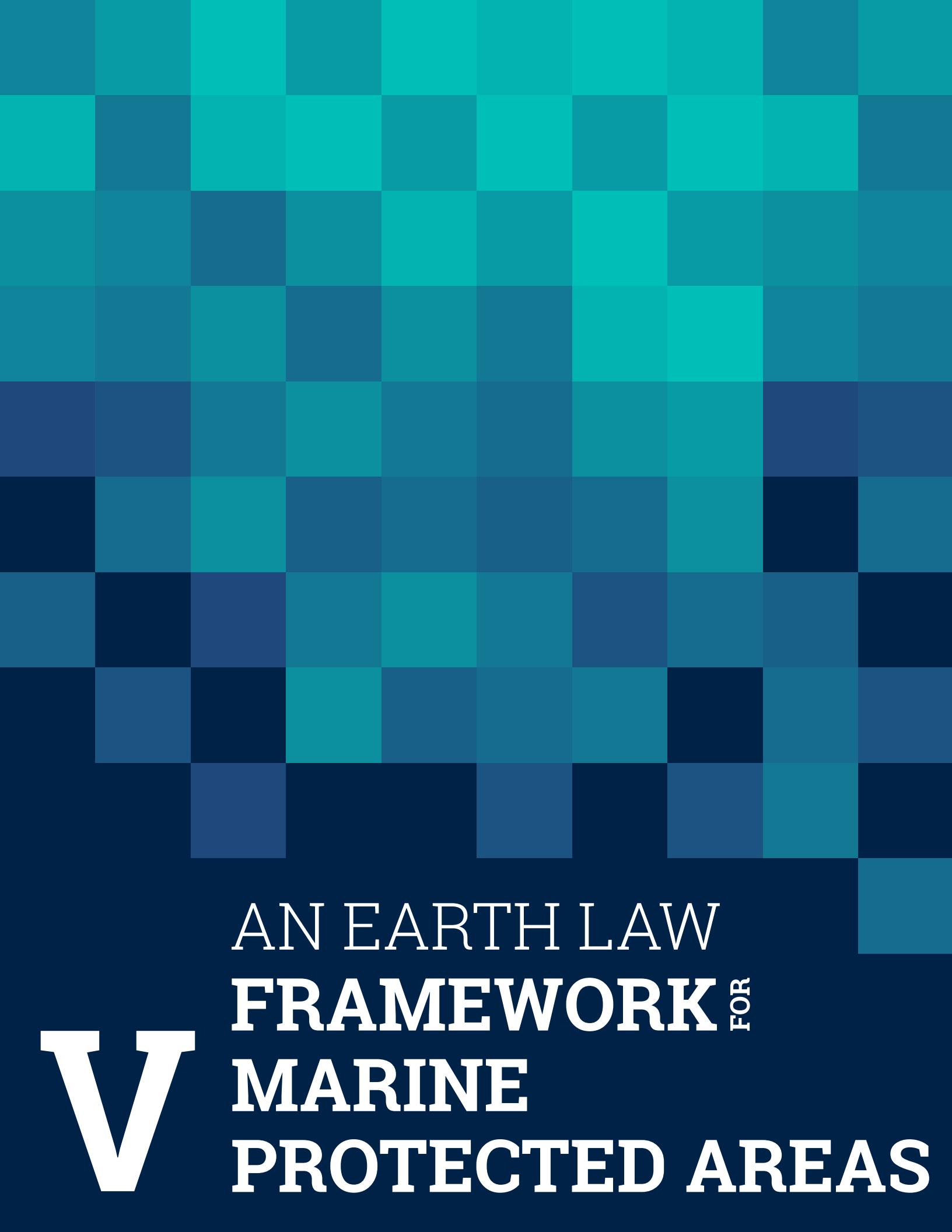
This global movement for Rights of Nature (see Appendix D) offers a new approach to protecting and restoring ocean health. By recognizing legal rights for MPAs, we move beyond the traditional model of perpetual economic growth and development, linear progress, and a mechanistic worldview consisting of separate parts.

The Earth Law Framework manages our activities at a level that respects the basic rights and needs of all species, and ecosystems, including humans. Legal rights for MPAs would mean:

- humans create a sustainable relationship with the ecosystem and the species within it;
- protection and restoration is a legal responsibility;
- management boards, or “guardians,” ensure that activities do not violate the oceans’ rights.

This perspective is holistic, risk-averse, and adaptive, and questions key assumptions, no matter how basic.⁹⁵ Earth Law represents the next step in the continuing evolution of MPA governance.





V AN EARTH LAW **FRAMEWORK**^{for} MARINE PROTECTED AREAS

A. THE LEGAL RECOGNITION OF THE MARINE PROTECTED AREA (THE MARINE ECOSYSTEM AND SPECIES WITHIN)

Existing legal frameworks already provide for the rules, authorities and procedures,⁹⁶ as well as the legal description of the area, and legal status of the sea.⁹⁷ Evolving ocean protection will now need to identify the legal status of the marine area outside current property rights and rights to access descriptions.

Varying constitutions and ordinances around the world recognize the Rights of Nature. And ecosystems around the world are gaining “legal personhood” status – that is, the same legal rights as a juristic person. They include the Te Urewera National Park and Whanganui River in New Zealand, the Himalayas, and Ganges and Yamuna Rivers in India, and the Atrato River in Colombia.

Building on the current legal framework specifications (Appendix C, Part B) and principles (Appendix C, Part C), the Earth Law Framework prioritizes the legal recognition of the marine protected area for MPA governance.

An Earth Law Framework for Marine Protected Areas calls for:

- A. the legal recognition of the marine protected area (the marine ecosystem and species within);
- B. the legal recognition of the rights of and values associated with the marine protected area;
- C. the appointment of guardians to represent the marine protected area’s interests, i.e. “Office of the MPA”;
- D. the right for humans to speak on behalf of the marine protected area in legal matters;
- E. the application of legal rights in the existing governance system;

The Himalayas recently received legal personhood in a ruling by the High Court of Uttrakhand (this decision is now being appealed). The ruling declared that “the Glaciers including Yamunotri, rivers, streams, rivulets, lakes, air, meadows, dales, jungles, forests, wetlands, grasslands, springs and waterfalls” are a legal entity “having the status of a legal person, with all corresponding rights, duties and liabilities of a living person, in order to preserve and conserve them. They are also accorded the rights akin to fundamental rights/legal rights.”⁹⁸ The ruling also found that “any person causing any injury and harm, intentionally or unintentionally to the Himalayas ... is liable to be proceeded against under” any applicable law.⁹⁹ As a result, humans are bound to promote the health and well-being of the ecosystem.

While this concept has been applied to national parks and rivers, marine ecosystems have not yet achieved the same legal recognition. Defining in law the MPA as a legal entity means recognizing the marine area as a living whole, an entity comprised of all of its regions and zones, systems and cycles, species (plants, microorganisms and animals) and biotic and abiotic components. The marine area would then be entitled

to certain rights, and humans would have the duty to respect those rights.

Defining the marine area as a legal entity requires humans to recognize, respect and protect its rights; provides for prompt and full restoration; and prohibits activities that will violate the marine area's rights. This essential element of the Earth Law Framework allows for the transformation of the current worldview. Legal rights for the ocean represents a breakthrough, a paradigm shift and a pathway to restoring ocean health.

B. THE LEGAL RECOGNITION OF THE RIGHTS OF AND VALUES ASSOCIATED WITH THE MARINE PROTECTED AREA

Disagreement over rights and rules commonly causes non-compliance for governance of MPAs.¹⁰⁰ Therefore, it is important for the umbrella legislation for marine protected areas to define both substantive (determine the rights of individuals and collective bodies) and procedural (the rules for enforcing) rights. Procedural rights, including the rights to information, public participation in decision making and access to justice, are expanded upon in sections C and D of this document.

In addition to the substantive human right to a healthy ocean, and to the cultural livelihoods that result, the foundational component of an Earth Law Framework calls for the legal recognition of the marine protected area's rights. Just as humans have inherent rights for being on Earth, so too do species and ecosystems.

In 2010, the People's Conference on Climate Change and the Rights of Mother Earth met in Cochabamba, Bolivia. Over 35,000 people participated from around the world and drafted the Universal Declaration of the Rights of Mother Earth (UDRME) (see Appendix E). The UDRME was presented to the United Nations General Assembly in 2011. We draw upon the UDRME and other Rights of Nature precedents to speak up for

the inherent rights of marine protected areas, and by extension, the rights of the ocean (see Box 1).

In addition to recognizing the MPA's rights, the Framework calls for the recognition of the values associated with the MPA, because as stated above, these values help shape the rules. While every MPA shall be entitled to the same inherent rights, the intrinsic values will vary among ecosystems. It is important to identify the unique values and components of the ecosystem to create the best-match objectives for protection, and the prioritization of objectives that guide management decisions. Values can relate to ecological (species, habitats, and ecosystems); cultural and historical heritage; and recreational values.

For example, after declaring the Whanganui River a legal entity and living and indivisible whole, the Te Awa Tupua (Whanganui River Claims Settlement) Act 2017, provides for "the legal recognition and effect of" the Whanganui River, and defines the intrinsic values of the River.¹⁰¹ The Act values the River as "the source of spiritual and physical sustenance" and as an entity that "sustains both the life and natural resources within the Whanganui River and the health and well-being of the iwi, hapū, and other communities of the River."¹⁰² The Act then requires that any person exercising a function under another identified law must recognize and have regard to not only the legal status of the River, but its intrinsic values.¹⁰³

If such provisions are included in the MPA framework, managing bodies will be legally required to act in the interests of the MPA and consistently according to its value. If we value an MPA for its biodiversity, our actions will guide us towards protecting that biodiversity. If regulations do not protect biodiversity, this can be challenged in court and corrected. An MPA's intrinsic value becomes a determining factor in decision making, contributing to an ocean area that is better managed, protected and restored.

BOX 1

The ocean, as a legal entity, has the following rights:

TO LIFE

The right to maintain the integrity of living systems and natural processes that sustain the ocean and Earth as a whole, and capacities and conditions for regeneration. All species of the ocean, plants, animals and microorganisms, have the right to life. The right to have critical and significant areas set aside for the continuation of cycles and processes where no human activity may occur (no take zones). The ocean has a right to life in perpetuity, and for humans to ensure that the pursuit of human well-being contributes to the wellbeing of the ocean now and into the future.

TO HEALTH AND WELLBEING

Where health is defined in terms of the ocean's own wellbeing and in relation to its natural state. The right to live free from torture or cruel treatment by human beings and to exist in its natural state and habitat. The right to be free from contamination, pollution (including noise and plastic) and toxic or radioactive waste.

TO THE DIVERSITY OF LIFE

The ocean has the right to biodiversity and to evolve. It has the right to the differentiation and variety of beings that make up the ocean. It has the right to not have its beings genetically altered or structurally modified in an artificial way, including in any way that threatens their existence, functioning or future potential.

TO WATER

The right to water as a source of life. The right to preserve the functionality of the water cycle, its existence in the quantity and quality needed to sustain living and nonliving systems, and its protection from pollution for the reproduction of the life of the ocean and all its components.

This includes the right to maintain ocean temperature and chemical composition (carbon dioxide proportions) at a level which does not threaten the ocean's integrity or vital and healthy functioning.

TO CLEAN AIR

The right to preserve the quality and composition of air, and the functionality of the carbon cycle, for sustaining living and nonliving systems and its protection from pollution, for the reproduction of the life of the ocean and all its components.

TO EQUILIBRIUM

The right to maintenance or restoration of the interrelationship, interdependence, complementarity and functionality of the components of the ocean in a balanced way for the continuation of its vital cycles and processes. The ocean has a right to live in harmony with humans and exhibit normal form and function.

TO RESTORATION

The right to timely and full restoration of impacts by direct or indirect human activities.

TO REPRESENTATION

The right to recognition everywhere before the law, during decision making about activities that may impact the ocean and its rights, and before the commencement of activities which may impact the ocean and its rights.

Transforming our view of the ocean: from resource to a life-giving partner

Unrestricted human activities on the ocean have resulted in damage to ocean ecosystems along with loss of capital investment and related socio-economic impacts. It is reasonable to posit that changing our assumptions about what we can do to the ocean will correct the impacts. If we stop seeing nature (ecosystems and species) as a property and resource (see Appendix C, Part A), and instead see it as a legal entity that no one owns and that has its own intrinsic rights, we can correct the global problems that have resulted from previous human thinking.

Valuing fish as property encourages the ‘tragedy of the commons,’ the overexploitation of a shared resource by all users acting according to their own self-interests,¹⁰⁴ fueling competition based on the belief that “fish are not owned until caught.”¹⁰⁵ Defining an ecosystem as a fisheries and a resource, reinforces and legalizes the human-centered approach that has continually polluted and degraded the ocean. To stop, not just slow, ocean degradation, a paradigm shift in how we view the ocean and fish in particular is required. We must move from seeing fish as a “resource,” “stock,” or “fishery” to seeing fish as “populations,” “species,” and “co-inhabitants of Earth” (see Appendix C, Part A).

For example, the United States National Marine Sanctuary Act allows Congress or the Secretary of Commerce to “designate a sanctuary if the area is of ‘special national significance’ due to its resources or human-use values.”¹⁰⁶ This prevents us from declaring a sanctuary for purely ecological reasons. In fact, the Act’s focus on “multiple-use of designated areas” was created with the intent to “guard against ecology for the sake of ecology.”¹⁰⁷ The Act and its intent to enhance biodiversity¹⁰⁸ faces limitations by viewing the ocean as a resource. Such an approach “complicates preservation of intact ocean ecosystems ... and undermines the biodiversity and integrity of marine protected areas.”¹⁰⁹

Instead of monetizing MPAs for their “ecosystem services,” we must value MPAs for their critical existence as a component of an intact ecosystem.¹¹⁰

This transformed view offers tremendous potential in its application toward MPA governance. By shifting how we think about the ocean, we no longer base our decisions and allowable activities on a short-term, cost-benefit analysis with a single-minded focus on profit and Gross Domestic Product (GDP). Instead, we make decisions based on what provides the highest benefit and meets the needs of all Earth’s beings and communities.

Defining ‘health’ as it pertains to the marine protected area’s needs appropriately defines the objectives for protection

Unless the highest objective is explicitly defined as conserving the MPA in as close to its natural state as possible, MPAs will struggle to live up to their name. Protecting and restoring the ecosystem for its own benefit can occur only if conservation objectives are prioritized over human-centered objectives, such as economic development (see Appendix C, Part A). Legislation must state “explicitly that conservation is the primary objective of the MPA.” Secondary objectives can include tourism, fisheries, recreation, education and scientific research, but these must also be explicitly defined as secondary objectives.¹¹¹

After we have defined the highest objective, developing and using a definition of health based on the ecosystem’s own needs and natural state can help us to manage human activities in a way that allows us to achieve that objective.

As stated above, scientists present such a definition of health using an ecosystem’s “normal form and function” which manages human activities at levels that ensure the ocean can “enjoy sufficient, continued organization, vigor and resilience to evolve and perpetuate as natural systems within the context of their natural life spans.”¹¹²

Each marine area will have its own baseline of healthy, determined by natural stresses and ecosystem and species composition. Defining health from the ocean’s point of view allows management to maintain a

thriving and healthy ecosystem, rather than being focused on preventing degradation and extinction.

Unless a state of health outside human utility is explicitly defined and worked towards, the objectives of MPAs cannot be sure to meet the needs of marine ecosystems for sustainable health.¹¹³ The Earth Law Framework provides a means to meet “the broader environmental goal” of a healthy and thriving ocean¹¹⁴ (see Appendix C, Part A).

Protecting the marine protected area’s rights also protects human rights

Declining marine biodiversity creates circumstances that lead to many potential violations of human rights as recognized by the Universal Declaration of Human Rights (UDHR), including the right to life, liberty and security of person [Art. 3] and of indigenous rights recognized by the Universal Declaration on the Rights of Indigenous Peoples (UNDRIP), including the rights to maintain their cultural traditions and spiritual relationship with ... coastal seas [Art. 11 and 25] among many others (see Appendix F).

Violating the rights of the ocean, such as through overfishing, “leads to a classic ‘lose-lose’ system where ecosystems, economies and the social well-being of people are all negatively affected.”¹¹⁵ Human well-being depends on a healthy environment, including a healthy ocean. Humans cannot exploit an empty ocean nor survive without it. Studies confirm marine protected areas can alleviate poverty. By “preserving the quality of marine life” MPAs in Fiji, Indonesia, Solomon Islands and the Philippines also led to improved fish catches (food), new jobs (mostly in tourism), stronger local governance, health benefits (entrance fees used to fund public utilities) and benefits to women (through empowerment and new alternatives).¹¹⁶

C. THE APPOINTMENT OF GUARDIANS TO REPRESENT THE MARINE PROTECTED AREA’S INTERESTS, I.E. “OFFICE OF THE MPA”

A statutorily designated managing body comprised of government, local community and interest groups, not only brings together stakeholders, but ensures a better mutual understanding of different user values. Involving relevant stakeholders in governing the MPA ensures compliance and effective regulations by taking into account the expected effects of decisions on all users and the measures needed to mitigate those effects. The Earth Law Framework takes the representation notion one step further, by requiring the MPA itself to have a voice in decisions, carried forth by “guardians” or “trustees.” (The concept of trustees for the environment is not new, see Appendix G, Part B).

A marine protected area office for management could consist of local and indigenous peoples, government officials, scientists, and the various users of the area. Most importantly, the office would consist of guardians of the marine ecosystem and represent its interests. Per the precedent set by New Zealand law (see Appendix G, Part A), guardians have a legal responsibility to protect and act on behalf of the marine ecosystem. It is the duty of the management body to protect the integrity and diversity of the marine ecosystem, and to defend the area from activities that may harm the ecosystem and its inhabitants. Specifically, guardians may use their standing to bring legal action upon parties involved with activities directly affecting the health and wellbeing of the marine protected area.

Guardians for the ocean can participate in any legal process affecting the ecosystem (particularly “appearing before national legislative and rule-making bodies to help clarify ocean impacts of proposed actions”), develop or review any relevant guidelines, monitor the health of the ocean, monitor compliance with applicable laws and treaties, and represent the

ecosystem in disputes. The guardians have “standing” on behalf of the MPA.¹¹⁷

Guardians ensure we adopt a precautionary and systems-approach

Applying the precautionary approach to not only management decisions, but the entirety of the MPA designation and implementation process, provides a way to create consistency within the Earth Law Framework. It must “be [explicitly] recognized that uncertainty is a fundamental part of working with ecosystems.”¹¹⁸ Decisions must be made on the best available data, and whenever a significant amount of uncertainty exists, actions must be precautionary (“when in doubt, err on the side of conservation”¹¹⁹) to ensure the long-term health of marine species and ecosystems. The Framework also requires that the “burden of proof for showing that there are no unacceptable ecosystem risks or impacts rest with the industry”¹²⁰ or group pursuing the activity, rather than with the managing body of the MPA.¹²¹

Using a systems approach and based on the highest environmental and human needs, the office of the MPA, comprised of guardians, would determine activities, such as the allowance and extent of fishing.

This framework in the context of marine protected areas requires that there is:

- 1) a determination of impacts;

- 2) a determination of whether the impacts violate the MPA’s rights, and if so to what extent;
- 3) a determination of the alternatives and their impacts;
- 4) the alternative which fulfills the highest environmental and human needs is chosen, outside of economic consideration.

Guardians will create “No-take” zones

Central to employing the Earth Law and precautionary approaches is the existence of “no-take” zones, areas where extractive activities are generally not allowed.¹²² These areas allow the ocean and its cycles and systems



to function without human disturbance. Fully protected areas help to restore fish populations (biomass) and biodiversity. In fact, the disappearance of human disturbances results in rapid rebound of fish populations. These positive outcomes also reach beyond the designated boundaries of the no-take zone. This is referred to as the “spillover effect.”¹²³ Studies show that no-take zones also produce cost-benefit ratios where benefits far exceed the costs.¹²⁴ No-take MPAs also provide direct and indirect human

benefits, such as those for jobs, research and cultural values.¹²⁵

However, “no-take” zone definitions vary across MPAs and only apply to specific target species. Their employment has been hindered in large part by the absence of the explicit requirement for MPAs to include such components.¹²⁶

Accordingly, an Earth Law Framework for MPAs not only recommends that core areas are highly protected in the form of “no-take” for living and nonliving components, but that these zones include a strict prohibition on fishing, commercial, and military traffic. It also recommends severe limitations or complete prohibition of eco-tourism such as whale watching and also non-invasive research/ monitoring vessels. The Earth Law Framework recommends banning any industrial discharge and oil or mineral extraction.¹²⁷

D. THE RIGHT FOR HUMANS TO SPEAK ON BEHALF OF THE MARINE PROTECTED AREA IN LEGAL MATTERS

Current frameworks include public participation in decision making as a constituting element to successful implementation. In addition to inclusion in the process for designation and creating the rules, the public should also be given the right to ensure implementation and enforcement of the laws governing the marine protected area. Similar to the checks and balances system of the United States government, communities can ensure the management board is fulfilling its duties and responsibilities to the marine protected area.

A roadblock to effective enforcement of environmental laws is the issue of standing in pursuing judicial and restorative action. Standing is a legal right to bring to court a lawsuit which addresses the injury or harm to, or dispute of the entity filing the suit.¹²⁸ In our current system, humans can only sue on behalf of the environment if they themselves can demonstrate quantifiable injury (e.g. *Sierra Club v. Morton* 405 U.S. 727 (1972)). The Endangered Species Act of the United States is one such example where citizens are authorized to enforce the ESA, “to enjoin any person, including the United States ... who is alleged to be in violation of any provision ... or regulation issued” under the ESA.¹²⁹ However, citizens must be “adversely affected by the violation” in order to enforce compliance in court.¹³⁰

To enforce environmental laws to the full extent, individuals and communities must not only have the right to enjoy a healthy marine environment, but also the right to sue and speak on behalf of the environment. In addition to enacting guardianship, the Earth Law Framework provides citizens with the right to uphold the MPA’s rights. Hardly a new concept, the citizen suit provision allows citizens to bring environmental destruction and lack of compliance to the attention of the managing body and judicial system.

Giving people the right to protect the rights of marine protected areas means:

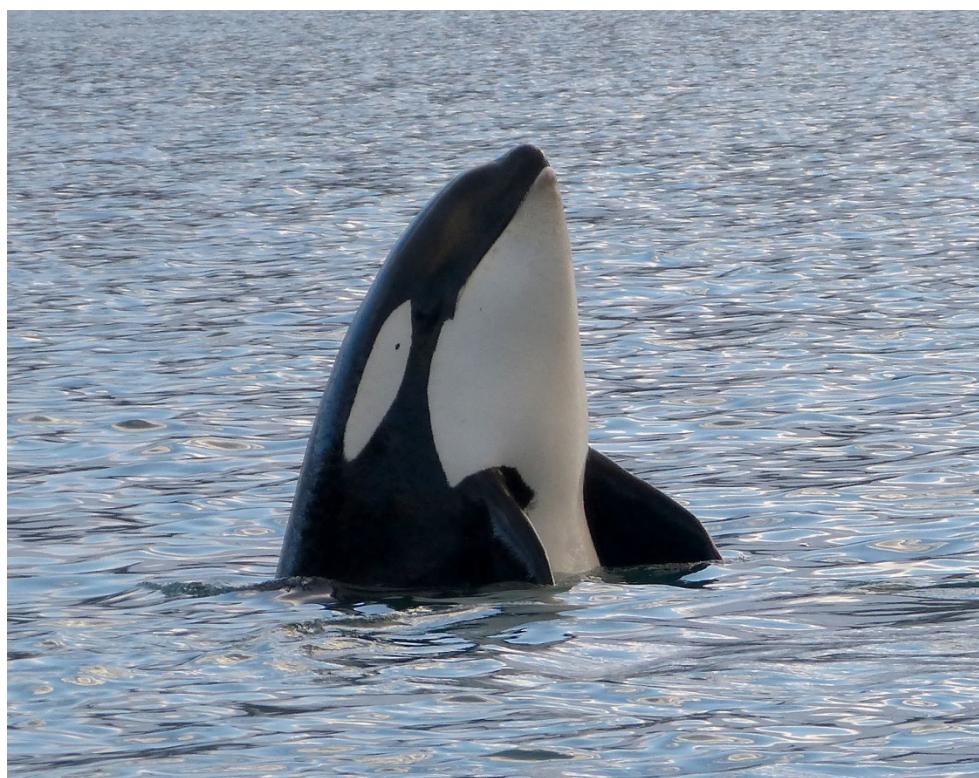
- Citizens can seek injunctive relief from harmful activities such as oil spills, overfishing, plastic pollution etc. not only for funds to be applied toward restoration but for a change in behavior. Required injunctive relief could be stricter fishing quotas or moratoriums on taking species if the level or way of hunting is violating the species' rights, bans on the production of plastic material, the development of technologies to reduce the flow of waste from land to sea, and the transfer of government funds and subsidies from extractive activities toward sustainable and renewable solutions (solar investment rather than offshore drilling). For examples of citizen suits on behalf of nature in action, see Appendix H;
- Citizens can press for government action if a protected area is not being implemented, reducing the phenomenon of paper parks;
- Human communities can express and fulfill their collective responsibility to recognize and protect nature's rights and to ensure that the Earth exists in a healthy state; and
- Humans can speak on behalf of the marine ecosystem and species within, when they believe the rights of the MPA are being violated.

Allowing citizens to sue on behalf of nature in Ecuador has proven an effective means to protect and restore nature. Citizens were able to present a case for an injunction in defense of the Vilcabamba River, when its rights were violated in a road-widening project. The Court ruled on the side of the river, requiring immediate and full restoration. A prior ruling "denying the protection action for lack of legitimacy of the

case for presumably not having legal standing"¹³¹ was found not to be conforming to the law, as Ecuador's Constitution states: "All persons, communities, peoples and nations can call upon public authorities to enforce the Rights of Nature."¹³² Another example exists from the International Rights of Nature Tribunal, where a concerned citizen testified on behalf of the Great Barrier Reef (Appendix H).

E. THE APPLICATION OF LEGAL RIGHTS IN THE EXISTING GOVERNANCE SYSTEM

As is the case when any new law is enacted, the framework must define how the law fits within the existing legal context. The Earth Law Framework will affect the governments and local authorities involved, the indigenous and local communities, and third parties "in terms of how the existing statutory framework for decision making is implemented."¹³³ It is intended to evolve and "complement, rather than override, existing legislation ... in other words, the existing statutory frameworks for decision making remain in place, but will be influenced by the 'lens'



provided.”¹³⁴ The Earth Law ‘lens’ for marine protected areas changes how we view and understand the ecosystem and species. It requires that all decisions, powers and functions that involve or may affect the MPA take into account its inherent rights and adopt an Earth-systems approach. All statutory functions are to be carried out consistently with the Earth Law Framework.

For example in the United States, if a lease sale is being considered for offshore drilling, the Bureau of Ocean Energy Management (BOEM) follows the Outer Continental Shelf Lands Act (OCSLA) for “implementing regulations that establish the mechanics of the leasing process.”¹³⁵ The Director of BOEM must consider nominations for potential lease areas by performing an environmental impact analysis under the National Environmental Protection Act (NEPA), which identifies the impacts and alternatives.¹³⁶ Therefore, a marine protected area in the United States granted legal rights would statutorily define OCSLA and NEPA, among others, as Acts to which the Earth Law Framework applies. In particular, the framework may provide that the MPA be identified as “an expression of interest in lease areas” for the purpose of 30 C.F.R. §§556.23, 556.25, because the Director of BOEM must consider such interests when preparing the NEPA analysis. Similarly, the framework may provide that the MPA be identified as a “person consulted” when determining “whether or not a federal action has the potential to cause significant environmental effects” as provided for by NEPA.¹³⁷ As a result, the Earth Law Framework provides for effective management and protection by requiring the Earth Law lens to consider the entire system, namely the ecosystem itself, in all decisions that may affect the system’s health and well-being.

Additionally, as stated above, legal rights will affect the enforcement process by giving the MPA standing to sue. For example, the U.S. Marine Mammal Protection Act (MMPA) provides for a strict prohibition on the taking of marine mammals within national waters except when permissible by permit. It provides that “any party opposed to such permit, may obtain judicial review of the terms and conditions of any permit issued by the Secretary...”¹³⁸ Therefore, if

this permit was being considered in a marine protected area, the marine mammals could then be considered a party opposed to such a permit and humans could express this interest on their behalf.¹³⁹

VI

APPLYING THE EARTH LAW FRAMEWORK FOR MARINE PROTECTED AREAS

In addition to the current legal framework specifications (see Appendix C, Part B) and principles (see Appendix C, Part C), the Earth Law Framework adds that the legal recognition of the marine protected area must be a foremost priority in MPA governance. A marine protected area as a legal entity requires the responsibilities, management options, restrictions, and basis for protection and enforcement to be carried out consistently with the Earth Law Framework. It therefore, allows for a true systems-based approach with objectives and rules that aim for restoring and protecting ecosystems and their natural processes outside human utility and benefit.

The IUCN created three guiding principles for protected areas that address how a “protected area” is to be understood and applied. They include:

- 1) “[O]nly those areas where the main objective is conserving nature can be considered protected areas; this can include many areas with other goals as well, at the same level, but in the case of conflict, nature conservation will be the priority;
- 2) Protected areas must prevent, or eliminate where necessary, any exploitation or management practice that will be harmful to the objectives of designation; [...]
- 3) Protected areas should usually aim to maintain or, ideally, increase the degree of naturalness of the ecosystem being protected (Dudley, 2008, p. 10).¹⁴⁰

Therefore, the priority for marine protected areas should be conservation, and umbrella legislation should legally require management and subsequent decisions to advance this objective.

Guiding principles of the Earth Law Framework

In addition to those principles created by the IUCN, we provide 11 guiding principles to apply throughout the decision making process to ensure all statutory functions are carried out consistently within the Earth Law Framework.

1. Protected area umbrella legislation must recognize and protect the ocean’s inherent rights and intrinsic value.
2. Protected area management must place us within the capacity of natural laws.
3. To effectively protect and restore the ocean we must adopt a true “systems-approach;” moving beyond maintaining an ecosystem to provide services to humans, moving towards maintaining an ecosystem to provide for the continued functions of its constituting elements in perpetuity.
4. Protected area legislation must prevent declaring the ocean as a “resource,” and instead aim to define the ocean as a legal entity with all the rights, duties and responsibilities of a legal person.
5. Governance must aim to conserve and restore the ocean as the highest objective for management.
6. Management must aim to achieve a ‘healthy ocean’ where healthy is informed by science and defined by the ocean’s own well-being and natural state, rather than defined by its utility to humans.
7. A significant proportion of the protected area must be set aside to exist without human disturbance.
8. The protection process, and in particular managing offices, must be comprised of “Guardians;” human representatives of the ocean itself.

9. We have a collective responsibility and right to respect and protect the ocean, and we must be allowed to exercise that right.
10. The ocean is a complex interconnection of systems and processes and the absence of concrete information should not prevent protective and restorative action; and the burden of proof shall be placed on those wishing to undertake the extractive or exploitative activity.
11. Cetaceans play an important role in conserving the ocean and can help guide management decisions about ocean conservation (see Box 2).¹⁴¹

In sum, management of the marine protected area (MPA) will be undertaken in a manner that gives effect to the principles of the Earth Law Framework. As an example of what this would look like:

A definition of the term “MPA”

- The Marine Protected Area is a legal entity, and has all the rights, powers, duties, and liabilities of a legal person. The MPA has “an identity in and of itself, inspiring people to commit to its care.”¹⁴²

Basic description of the MPA and values

- We recognize the MPA as a place of outstanding national value and intrinsic worth; treasured by all for the distinctive natural values of its vast seas and species within, “and for the integrity of those values; for its indigenous ecological systems and biodiversity, its historical and cultural heritage, its scientific importance, and as a place for outdoor recreation and spiritual reflection.”¹⁴³

Objectives

- To first and foremost preserve the marine system in as far as possible its natural state and to retain the natural character of the MPA as an area with significant and unique natural values.

BOX 2

Earth law places human law within the capacity of natural law

The Encyclopedia Britannica defines “natural law” as a system of rights or justice held to be common to all humans and derived from nature rather than from the rules of society. Codifying legal rights for nature in our governance systems correctly places human law within the constraints of natural law, and the economic system within the constraint of natural systems. It requires us to take into account those ecological functions that we cannot monetize that are essential for human society and ecosystem vitality.^a Accordingly, the Earth Law Framework requires that human laws and systems must respect and function within natural laws and systems.

The Earth Law Framework helps ensure MPA management decisions embody an “understanding of the structure and dynamics of the natural system and of the constraints presented by that system and by natural laws, and then provide feedback to regulate economic systems within those constraints. Because the finite limits to resource-use are based on natural laws, not human law, and since exceeding those limits will eventually lead to catastrophic effects on both ecological and economic systems, they must be identified clearly.”^b

By providing such a provision in legal decrees that define or manage the area, we work within the constraints of natural law: fundamental physical laws and biological dynamics constrain human institutions and desires, not the reverse.^c

^a Wild Living Resources, *supra* at 346.

^b *Id.*

^c *Id.* at 341.

- To conserve the ocean and prevent or eliminate any activity which may harm the ocean's rights; in the case of conflict, ocean conservation will be the priority;

Authorities in charge and process for decision making

- The rights, powers, and duties of the MPA must be exercised and performed on behalf of and in the name of the MPA—(i) by the MPA Board; and (ii) the liabilities are the responsibility of the MPA Board
- All decisions and activities are determined with respect to the MPA's rights
- All persons and communities can call upon the government and authorities to enforce the rights of the MPA

Preliminary guidance regarding responsibilities to protect the MPA

1. As put forth in the 'Eleven Guiding Principles'
 - (1) Representation, Promotion and Advocacy
 - (a) The board must act in the interests of the MPAs in any statutory process or at any public forum
 - (b) The board must act and speak for and on behalf of sanctuary
 - (c) The board must advocate, promote and protect the health and well-being of sanctuary
 - (2) Strategy and Actions
 - (a) The board must identify the issues relevant to the health and well-being of the MPA
 - (b) The board must provide a strategy to deal with those issues; and recommend actions to deal with those issues.

BOX 3

The Rights of Cetaceans

"There is an ethical consideration that all animals have a fundamental right to healthy habitat... [that] underpins for many the drive for whale conservation and marine

Cetacean habitat serves as a starting point when designating marine protected area boundaries and zones. Critical habitat for cetaceans, the areas that cetaceans use to feed, mate, reproduce and socialize, as well as the areas that protect essential ecosystem functions and the habitat that cetacean prey depend upon, are important to include in a marine protected area and may serve as areas for no-take. Also, the visibility of cetaceans provides a relatively effective way to gain the necessary information and data needed for designation and planning of marine protected areas, and successful ocean conservation in general.

Moreover, cetaceans are highly intelligent and sentient beings. They experience emotions, have a sense of self-identity, and communicate as cultural beings. Cetaceans possess rights of their own, which are recognized when employing the Earth Law framework for MPAs. Recognizing cetacean rights means:

- Regulating tourism and shipping traffic to have minimal effect on these species
- Prohibiting extraction or take in their critical habitat
- Maintaining population levels according to their natural capacity
- Making illegal activities that market or commercialize these species

Source: Adapted from Hoyt (2011), [Whale and Dolphin Conservation](#), [ABC Science](#) and [One Green Planet](#)

Zoning plan

- Cetaceans help guide zoning and restrictions on human activity
- Fully protects core areas through strict prohibition on all human activities and impacts
- Planning driven by the best scientific information and on a precautionary basis

Monitoring and performance criteria for monitoring in support of the objectives and effectiveness of the management plan

- The MPA is “healthy” when it maintains “normal form and function”; that is, it has the ability to maintain its structure (organization) and function (vigor) over time in the face of external stress (resilience). ”



Examples of the Framework in action can be seen in Ecuador and New Zealand

- a. Article Three of the Special Law of the Galapagos outlines principles for governing the islands. These include: “An equilibrium among the society, the economy, and nature; cautionary measures to limit risks; respect for the rights of nature; restoration in cases of damage; and citizen participation.” The Special Law of the Galapagos proposes a holistic management plan that recognizes the natural processes of ecosystems and the interactions between local communities and terrestrial and marine areas as well as the key threats of human interference (see Appendix I, Part A).
- b. Under the Tutohu Whakatupua Treaty Agreement, the Whanganui River in New Zealand is given legal status under the name Te Awa Tupua. Te Awa Tupua is recognized as “an indivisible and living whole” and “declared to be a legal person.” The Whanganui River Claims Settlement Act of 2017¹⁴⁴ “sets out the component elements of the framework, including the legal recognition of Te Awa Tupua, the establishment of Te Pou Tupua [the guardian board]” and “states the relevance of Te Pā Auroa nā Te Awa Tupua (the framework) in the existing legal context, and requires interpretation of the framework in a way that best furthers the relevant agreements in the deed of settlement. It also requires statutory

functions to be carried out consistently with the purpose of the legislation under which the functions are carried out" (see Appendix I, Part B).

Balancing rights and criteria for decision making

"Transforming our environmentally destructive economy into one that can sustain progress depends on a Copernican shift in our economic mindset, a recognition that the economy is part of the Earth's ecosystem and can sustain progress only if the economy is restructured so that it is compatible with the ecosystem," says Lester R. Brown, Founder of the Worldwatch Institute and Earth Policy Institute, MacArthur Fellow and advisor to the US government on agricultural issues.¹⁴⁵

Historically, the nature and extent of human activity has been determined based on its impact on the environment (i.e. Environmental Impact Assessments). Cost-benefit-analysis, also known as weighing, defines nature in commercial terms; it focuses on the monetary value of what can be exchanged for nature. What a healthy ocean actually provides to not only humans but the entire Earth system is largely undervalued; harmful activities prevail in current environmental law.

An Earth Law approach aims to balance nature's rights with social and economic interests, by recognizing the intrinsic worth of the ocean, and the value of a healthy ocean to the planet. Good governance, an enabling environment, sustainable land- and marine- based human activities, and adequate measures will be required to reduce the negative anthropogenic impacts on the marine environment.¹⁴⁶ Therefore, equal balancing of human interests and needs with that of the marine protected area

requires the creation and analysis of economic (i.e. performance), governance (i.e., implementation) and ecological standards. Several criteria should be considered to define what policy action is the best choice.

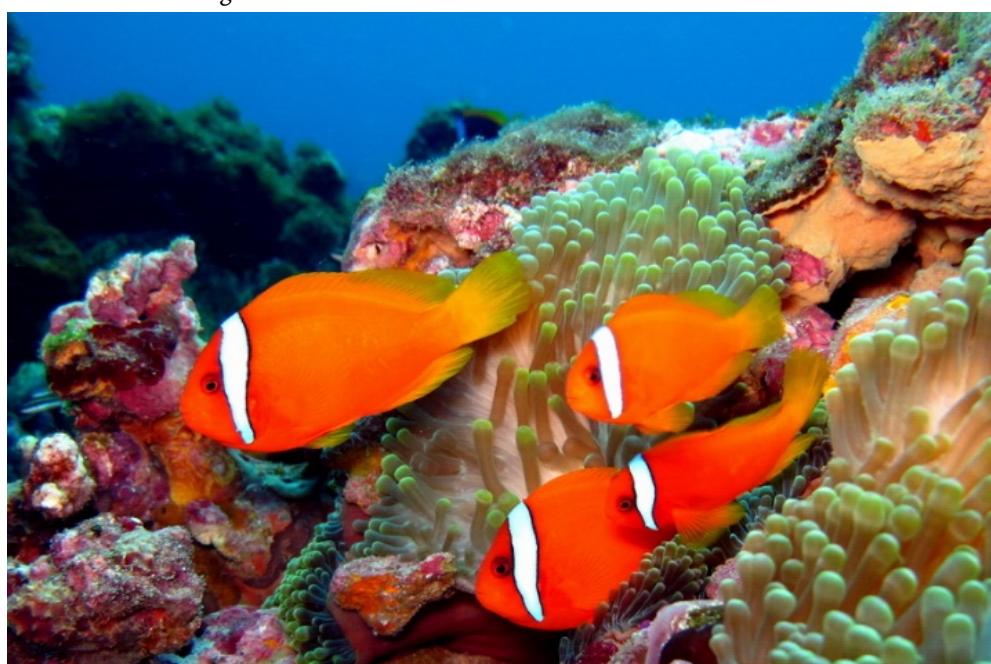
Summary of recommendations

One of the voluntary commitments undertaken at the UN Ocean Conference held in New York in June 2017 was to accord the Pacific Ocean the same protective legal rights as individuals now enjoy.¹⁴⁷

As part of the Earth Law movement around the world, this represents an inversion of historical ocean conservation perspectives. Rather than assessing human activities from a human needs point of view only, this means a broader perspective which prioritizes the needs of marine ecosystems to exist, thrive and evolve.

This paradigm shift requires an evolved way to view standards for activities in three areas:

- Economic
- Governance
- Ecological



Key considerations for Earth Law-centered economic criteria may include:

- Reflecting on the true cost of our activities and their impacts, which includes costs to the marine ecosystem and its ability to renew and restore itself.
- The consideration of “no level of human activity” as a viable alternative in decision making.
- Decisions should evolve to include non-consumptive values and models.

Key considerations for Earth Law-centered governance may include:

- Evaluate decisions using attributes and scores that assign the highest scores to those activities and regulations that lead to the fulfillment of the conservation objectives.
- Adherence to established “good governance” principles.
- Application of the Precautionary Principle which puts the burden of proof on those wishing to take potentially harmful action – to prevent harm before it occurs.
- Ensure public and stakeholder involvement and acceptance of the regulatory decisions.
- Development of alternative livelihoods that allow for both human and ecological interests to thrive.

Key considerations for Earth-Law centered ecological criteria may include:

- Regulatory decisions to achieve conservation of ecosystem and species.
- Goals for ecosystem components are identified and regulations guide human activity towards realization of identified goals.
- Impacts to keystone species are given priority in decision making.

Criteria are further expanded upon in Appendix J
(Note this list is not intended to be exhaustive, but provided as a starting point to guide implementation of the Earth Law Framework).



VII CONCLUSION

All life on the planet depends on the stability of the ocean's ecological communities. However, ocean ecological stability faces multiple threats from direct human activity such as fishing and far-reaching environmental challenges including climate change and habitat destruction. The ocean needs humans to transform their perspective. The proposed solution is a paradigm shift in law to grant ecological communities rights and protections.

We can no longer treat the ocean as a limitless resource that we are not dependent on. We must fundamentally change our relationship with nature and the legal system we function within. The framework presented is intended to serve as a guideline for implementing an approach to marine protected area governance that allows humans to live within the ocean's ecological limits. The ocean cannot take a human-centered approach much longer. The ocean, needs us to transform our governance systems, to recognize that nature has inherent rights to live, thrive and evolve, and to acknowledge that humans have a responsibility to respect and protect those rights. Now is not the time for business as usual. Join the movement to recognize and protect the ocean's rights.

"Life itself arose from the oceans."¹⁴⁸ To protect life – we must protect the ocean.

APPENDIX A

Literature review of organizations and experts calling for the shift to holism that the Earth Law Framework represents

UN documents or declarations

1.1 World Charter for Nature, U.N. Doc. A/37/51 (1982)

“Convinced that:

- (a) Every form of life is unique, warranting respect regardless of its worth to man, and, to accord other organisms such recognition, man must be guided by a moral code of action,
- (b) Man can alter nature and exhaust natural resources by his action or its consequences and, therefore, must fully recognize the urgency of maintaining the stability and quality of nature and of conserving natural resources”¹⁴⁹

“1. Nature shall be respected and its essential processes shall not be impaired.”¹⁵⁰

“4. Ecosystems and organisms, as well as the land, marine and atmospheric resources that are utilized by man, shall be managed to achieve and maintain optimum sustainable productivity, but not in such a way as to endanger the integrity of those other ecosystems or species with which they coexist.”¹⁵¹

1.2 Resolution adopted by the General Assembly on 27 July 2012 "The Future We Want"

“We recognize that oceans, seas and coastal areas form an integrated and essential component of the Earth’s ecosystem and are critical to sustaining it, and that international law, as reflected in the United Nations Convention on the Law of the Sea, provides the legal framework for the conservation and

sustainable use of the oceans and their resources. We therefore commit to protect, and restore, the health, productivity and resilience of oceans and marine ecosystems, to maintain their biodiversity, enabling their conservation and sustainable use for present and future generations, and to effectively apply an ecosystem approach and the precautionary approach in the management, in accordance with international law, of activities having an impact on the marine environment, to deliver on all three dimensions of sustainable development.”¹⁵²

1.3 Resolution adopted by the General Assembly on 6 July 2017: Our ocean, our future: call for action

“1. We, the Heads of State and Government and high-level representatives, meeting in New York from 5 to 9 June 2017 at the United Nations Conference to Support the Implementation of Sustainable Development Goal 14 of the 2030 Agenda, with the full participation of civil society, and other relevant stakeholders, affirm our strong commitment to conserve and sustainably use our oceans, seas and marine resources for sustainable development”¹⁵³

“5. We are committed to halting and reversing the decline in the health and productivity of our ocean and its ecosystems and to protecting and restoring its resilience and ecological integrity. We recognise that the wellbeing of present and future

generations is inextricably linked to the health and productivity of our ocean.”¹⁵⁴

“13. We call on all stakeholders to conserve and sustainably use the oceans, seas, and marine resources for sustainable development by taking, inter alia, the following actions on an urgent basis, including by building on existing institutions and partnerships:

(j) Support the use of effective and appropriate area-based management tools, including marine protected areas and other integrated, cross-sectoral approaches, including marine spatial planning and integrated coastal zone management, based on best available science, as well as stakeholder engagement and applying the precautionary and ecosystem approaches, consistent with international law and in accordance with national legislation, to enhance ocean resilience and better conserve and sustainably use marine biodiversity.

(l) Enhance sustainable fisheries management, including 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, through the implementation of science-based management measures, monitoring, control and enforcement, supporting the consumption of fish sourced from sustainably managed fisheries, and through precautionary and ecosystem approaches as appropriate, as well as strengthening cooperation and coordination, including through, as appropriate, regional fisheries management organisations, bodies and arrangements.”¹⁵⁵

1.4 UN Harmony with Nature: Draft Resolution 2017

Former resolutions are available here:
<http://www.harmonywithnatureun.org/documents.html>

“Expressing concern about documented environmental degradation, potentially more frequent and intense natural disasters and the negative impact on nature resulting from human activity, and recognizing the need to strengthen scientific knowledge on the effects of human activities on the Earth systems, with the aim of promoting and ensuring an equitable, balanced and sustainable relationship with the Earth”¹⁵⁶

“Reaffirming that fundamental changes in the way societies produce and consume are indispensable for achieving global sustainable development”¹⁵⁷

“Considering that sustainable development is a holistic concept that requires the strengthening of interdisciplinary linkages in the different branches of knowledge”¹⁵⁸

“Calls for holistic and integrated approaches to sustainable development, in its three dimensions, that will guide humanity to live in harmony with nature and lead to efforts to restore the health and integrity of the Earth’s ecosystems”¹⁵⁹

2 Food and Agriculture Organization documents

2.1 FAO - Technical Guidelines For Responsible Fisheries, 2. The ecosystem approach to fisheries, 2003

“The term ecosystem approach to fisheries (EAF) has been adopted in these guidelines to reflect the merging of two different but related and - it is hoped - converging paradigms. The first is that of ecosystem management, which aims to meet its goal of conserving the structure, diversity and functioning of ecosystems through management actions that focus on the biophysical components of ecosystems (e.g. introduction of protected areas). The second is that of fisheries management, which aims to meet the goals of satisfying societal and human needs for food and economic benefits through management actions that focus on the fishing activity and the target resource.

Up until recently, these two paradigms have tended to diverge into two different perspectives, but the concept of sustainable development requires them to converge towards a more holistic approach that balances both human well-being and ecological well-being.”¹⁶⁰

“The guidelines recognize that there is a need to improve current fisheries management. The interactions that occur between fisheries and ecosystems, and the fact that both are affected by natural long-term variability as well as by other, non-fishery uses, must be more effectively taken into consideration.”¹⁶¹

- 2.2 Fisheries management. 4. Marine protected areas and fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 4.

Rome, FAO. 2011. 198p.

“However, because of the failure of conventional measures in many cases, MPAs have increasingly been promoted. Fisheries management, at the same time, is also evolving towards more integrated approaches through EAF (ecosystem approach to fisheries). As a management framework, EAF is not a new approach, but a practice in evolution, progressively making more explicit the inclusion of broader ecosystem considerations – including both environmental and human dimensions – with a view to achieving sustainability. MPAs can be useful for achieving objectives related to fisheries management and biodiversity conservation, but to meet the majority of fisheries management goals they generally must be implemented in combination with other, more conventional management measures.”¹⁶²

- 2.3 FAO, Asia-Pacific Fishery Commission, “Ecosystem Approach to Fishery Management (EAFM)” training course

“Why do we need to use an Ecosystem Approach to Fishery Management?

If we consider the wide scope of threats and issues facing fisheries and their supporting ecosystems, it is obvious that conventional fisheries management does not cover them all and a broader, more inclusive approach is needed. Once we recognize the benefits that ecosystems bring to human societies, we can understand the need for managing these same ecosystems more holistically (i.e. going beyond a focus on managing only the activities relating to target species of fish).

Taking a holistic approach requires a broader understanding of the ecosystem and stakeholders that are directly or indirectly linked to a particular fishery. It also requires that we balance the opinions and needs of these different groups, based on priorities and trade-offs.”¹⁶³

- 3 NOAA documents (US Department of Commerce, National Oceanic and Atmospheric Administration)

- 3.1 Fowler, C. W., R. D. Redekopp, V. Vissar, and J. Oppenheimer. 2014. Pattern-based control rules for fisheries management. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-268, 116 p.

“Today, we are witness to an increasing number of failures of conventional approaches to fisheries management. By conventional standards, about 28% of the world's fisheries can now be seen as either recovering from being overfished, or still overfished (FAO 2009). As will be presented below, by more systemic (or holistic) standards, virtually all commercial fishing involves harvesting of a magnitude that is well beyond being fully sustainable (Belgrano and Fowler 2011, Fowler et al. 2013). In spite of progress toward the goal of accounting for ecosystems (and to a very limited extent, ecosytems) in decision-making and management, overfishing continues to be a problem.”¹⁶⁴

"Leading up to the emphasis on adopting an ecosystem-based approach to management was the clear lack of sufficient consideration of the innumerable forms of ecological interconnectedness (Christensen et al. 1996)."¹⁶⁵

"Through recognition of the need to account for such complexity, holism has been seen by many as crucial to management. To meet the need for such holism, there is an alternative form of management that involves rejecting and replacing many (but not all) of the processes upon which conventional management depends. This approach (systemic management, Fowler 2009), takes into account all relevant factors, including those that historians, scientists, and managers have identified (including those that will be identified in the future as well as those that will never be identified) by making direct use of integrative empirical patterns that provide guiding information."¹⁶⁶

3.2 Holistic Fisheries Management: Combining Macroecology, Ecology, and Evolutionary Biology, Charles W. Fowler, Andrea Belgrano, and Michele Casini, Marine Fisheries Review (Scientific Publications Office, National Marine Fisheries Service, NOAA), volume 75 number 1–2, July 2013.

"Ecosystem-based management is one of many indispensable components of objective, holistic management of human impacts on nonhuman systems. By itself, however, ecosystem-based management carries the same risks we face with other forms of current management; holism requires more. Combining single species and ecosystem approaches represents progress. However, it is now recognized that management also needs to be ecosystem-based. In other words, management needs to account for all coevolutionary and evolutionary interactions among all species; otherwise we fall far short of holism. Fully holistic practices are quite distinct from the

approaches to the management of fisheries that are applied today."¹⁶⁷

3.3 NOAA Fisheries website

"Ecosystem-based fisheries management (EBFM) is a holistic way of managing fisheries and marine resources by taking into account the entire ecosystem of the species being managed. The goal of ecosystem-based management is to maintain ecosystems in a healthy, productive, and resilient condition so they can provide the services humans want and need. The EBFM approach also can be applied in the management of protected and other trust marine species. EBFM is the most efficient and effective way for NOAA Fisheries to address this vast range of responsibilities simultaneously. It allows us to consider the full range of trade-offs, interactions, and cumulative effects."¹⁶⁸

"Integrated ecosystem assessments (IEAs) are a way to better manage resources, and they provide a sound scientific basis for EBFM. IEAs provide a structure to assess ecosystem status relative to objectives of different groups (e.g., fishing, recreation, energy production, shipping, agriculture, forestry, food, clean water), account for the holistic impact of management decisions, and guide management evaluations. NOAA is building a national Integrated Ecosystem Assessment (IEA) program that will include eight regions based on U.S. large marine ecosystems."¹⁶⁹

4 GEF strategies and projects (Global Environment Facility)

The Global Environment Facility (GEF) was established on the eve of the 1992 Rio Earth Summit to help tackle our planet's most pressing environmental problems. Since then, the GEF has provided over \$17 billion in grants and mobilized an additional \$88 billion in financing for more than 4000 projects in 170 countries. Today, the GEF is an international

partnership of 183 countries, international institutions, civil society organizations and the private sector that addresses global environmental issues.

Note: Protecting the oceans and its biodiversity has always been a key issue for GEF. Below are discussed the strategies for the more recent periods (GEF-5: 2010-2014 and GEF-6: 2014-2018) and some projects from these two periods linked to the evolving management of fisheries and the marine biodiversity.

4.1 GEF-5 Focal Area Strategies, GEF/R.5/Inf.14
September 18, 2009

“Biodiversity is under heavy threat and its loss is considered one of the most critical challenges to humankind.”¹⁷⁰

“Protection of deep-sea species, marine biodiversity, and seamount habitat can be greatly improved through enhanced capacity of Regional fisheries organizations to manage according to ecosystem-based approaches and application of conservation tools such as MPAs and spatial management tools. Pilot initiatives with resources and expertise from both the Biodiversity and International Waters areas have the potential to holistically address sustainable fisheries and conservation with Marine Protected Areas (MPAs), Benthic Protected Areas (BPAs), spatial management, cooperative frameworks, and improved flag-state fisheries compliance.”¹⁷¹

4.2 GEF-6 Programming Directions, Extract
from GEF Assembly Document
GEF/A.5/07/Rev.01, May 22, 2014

BIODIVERSITY FOCAL AREA STRATEGY: “Goal and Objectives: BD 1: Improve Sustainability of Protected Area Systems. The GEF defines a sustainable protected area system as one that: a) effectively protects ecologically viable and climate-resilient representative samples of the country’s ecosystems and provides adequate coverage of threatened species at a sufficient scale to ensure their long term-survival. b) has

sufficient and predictable financial resources available, including external funding, to support protected area management costs; and c) retains adequate individual and institutional capacity to manage protected areas such that they achieve their conservation objectives.”¹⁷²

INTERNATIONAL WATERS FOCAL AREA STRATEGY:
“Goal: Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services.”¹⁷³

4.3 Sustainable Fisheries Management and
Biodiversity Conservation of Deep-Sea Living
Marine Resources and Ecosystems in Areas
Beyond National Jurisdiction

<http://www.fao.org/3/a-i7131e.pdf>
<http://www.fao.org/in-action/commonoceans/projects/deep-seas-biodiversity/en/>

The ABNJ Deep Seas Project is a five-year project designed to enhance sustainability in the use of deep-sea living marine resources and biodiversity conservation in areas beyond national jurisdiction (ABNJ) through the systematic application of an ecosystem approach.

“The GEF/FAO/GOF workshop report on Linking Global and Regional Levels in the Management of Marine Areas Beyond National Jurisdiction (ABNJ) (organized at FAO, Rome, February 17-20, 2015). This workshop identified the further development of capacity to better manage ABNJ areas, including through the application of integrated and ecosystem-based management approaches to area-based planning, as an essential imperative.”

4.4 Governance Strengthening for the
Management and Protection of Coastal-Marine Biodiversity in Key Ecological Areas

and the Implementation of the Ecosystem Approach to Fisheries (EAF) in Argentina

“The Argentine marine fisheries have shown a slow but constant transformation over the last 25 years, gradually shifting from a conventional resource management approach to a an Ecosystem Approach to Fisheries (EAF), which is still incipient.”¹⁷⁴

“Management measures that were established by the Federal Fisheries Council, in fulfillment of the provisions of the above-mentioned Law, include total allowable catch for commercial species, closed seasons, minimum capture length, maximum catch for a species or series of species per fishing trip among others. Nonetheless, there are still a number threats and problems to biodiversity conservation in the Argentine marine area. In order to address these problems, the Argentine Ministry of the Environment and Sustainable Development (MAyDS) has requested FAO’s support to access GEF funds for a project that has the global environmental objective of strengthening management capacities and protecting marine biodiversity in environmentally significant areas, by creating new MPAs and applying the Ecosystem Approach to Fisheries (EAF).”¹⁷⁵

5 IUCN documents (International Union for Conservation of Nature)

5.1 Resolution 100 “Incorporation of the Rights of Nature as the organizational focal point in IUCN’s decision making”, WCC-2012-Res-100

“Also noting that, in addition to seriously impacting the environment, the current production and consumption model has shown itself to be inadequate when it comes to combating poverty and improving the quality of life of most of the world’s population”¹⁷⁶

The World Conservation Congress:

“1. Recommends to the Director General to initiate a process that considers the Rights of Nature as a fundamental and absolute key element for planning, action and assessment at all levels and in all areas of intervention”¹⁷⁷

“4. Invites the Director General and IUCN Members to promote the development of a Universal Declaration of the Rights of Nature, as a first step towards reconciliation between human beings and the Earth as the basis of our lives, as well as the foundations of a new civilizing pact.”¹⁷⁸

5.2 IUCN World Commission on Protected Areas (IUCN-WCPA) (2008). Establishing Marine Protected Area Networks—Making It Happen. Washington, D.C.: IUCN-WCPA, National Oceanic and Atmospheric Administration and The Nature Conservancy. 118 p.

“A key management strategy to address many issues affecting marine and coastal ecosystems and resources is the implementation of marine protected areas (MPAs).”¹⁷⁹

“If designed correctly and managed well, MPAs have an important role to play in protection of ecosystems and, in some cases, enhancing or restoring the productive potential of coastal and marine fisheries. However, it is recognized that MPAs are not the only solution for coastal and marine problems. For example, when MPAs are used in conjunction with other management tools, such as integrated coastal management (ICM), marine spatial planning and broad area fisheries management, they offer the cornerstone of the strategy for marine conservation.”¹⁸⁰

“MPAs networks, formed through the scaling up of single MPAs to zoned networks with multiple-use MPAs, can provide an ecosystem-based management approach (Christie et al. 2007). Large-scale, multiple-

use protected areas demonstrate the concept of ecosystem management, where the geographical extent of protection is based on the movements of organisms and physically linked processes. In recognition of these linkages, MPA managers and planners should consider protection of ecosystem function, structure and integrity, in addition to individual resources (such as specific species or habitats) and physical characteristics (Agardy and Staub 2006).¹⁸¹

5.3 IUCN Programme 2017–2020

“The historic agreement that emerged from the 21st Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP21) in Paris in December 2015 sent a clear signal about the vital importance of natural ecosystems in achieving climate neutrality over the course of this century.”¹⁸²

“Ecosystems already provide a host of services to humanity, but these remain undervalued.”¹⁸³

2020 Targets:

“10. Protected area networks are expanded to conserve areas of particular importance for biodiversity through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measure”¹⁸⁴

“15. Community-led, cultural, grassroots or protected area governance systems that achieve the effective and equitable governance of natural resources are recognised (as best practices/pilot testing), supported and promoted, while respecting the rights of nature.”¹⁸⁵

“19. Legal and institutional frameworks for an increased number of transboundary areas, including protected areas, are established and deliver effective and well-implemented natural resource governance”¹⁸⁶

“30. Legal, customary and institutional mechanisms and resourcing are effectively implemented to maintain intact, natural and semi-natural ecosystems that deliver benefits to society, including existing and new protected areas.”¹⁸⁷

- 5.4 Lewis, N., Day, J.C., Wilhelm, ‘A., Wagner, D., Gaymer, C., Parks, J., Friedlander, A., White, S., Sheppard, C., Spalding, M., San Martin, G., Skeat, A., Taei, S., Teroroko, T., Evans, J. (2017). Large-Scale Marine Protected Areas: Guidelines for design and management. Best Practice Protected Area Guidelines Series, No. 26, Gland, Switzerland: IUCN. xxviii + 120 pp

“Profound ecological changes are occurring and will continue to have a negative impact on the oceans, their resources and the people and communities whose very survival depends on the sea. In the face of these challenges, there is an urgent need not only to ‘go big’ with our marine conservation efforts, but to do so in ways that increase and strengthen models of best practice management across MPAs at all scales.”¹⁸⁸

“Working towards effective and equitable management of MPAs requires governance systems that are also effective, inclusive, diverse and vibrant. Decisions must consider both the ecological and social aspects of the conservation initiative.”¹⁸⁹

“Despite the challenges, LSMPAs (Large Scale Marine Protected Areas) can provide unique benefits and help reach global targets in meaningful ways when developed within the context of an overarching national or regional ecosystem-based approach to ocean governance that includes managing society’s interactions within ecosystems.”¹⁹⁰

“The key is for all players to commit to effective and equitable governance and management that seeks to conserve biodiversity in parallel with influencing, for the better, the economic, social and political drivers

that affect ecosystem management, nature-based livelihoods, and the rights and responsibilities for nature (IUCN, 2012)."¹⁹¹

"Process principles:

- Utilise multidisciplinary approaches, methods and perspectives; be inclusive of multiple knowledge systems.
- Meet the current needs of the management team and the site without compromising the long-term sustainability of either.
- Support intergenerational capacity building to ensure there are always qualified, passionate managers and community leaders to support the MPA in perpetuity.
- Value a holistic management model that seeks to understand the relationship between nature, culture and the human dimension.
- Deal with uncertainty by taking a precautionary approach that considers the sociocultural, economic and political factors, as well as the environmental ones.
- Use an iterative approach that adapts management strategies as conditions change or new information becomes available.
- Enhance smaller-scale management approaches by complementing existing efforts and leveraging limited resources.
- Create transparent processes."¹⁹²

"In managing an LSMPA, rarely are marine ecosystems managed separately from its component parts; rather, the human activities occurring in and around an LSMPA are managed holistically."¹⁹³

APPENDIX B

Varying definitions applying to Marine Protected Areas

UNIFORM MULTIPLE-USE MPAS	MPAs or zones with a consistent level of protection, allowable activities or restrictions throughout the protected area. Extractive uses may be restricted for natural or cultural resources. ¹⁹⁴
ZONED MULTIPLE- USE MPAS	Some extractive activities throughout the entire site are allowed. Marine zoning is used to allocate specific uses to compatible places or times in order to reduce user conflicts and adverse impacts. ¹⁹⁵
ZONED MULTIPLE- USE WITH NO-TAKE AREAS	Multiple-use MPAs. They contain at least one legally established management zone in which all resource extraction is prohibited. ¹⁹⁶
NO-IMPACT MPA	MPAs or zones that allow human access, but prohibit all activities that could harm the site's resources or disrupt the ecological and cultural services they provide. Examples of activities typically prohibited in no-impact MPAs include resource extraction of any kind (fishing, collecting, or mining), discharge of pollutants, disposal or installation of materials and alteration or disturbance of submerged cultural resources, biological assemblages, ecological interactions, physiochemical environmental features, protected habitats, or the natural processes that support them. ¹⁹⁷
NO ACCESS MPA	MPAs or zones that restrict all human access to the area in order to prevent potential ecological disturbance, unless specifically permitted for designated special uses such as research, monitoring or restoration. ¹⁹⁸
MARINE RESERVES	<p>Often called no-take MPAs. Activities that remove animals or plants or that alter habitats are completely prohibited, unless needed for scientific monitoring. This means that fishing, aquaculture, dredging and mining is not allowed within these special MPAs. On the other hand, swimming, boating and scuba diving are usually allowed.¹⁹⁹</p> <p>Since Marine reserves fully protect habitats they often produce very different results than an ordinary MPA. The reserves alone cannot address the problems such as pollution and climate change but need to be complemented by other management strategies. Nevertheless, it is important to understand the effects of marine reserves as well as how to implement them more effectively.</p> <p>In short, an MPA where it is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource.²⁰⁰</p>

EUROPEAN MARINE SITES	Special areas of conservation (required by law under the European Habitats Directive) and Special protection areas (required by law under the European Wild Birds Directive). Together they make a European Union wide network of protected areas called the Natura 2000 network.
	European Marine Sites protect the specific species and habitats that are listed in the European legislation. Sites are managed to protect the designated features from any damaging activities, restricting activities where it cannot be proved that they will not have an adverse effect. ²⁰¹
MARINE SANCTUARIES	A general type of MPA where there are limits on human activity. Sanctuaries vary in the types and levels of activity they allow. ²⁰²
MARINE CONSERVATION ZONES	A special type of MPA for England and Wales. MCZs protect nationally important marine wildlife, habitats, geology and they can be designed anywhere in English or Welsh inshore and offshore waters. Sites are selected to protect rare, threatened species as well as the range of marine wildlife. Social and economic factors are taken into account when identifying new sites, which is not the case with general MPAs. ²⁰³
RAMSAR SITES	Designated under the convention on Wetlands of International Importance 1971. Includes "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres". Wetlands "may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands". As such, Ramsar sites that protect intertidal or subtidal habitats and species are considered MPAs.
MARINE CONSERVATION AREAS	An MPA where it is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource for recreational and/or commercial purposes except for species expressly allowed for recreational and/or commercial take (species and gear exceptions vary by location). ²⁰⁴
MARINE PARKS	A multiple-use MPA. They have different zones within them allowing different types of activities. In the U.S. they are designated by Congress. Legislators can specify the level of protection. They usually allow boating, snorkeling and sport fishing. Many marine parks also include zones for commercial fishing (open zones). They may also include no-take zones. ²⁰⁵
MARINE WILDLIFE REFUGES	In the U.S. alone a system that includes 180 refuges exists. They protect ocean, coastal or Great Lakes habitats. They protect an incredible diversity of marine and coastal ecosystems including salt marshes, rocky shorelines, tide pools, sandy beaches etc. ²⁰⁶

MARINE RECREATIONAL MANAGEMENT AREAS	Limits recreational and commercial take of marine resources while allowing for legal waterfowl hunting to occur; provides subtidal protection equivalent to an MPA. Restrictions vary. ²⁰⁷
SEASONAL CLOSURES/TEMPORARY CLOSURES	MPAs or zones that protect specific habitats and resources, but only during fixed seasons or periods when human uses may disrupt ecologically sensitive seasonal processes such as spawning, breeding, or feeding aggregations. Do not provide any guarantee against overfishing of a fish stock which can take place in other areas at other times. On the other hand, closures of major portions of the fishing grounds can affect fishing mortality and abundance in adjacent areas. Their purpose is to reduce catching power and fishing mortality by limiting the amount of fishing to a desired level. ²⁰⁸
MONUMENTS	They have similar levels of restriction as marine reserves. Marine national monuments are nearly off-limits to any kind of resource extraction, with exceptions for traditional uses by indigenous peoples and scientific research. ²⁰⁹
STRICT NATURE RESERVE	Protected areas that are strictly set aside to protect biodiversity and also possibly geological/geomorphological features. Human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. They are valuable research and monitoring sites. ²¹⁰
PROTECTED SEASCAPE	The interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value. Safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values. ²¹¹

APPENDIX C

The guiding principles and characteristics of the current framework

Part A: The worldview of the current framework

I. Most of today's society functions within an anthropocentric worldview, with humans as separate and above nature, rather as a part and partner. We create laws with the assumption that nature is therefore property and a resource. Defining nature as a resource, is one underlying reason why we continue to exploit and degrade without regard for the health of the entire system. Consider the various definitions of a resource:

1. Merriam-Webster:

- a) a source of supply or support: an available means
- b) a natural source of wealth or revenue
- c) a natural feature or phenomenon that enhances the quality of human life
- d) computable wealth

2. Oxford:

- a) a stock or supply of money, materials, staff, and other assets that can be drawn on by a person or organization in order to function effectively
- b) a country's collective means of supporting itself or becoming wealthier, as represented by its reserves of minerals, land, and other natural assets

3. Business Dictionary:

- (a) an economic or productive factor required to accomplish an activity, or as means to undertake an enterprise and achieve desired outcome

Regardless of the definition used, a resource is defined as an economic tool, rather than a part of the Earth that we need in order to live.

Erich Hoyt (2011) highlights traditional and current assumptions and their outcomes, which apply in the context of human use of the ocean and ocean conservation.

Traditional and current assumptions include:

- "owners of resources have the right to do whatever they want with the resources
- if a resource is not used by someone, it can be used by anyone
- use cannot be restricted unless some individual or entity with legal standing objects and can show that, its property, or public welfare is being affected adversely by the activity"

These assumptions have led to:

- "competition for access to resources
- development of resource-use industries faster than development of knowledge concerning the resource and its ecosystem
- over-capitalization of the industry
- over-exploitation and depletion of the resource
- damage, waste, or loss of other components of the ecosystem
- loss of capital investment and related socio-economic impacts because the long-term yield is far below the exploitation capacity that has developed
- managing the industry to protect capital investment and minimize short-term socio-economic impacts, rather than to maintain the resource at a level provided long-term benefits."²¹²

Due to our values and assumptions, the ocean is often described as an "open access resource (for everyone's use) and its over-exploitation is attributed to this feature."²¹³

Suggested mechanisms to ensure that property rights are consistent with conservation include: internalization of costs that are external and ignored by markets, regulation of access to common pool

resources, and security of tenure for users.²¹⁴ However, even these mechanisms are failing and proving insufficient,²¹⁵ especially in the ocean where the majority of the area is high seas, and not under national jurisdiction.

II. An anthropocentric worldview also contributes to human-centered objectives for ocean law and policy. Where laws should be designed to protect marine ecosystems and species for their own sake, protection is largely used to fuel human needs and desires. Examples of human-centered objectives in ocean law and policy include:

- The defined goal for creating a network of MPAs by the IUCN is “to provide for protection, restoration, wise use, understanding and enjoyment of the marine heritage of the world in perpetuity....in accordance with the principles of the World Conservation Strategy of human activities that use or affect the marine environment.” Where wise use is defined as “for the use of people on an ecologically sustainable basis.” This includes for the continued welfare of people affected by the creation of the MPA;²¹⁶
- The National Ocean Policy of the United States, Executive Order 13547, provides a framework to improve ecosystem health, resilience, and biodiversity as well as sustainable and productive access and use. The Order seeks to protect the ocean in order to continue to provide benefits that support the Nation’s well-being, safety, and prosperity. It emphasizes the ocean and coastal areas as sources of jobs, energy, recreation, tourism, transportation, and that communities, not animals, depend on healthy and resilient ecosystems. Although the policy recognizes the declining health of marine ecosystems, it emphasizes the costs to the economy, for example, the threats of invasive species to fisheries, tourism, and infrastructure, and not to endemic species populations and ecosystem stability. The Implementation Plan states that the policy

will provide the science and tools to sustain and improve the quality of life for all Americans rather than all marine life;

- The United Nations Convention of the Law of the Sea’s objective in the preamble is to provide for “a legal order for the seas and oceans which will facilitate international communication, and will promote the peaceful uses of the seas and oceans, the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection and preservation of the marine environment ... and that the achievement of these goals will contribute to the realization of a just and equitable international economic order which takes into account the interests and needs of mankind as a whole.” Though titled “conservation of living resources,” Article 61 determines allowable catch is to be “designed to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors;”²¹⁷ and

- In the United Nations 2030 Agenda, Goal 14 states: Conserve and sustainably use the oceans, seas and marine resources for sustainable development (emphasis added).

Therefore, even in laws designed to protect the ocean, human interests dominate. The Magnuson-Stevens Fisheries and Conservation Act highlights clearly how a human-centered approach to a seemingly well-intentioned law can prevent conservation.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) was enacted in the United States in 1976 to “prevent overfishing, rebuild overfished stocks, increase long-term economic and social benefits and to ensure a safe and sustainable supply of seafood.” The MSA at first glance, appears to aim for the conservation and restoration of fish populations, but we are still seeing fisheries collapse; in 2015 NOAA identified 9 percent of US stocks on the “overfishing” list and 16 percent on the “overfished”

list. This is because fishery health is defined in terms of human and economic benefit.

A stated purpose of the MSA is “to provide for the preparation and implementation ... of fishery management plans which will achieve and maintain, on a continuing basis, the optimum yield from each fishery,”²¹⁸ where optimum is defined as the “amount of fish which will provide the greatest overall benefit to the Nation” on the “basis of the maximum sustainable yield from the fishery.”²¹⁹

First, we value fish as a resource and object by converting it to a “fishery.” Second, we determine the amount of fish we take from the ocean based on what provides the greatest benefit to the Nation, which in large part translates to the most economic growth and benefit to industry.

Lastly, we focus on “mortality” rather than life by managing our activities based on “maximum sustainable yield.” We strive for the maximum amount of fish we can take out of the ocean and in isolation from its complex interactions within the ecosystem, when we should be striving to maintain a healthy and thriving ecosystem.

Part B: Key components of the current framework

The IUCN created guidelines to help countries establish marine protected areas. The current legal framework for MPAs provided for by the IUCN requires specification of the following:

- a) Objectives;
- b) Management rules and penalties applied (with any special rules and administrative measures that may be needed, and safeguards to ensure and enhance compliance by Government, including transparency of decision making and provision for NGOs);
- c) Delineation of boundaries;
- d) Providing adequate statements of authority, precedence and procedures;
- e) Advisory and consultation processes;
- f) Criteria for decision making;
- g) Relationship with other national and local authorities, and procedures for coordination and conflict resolution;
- h) Management plans, zoning and regulation;
- i) Monitoring and review; and
- j) Compensation.²²⁰

The IUCN also identifies key components which are normally included in principal or subsidiary legislation for protected areas, including:

- (a) Legal description of the area and how it relates to the system plan;
- (b) Protected areas authority in charge and other important governance arrangements;
- (c) Basic description of the resources and conservation values for which the area is being designated, and related human interactions intended to be permitted in the area;
- (d) Conservation objectives and management category for the area;
- (e) Principal threats and management approaches for dealing with them;
- (f) Zoning plan (as needed);

- (g) Kinds of activities permitted and prohibited in the area;
- (h) Monitoring plan;
- (i) Performance criteria for evaluating progress toward goals and objectives, and effectiveness of specific management approach; and
- (j) Life of the plan and basic cycle for review, revision and updating.²²¹

Similarly, NOAA’s “blueprint for building the National System of MPAs” outlines the key components of the national system of marine protected areas as:

- a) A definition of the term “MPA”;
- b) National system goals and conservation objectives;
- c) Capacity building to strengthen the management effectiveness of U.S. MPA programs;
- d) Processes for fostering regional MPA networks and collaboration;
- e) Mechanisms for national and international collaboration;
- f) Preliminary guidance regarding federal agency responsibilities to avoid harm to resources protected by the National System of MPAs;
- g) Principles and processes for expanding MPA networks and establishing new MPAs; and
- h) Approaches for monitoring, evaluating, and reporting on national system progress and priorities.²²²

The above components are all necessary to employ within the Earth Law Framework for Marine Protected Areas, but through an Earth Law lens. These components are further expanded upon in their respective documents.

Part C: The guiding principles and characteristics of the current framework

The IUCN created three guiding principles for protected areas that addresses how a “protected area” is to be understood and applied. They include:

- 1) “[O]nly those areas where the main objective is conserving nature can be considered protected areas; this can include many areas with other goals as well, at the same level, but in the case of conflict, nature conservation will be the priority;
- 2) Protected areas must prevent, or eliminate where necessary, any exploitation or management practice that will be harmful to the objectives of designation; [...]
- 3) Protected areas should usually aim to maintain or, ideally, increase the degree of naturalness of the ecosystem being protected (Dudley, 2008, p. 10).²²³

In addition to principles guiding the designation of a protected area, the IUCN also highlights several attributes to keep in mind with provisions in legislation. The IUCN considers that the main characteristics of a protected areas system should include:

- 1) “Representativeness, comprehensiveness and balance: ability to represent or sample the full variety of biodiversity and other features such as landform types, and landscapes or seascapes of cultural value, so as to protect the highest quality examples, especially threatened and under-protected ecosystems, and species globally threatened with extinction.
- 2) Adequacy: supporting the viability of ecosystem processes as well as species, populations and communities that make up the country’s biodiversity.
- 3) Coherence and complementarity: the extent to which each site makes a positive contribution to the system as a whole.
- 4) Consistency: the application of management objectives, policies and classifications to

- individual sites under comparable conditions in standard ways.
- 5) Cost-effectiveness, efficiency and equity: an appropriate balance between the costs of and benefits flowing from protected areas, equity in their distribution, and efficiency in terms of the minimum number and size of protected areas needed to achieve system objectives.
 - 6) Persistence: the ability to promote the long-term survival of biodiversity contained within a protected area by maintaining natural processes and viable populations and by excluding or overcoming threats.
 - 7) Resilience: the ability to adapt and sustain primary conservation objectives of the site and the system overall in the face of climate change and other global change factors.”

Adapted from Barber *et al.*, 2004; Davey, 1998; and Dudley, 2008.²²⁴

These characteristics are important to keep in mind as legislation and management plans are drafted. In order to protect the ecosystem, provisions should provide a clear mandate emulating the identified characteristics. Additionally, in 2018, the Supreme Court of Justice in Colombia recognized the “Colombian Amazon as an “entity subject of rights”... This means that the State has a duty to protect, conserve, maintain, and restore the forest.”²²⁵ This was a part of the ruling for a case filed by youth declaring that their right to a healthy environment is being violated by the rapid deforestation rates.

APPENDIX D

Rights of Nature Taking Hold Worldwide

Ecuador

In 2008, Ecuador became the first country to adopt Rights of Nature into its Constitution. The Constitution, endows “Nature or Pachamama, where life is reproduced and exists” with inalienable rights to “exist, persist, maintain and regenerate its vital cycles, structure, functions and its processes in evolution.” The Constitution also gives nature the right to restoration and the people the right to “live in a healthy and ecologically balanced environment that guarantees sustainability and the good way of living.” It is the responsibility of the Ecuadorian State to “respect the rights of nature, preserve a healthy environment and use natural resources rationally, sustainably and durably” and to provide incentives to the citizens to “protect nature and to promote respect for all the elements comprising an ecosystem.”²²⁶

Bolivia

Bolivia passed the Law of Mother Earth in 2010 with the objective to “recognize the rights of Mother Earth” and ensure respect for those rights.²²⁷ The Law grants seven rights to Mother Earth; the right to life, to the diversity of life, to water, to clean air, to equilibrium, to restoration and to pollution-free living.²²⁸ Additionally, in 2012, Bolivia passed the Framework Law of Mother Earth and Holistic Development for Living Well. The Framework is intended to “guide the specific laws, policies, rules, strategies, plans, programs and projects … through integral development in harmony and balance with Mother Earth.”²²⁹ It builds upon the Law of Mother Earth by adding the concepts of Holistic Development and Living Well or “Vivir Bien.” Mother Earth is given legal status as a “collective subject of public interest.”²³⁰ The Law adds additional protections, requiring any individual or collective to prevent damage to Mother Earth and restore its components if damaged, and to respect the natural cycles and regenerative capacities of Mother Earth.

New Zealand

New Zealand granted legal personhood to the Te Urewera National Park, Whanganui River and its tributaries and Egmont National Park. In 2013, the Tūhoe people and the New Zealand government agreed upon the Te Urewera Act, giving the Te Urewera National Park “all the rights, powers, duties, and liabilities of a legal person.”²³¹ A Board was then established to serve as “guardians” of Te Urewera and to protect its interests. The stated purpose of the Act was to protect Te Urewera “for its intrinsic worth,” including its biodiversity and indigenous ecological systems. Similarly, the Maori people have successfully pursued similar results for the Whanganui River and its tributaries, under the Maori worldview “I am the River and the River is me.” Under the Tutohu Whakatupua Treaty Agreement,²³² the River is given legal status under the name Te Awa Tupua. Te Awa Tupua is recognized as “an indivisible and living whole” and “declared to be a legal person.” Two guardians, one from the Crown and one from a Whanganui River iwi, will be given the role of protecting the River. This treaty is especially important because it “recognises the intrinsic interconnection between the Whanganui River and the people of the River (both iwi and the community generally),” and finds “the health and wellbeing of the Whanganui River is intrinsically interconnected with the health and wellbeing of the people.”²³³ In late 2017, New Zealand granted legal rights to its third ecosystem, Egmont National Park (Taranaki Maunga). In a ‘Record of Understanding’ Mt. Taranaki and the land within the park will be given the same legal personality granted to the Whanganui and Te Urewera. “Instead of human ownership over the environment, it embraces the Maori relationship with the land and recognises its cultural and spiritual significance.”²³⁴

United States

Over three dozen municipalities in the United States have recognized nature's rights in local ordinances. In 2013, Santa Monica passed a Sustainability Rights Ordinance, which recognizes the inherent "rights of natural communities in Santa Monica." The Ordinance protects these rights from acts by "corporate entities," which "do not enjoy special privileges or powers under the law that subordinate the community's rights to their private interests." Finally, the Ordinance recognizes that "Santa Monica's welfare is inextricably bound to the welfare of the natural environment." Additionally, in response to the threats of shale natural gas drilling, Pittsburgh amended their home rule charter to include the right of the people to self-govern, the rights of natural communities, and prohibitions on corporate legal privileges, noting that "environmental and economic sustainability cannot be achieved if the rights of municipal majorities are routinely overridden by corporate minorities claiming certain legal powers."²³⁵ Additionally, in 2017, both the first rights of nature easement was established in Hawaii²³⁶ and the first federal lawsuit was filed on behalf of a river.²³⁷ The lawsuit, though dismissed months later,²³⁸ was filed on behalf of the Colorado River, seeking recognition of its rights and restoration.

India

In 2012, the Supreme Court of India recognized a fundamental duty of citizens under the Constitution to protect and enhance environment, ruling that "human interest[s] do not take automatic precedence and humans have obligations to nonhumans independently of human interest."²³⁹ On March 22, 2017, the Uttarakhand High Court in India declared two sacred rivers, the Ganga and Yamuna, as living entities with their own legal rights. The Court also appointed guardians to represent these waterways in legal matters. In a subsequent decision the Court declared the entire Himalayan ecosystem, its [m]ountain ranges, glaciers, rivers, streams, rivulets, lakes, jungles, air, forests, meadows, dales, wetlands, grasslands and springs" a "legal entity/legal person."

The Rivers and Himalayan ecosystem rights would be "equivalent to the rights of human beings and the injury/harm caused to these bodies shall be treated as harm/injury caused to the human beings."²⁴⁰ However, the country's Supreme Court suspended the ruling of the High Court after a petition argued the legal status is "unsustainable in the law." The case is now awaiting an appeal over the decision to suspend the order.²⁴¹

Colombia

Following the decision in India, the Atrato River was granted legal personhood rights by the Constitutional Court in Colombia. The High Court asserted that "the defendant state authorities are responsible for violating fundamental rights to life, health, water, food security, the healthy environment, culture and territory of the local ethnic communities."²⁴² The judgment said that "only an attitude of profound respect and humility with nature and its beings makes it possible for us to relate with them in just and equitable terms, leaving aside every utilitarian, economic or efficient concept."²⁴³

Mexico City

On January 11, 2017, Mexico City adopted Rights of Nature into its Constitution. The new Constitution is expected to enter into force in September 2018. The relevant sections of the new Constitution are paragraphs 2 and 3 of Article 13. They assert that "the right to the preservation and protection of nature will be guaranteed by the authorities of Mexico City." Additionally, Article 13 declares that a secondary law shall be passed "to recognise and regulate the protection of the rights of nature, as formed by all its ecosystems and species as a collective entity with collective rights." Citizens of Mexico City will then be able to enforce fundamental rights on behalf of nature.²⁴⁴

United Nations

The United Nations has adopted nine resolutions on ‘Harmony with Nature’ providing steps toward the “construction of a new, non-anthropocentric relationship with nature.”²⁴⁵ The United Nations General Assembly has also held seven dialogues to date on ‘Harmony with Nature.’ In 2015, the U.N. adopted a resolution that established a committee of experts in Earth Jurisprudence to meet through an invite-only dialogue and prepare an expert report to the U.N. on the application of Earth Jurisprudence.²⁴⁶ The released report, “U.N. Experts’ Summary Report on Harmony with Nature: Earth Jurisprudence” (Aug. 2016)²⁴⁷ summarizes the insights and recommendations of 120 experts worldwide in (law, science, economics, education, ethics and other disciplines) toward implementing Earth-centered worldviews and actions. The report explores ways in which rights of nature and Earth-based law can achieve SDGs. The Dialogue and report address:

1. The importance of applying Earth Jurisprudence principles to inspire citizens and societies to reconsider how they interact with the natural world in order to implement the SDGs in harmony with nature.
2. The need to recognize the intrinsic value of nature and to shift our perceptions, attitudes and behaviors from anthropocentric or human-centered, to non-anthropocentric or Earth-centred with the planet not being considered an inanimate object.
3. The support for Earth Jurisprudence in laws, ethics, institutions, policies and practices, including a fundamental respect and reverence for the Earth and its natural cycles.²⁴⁸

The most recent resolution calls “for holistic and integrated approaches to sustainable development, in its three dimensions, that will guide humanity to live in harmony with nature and lead to efforts to restore the health and integrity of the Earth’s ecosystems.”²⁴⁹

International Union for the Conservation of Nature (IUCN)

The IUCN²⁵⁰ is an environmental network comprised of government and civil society organizations; over 16,000 experts and 1300 Member organizations. It serves as a “trusted repository of best practices, conservation tools, and international guidelines and standards.” At the 2012 World Conservation Congress, IUCN members recognized nature’s rights by passing Resolution 100, “Incorporation of the Rights of Nature as the organizational focal point in IUCN’s decision making.” This Resolution called for nature’s rights to be a “fundamental and absolute key element in all IUCN decisions,” and invited the Director General and IUCN Members to promote a Universal Declaration of the Rights of Nature.²⁵¹ Additionally, IUCN Members approved amendments to their 2017-2020 program that committed them to take action to implement nature’s inherent rights; including committing to “protected area governance systems that achieve the effective and equitable governance of natural resources are recognized (as best practices/ pilot testing), supported and promoted, while respecting the rights of nature” to achieve SDG 14.²⁵²

APPENDIX E

Universal Declaration of the Rights of Mother Earth

World People's Conference on Climate Change and the Rights of Mother Earth, Proposal Universal Declaration of the Rights of Mother Earth, available at: <http://pwccc.wordpress.com/programa/>.

Adopted April 22, 2010 World People's Conference on Climate Change and the Rights of Mother Earth,
Cochabamba, Bolivia

Preamble

We, the peoples and nations of Earth:

considering that we are all part of Mother Earth, an indivisible, living community of interrelated and interdependent beings with a common destiny; gratefully acknowledging that Mother Earth is the source of life, nourishment and learning and provides everything we need to live well; recognizing that the capitalist system and all forms of depredation, exploitation, abuse and contamination have caused great destruction, degradation and disruption of Mother Earth, putting life as we know it today at risk through phenomena such as climate change; convinced that in an interdependent living community it is not possible to recognize the rights of only human beings without causing an imbalance within Mother Earth; affirming that to guarantee human rights it is necessary to recognize and defend the rights of Mother Earth and all beings in her and that there are existing cultures, practices and laws that do so; conscious of the urgency of taking decisive, collective action to transform structures and systems that cause climate change and other threats to Mother Earth;

Proclaim this Universal Declaration of the Rights of Mother Earth, and call on the General Assembly of the United Nation to adopt it, as a common standard of achievement for all peoples and all nations of the world, and to the end that every individual and institution takes responsibility for promoting through teaching, education, and consciousness raising, respect for the rights recognized in this Declaration and ensure through prompt and progressive measures

and mechanisms, national and international, their universal and effective recognition and observance among all peoples and States in the world.

Article 1. Mother Earth

1. Mother Earth is a living being.
2. Mother Earth is a unique, indivisible, self-regulating community of interrelated beings that sustains, contains and reproduces all beings.
3. Each being is defined by its relationships as an integral part of Mother Earth.
4. The inherent rights of Mother Earth are inalienable in that they arise from the same source as existence.
5. Mother Earth and all beings are entitled to all the inherent rights recognized in this Declaration without distinction of any kind, such as may be made between organic and inorganic beings, species, origin, use to human beings, or any other status.
6. Just as human beings have human rights, all other beings also have rights which are specific to their species or kind and appropriate for their role and function within the communities within which they exist.
7. The rights of each being are limited by the rights of other beings and any conflict between their rights must be resolved in a way that maintains the integrity, balance and health of Mother Earth.

Article 2. Inherent Rights of Mother Earth

1. Mother Earth and all beings of which she is composed have the following inherent rights:
 - a. the right to life and to exist;
 - b. the right to be respected;
 - c. the right to regenerate its bio-capacity and to continue its vital cycles and processes free from human disruptions;

- d. the right to maintain its identity and integrity as a distinct, self-regulating and interrelated being;
 - e. the right to water as a source of life;
 - f. the right to clean air;
 - g. the right to integral health;
 - h. the right to be free from contamination, pollution and toxic or radioactive waste;
 - i. the right to not have its genetic structure modified or disrupted in a manner that threatens its integrity or vital and healthy functioning;
 - j. the right to full and prompt restoration for violation of the rights recognized in this Declaration caused by human activities;
2. Each being has the right to a place and to play its role in Mother Earth for her harmonious functioning.
3. Every being has the right to wellbeing and to live free from torture or cruel treatment by human beings.

Article 3. Obligations of human beings to Mother Earth

- 1. Every human being is responsible for respecting and living in harmony with Mother Earth.
- 2. Human beings, all States, and all public and private institutions must:
 - a. act in accordance with the rights and obligations recognized in this Declaration;
 - b. recognize and promote the full implementation and enforcement of the rights and obligations recognized in this Declaration;
 - c. promote and participate in learning, analysis, interpretation and communication about how to live in harmony with Mother Earth in accordance with this Declaration;
 - d. ensure that the pursuit of human wellbeing contributes to the wellbeing of Mother Earth, now and in the future;

- e. establish and apply effective norms and laws for the defence, protection and conservation of the rights of Mother Earth;
- f. respect, protect, conserve and where necessary, restore the integrity, of the vital ecological cycles, processes and balances of Mother Earth;
- g. guarantee that the damages caused by human violations of the inherent rights recognized in this Declaration are rectified and that those responsible are held accountable for restoring the integrity and health of Mother Earth;
- h. empower human beings and institutions to defend the rights of Mother Earth and of all beings;
- i. establish precautionary and restrictive measures to prevent human activities from causing species extinction, the destruction of ecosystems or the disruption of ecological cycles;
- j. guarantee peace and eliminate nuclear, chemical and biological weapons;
- k. promote and support practices of respect for Mother Earth and all beings, in accordance with their own cultures, traditions and customs;
- l. promote economic systems that are in harmony with Mother Earth and in accordance with the rights recognized in this Declaration.

Article 4. Definitions

- 1. The term “being” includes ecosystems, natural communities, species and all other natural entities which exist as part of Mother Earth.
- 2. Nothing in this Declaration restricts the recognition of other inherent rights of all beings or specified beings.

APPENDIX F

Human Rights and Indigenous Rights Depend on Nature's Rights

Impacts of the current worldview and management on the ocean's rights

Overfishing is considered the greatest threat to marine biodiversity worldwide.²⁵³ The Food and Agriculture Organization of the United Nations estimates that at least one-third of commercial fish populations are taken at unsustainable levels, with marine populations in 2012 falling to about half of 1970 populations.²⁵⁴ Today, over 70 percent of the world's fish species are either fully exploited or depleted.²⁵⁵ There has been an especially significant decline in larger fish, whose populations have plummeted by 90 percent from historic levels.

Marine scientists found that fishing has killed off all but 10 percent of populations of large prized tuna, swordfish, marlin, and other fish species, and the average weights of those remaining fish have declined sharply.²⁵⁶ Overfishing is not limited to larger fish, unfortunately. Fish scientists concluded that "harvest rates commonly need to be less than 10 percent of the magnitude of those used in much of today's management,"²⁵⁷ yet more fish are taken as populations drop and the price of the remaining fish goes up accordingly.

Dolphins and whales are also declining due to fishing bycatch, direct hunting, and bioaccumulation of toxic pollution. Many whale species face imminent extinction, such as the North Atlantic right whale (with only about 300 individuals left) and the Western Pacific gray whale (estimated to have fewer than 100 individuals left).²⁵⁸ Other marine mammals, as well as turtles, seabirds, and other species, are killed in large numbers by "ghost fishing" and derelict fishing gear.²⁵⁹

Additionally, climate change is destroying marine ecosystems worldwide, particularly the world's coral reefs. Greenhouse gas emissions have caused a 30 percent increase in ocean acidification since the Industrial Revolution, and seawater acidity is expected to increase 150 percent by the end of the century unless we fundamentally change our behavior.²⁶⁰ More acidic environments essentially dissolve the shells and structures of oysters, clams, sea urchins, corals, some plankton, and other species, putting the entire marine food web at risk.²⁶¹

Marine scientists caution that without immediate action to reverse current trends, "we now face losing marine species and entire marine ecosystems, such as coral reefs, within a single generation." They add that our actions have a "high risk of causing ... the next globally significant extinction event in the ocean" – and soon.²⁶² About 27 percent of coral reefs worldwide have already been lost to ocean acidification and other climate factors such as warmer sea temperature and sea level rise.²⁶³ Half of the Great Barrier Reef is already "dead or dying," and 93 percent of it suffers from some level of bleaching.²⁶⁴ Coral reefs are critical to marine biodiversity, housing 25 percent of marine life despite comprising less than one percent of the marine environment.²⁶⁵

Finally, plastic pollution and marine debris is now pervasive in ocean ecosystems. As much as eight million tons of plastic enters the ocean every year,²⁶⁶ and estimates show that the ocean may already contain upwards of 150 million tons of plastic.²⁶⁷ Plastic ingestion causes physiological stress, liver cancer, and endocrine dysfunction in fish species.²⁶⁸ Forty-five percent of species on the IUCN Red List

were reported to have ingested or become entangled in marine debris,²⁶⁹ and as many as 100,000 marine mammals die every year in the North Pacific due to entanglement in plastic nets and fishing line.²⁷⁰ Plastic ingestion by seabirds, half of which are in decline worldwide, is predicted to reach 99 percent of all seabird species by 2050.²⁷¹ By 2025, there could be one ton of plastic for every three tons of fish in the ocean.²⁷²

Impacts of the current worldview and management on human rights

The rapid decline in fish populations threatens a critical food source for the 20 percent of the population that relies on fish as its primary source of protein. The impact of declining fish populations also goes beyond nutrition. The FAO has estimated that 120 million people rely on fish for all or part of their livelihoods,²⁷³ and other estimates are even higher.²⁷⁴ For example, when the Canadian government closed the groundfish fishery in Newfoundland in 1992,²⁷⁵ 40,000 jobs were lost and entire communities virtually disappeared.²⁷⁶ Sustainable relationships with fish populations could have avoided this result.

An additional human rights concern arises from a growing number of fishing operations that have been closely associated with slavery, human trafficking, drug smuggling, and other harmful activities.²⁷⁷ In Thailand, thousands of migrants have been kidnapped and forced to work on fishing boats.²⁷⁸ Stories from freed slaves relate the horror of cages, beatings, lack of food and sleep, and the fear of being thrown overboard. Globally, an estimated 10 to 15 percent of fishermen “work under conditions that make them virtual modern day slaves.”²⁷⁹

The health of marine ecosystems is also strongly correlated to the well-being of indigenous populations

that rely upon the ocean for spiritual traditions and subsistence. For example, in Australia, many marine species once gathered by Aboriginals are either depleted or licensed for take, and Aboriginals have been largely excluded from the fishery management process.²⁸⁰ Additionally, over 70 indigenous groups rely on the collapsing Great Barrier Reef for their culture and livelihoods.²⁸¹ Similarly, in the United States, Native Americans in the Pacific Northwest struggle to maintain their traditional diet of and cultural relationship with salmon, with five salmon populations listed as endangered and 23 as threatened under the U.S. Endangered Species Act.²⁸²

Finally, climate change impacts to the oceans affect human populations worldwide. Sea level rise could displace up to 760 million people, or about 10 percent of the world’s population, in this century.²⁸³ It could also completely wipe out island nations such as Kiribati by 2100.²⁸⁴ In the United States, the world’s second largest greenhouse gas emitter, sea level rise could displace 13 million people.²⁸⁵ Increased ocean temperatures are linked to an increase in the intensity, frequency, duration of North Atlantic hurricanes and other storms, which destroy homes and result in significant loss of life.²⁸⁶

By respecting, protecting and restoring the ocean the following human and indigenous rights as provided by the Universal Declaration of Human Rights (UDHR) and the Universal Declaration on the Rights of Indigenous Peoples (UNDRIP) are also respected and validated.

The impacts of declining marine biodiversity implicate many potential violations of human rights recognized by the UDHR, including the following:

- The right to “life, liberty and security of person” [Art. 3]
- The right to work, to free choice of employment, to just and favorable conditions of work and to protection against unemployment [Art. 23(1)]

- “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food” [Art. 25(1)]
- “In the exercise of his rights and freedoms, everyone shall be subject only to such limitations as are determined by law solely for the purpose of securing due recognition and respect for the rights and freedoms of others and of meeting the just requirements of morality, public order and the general welfare in a democratic society.” [Art. 29(2)]
- The right to “be secure in the enjoyment of their own means of subsistence and development” [Art. 20(1)], and the right to “just and fair redress” when “deprived of their means of subsistence and development” [Art. 20(2)]
- The equal right of indigenous individuals to “the enjoyment of the highest attainable standard of physical and mental health.” [Art. 24(2)]
- The right “to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources” [Art. 25]
- The right of indigenous peoples to and use of “the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired” [Art. 26]
- “States shall establish and implement, in conjunction with indigenous peoples concerned, a fair, independent, impartial, open and transparent process, giving due recognition to indigenous peoples’ laws, traditions, customs and land tenure systems, to recognize and adjudicate the rights of indigenous peoples pertaining to their lands, territories and resources, including those which were traditionally owned or otherwise occupied or used. Indigenous peoples shall have the right to participate in this process.” [Art. 27]
- The right to “the conservation and protection of the environment and the productive capacity of their lands or territories and resources” [Art. 29]
- The right to “...maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions...” [Art. 31(1)], and the obligation of the state to take measures to recognize and protect these rights [Art. 31(2)]
- The right of indigenous peoples to “determine and develop priorities and strategies for the development or use of their lands or territories and other resources” [Art. 32(1)], and the obligation of states to “consult and

The decline in marine biodiversity from human activities also implicates many potential violations of the UNDRIP, including:

- The right to “maintain and strengthen their distinct political, legal, economic, social and cultural institutions” [Art. 5]
- The right of indigenous people to “life, physical and mental integrity, liberty and security of person” [Art. 7(1)]
- “States shall provide effective mechanisms for prevention of, and redress for: (a) Any action which has the aim or effect of depriving them of their integrity as distinct peoples, or of their cultural values or ethnic identities; (b) Any action which has the aim or effect of dispossessing them of their lands, territories or resources;” Considering that indigenous cultures and identities are based on fishing and hunting. [Art. 8(2)]
- The right to “[practice] and revitalize their cultural traditions and customs” [Art. 11]
- Indigenous peoples have “the right to the dignity and diversity of their cultures, traditions, histories and aspirations which shall be appropriately reflected in education and public information.” [Art. 15(1)]
- The right “to participate in decision making in matters which would affect their rights.” [Art. 18]
- The right to “free, prior and informed consent before [States] adopting and implementing legislative or administrative measures that may affect them.” [Art. 19]

cooperate in good faith with the indigenous peoples” to obtain “free and informed consent prior to the approval of any project affecting their lands or territories and other resources” [Art. 32(2)] Also, the obligation of the state to “mitigate adverse environmental, economic, social, cultural or spiritual impact.” [Art. 32(3)]

APPENDIX G

The Concept of Guardians Already Exists

Most environmental laws contain provisions establishing a management body to implement the statute. This provision often includes the responsibilities, roles and functions of the management body. However, this body, though designed to oversee decisions to protect the environment, does not represent the environment itself. A new framework for management bodies, “guardians” or “guardian board,” is fast emerging as a way to manage human activities in nature. These boards are created with members solely representing nature, and its rights and interests.

Part A: What guardianship looks like in New Zealand

1. Te Urewera National Park

New Zealand granted personhood to the land of Te Urewera, a former National Park that makes up 821 square miles on the North Island of New Zealand. This unprecedented designation of land as a legal person, with the associated rights of a person, is a major advancement in the Rights of Nature.

In its originating statute, Te Urewera is declared a legal entity, and has all the rights, powers, duties, and liabilities of a legal person. “[T]he rights, powers, and duties of Te Urewera must be exercised and performed on behalf of, and in the name of, Te Urewera ... by Te Urewera Board.” The management body, the Te Urewera Board, is therefore “responsible for protecting the entity and its rights.”

The Board’s purposes are statutorily defined as:

1. to act on behalf of, and in the name of, Te Urewera; and
2. to provide governance for Te Urewera in accordance with the Act

These responsibilities are quite different than those of most modern environmental laws, where the board is not legally required to defend the environment’s

interests and values. For example, the Office of National Marine Sanctuaries is responsible for protecting and managing U.S. marine sanctuaries. Councils are created for each sanctuary to provide advice and recommendations to “identify, designate, and manage sanctuaries to maintain the natural biological communities in sanctuaries and to protect, where appropriate, restore and enhance natural habitats, populations, and ecological processes” and to “facilitate human uses in sanctuaries to the extent such uses are compatible with the primary mandate of resource protection,” among others.²⁸⁷

In the case of Te Urewera, the Board is responsible for drafting and approving a management plan for Te Urewera with the primary function “to promote or advocate for the interests of Te Urewera in any statutory process or at any public forum.” Protection is taken one step further by legally requiring the managing body to act in the interests of the protected area. Rather than facilitating human interests, it facilitates the protected area’s interests.

The Board is made up of eight members, and for three years there will be four representatives of the Tūhoe and four Ministers, and after that there will be six representatives of the Tūhoe and three Ministers for a total of nine Board members. Having the Board comprised of indigenous peoples is particularly important. Not only do sacred and cultural ties exist, but these communities have lived in harmony with the ecosystem for centuries.

As we look to apply the concept of guardianship to marine areas, it is helpful to explore what the Board for Te Urewera must consider in developing the management plan. The Board must include the following:

- (a) state the objectives and policies for the integrated management of Te Urewera; and
- (b) identify relevant values at places within Te Urewera, including values relating to—

- (i) indigenous species, habitats, and ecosystems; and
- (ii) cultural and historical heritage; and
- (iii) recreational values; and
- (iv) scenic, geological, soil, and landform features; and
- (v) freshwater fisheries and freshwater fish habitats; and
- (c) identify the outcomes planned for specified places within Te Urewera—
 - (i) that are consistent with the values under paragraph (b); and
 - (ii) that take into account relevant national species recovery and management objectives; and
 - (d) explain how any conflicts between planned outcomes will be resolved; and
 - (e) identify any effects of activities undertaken within Te Urewera and explain how adverse effects are to be minimised; and
 - (f) identify any places in Te Urewera that have been given international recognition in agreements ratified or given legal standing in New Zealand and provide for the management of those places accordingly, where this is consistent with the purpose of this Act; and
 - (g) identify whether there is a need to create specially protected areas, wilderness areas, or amenity areas; and
 - (h) identify the criteria for decision making in respect of Te Urewera, including decisions on applications for activity permits and concessions; and
 - (i) identify what regular monitoring and evaluation of Te Urewera ought to be undertaken; and
 - (j) identify the matters proposed to be regulated by bylaws.

As a National Park on land, Te Urewera provides a precedent for the Earth Law Framework as we look to apply guardianship to marine areas.

2. Whanganui River

Under the Tutohu Whakatupua Treaty Agreement, the Whanganui River is given legal status under the name Te Awa Tupua. Te Awa Tupua is recognized as “an indivisible and living whole” and “declared to be a legal person.” Two guardians, one from the Crown and one from a Whanganui River iwi (the local indigenous group), will be given the role of protecting the River. This treaty is especially important because it “recognises the intrinsic interconnection between the Whanganui River and the people of the River (both iwi and the community generally),” and finds “the health and wellbeing of the Whanganui River is intrinsically interconnected with the health and wellbeing of the people.”²⁸⁸

The Law states that the guardians, or Te Pou Tupua, are responsible for acting on behalf of the entity Te Awa Tupua and “all the rights, powers, and duties of Te Awa Tupua must be exercised or performed by Te Pou Tupua.” The Law goes further into detail about how these guardians are supposed to represent the interest of Te Awa Tupua:

- (1) The functions of Te Pou Tupua are—
 - (a) to act and speak for and on behalf of Te Awa Tupua; and
 - (b) to uphold—
 - (i) the Te Awa Tupua status (this refers to legal status as a person); and
 - (ii) Tupua te Kawa (these are the intrinsic values laid out in the framework below); and
 - (c) to promote and protect the health and wellbeing of Te Awa Tupua;
- (2) Te Pou Tupua, in performing its functions,—
 - (a) must act in the interests of Te Awa Tupua and consistently with Tupua te Kawa (the intrinsic values);
 - (b) must develop appropriate mechanisms for engaging with, and reporting to, the iwi and hapū with interests in the Whanganui River on matters relating to Te Awa Tupua, as a means of recognising the inalienable connection of those iwi and hapū with Te Awa Tupua;

- (c) may report publicly on matters relating to Te Awa Tupua:
- (d) may engage with any relevant agency, other body, or decision maker to assist it to understand, apply, and implement the Te Awa Tupua status and the Tupua te Kawa, including (if Te Pou Tupua and the agency, body, or decision maker agree) by developing or reviewing relevant guidelines or policies;
- (e) may participate in any statutory process affecting Te Awa Tupua in which Te Pou Tupua would be entitled to participate under any legislation.

As a whole and indivisible ecosystem, the Whanganui River and its legal framework also provide great precedent for the application of legal rights and guardians to marine protected areas.

Part B: Trusteeship in the United States

The concept of “guardians” for nature is not new. In fact, this concept is already embedded within our system in the form of trusteeship. Though anthropocentric in nature (human ownership of nature) this system represents the precursor in the evolutionary step towards guardianship.

For example the:

“United States Congress can authorize a “trustee” for nonhumans, with express power to take legal or administrative action to protect their beneficiaries. Current law does just that, requiring the President to designate those federal officials who are to act on the behalf of the public as trustees for “natural resources” that fall under federal sovereignty. Where damage occurs to natural resources, the trustee may be empowered to carry out damage assessments, and to devise and carry out a plan for restoration, rehabilitation, replacement, or acquisition of equivalent natural resources.”

The Public Trust Doctrine, National Environmental Policy Act and the Marine Mammal Protection act provide examples of our current use of “trusteeship.”

- The Public Trust Doctrine provides that States are trustees of public resources. It is “[t]he principle that certain natural and cultural resources are preserved for public use, and that the government owns and must protect and maintain these resources for the public's use;”²⁸⁹
- The purpose of the National Environmental Policy Act (NEPA) is to “encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man.”²⁹⁰ It is the Federal Government’s responsibility to “use all practicable means and measures” to “fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.”²⁹¹ The Council on Environmental Quality is responsible for carrying out the Act to “develop and recommend to the President national policies to foster and promote the improvement of environmental quality to meet the conservation ... goals of the Nation;”²⁹² and:
- “Whales and their supporting ecosystems fall under the trusteeship of the National Oceanic and Atmospheric Administration. For example, if whale watchers harass whales, NOAA has express standing to institute administrative action (civil penalties). If toxic releases damage the whale-supporting ecosystem, it would be in the province of NOAA to refer the matter to the Department of Justice to litigate.”²⁹³ The Marine Mammal Protection Act provides that “measures should be immediately taken to replenish any species or population stock which has already diminished below that population. In particular, efforts should be made to protect essential habitats, including the rookeries, mating grounds,

and areas of similar significance for each species of marine mammal from the adverse effect of man's actions.”²⁹⁴ The Marine Mammal Commission acts as a trustee by “recommend[ing] to the Secretary and to other federal officials such steps as it deems necessary or desirable for the protection and conservation of marine mammals.”

In sum, there already exists examples in our current legal frameworks where humans are required to act on behalf of the environment. We must take the concept of “trusteeship” one step further: to be trustees for nature, for the sake of the entire Earth community, not just for humans.

APPENDIX H

Suing on Behalf of Nature

Part A: The Vilcabamba River in Ecuador

A key benefit of incorporating rights of nature into law and policy is the ability to sue on behalf of nature to obtain more effective protection and restoration. This document has already shown cases to be successful in Ecuador's Galapagos Islands and the Himalayan Ecosystem (pending review).

A successful case in Ecuador required the government of Loja to create and implement a remediation and rehabilitation plan for restoring the Vilcabamba River after a road-widening project was found to have destroyed its processes. The project was found to have disfigured the banks and altered the river flow in a way that violated the River's rights to "be fully respected in its existence and maintenance of its vital cycles, structure, functions, and evolutionary processes."²⁹⁵

The Provincial Court of Loja ruled in favor of the Vilcabamba River, granted an injunction and established:

1. "The suitability and efficacy of the Constitutional injunction as the only way to remedy in an immediate manner the environmental damage focusing on the undeniable, elemental, and essential importance of nature, and taking into account the evident process of degradation;
2. That, based on the precautionary principle, until it is objectively demonstrated that the probability of certain danger that a project undertaken in an established area does not produce contamination or lead to environmental damage, it is the responsibility of the constitutional judges to incline toward the immediate protection and the legal tutelage of the rights of nature, doing what is necessary to prevent contamination or call for remedy. Note, that we consider in relation to

the environment that one act not only under the certainty of damage but its probability;

3. The recognition of the importance of nature, raising the issue that damages to nature are generational damages, defined as such for their magnitude that impact not only the present generation but also future ones;
4. That, using the principle of inversion of the burden of proof, the plaintiffs should not have to prove the existence of damages but that the Provincial Government of Loja, as the entity that administers the activity and as the defendant, had to have provided certain proof that widening the road would not affect the environment;
5. That the argument of the Provincial Government that the population needs roads does not apply because there is no collision of constitutional rights of the population, nor is there any sacrifice of them, because the case does not question the widening of the Vilcabamba-Quinara road, but the respect for the constitutional rights of nature."

The Provincial Court of Loja established the following means of reparation:

1. "The Provincial Government of Loja must present within thirty days a remediation and rehabilitation plan of the areas in the Vilcabamba River and the populations affected by the lateral dumping and accumulation of rubbish material from the project, as well as comply with the recommendations of the environmental authority;
2. The Provincial Government of Loja must immediately present the environmental permits for the construction of the road to the Ministry of Environment;
3. The implementation of corrective actions such as: construction of security bunds to prevent oil spills in the soils around the fuel

- storage tanks and machinery; cleaning of the soils contaminated by fuel spills; implementation of an adequate road sign system; and, creation of a location to store the rubbish from the construction;
4. The Provincial Government must comply with each and every one of the recommendations made by the Sub Secretary of Environmental Quality of the Ministry of Environment;
 5. The creation of a delegation composed of the Regional Director of the Ministry of Environment and the Office of the Ombudsman from Loja, el Oro, and Zamora Chinchipe to provide follow up on the fulfillment of the ruling;
 6. The defendant must publicly apologize on one-fourth of a page in a local newspaper for beginning construction of a road without the necessary environmental license.”

The International Tribunal for the Rights of Nature

The tribunal was created by an international civil society network (the Global Alliance for the Rights of Nature, GARN). The Tribunal uses the Universal Declaration of the Rights of Mother Earth (UDRME), as its prominent “law.”³⁰⁰ As a result, the Rights of Nature Tribunal provides a vehicle for reframing prominent environmental and social justice cases within the context of Rights of Nature, giving people the opportunity to testify publicly as the destruction of the Earth and the violation of nature’s, human and community rights. With each case, esteemed Judges recommend actions for reparation, mitigation, restoration and prevention of further damages and harm through an Earth Law lens, thereby suggesting solutions that benefit all members of Earth’s communities.

Part B: The Case of the Great Barrier Reef

Threats to the Great Barrier Reef

The Great Barrier Reef (GBR) is the largest ecosystem on Earth, covering over 340,000 square kilometers. A biodiversity hotspot and UNESCO World Heritage Site,²⁹⁶ it contains 2900 different corals, 54 percent of the world’s mangrove diversity, over 1200 types of fish and 30 species of whale and dolphin.²⁹⁷ However, it is under threat from a combination of land based marine pollution, the existing and proposed expansion of coal port development in human settlements adjacent to the reef, and the escalating carbon pollution in the atmosphere, which is causing devastating climate change.²⁹⁸ Massive coral bleaching events have left the reef unrecognizable in some areas. For example, in 2016, 67 percent of shallow-water corals in its northern region died.²⁹⁹

Case Background

In the case, Michelle Maloney (National Convenor of Australian Earth Law Alliance) spoke on behalf of the GBR and argued that the Rights of Mother Earth were being violated, due to the fact that the GBR’s very existence is under threat.³⁰¹ She called upon the Tribunal to hold the Queensland and Australian Governments accountable for allowing the types of coastal development that threaten the reef and to set limits on human activities in the region.³⁰²

The judgement

The case was presented to the Tribunal in 2014. The Australian and Queensland governments were found to have permitted several violations of the rights of the GBR, and the Tribunal held that steps needed to be taken immediately to ensure the GBR’s survival. Echoing the Supreme Court of India it also said:

"Given the overwhelming impacts from the ongoing growth in current modes of production and consumption, a new eco-centric ethic and legal system is needed."³⁰³ The Tribunal also demanded a range of actions be undertaken to reduce human pressures on the reef and petitioned the governments to implement the recommendations made by UNESCO.³⁰⁴

The GBR was presented as a unique legal entity with its own inherent feelings and thoughts, preferences and hopes for the future.³⁰⁵ By criticising the foundations and impact of current legal systems, the Tribunal draws attention to the flawed and devastating outcome of our anthropocentric laws and growth-obsessed government policies.³⁰⁶ Even though the decisions which flow from the Tribunal is not part of international law or enforceable, the Tribunals still have "performative significance as a forum in which an alternative rights of nature legal discourse can be articulated and developed."³⁰⁷ Decisions from the Tribunal "compel us to interrogate existing legal principles, practices and findings ... through a wild law lens and can contribute to a paradigm shift in existing legal systems."³⁰⁸

APPENDIX I

Rights of Nature Applied to Marine Protected Areas

Part A: Ecuador and the Law of the Galapagos

The Galapagos is a globally recognized area of vast and significant biodiversity consisting of two protected areas: Galapagos National Park and Galapagos Marine Reserve. The National Park was established in 1959, but the Galapagos Marine Reserve was not created until 1998, with the passing of the Special Law on the Galapagos.³⁰⁹ The Marine Reserve represents the beginning of the desire to employ the Earth Law Framework.

First, written and approved by a multi-stakeholder group,³¹⁰ the Special Law's guiding principle for governance is "An equilibrium among the society, the economy, and nature; cautionary measures to limit risks; respect for the rights of nature; restoration in cases of damage; and citizen participation."³¹¹



Figure 1. Principles of the 2014 Management Plan for Protected Areas of Galapagos for Good Living³¹²

Additionally, Ecuador enacted the Special Law in recognition of the biodiversity on the islands, the Nation's duty to protect and restore its ecosystems, and the role inhabitants should play in conservation projects for improved and sustainable livelihoods.³¹³

The management plan of the Marine Reserve requires zoning of fishing and tourism activities to protect

vulnerable ecosystems and ensure conservation and sustainable use of resources, with the goal to preserve native marine life.³¹⁴ Its management objectives intend to ensure fishing activities are compatible with biodiversity conservation while supporting local fishers socially and economically and ensuring sustainable use of natural resources.³¹⁵ Local and commercial fishing is allowed in some areas of the Reserve, but there are strict regulations.³¹⁶ Additionally, an education program trains locals in sustainable fishing practices to reduce the impact of these permitted activities.³¹⁷ Fishing pressure has been reduced on sharks and tuna, since the ban on industrial fishing and increased legislation to protect sharks.³¹⁸ All extractive activities are prohibited in areas that permit recreational activities, such as scuba diving, sport fishing, boating, snorkeling, and whale watching.³¹⁹

Secondly, in 2014, the Management Plan for the Protected Areas of Galapagos for Good Living was published to combine the management of two protected areas, Galapagos National Park and Galapagos Marine Reserve into a more holistic management approach. It recognizes the connections between development and conservation in the Galapagos, the dependence of the province on natural ecosystems, and the capacity and limits of marine and island ecosystems that must not be exceeded.³²⁰ The Plan seeks to strengthen the management capacity of both protected areas and promote good living and an environmental responsibility.³²¹ As a result, the Special Law proposes regulations that will maintain ecosystems under "minimal human interference"³²² where minimal is defined and determined by sustainable and controlled development that continues to support the capacity of ecosystems, local participation, and a recognition of the interactions between inhabited areas and protected ecosystems.³²³ Also, the management strategy recognizes the reality of how ecosystems exist in nature and applies the precautionary principle.³²⁴

Finally, the Special Law limits economic activities to permanent residents of the Galapagos; those traveling as tourists or in transit are prohibited from conducting any economic activities and may only remain in the Galapagos for 90 days.³²⁵ Tourism development permission will only be granted to permanent residents and must generate local benefits and have minimal impact on ecosystems, as evaluated through an environmental impact study.³²⁶

Although the framework of the Law sets the Galapagos up for improved conservation both on the island's National Park and in the Marine Reserve, the Law has been met with resistance from the fishing and tourism sectors and the Nation has struggled with funding enforcement and projects.³²⁷ Other threats to marine ecosystems include agriculture, pollution and waste management, and non-native species.

There have been successful cases involving the MPA. For example, a fishing vessel was found in MPA with finless sharks (meaning 'shark finning' had taken place) and the captain was given two years in prison. This case marked the first conviction of an environmental crime in 14 years of Galapagos law and set a precedent for prosecuting shark finning and other crimes against Nature in the Galapagos (Franco Fernando, 2015). Despite the successful ruling, the judge did not permit the Conservation Sector to legally represent the sharks in court (the District Attorney and Galapagos Park did this), but it did speak for Nature through an amicus brief.

Part B: New Zealand and the Hauraki Gulf Marine Park

The Hauraki Gulf Marine Park spans 1.2 million hectares of ocean and 2550 kilometers of coastline.³²⁸ The Gulf supports the lives of more than 1.5 million people, which is around one-third of New Zealanders.³²⁹ However, it remains threatened by growing population pressure, commercial and recreational fishing, invasive marine species, land-use practices, and declining biodiversity even with its National Park designation.³³⁰ In 2013, key leaders were invited to form a Stakeholder Working Group, which would include the local local iwi and hapū tribes,

recreational and commercial fishers, farmers, aquaculturists, community members, environmental groups, and a partnership with central and local government agencies.³³¹

The Park and its management provide another example of the attempt to employ the Earth Law Framework.

First, though it does not specifically codify legal rights for the Park, the Sea Change Marine Spatial Plan proposes the recognition of the Park's rights: "Gulf communities need to adjust their relationships with the lands and waters around them. Rather than thinking of the environment and its bounty as an entitlement, considering it as a being in its own right will help us to rethink our reciprocal responsibilities and work toward a better balance."³³² The Hauraki Gulf is also recognized as an "icon worth preserving" and a foundation for the transmission of cultural knowledge on human-ecosystem interactions.³³³ Sea Change acknowledges that the area is used for work, recreation, adventure, peace, learning, ancestral history, and traditional use, but it plans to protect the natural values of the ecosystem from the negative impacts of use, infrastructure, and accessibility.

Secondly, the Plan contains four overarching categories: guardianship, replenishing the food basket, ridge to reef/mountains to sea, and prosperous communities. Guardianship, *kaitiakitanga*, is the ethic and conservation of the environment and the resources within it.³³⁴ The guardians or "*Kaitiaki*" (the local Maori hapū or iwi people) have the "discretion and judgment over the issuing of permits."³³⁵ However, the Plan goes even further with the guardianship concept, calling for guardianship to be "practiced by all"³³⁶ and every person to be given opportunities to participate in guardianship activities, such as to become involved in decision making, monitoring programs and restoration projects.³³⁷

Thirdly, Sea Change focuses on a holistic and integrative approach to improving the Gulf's ecosystem and the health and well-being of those who depend on it. The priority is to improve ecosystem health; increased fish stocks and community opportunities are a side effect of a healthy, functional

ecosystem. Sea Change is a bicultural management approach which seeks to restore, protect, and enhance the *mauri*, life supporting capacity, essence found in all elements of the natural world, of marine, estuarine, and freshwater ecosystems in the Hauraki Gulf Marine Park.

Lastly, the Plan defines and analyzes four different types of MPAs as part of its management approach: no-take marine reserves, benthic protection areas, special management areas, and co-management areas.³³⁹ It proposes the establishment of a network of co-managed MPAs, with a nested approach in which areas of no-take provisions, other than permitted customary harvesting practices, are nested within larger areas with fewer restrictions.³⁴⁰ Co-management areas permit commercial and



Figure 2. Four overarching concepts of the Hauraki Gulf Marine Spatial Plan³³⁸

recreational fishing, except where communities and mana whenua decide to restrict such activities to better protect fisheries or the environment.³⁴¹

A historical precedent of both commercial and non-commercial fishing has existed for over 170 years, and for closer to a millennium for the Maori peoples.³⁴² However, Sea Change increases regulations within the Park in recognition of the interconnectedness of ecosystems, to increase the abundance of all species, end further loss of biogenic habitats, and restore and maintain a sustainable and thriving fishery. The Plan specifies that quotas are limits, not targets, for fishers.³⁴³ Those who break rules put in place will face newly introduced and strengthened penalties.³⁴⁴ Further, to protect Bryde's whales and work toward eliminating deaths by ship strikes by 2018, the Plan intends to reduce the speed of ships traveling through the Gulf.³⁴⁵ Moreover, the impacts of marine mammal tourism will be more extensively monitored and all existing permits which authorize interactions with bottlenose dolphins will be excluded when next reviewed.³⁴⁶

Another major provision of the Sea Change addresses indirect impacts on and nonliving aspects of ecosystems: sediment and water quality. The goal is to reduce sediment entering marine areas, runoff, and

restore areas with poor water quality in order to support healthy marine habitats, species abundance, fish stocks, and increase opportunities for local people and communities.³⁴⁷

The Sea Change Marine Spatial Plan has many provisions for protecting species, habitats, and whole ecosystems, as well as incorporating traditional knowledge and community members into management of the MPA. Its emphasis on specific species, projects, and threats allows for focused restrictions and goals. However, the Plan is non-statutory.³⁴⁸ Thus, the actions, restrictions, and goals provided for in the Plan are recommended rather than legally binding. Although violators cannot be legally penalized, the development of a culture of environmental responsibility and the recognition of Rights of Nature among community members can provide for compliance, without the threat of punishment. The framework integrates cultural values and sets a precedent for a balanced relationship with nature and a respect for the ecosystems' integrity.

APPENDIX J

Balancing Rights and Criteria For Decision making in Earth Law

Economic Criteria

An environmentally "sustainable" economy is one that neither depletes natural resources nor pollutes at levels that overwhelm the ability of ecosystems to absorb waste.³⁴⁹

An environmentally sustainable economy — an eco-economy — requires that the principles of ecology establish the framework for economic policy and that economists and ecologists work together to fashion the new economy. Ecologists understand that all economic activity, indeed all life, depends on the Earth's ecosystem — the complex of individual species living together, interacting with each other and their physical habitats. These millions of species exist in an intricate balance, woven together by food chains, nutrient cycles, the hydrological cycle and the climate system.³⁵⁰

Therefore, an Earth Law approach requires decisions that reflect the true cost of the activity, considers no human activity as a reasonable alternative, and employs non-consumptive models.

i. Reflecting the true cost of an activity

To put ecosystems in economic terms, a natural system, such as a fishery, functions like an endowment. The interest income from an endowment will continue in perpetuity as long as the endowment is maintained. If the endowment is drawn down, income declines. If the endowment is eventually depleted, the interest income disappears. So it is with natural systems. If the sustainable yield of a fishery is exceeded, fish stocks begin to shrink. Eventually stocks are depleted and the fishery collapses. The cash flow from this endowment disappears, as well. As we begin the 21st century, our economy is slowly destroying its support systems, consuming its endowment of natural capital.³⁵¹

Traditional models used to determine the "optimal allocation of a resource" which do not consider all the effects of that allocation will result in the destruction of vital ecosystems. Purely economic considerations which do not take into account the ecosystem's needs for renewal fail to include the real costs incurred. The final consumer prices then are deceptively low, resulting in increased demand and growth of that industry.

Earth Law proposes to include the full account of negative externalities: the impacts to the marine environment, and the unique functions and stability these ecosystems and species provide, the human health effects caused by severe air and water pollution from extraction, production and consumption, and the increase in carbon dioxide in the atmosphere, climate change and its subsequent effects.

ii. Optimum allocation may be no allocation

The Food and Agriculture Organizations estimates over 90 percent of commercial fish populations are being fished at levels that "have either met or exceeded their biological limits," meaning they are unlikely to return to healthy populations.³⁵² As we are seeing fish populations decline, we also see more effort to catch less fish.³⁵³ As stated previously, traditional models determine the optimum level of fishing. We must not let the time to receive benefits from a regulatory decision lead to prolonging protective efforts. For example, a no-take marine protected area is many times seen as "inefficient" when looking at it in the short-term because fishermen lose their benefits, and it takes years to rebuild ecosystem health, and see the "spillover" or recruitment effects.³⁵⁴

Earth Law requires that in addition to efficiency and fishing effort, this assessment also includes the rights of future generations (future generations should inherit the world in no worse a condition than we received it) and the rights of the species to remain

healthy. This may then lead to determining that the “optimum allocation” is in fact, no allocation. Therefore, we must always include the alternative which equates to “no level of human activity.”

iii. Conversion to non-consumptive economic models

It is important for decisions regarding the marine protected area, to as far as possible be science-based, and grasp the wholeness of the system.³⁵⁵ Decisions should move past assigning a dollar value, and where possible evaluate the decision from a non-consumer approach.³⁵⁶ For example, managers can employ the use of models, such as ‘energy synthesis’ to provide a new method of valuation, outside current anthropocentric models.

Governance Criteria

Management is usually concerned with what activities are being carried out in a given situation or area, while governance is concerned with who decides what those activities are, how that is decided and how those decisions are implemented.³⁵⁷ Good Governance standards exist like the Earth Law Framework for Marine Protected Areas to guide the creation of effective management plans.

i. The more protection the higher the score

To assess the strength of an MPA’s regulations, the Global Ocean Refuge System (GLORES) evaluation employs a classification system based on the number of fishing gears allowed, their ecological impact, the types of bottom exploitation and aquaculture allowed and the regulations relating to recreational boating (Costa et al. 2016). For MPAs with multiple zones, the evaluation uses a weighted average of the individual zone scores (weighted by the proportion of zone area to total MPA area).³⁵⁸

In the weighted scores, more protection receives a higher score. Assigning scores to attributes such as type of fishing gear, type of activity (extractive= lower score, tourism= higher score) and impact of activity (higher impact=lower score) can help provide a total score to help assess alternatives and make sound decisions.

ii. Adherence to established principles

The International Union for the Conservation of Nature’s principles are the most widely used and can serve well as a defining starting point.

The IUCN identifies these governance mechanisms as:

- Transparency — openness in decision making;
- Access to information— accurate, effective and open communication;
- Access to justice — fair mechanisms for accountability and protecting rights;
- Public participation — genuine involvement in decision making;
- Coherence — a consistent approach;
- Subsidiarity — decisions taken at the lowest appropriate level;
- Respect for human rights — interwoven with good environmental governance;
- Accountability — for economic, social and environmental performance;
- Rule of law — fair, transparent and consistent enforcement of legal provisions at all levels³⁵⁹

iii. Application of the Precautionary Principle

Since damage to the marine environment, marine biodiversity and living marine resources are often long-term, and the disastrous effects always persist beyond the human activity that caused them – marine ecosystem damage depletes the rights of future generations to utilise the oceans. Earth Law requires that the precautionary principle provides the foundation for decision making. The precautionary principle calls for early prevention, to avoid harm before it occurs, and relieve uncertain serious and irreversible damage to marine ecosystems.

While there is no single definition of the precautionary principle, and its multiple competing formulations are highly contested, in addition to being preventive rather than reactive, the precautionary principle looks to transfer the burden of proof. Instead of one party having to prove that an action of another is potentially harmful, the burden is on those who wish to pursue the allegedly harmful action to

demonstrate sufficient evidence of safety.³⁶⁰

Four elements of the principle can be identified, namely the level of damage, scientific criterion, remedy, and burden of proof. These elements provide a basis for a “minimum harm threshold” for when the principle takes effect in decision making, so that “only those threats that present a genuinely harmful outcome will allow the principle to come into effect.”³⁶¹ This criteria deals with the problem of how to make a decision when there is a lack of complete scientific information regarding serious damage.³⁶²

iv. Public and stakeholder acceptance

The extent and allowance of an activity or regulation should obtain broad stakeholder acceptance. Local communities especially should be involved throughout the decision making process. The public also needs to be educated about the policy, which will help authorities enforce and monitor implementation. If high levels of opposition exist, decision-makers should either choose another alternative, or address the aspect of opposition. An example of this criteria can be found in the IUCN’s Green List of Protected and Conserved Area Standards: “There are clearly defined, legitimate equitable and functional governance arrangements, in which the interests of civil society, rights-holders and stakeholders, are fairly represented and addressed, including those relating to the establishment or designation of the site;” and “Governance arrangements and decision-making processes are transparent and appropriately communicated, and responsibilities for implementation are clear, including a readily accessible process to identify, hear and resolve complaints, disputes, or grievances.”³⁶³

v. Existence of alternative livelihoods

Eco-tourism offers a solution to replace livelihoods disrupted by marine protected areas and their subsequent rules and regulations. Research has found that for heavily exploited fisheries, developing a non-extractive activity such as ecotourism may help to overcome the dilemma between the need for long-term resource conservation and the immediate

necessity to provide jobs and income to the local population.³⁶⁴

The development of successful alternative livelihoods requires in-context evaluations, community participation, and analyses of the biological impacts.³⁶⁵ The SLED approach, Sustainable livelihoods enhancement and diversification, addresses the challenges and controversies in creating successful alternative livelihoods for communities relying on aquatic resources.³⁶⁶ The three main steps of SLED are discovery, developing an understanding of current livelihoods and community members’ relationship with resources, direction, developing an understanding among the community of the need for change while understanding what is important to local users, and doing, developing adaptive capacity, strengthening existing skills and diversity in livelihoods, and facilitating government and NGO support.³⁶⁷

Ecological Criteria

In addition to criteria focusing on performance and implementation, management of marine protected areas should strive to balance human activity with conservation by measuring impacts on components of the ecosystem.

i. Demonstrate conservation of the ecosystem and values associated with it

The IUCN and the Earth Law Framework, require governance meets the IUCN definition of a Protected Area, where the highest objective and priority in conflict is conservation, management must eliminate or prevent exploitation, and regulations aim to maintain or increase the degree of “naturalness” of the ecosystem. Therefore, management must prove that conservation is indeed a product of regulations. If activities, either isolated or cumulative, impact the ecosystem’s ability to maintain a status of “health” or “normal form and function,” managers must identify and design alternative regulations that meet this criteria.

As an example, the Marine Stewardship Council created criteria and indicators to assess the impact of proposed fishing gear, and use the results to guide

regulatory decisions. This includes assessing the impact of gear on the habitat, ecosystem, target and non-target species, and endangered, threatened or protected species. Indicators include an “outcome indicator,” basis, reliability and implementation indicator, and “information indicator.”³⁶⁸

ii. Determination of impacts using key ecosystem components

Governance and management plans should include strategies and actions to identify ecological attributes and evaluate their relative importance to the functioning of the system as a whole. Goals for each attribute are identified and activities and management contribute to the realization of these goals.

The Ocean Health Index suggests the core components across all marine areas are biodiversity, food provision, clean waters, sense of place, livelihoods and economies, tourism and recreation, coastal protection, carbon storage, natural products, and artisanal fishing opportunities.³⁶⁹

We recommend core component evaluation customized for each marine protected area. For example, *Healthy Reefs*, in Mexico reports on the health of coral reefs through indicators specific to that reef system. Components for coral reefs include coral cover, fleshy macroalgae cover, herbivorous fish biomass and commercial fish biomass.³⁷⁰ Quantitative scientific-based metrics then inform recommendations and management. For example, if commercial fish biomass is seen as too low to support a healthy ecosystem, regulations would then be created to improve this component.

iii. Determination of impacts using species

Keystone species play the essential role in many ecological communities of maintaining the structure and integrity of the community.³⁷¹ Since keystone species have low functional redundancy, when a keystone species disappears from the ecosystem, no other species are able to fill its ecological niche. The ecosystem would be forced to radically change,

allowing new and possibly invasive species to populate the habitat.³⁷² Keystone species also serve as indicators of ecosystem health,³⁷³ and therefore regulatory decisions should be largely based on maintaining their health.

Examples of criteria can be found again in the IUCN Green List of Protected and Conserved Areas, including: the marine protected area “contains an assemblage of native species and ecosystem types that is characteristic of the region, with intact ecological processes and trophic systems... [and] sustain[s] a viable population of the species or the ecological community in the long term, taking account of all relevant aspects of the species' life cycle (e.g. breeding areas, wintering grounds, safe migration routes).³⁷⁴

The IUCN Green List of Species also provides metrics to measure the state of a species and guide regulatory actions. “In addition to showing the current recovery state of a species, the Green List Score [can] be calculated under different counterfactual scenarios to show how conservation actions have contributed to recovery, the dependence of the species on continued conservation, and what an aspirational but realistic goal for long-term recovery might look like.” We can use such metrics to hypothesize how and to what extent regulatory actions can contribute to maintaining the health of a species, results which can then be used to guide decision making.

Endnotes

- ¹ OECD, Marine Protected Economics, Management and Effective Policy Mixes: Policy Highlights, 2 (2016), available at: <https://www.oecd.org/environment/resources/Marine-Protected-Areas-Policy-Highlights.pdf> (“OECD”); United Nations, Overfishing: A Threat to Marine Biodiversity (Aug. 31, 2017), <http://www.un.org/events/tenstories/06/story.asp?storyID=800>.
- ² National Research Council (US) Committee on the Ocean’s Role in Human Health, From Monsoons to Microbes: Understanding the Ocean’s Role in Human Health, 4 (1999), available at: <https://www.ncbi.nlm.nih.gov/books/NBK230700/>.
- ³ Nicole Levins, Oceans and Coasts, The Nature Conservancy, (Aug. 31, 2017), <https://www.nature.org/ourinitiatives/urgentissues/oceans/coral-reefs/coral-reefs-and-medicine.xml>.
- ⁴ Carolyn Gregoire, Why Being Near the Ocean Can Make You Calmer and More Creative, Huffington Post, Feb. 25, 2016, http://www.huffingtonpost.com/2016/02/25/mental-benefits-water_n_5791024.html; Wallace J. Nichols, Blue Mind, Little, Brown and Company (2014).
- ⁵ OECD, *supra* at 2.
- ⁶ Mora, Camilo et al., How Many Species Are There On Earth And In The Ocean?, PLoS Biology 9.8 (2011), available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3160336/>; Marine Bio, Little Known Facts About The Ocean (Aug. 31, 2017), <http://www.marinebio.org/marinebio/facts/>.
- ⁷ George Leonard & Andreas Merkl, Confronting Ocean Plastic Pollution at the Global Scale: New Insights and Strategic Opportunities, 1 (2015) (internal document).
- ⁸ Global Issues, Declining Ocean Biodiversity, (Sept. 1, 2017, 7:09pm), <http://www.globalissues.org/article/171/loss-of-biodiversity-and-extinctions#DecliningOceanBiodiversity>.
- ⁹ *Living Blue Planet Index*, World Wildlife Fund, Living Planet Report, 2014, available at: http://www.livingplanetindex.org/projects?main_page_project=BluePlanetReport&home_flag=1.
- ¹⁰ Mary Jane Angelo, Harnessing the Power of Science in Environmental Law: Why We Should, Why We Don’t, and How We Can, 86 Tex. L. Rev. 1527 (2008), available at <http://scholarship.law.ufl.edu/facultypub/36>.
- ¹¹ Claudio Campagna, Daniel Guevara and Bernard Le Boeuf, Sustainable Development as Deus Ex Machina, Biological Conservation 209 (2017) 54–61, available at <https://doi.org/10.1016/j.biocon.2017.01.016>; David Metz and Lori Weigel, The Language of Conservation 2013:

- Updated Recommendations on How to Communicate Effectively to Build Support for Conservation, 2013, available at <https://www.conservationgateway.org/Files/Documents/2013%20Language%20of%20Conservation%20Memo.pdf>
- ¹² Robert Jay Wilder, Listening to the Sea: the politics of improving environmental protection, University of Pittsburgh Press (1998), p. 189.
- ¹³ Claudio Campagna, Daniel Guevara and Bernard Le Boeuf, Sustainable Development as Deus Ex Machina, Biological Conservation 209 (2017) 54–61, available at <https://doi.org/10.1016/j.biocon.2017.01.016>, p. 58–59.
- ¹⁴ *Id.* at 56.
- ¹⁵ Robert Jay Wilder, Listening to the Sea: the politics of improving environmental protection, University of Pittsburgh Press (1998), p. 189, 203.
- ¹⁶ United Nations General Assembly, Seventy-first session: Item 19 (h) of the provisional agenda, Sustainable development: Harmony with Nature, Aug. 1, 2016, p. 4, available at: <http://bit.ly/UNHwN>.
- ¹⁷ Cormac Cullinan, Wild Law: A Manifesto for Earth Justice 44 (2 ed. 2011).
- ¹⁸ *Id.* at 103.
- ¹⁹ *Id.* at 101.
- ²⁰ Barbara Paterson; Ethics for Wildlife Conservation: Overcoming the Human–Nature Dualism, *BioScience*, Volume 56, Issue 2, 1 February 2006, Pages 144–150, [https://doi.org/10.1641/0006-3568\(2006\)056\[0144:EFWCOT\]2.0.CO;2](https://doi.org/10.1641/0006-3568(2006)056[0144:EFWCOT]2.0.CO;2), p.147.
- ²¹ *Id.* at 148.
- ²² Inter-American Congress on the Environmental Rule of Law: Selected Essays, General Secretariat of the Organization of American States (OAS) Department of Sustainable Development, 2015, p. 166, available at: http://www.oas.org/en/sedi/dsd/environmentalruleoflaw_selectedessay_english.pdf.
- ²³ *Id.* at 5.
- ²⁴ *Id.* at 166.
- ²⁵ Environmental Rule of Law, United Nations Environment Programme, consulted on Aug. 9, 2017, available at: <https://ww.unenvironment.org/ru/node/8104>.
- ²⁶ Barbara Lausche, Guidelines for Protected Areas Legislation, IUCN, Gland, Switzerland. (2011), p. 42, available at: <https://portals.iucn.org/library/sites/library/files/documents/EPLP-081.pdf> (“Protected Area Guidelines”).

-
- ²⁷United Nations General Assembly, Seventy-first session: Item 19 (h) of the provisional agenda, Sustainable development: Harmony with Nature, Aug. 1, 2016, p. 5, available at: <http://bit.ly/UNHwN>.
- ²⁸ *Id.* at 8.
- ²⁹ Oliver Balch, *Buen vivir: the social philosophy inspiring movements in South America*, The Guardian, Feb. 4, 2013, available at: <https://www.theguardian.com/sustainable-business/blog/buen-vivir-philosophy-south-america-eduardo-gudynas>.
- ³⁰ Eduardo Gudynas, *Buen Vivir: Today's tomorrow, Development*, 2011, 54(4), (441-447), p. 443, available at: <http://postdevelopment.net/wp-content/uploads/2016/10/GudynasBuenVivirTomorrowDevelopment11.pdf>.
- ³¹ Rio Declaration on Environment and Development, Report on the United Nations Conference on Environment and Development, A/CONF.151/26 (Vol. I), June 1992, available at: <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>.
- ³² United Nations General Assembly, Seventy-first session: Item 19 (h) of the provisional agenda, Sustainable development: Harmony with Nature, Aug. 1, 2016, p. 12, available at: <http://bit.ly/UNHwN>.
- ³³ Tim Boucher, *Plants & Privacy*, Medium, Feb. 4, 2016, available at: <https://medium.com/@timboucher/world-charter-for-nature-1982-93cc3d41ff79>.
- ³⁴ World Charter for Nature, U.N. Doc. A/37/51 (1982), available at: <http://www.un.org/documents/ga/res/37/a37r007.htm> (World Charter).
- ³⁵ Harmony with Nature. United Nations. <http://www.harmonynatureun.org/>.
- ³⁶ United Nations General Assembly, Seventy-second session: Item 19 (h) of the provisional agenda, Sustainable development: Harmony with Nature, Nov. 16, 2017, p. 4, A/C.2/72/L.52.
- ³⁷ The Ocean Conference, United Nations, available at: <https://oceancconference.un.org/about>.
- ³⁸ Sustainable Development Knowledge Platform, United Nations, avaialble at: <https://sustainabledevelopment.un.org/topics/oceanandseas>.
- ³⁹ Rogers, A.D. & Laffoley, D.d'A. 2011. International Earth system expert workshop on ocean stresses and impacts. Summary report. IPSO Oxford, 18 pp.
- ⁴⁰ World Conservation Congress, Incorporation of the Rights of Nature as the organizational focal point in IUCN's decision making, WCC-2012-Res-100-EN (2012), available at: <http://bit.ly/RES100>.

- ⁴¹ IUCN & World Conservation Congress, IUCN Programme 2017-2020: Approved by the IUCN World Conservation Congress, September 2016 (2016), <http://bit.ly/2kkHWCo>.
- ⁴² Lewis, N., Day, J.C., Wilhelm, 'A., et. al, Large-Scale Marine Protected Areas: Guidelines for design and management. Best Practice Protected Area Guidelines Series, 2017, No. 26, Gland, Switzerland, p. 4, available at: <https://portals.iucn.org/library/node/46933>.
- ⁴³ *Id.* at 18.
- ⁴⁴ Fowler, C. W., R. D. Redekopp, V. Vissar, and J. Oppenheimer, Pattern-based control rules for fisheries management. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-268, 2014, p. 1 , available at:<https://www.afsc.noaa.gov/publications/afsc-tm/noaa-tm-afsc-268.pdf>.
- ⁴⁵ *Id.*
- ⁴⁶ *Id.* at 2.
- ⁴⁷ Charles W. Fowler, Andrea Belgrano, and Michele Casini, Holistic Fisheries Management: Combining Macroecology, Ecology, and Evolutionary Biology, *Marine Fisheries Review* (Scientific Publications Office, National Marine Fisheries Service, NOAA), 75 (1–2), 2013, p. 1, available at: <http://aquaticcommons.org/14550/1/mfr751-21.pdf>.
- ⁴⁸ Fowler, C. W., R. D. Redekopp, V. Vissar, and J. Oppenheimer, Pattern-based control rules for fisheries management. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-268, 2014, p. 2, available at:<https://www.afsc.noaa.gov/publications/afsc-tm/noaa-tm-afsc-268.pdf>.
- ⁴⁹ Overfishing: a threat to marine biodiversity, United Nations Environment Programme, available at: <http://www.un.org/events/tenstories/06/story.asp?storyID=800>.
- ⁵⁰ Fisheries Management-2. The Ecosystem Approach to Fisheries, Food and Agriculture Organization of the United Nations, 2003, available at: <http://www.fao.org/3/a-y4470e.html>.
- ⁵¹ Fisheries management. 4. Marine protected areas and fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 4. Rome, FAO, 2011, available at: <http://www.fao.org/docrep/015/i2090e/i2090e00.htm>.
- ⁵² Fisheries Management-2. The Ecosystem Approach to Fisheries, Food and Agriculture Organization of the United Nations, 2003, available at: <http://www.fao.org/3/a-y4470e.html>.
- ⁵³ *Id.*
- ⁵⁴ Marc Mangel et al., Principles for the Conservation of Wild Living Resources, *Ecological Applications*, vol. 6, no. 2, 341 (1996), available at: www.jstor.org/stable/2269369 ("Wild Living Resources").
- ⁵⁵ Jenna R. Jambeck et al., Plastic Waste Inputs from Land into the Ocean, 347 *Science* 768, 770 (2015) (Global

plastic resin production increased by 620% from 1975 to 2012).

⁵⁶ Thomas Berry, The Structure of Scientific Revolutions, Vol. 2, No.2, 23.; Cullinan, *supra* at 59.

⁵⁷ Linda Sheehan, Rights of the Waterway, 1-2, available at: https://static1.squarespace.com/static/55914fd1e4bo1fbob851a814/t/56088338e4boafe8da41afob/1443398456112/The_Rights_of_the_Waterway_3_121.pdf.

⁵⁸ Protect Planet Ocean, Protect Planet Ocean as about Marine Conservation (Sept. 1, 2017, 7:10pm), <http://www.protectplanetocean.org/collections/introduction/introbox/globalmpas/introduction-item.html>.

⁵⁹ Atlas for Marine Protection, How much of our ocean is protected? (Sept. 1, 2017 7:20pm), www.MPAtlas.org.

⁶⁰ See Strategic Goal C, Convention on Biological Diversity, Strategic Plan for Biodiversity 2011–2020 and the Aichi Targets: Living in Harmony with Nature, available at: <https://www.cbd.int/doc стратегic-plan/2011-2020/Aichi-Targets-EN.pdf>.

⁶¹ David A. Gill et al., Capacity shortfalls hinder the performance of marine protected areas globally, *Nature*, Vol. 543, 665-668 (2017), available at:

https://www.nature.com/articles/nature21708.epdf?referrer_access_token=sVu_k-oZrJ1S543LfUD1NNRgNojAjWel9jnR3ZoTvoNmuqwYFk18Yt3RjiTpVoBZYm1TPqxutbYX45p_h2ijFqd_23GasG1PyixTtzTh7qx7G9pfdoK5U9_V4FtL-ntU-jWGFXXccIl4NVvdWTxoAShy72lf6A8_E5nkCVHsXuWMIaQHjityJtUWQN5CSHWs7sG1SH8C5gyQBnMuuBXyv78OWofyNwomZeLMzgFEaMBM%3D&tracking_referrer=www.popsci.com ("MPA Shortfalls").

⁶² Environment Guide, Benefits of marine protected areas (Sept. 1, 2017), <http://www.environmentguide.org.nz/issues/marine/marine-protected-areas/>; OECD, *supra*.

⁶³ Environment Guide, Benefits of marine protected areas (Sept. 1, 2017), <http://www.environmentguide.org.nz/issues/marine/marine-protected-areas/>

⁶⁴ OECD, *supra* at 7.

⁶⁵ World Wildlife Fund, The Case For MPAs (Sept. 1, 2017), http://wwf.panda.org/what_we_do/how_we_work/our_global_goals/oceans/solutions/protection/protected_areas/

⁶⁶ Atlas for Marine Protection, How much of our ocean is protected? (Sept. 1, 2017 7:20pm), www.MPAtlas.org.

⁶⁷ Food and Agriculture Organization of the United Nations, Marine protected areas and fisheries (2011), available at <http://www.fao.org/docrep/015/i2090e/i2090e.pdf>.

⁶⁸ *Id.*

⁶⁹ Kendra Pierre-Louis, The secret of successful marine protected areas? *People*, Popular Science, Mar. 22, 2017,

ENDNOTES

<http://www.popsci.com/successful-marine-protected-areas#page-2>.

⁷⁰ MPA Shortfalls, *supra* at 666.

⁷¹ Graeme Kelleher, Guidelines for Marine Protected Areas. IUCN, Gland, Switzerland and Cambridge, UK. pp. xxii, 42 (1999), available at:

<https://www.iucn.org/sites/dev/files/import/downloads/mpaguid.pdf> ("IUCN MPA Guidelines"); Jeff Brax, Zoning the Oceans: Using the National Marine Sanctuaries Act and the Antiquities Act to Establish Marine Protection Areas and Marine Reserves in America, 29 Ecology L.Q.71 (2002), available at:

<http://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?article=1674&context=elq> ("Zoning the Oceans"); OECD, *supra*;

⁷² Car-Spaw, MPA Governance: Design and implement the appropriate legal, policy and social framework for long-term success, available at: http://www.car-spaw-rac.org/IMG/pdf/MPA_Governance_Brief.pdf.

⁷³ National Marine Protected Areas Center, Framework for the National System of Marine Protected Areas of the United States of America, 27 (2015), available at: <http://marineprotectedareas.noaa.gov/nationalsystem/framework/final-mpa-framework-0315.pdf> ("NOAA Framework").

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ Fisheries management. 4. Marine protected areas and fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 4. Rome, FAO. Pp. 184 (2011), available at: <http://www.fao.org/docrep/015/i2090e/i2090eoo.htm>.

⁷⁷ Barbara Lausche, Guidelines for Protected Areas Legislation, IUCN, Gland, Switzerland. (2011), available at: <https://portals.iucn.org/library/sites/library/files/documents/EPLP-081.pdf> ("Protected Area Guidelines").

⁷⁸ NOAA Fisheries, Ecosystem-Based Fisheries Management, updated June 19, 2017, at: <https://www.fisheries.noaa.gov/insight/ecosystem-based-fisheries-management>.

⁷⁹ David Rapport et al., eds., Ecosystem Health, pp. 14, 25-26, 255 (Blackwell Science, Malden, MA 1998) (Ecosystem Health).

⁸⁰ Fiorenza Micheli et al., "Ocean Health," in Routledge Handbook of Ocean Resources and Management, Hance D. Smith et al., eds., p. 107 (Routledge, NY, NY 2015)

⁸¹ Ocean Protection Council Science Advisory Team (OPC-SAT) "Exploring Ocean Health as a Scientific Concept and Management Goal (June 11, 2014) – Workshop Proceedings," at: <http://www.opc.ca.gov/webmaster/ftp/pdf/SAT/OPC-SAT%20FULL%20Workshop%20Proceedings%206.11.14.pdf>.

-
- ⁸² Fiorenza Micheli et al., "Ocean Health," in Routledge Handbook of Ocean Resources and Management, Hance D. Smith et al., eds., p. 108 (Routledge, NY, NY 2015).
- ⁸³ C.W. Fowler et al., "Pattern-Based Control Rules for Fisheries Management," NOAA Technical Memorandum NMFS-AFSC-268, n. 3 (Jan. 2014), p. 1 ("Fowler (2014").
- ⁸⁴ Robert Costanza and Michael Mageau, "What Is a Healthy Ecosystem," *Aquatic Ecology* 33:105-115, 105 (1999) ("Costanza and Mageau").
- ⁸⁵ Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
- ⁸⁶ Marc Mangel et al., Principles for the Conservation of Wild Living Resources, *Ecological Applications*, vol. 6, no. 2, 353 (1996), available at: www.jstor.org/stable/2269369 ("Wild Living Resources").
- ⁸⁷ IUCN MPA Guidelines, *supra* at xxii, 42; Erich Hoyt, Marine Protected Areas for Whales, Dolphins and Porpoises: A World Handbook for Cetacean Habitat Conservation and Planning, 2 (2011) ("Hoyt").
- ⁸⁸ Algalita, Credible Information and Statistics: The Magnitude of Plastic Debris (Dec. 1, 2015, 11:11 AM), <http://www.algalita.org/credible-information-and-statistics/>.
- ⁸⁹ Donald C. Baur & Suzanna Iudicello, Stemming the Tide of Marine Debris Pollution: Putting Domestic and International Control Authorities to Work, 17 *Ecology L.Q.* 71, (1990), p. 78; George Leonard & Andreas Merkl, Confronting Ocean Plastic Pollution at the Global Scale: New Insights and Strategic Opportunities, 2 (2015) (internal document).
- ⁹⁰ IUCN MPA Guidelines, *supra* at xxii.
- ⁹¹ Bolivia Framework Law of Mother Earth and Holistic Development for Living Well
- ⁹² Wild Living Resources, *supra* at 342.
- ⁹³ IUCN MPA Guidelines, *supra* at 20.
- ⁹⁴ *Id.* at 45.
- ⁹⁵ C.W. Fowler, Systemic Management: Sustainable Human Interactions with Ecosystems and the Biosphere, Appendix 4.3 for Chapter 4 (2009), available at: https://www.afsc.noaa.gov/publications/misc_pdf/fowler-book/appendix04-3.pdf.
- ⁹⁶ https://www.iucn.org/sites/dev/files/import/downloads/mp_aguid.pdf pg 12.
- ⁹⁷ <https://portals.iucn.org/library/sites/library/files/documents/EPLP-081.pdf> pg 30 and 140.
- ⁹⁸ Lalit Miglani V. State of Uttarakhand, Writ Petition (PIL) No. 140 of 2015, 64 (2017), available at: <http://www.indiaenvironmentportal.org.in/files/living%20environment%20Gangotri%20Himalaya%20Uttarakhand%20High%20Court%20Order.pdf>.

- ⁹⁹ *Id.* at 63.
- ¹⁰⁰ Gillian Goby and Katrina Moore, Information Paper for the Western Provincial Government: Enforcing and Ensuring Compliance of Marine Laws and Community Based Marine Protected Areas, Coral Triangle Initiative, p. 5 (2013), available at: http://coraltriangleinitiative.org/sites/default/files/resource_s/10_Information%20Paper%20for%20the%20Western%20Provincial%20Government_Enforcing%20and%20Ensuring%20Compliance.pdf.
- ¹⁰¹ Te Awa Tupua (Whanganui River Claims Settlement) Act 2017, Public Act 2017 No 7, Date of assent 20 March 2017, Subpart 1 (11), available at: <http://www.legislation.govt.nz/act/public/2017/0007/latest/whole.html>.
- ¹⁰² *Id.* at Subpart 2 (13)(a).
- ¹⁰³ *Id.* at Subpart 2 (15).
- ¹⁰⁴ Hardin, Garrett, The Tragedy of the Commons, Science, 13 Dec 1968, Vol. 162, Issue 3859, pp. 1243-1248, DOI: 10.1126/science.162.3859.1243, available at: <http://science.sciencemag.org/content/162/3859/1243.full>.
- ¹⁰⁵ Christopher Stone, Should Trees Have Standing?: Law, Morality, and the Environment, 91 (3d ed. 2010).
- ¹⁰⁶ 16 U.S.C. § 1433(a)(2)(A); Zoning the Oceans, *supra* at 84.
- ¹⁰⁷ 117 Con. Rec. 30,858 (1971).
- ¹⁰⁸ 16 U.S.C. § 1431(a)(4), (b).
- ¹⁰⁹ Perkins Coie, Area-Based Management of Marine Resources: a comparative analysis of the National Marine Sanctuaries Act and other federal and state legal authorities, upon request of the National Marine Sanctuary Foundation, 20 (2013), available at: <http://nsglc.olemiss.edu/publications/files/nmsf-report.pdf>.
- ¹¹⁰ Wild Living Resources, *supra* at 346.
- ¹¹¹ IUCN MPA Guidelines, *supra* at 14.
- ¹¹² Linda Sheehan, A Vision for Ocean Health in California, Earth Law Center (2016), p. 23, available at: <https://static1.squarespace.com/static/55914fd1e4b01fb0b851a814/t/57619c73b6aa602dea1224dc/1466014838226/A+Vision+for+Ocean+Health+in+CA.pdf> ("Ocean Health").
- ¹¹³ *Id.*
- ¹¹⁴ OECD, *supra* at 7.
- ¹¹⁵ Antonio Di Franco et al., Five key attributes can increase marine protected areas performance for small-scale fisheries management, *Scientific Reports* 6, Article number: 38135 (2016), available at: <https://www.nature.com/articles/srep38135>.
- ¹¹⁶ The Nature Conservancy, Marine Protected Areas: Nature's Investment Bank, available at: <https://www.nature.org/ourinitiatives/urgentissues/oceans>

-
- [/coasts-and-communities/protected-areas-how-marine-protected-areas-help-alleviate-poverty.xml](#).
- ¹¹⁷ Christopher Stone, Should Trees Have Standing?: Law, Morality, and the Environment, 135 (3d ed. 2010) (“Trees”).
- ¹¹⁸ Wild Living Resources, *supra* at 354.
- ¹¹⁹ *Id.*
- ¹²⁰ Hoyt, *supra* at 13.
- ¹²¹ Wild Living Resources, *supra* at 354.
- ¹²² National Geographic, No-Take Zones (Jul. 27, 2017), <https://www.nationalgeographic.org/encyclopedia/no-take-zone/>.
- ¹²³ The Ocean Conservancy, No-take Marine Reserve Basics (undated), available at: <http://act.oceanconservancy.org/site/DocServer/marineProtectedAreasQA.pdf?docID=215>.
- ¹²⁴ OECD, *supra* at 7.
- ¹²⁵ Wildlife Conservation Society, Review of the Benefits of No Take Zones, 18 (2014), available at: https://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/Review-of-the-Benefits-of-No-Take-Zones_Final.pdf.
- ¹²⁶ Zoning the Oceans, *supra* at 105.
- ¹²⁷ Hoyt, *supra* at 51-54.
- ¹²⁸ Cornell Law School, Standing (Sept. 1, 2017), <https://www.law.cornell.edu/wex/standing>.
- ¹²⁹ 16 U.S.C. § 1540.
- ¹³⁰ Law Office of David A. Ludder, Endangered Species Act (Sept. 1, 2017), <http://www.enviro-lawyer.com/CitizenSuits-ESA.html>.
- ¹³¹ Natalia Greene, The first successful case of the Rights of Nature implementation in Ecuador, Global Alliance for The Rights of Nature (undated), <http://therightsofnature.org/first-ron-case-ecuador/>.
- ¹³² Republic of Ecuador, Constitution of 2008, Chapter 7 article 71, available at: <http://pdbs.georgetown.edu/Constitutions/Ecuador/english08.html>.
- ¹³³ Office of Treaty Settlements, Te Awa Tupua (Whanganui River Claims Settlement) Bill Departmental Report, 34 (2016), available at: https://www.parliament.nz/resource/en-NZ/51SCMA_ADV_00DBHOH_BILL68939_1_A534286/2f4ddcd2af5ad9676d2ca8e221446fe1c5817304.
- ¹³⁴ *Id.* at 35.
- ¹³⁵ Adam Vann, Offshore Oil and Gas Development: Legal Framework, CRS Report, 10 (2014), available at: <https://fas.org/sgp/crs/misc/RL33404.pdf>.
- ¹³⁶ *Id.*
- ¹³⁷ EPA, National Environmental Policy Act Review (Sept. 1, 2017), <https://www.epa.gov/nepa/national-environmental-policy-act-review-process>.
- ¹³⁸ 16 U.S.C. 1374 § 104(d)(6).

- ¹³⁹ Trees, *supra* at 37.
- ¹⁴⁰ *Id.* at 14.
- ¹⁴¹ Hoyt, *supra* at 55.
- ¹⁴² Te Urewera Act 2014, No. 51, Date of Assent 27 July 2014, available at: <http://www.legislation.govt.nz/act/public/2014/0051/latest/DLM6183601.html#DLM6183759>.
- ¹⁴³ *Id.*
- ¹⁴⁴ Te Awa Tupua (Whanganui River Claims Settlement) Act 2017, Public Act 2017 No 7, Date of assent 20 March 2017, <http://www.legislation.govt.nz/act/public/2017/0007/latest/whole.html>.
- ¹⁴⁵ Lester R. Brown, Building an Environmentally Sustainable Economy, Mother Earth News, Marc 2002, at <https://www.motherearthnews.com/nature-and-environment/environmentally-sustainable-economy-zmazo2fmzgoe> (Brown 2002).
- ¹⁴⁶ United Nations, Oceans & Seas, Sustainable Development Knowledge Platform, at <https://sustainabledevelopment.un.org/topics/oceanandsea>.
- ¹⁴⁷ Magali Reinert, Legal Rights of Pacific Ocean Pushed Forward, SciDevNet, April 2017, at <https://www.scidev.net/asia-pacific/environment/news/legal-rights-of-pacific-oceanpushed-forward.html>.
- ¹⁴⁸ United Nations Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs (2011), available at: http://www.un.org/depts/los/oceans_foundation.htm.
- ¹⁴⁹ “World Charter for Nature”, UN General Assembly A/RES/37/7 48th plenary meeting, 28 October 1982, available at: <http://www.un.org/documents/ga/res/37/a37r007.htm>
- ¹⁵⁰ *Id.*
- ¹⁵¹ *Id.*
- ¹⁵² “The future we want”, UN General Assembly A/RES/66/288 66th session, 11 September 2012, p. 30, available at: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/66/288&Lang=E
- ¹⁵³ “Our Ocean, Our Future: Call for Action”, UN General Assembly A/RES/71/312, 71st session, 14 July 2017, available at: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/71/312&Lang=E
- ¹⁵⁴ *Id.*
- ¹⁵⁵ *Id.*
- ¹⁵⁶ “Harmony with Nature”, UN General Assembly A/C.2/72/L.38 72nd session, 23 October 2017, p. 2, available at: <https://undocs.org/A/C.2/72/L.38>
- ¹⁵⁷ *Id.* at 3.
- ¹⁵⁸ *Id.* at 3.
- ¹⁵⁹ *Id.* at 5.
- ¹⁶⁰ “Fisheries Management 2. The ecosystem approach to fisheries”, FAO Technical Guidelines for Responsible

Fisheries No. 4 Suppl. 2, 2003, p. 11, available at: <http://www.fao.org/3/a-y447oe.pdf>

¹⁶¹ *Id.* at 6.

¹⁶² “Fisheries Management 4. Marine protected areas and fisheries”, FAO Technical Guidelines for Responsible Fisheries No. 4 Suppl. 4, 2011, p. xi, at: <http://www.fao.org/docrep/015/i2090e/i2090e.pdf>

¹⁶³ “Ecosystem approach to fishery management (EAFM) Training”, FAO Asia-Pacific Fishery Commission, at: <http://www.fao.org/apfic/training/eafm-regional-training-course/ecosystem-approach-fishery-management/fr/>

¹⁶⁴ C.W. Fowler et al, “Pattern-based Control Rules for Fisheries Management”, NOAA Technical Memorandum NMFS-AFSC-268, January 2014, p. 1, at: <https://static1.squarespace.com/static/55914fd1e4bo1fbob851a814/t/56087c8ee4b0f5f433a8df49/1443396750444/Fowler+et+al+2014.pdf>

¹⁶⁵ *Id.*

¹⁶⁶ *Id.* at 2.

¹⁶⁷ C.W. Fowler et al, “Holistic Fisheries Management: Combining Macroecology, Ecology, and Evolutionary Biology”, Scientific Publications Office, National Marine Fisheries Service, NOAA, V. 75, July 2013, p. 2, at: <https://spo.nmfs.noaa.gov/sites/default/files/pdf-content/MFR/mfr751-2/mfr751-21.pdf>.

¹⁶⁸ “Ecosystem-Based Fisheries Management”, NOAA Fisheries, 19 June 2017, at: <https://www.fisheries.noaa.gov/insight/ecosystem-based-fisheries-management>

¹⁶⁹ *Id.*

¹⁷⁰ “GEF-5 Focal Area Strategies”, Global Environment Facility R.5/Inf. 14, 18 September 2009, p. 1, at: https://www.thegef.org/sites/default/files/council-meeting-documents/GEF.R.5.Inf_14.GEF-5.Focal_Area.Strategies.final_5.pdf

¹⁷¹ *Id.* at 50.

¹⁷² “GEF-6 Programming Directions”, Global Environment Facility A.5/07/Rev.01, 22 May 2014, p. 21-22, at: <https://www.thegef.org/sites/default/files/documents/GEF-6%20Programming%20Directions.pdf>

¹⁷³ *Id.* at 11.

¹⁷⁴ “Strengthening the management and protection of the biodiversity in key ecological areas and implementation of the ecosystem approach to fisheries (EAF)”, FAO/Global Environment Facility, 16 June 2016, p. 12, at: https://www.thegef.org/sites/default/files/project_documents/PRODOC_Argentina_EAF_16062016_clean_PMC_checke_d_clean_003_.pdf

¹⁷⁵ *Id.* at 2.

¹⁷⁶ “Incorporation of the Rights of Nature as the organizational focal point in IUCN’s decision making”, IUCN WCC-2012-Res-100-EN, 2012, at:

https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2012_RES_100_EN.pdf

¹⁷⁷ *Id.*

¹⁷⁸ *Id.*

¹⁷⁹ “Establishing Resilient Marine Protected Area Networks – Making it Happen”, IUCN-WCPA, 2008, p. 2, at: https://cmsdata.iucn.org/downloads/mpanetworksmakingithappen_en.pdf

¹⁸⁰ *Id.* at 3.

¹⁸¹ *Id.* at 15.

¹⁸² “IUCN Programme 2017-2020”, IUCN World Conservation Congress, September 2016, p.3, at: https://www.iucn.org/sites/dev/files/iucn_programme_2017-2020-final_approved.pdf

¹⁸³ *Id.* at 3.

¹⁸⁴ *Id.* at 5.

¹⁸⁵ *Id.* at 35.

¹⁸⁶ *Id.* at 7.

¹⁸⁷ *Id.*

¹⁸⁸ N. Lewis et al, “Large-scale Marine Protected Areas: Guidelines for design and management”, IUCN Work Commission on Protected Areas (WCPA) & IUCN Global Protected Areas Programme, 2017, p. xxi, at: <https://portals.iucn.org/library/sites/library/files/documents/PAG-026.pdf>

¹⁸⁹ *Id.* at 3.

¹⁹⁰ *Id.* at 4.

¹⁹¹ *Id.*

¹⁹² *Id.* at 18.

¹⁹³ *Id.* at 70.

¹⁹⁴ Lauren Wenzel and Mimi D’lorio, Definition and classification system for U.S Marine protected Areas, Office of Ocean and Coastal Resource Management, NOAA Ocean Service, 2011, https://nmsmarineprotectedareas.blob.core.windows.net/marineprotectedareas-prod/media/archive/pdf/helpful-resources/factsheets/mpa_classification_may2011.pdf.

¹⁹⁵ *Id.*

¹⁹⁶ *Id.*

¹⁹⁷ *Id.*

¹⁹⁸ *Id.*

¹⁹⁹ Protect Planet Ocean, What are Marine Reserves?, 2010, <http://www.protectplanetecean.org/collections/introductory/introbox/reserves/introduction-item.html>.

²⁰⁰ California department of fish and wildlife, Guide to the southern California Marine protected areas, 2016, pg. 6 ff. available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=43293>.

²⁰¹ Joint Nature conservation committee, Different types of marine protected areas, 2010, available at http://jncc.defra.gov.uk/pdf/MPAsInfoDoc_v2_2.pdf.

-
- ²⁰² National Geographic, West, K., Marine sanctuary, 2011, available at
<https://www.nationalgeographic.org/encyclopedia/marine-sanctuary/>
- ²⁰³ Joint Nature conservation committee, Different types of marine protected areas, 2010, available at
http://jncc.defra.gov.uk/pdf/MPAsInfoDoc_v2_2.pdf.
- ²⁰⁴ Parks Canada, National marine conservation areas, 2017, available at <https://www.pc.gc.ca/en/amnc-nmca>.
- ²⁰⁵ Palmer, B., NRDC, Marine protected area, marine reserve, monument, park, sanctuary, 2015, available at
<https://www.nrdc.org/onearth/marine-protected-area-reserve-monument-park-sanctuary>.
- ²⁰⁶ National wildlife refuge system, Coastal and marine resources, 2015, available at
<https://www.fws.gov/refuges/whm/coastalandmarine.html>.
- ²⁰⁷ California department of fish and wildlife, Shuman, C., Central California marine protected areas, 2016, available at
<https://www.wildlife.ca.gov/Conservation/Marine/MPAs/Network/Central-California>.
- ²⁰⁸ Jim Beets and Mark Manuel Department of Marine Science University of Hawai`i-Hilo, Temporal and Seasonal Closures used in Fisheries Management: A Review with Application to Hawai`i, 2007, available at
<http://dlnr.hawaii.gov/coralreefs/files/2015/02/BeetsTempClosuresRpt08.pdf>.
- ²⁰⁹ NRDC, marine protected area, reserve, monument, park, sanctuary, 2015, available at
<https://www.nrdc.org/onearth/marine-protected-area-reserve-monument-park-sanctuary>.
- ²¹⁰ IUCN, Protected areas: Strict nature reserve, 2011, available at <https://www.iucn.org/theme/protected-areas/about/protected-areas-categories/category-ia-strict-nature-reserve>.
- ²¹¹ IUCN, protected areas: Protected landscape/seascape, 2011, available at <https://www.iucn.org/theme/protected-areas/about/protected-areas-categories/category-v-protected-landscapeseascape>.
- ²¹² Wild Living Resources, *supra* at 344.
- ²¹³ IUCN MPA Guidelines, *supra* at 219.
- ²¹⁴ *Id.* at 347.
- ²¹⁵ *Id.*
- ²¹⁶ IUCN MPA Guidelines, *supra* at xx.
- ²¹⁷ United Nations Convention on the Law of the Sea, Preamble, p. 25; Part 5, Exclusive Economic Zone, Article 62. Available at:
http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf.
- ²¹⁸ 16 U.S.C. § 1801(b)(4).
- ²¹⁹ *Id.* § 1802(33).
- ²²⁰ IUCN MPA Guidelines, *supra* at 12.
- ²²¹ Protected Area Guidelines, *supra* 31 (2011).

- ²²² NOAA Framework, *supra*.
- ²²³ *Id.* at 14.
- ²²⁴ *Id.* at 21.
- ²²⁵ Dejusticia, In historic ruling, Colombian Court protects youth suing the national government for failing to curb deforestation, April 5, 2018, available at:
<https://www.dejusticia.org/en/en-fallo-historico-corte-suprema-concede-tutela-de-cambio-climatico-y-generaciones-futuras/>.
- ²²⁶ Republic of Ecuador, Constitution of 2008, available at:
<http://pdbe.georgetown.edu/Constitutions/Ecuador/english8.html>.
- ²²⁷ Law 71 Chapter 1 Article 1
- ²²⁸ Law 71 Chapter 1 Article 2
- ²²⁹ Law 300 Article 3
- ²³⁰ Law 300 Article 4
- ²³¹ Te Urewera Act 2014, Public Act 2014 No 51, Date of assent 27 July 2014, available at:
<http://www.legislation.govt.nz/act/public/2014/0051/latest/DLM6183601.html>.
- ²³² Te Awa Tupua (Whanganui River Claims Settlement) Bill, Government Bill 129—2,
<http://www.legislation.govt.nz/bill/government/2016/0129/latest/whole.html#DLM6830851>
- ²³³ Te Awa Tupua (Whanganui River Claims Settlement) Bill, Government Bill 129—2,
<http://www.legislation.govt.nz/bill/government/2016/0129/latest/whole.html#DLM6830851>.
- ²³⁴ Derek Cheng, Mt Taranaki will be granted special legal status similar to Te Urewera and the Whanganui River, NZ Herald, Dec. 21, 2017, available at:
[http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11963982](http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&obj ectid=11963982).
- ²³⁵ An Ordinance of the City of Santa Monica Establishing Sustainability Rights (2013)
http://www.smgov.net/departments/council/agendas/2013/20130409/s20130409_07A1.htm.
- ²³⁶ Kai Huschke, Private Landowner on Kaua'i Legally Recognizes Nature's Rights through Conservation Easement, Community Environmental and Legal Defense Fund, Dec 20, 2017, available at:
<https://celdf.org/2017/12/press-release-first-rights-nature-easement-established-hawaii/>.
- ²³⁷ Mari Margil, Colorado River V. State of Colorado: In a First-in-the-Nation Federal Lawsuit, River Seeks Recognition of its Legal Rights to Exist, Restoration, Community Environmental Legal Defense Fund, Sept. 21, 2017, available at: <https://celdf.org/2017/09/press-release-colorado-river-v-state-colorado-first-nation-federal-lawsuit-river-seeks-recognition-legal-rights-exist-restoration/>.
- ²³⁸ Bret Jaspers, Lawsuit to Give Colorado River Legal Personhood is Over, KJZZ, Dec. 6, 2017, available at:

-
- <https://kjzz.org/content/576238/lawsuit-give-colorado-river-legal-personhood-over>.
- ²³⁹ Anupam Trivedi and Kamal Jagati, Uttarakhand HC declares Ganga, Yamuna living entities, gives them legal rights, Hindustan Times, Mar. 22, 2017, <http://www.hindustantimes.com/india-news/uttarakhand-hc-says-ganga-is-india-s-first-living-entity-grants-it-rights-equal-to-humans/story-VoI6DOG71fyMDihg5BuGCL.html>.
- ²⁴⁰ Goutham Shivshankar, The Personhood of Nature, Law and Other Things, Apr. 5, 2017, <http://lawandotherthings.com/2017/04/the-personhood-of-nature/>.
- ²⁴¹ Rivers do not have same rights as humans: India's top court, Phys.org, July 7, 2017, available at: <https://phys.org/news/2017-07-rivers-rights-humans-india-court.html>.
- ²⁴² Laura Villa, The Importance of the Atrato River in Colombia Gaining Legal Rights, Earth Law Blog, Earth Law Center, <https://earthlawcenter.squarespace.com/international-law/2017/5/Colombia>.
- ²⁴³ The Community Environmental Legal Defense Fund (CELDF), Colombia Constitutional Court Finds Atrato River Possesses Rights to "Protection, Conservation, Maintenance and Restoration, May 4, 2017, <https://intercontinentalcry.org/colombia-constitutional-court-finds-atrato-river-possesses-rights-protection-conservation-maintenance-restoration/>.
- ²⁴⁴ United Nations Harmony with Nature, Rights of Nature Law and Policy, Mexico City, available at: <http://www.harmonywithnatureun.org/rightsofnature.html>.
- ²⁴⁵ United Nations Harmony with Nature, Chronology of Harmony with Nature (Sept. 1, 2017), <http://www.harmonywithnatureun.org/chronology.html>.
- ²⁴⁶ United Nations General Assembly, Resolution adopted by the General Assembly on 22 December 2015 [on the report of the Second Committee (A/70/472/Add.7)] 70/208, Harmony with Nature, available at: <https://www.earthlawcenter.org/s/Earth-Juris-Resolution-2-17-16-y3we.pdf>.
- ²⁴⁷ United Nations General Assembly, Seventy-first session: Item 19 (h) of the provisional agenda, Sustainable development: Harmony with Nature, Aug. 1, 2016, available at: <http://bit.ly/UNHwN>.
- ²⁴⁸ United Nations Harmony with Nature, Harmony with Nature (Sept. 1, 2017), <http://www.harmonywithnatureun.org/>.
- ²⁴⁹ Draft Resolution A/C.2/72/L.52, United Nations General Assembly, 72 session, Second Committee, Agenda item 19(h), Nov. 16, 2017, available at: file:///home/chronos/u-

- ede84e7b1463f3b665cf299885da31d8fcbbdb24/Downloads/ELC/L.52.pdf.
- ²⁵⁰ IUCN, About (Sept. 1, 2017), <http://www.iucn.org/secretariat/about>.
- ²⁵¹ World Conservation Congress, Incorporation of the Rights of Nature as the organizational focal point in IUCN's decision making, WCC-2012-Res-100-EN (2012), available at: <http://bit.ly/RES100>.
- ²⁵² IUCN & World Conservation Congress, IUCN Programme 2017-2020: Approved by the IUCN World Conservation Congress, September 2016 (2016), <http://bit.ly/2kkHWCo>.
- ²⁵³ Anup Shah, "Loss of Biodiversity and Extinctions," Global Issues (updated Jan. 19, 2014), at: www.globalissues.org/article/171/loss-of-biodiversity-and-extinctions#DecliningOceanBiodiversity.
- ²⁵⁴ Living Planet Index, "Living Blue Planet Report," at: www.livingplanetindex.org/projects?main_page_project=BluePlanetReport&home_flag=1.
- ²⁵⁵ United Nations Environment Programme, "Overfishing: A Threat to Marine Biodiversity," at: www.un.org/events/tenstories/06/story.asp?storyID=800.
- ²⁵⁶ Ransom A. Myers & Boris Worm, "Rapid Worldwide Depletion of Predatory Fish Communities," 423 Nature 280-283 (May 15, 2003), at: www.nature.com/nature/journal/v423/n6937/abs/nature01610.html.
- ²⁵⁷ C.W. Fowler et al., NOAA-NMFS, "Pattern-based Control Rules for Fisheries Management," NOAA Technical Memorandum NMFS-AFSC-268, p. iii (Jan. 2014), at: <http://www.afsc.noaa.gov/publications/afsc-tm/noaa-tm-afsc-268.pdf>.
- ²⁵⁸ Russell McLendon, "10 of the Most Endangered Whales on Earth," Mother Nature Network (June 23, 2010), at: www.mnn.com/earth-matters/animals/stories/10-of-the-most-endangered-whales-on-earth.
- ²⁵⁹ NOAA Marine Debris Programs Report, "Impacts of 'Ghost Fishing' via Derelict Fishing Gear," p. 4 (2015), at: https://marinedebris.noaa.gov/sites/default/files/publications-files/Ghostfishing_DFG.pdf.
- ²⁶⁰ Micheli, Fiorenza et al., "Ocean Health," in: Routledge Handbook of Ocean Resources and Management, p. 114 (Hance D. Smith et al., eds., 2015).
- ²⁶¹ National Oceanic and Atmospheric Administration, "What Is Ocean Acidification?" (Mar. 30, 2015), at: <http://www.pmel.noaa.gov/co2/story/What+is+Ocean+Acidification%3F>.
- ²⁶² A.D. Rogers, & D.d'A Laffoley, International Earth System Expert Workshop on Ocean Stresses and Impacts, Summary Report, p. 7 (IPSO Oxford 2011), at: http://www.stateoftheoceanc.org/wp-content/uploads/2015/10/2011-Summary-report_workshop

on-stresses-and-impacts.pdf. See also International Programme on the State of the Ocean, Combined Research Papers, at: http://www.stateoftheocean.org/wp-content/uploads/2015/10/2011-Summary-report_workshop-on-stresses-and-impacts.pdf.

²⁶³ World Wildlife Fund, “Fast Facts: Why Coral Reefs are Important to People,” at: www.wwf.panda.org/about_our_earth/blue_planet/coasts/coral_reefs/coral_facts.

²⁶⁴ Katharine Gammon, “Half of Great Barrier Reef Lost in Past 3 Decades,” LiveScience (Oct. 1, 2012), at: www.livescience.com/23612-great-barrier-reef-steep-decline.html.

²⁶⁵ National Oceanic and Atmospheric Administration, “Conserving Our Treasures Under the Sea,” at: <http://www.habitat.noaa.gov/ourwork/corals.html>.

²⁶⁶ George Leonard & Andreas Merkl, “Confronting Ocean Plastic Pollution at the Global Scale: New Insights and Strategic Opportunities” (2015) (internal document).

²⁶⁷ Ocean Conservancy, “Stemming the Tide: Land-based Strategies for a Plastic-Free Ocean” (2015), at: www.oceanconservancy.org/our-work/marine-debris/mckinsey-report-files/full-report-stemming-the.pdf.

²⁶⁸ Peter Kershaw et al., “Plastic Debris in the Ocean,” UNEP Year Book, pp. 21, 26-28 (2011).

²⁶⁹ United Nations Environment Programme & National Oceanic and Atmospheric Administration, “The Honolulu Strategy: A Global Framework for Prevention and Management of Marine Debris,” 5 (2011), at: <http://www.unep.org/esm/Portals/50159/Honolulu%20Strategy%20Final.pdf>.

²⁷⁰ Charles James Moore, “Synthetic Polymers in the Marine Environment: A Rapidly Increasing, Long-Term Threat,” 108 Env. Res. 131, 133 (2008).

²⁷¹ Chris Wilcox et al., “Threat of Plastic Pollution to Seabirds is Global, Pervasive, and Increasing,” PNAS Early Edition 1 (2015).

²⁷² George Leonard & Andreas Merkl, “Confronting Ocean Plastic Pollution at the Global Scale: New Insights and Strategic Opportunities” (2015) (internal document).

²⁷³ Food and Agriculture Organization of the United Nations, “Fisheries and Food Security,” at: www.fao.org/docrep/x0262e/x0262e09.htm.

²⁷⁴ See e.g. Marine Stewardship Council, “How Jobs and Communities are Affected by the Seafood Industry,” at: <http://www.msc.org/healthy-oceans/the-oceans-today/livelihoods-communities>.

²⁷⁵ The South-east Regional Marine Plan Assessment Reports, “Sea Country: An Indigenous Perspective,” at: [https://www.environment.gov.au/system/files/resources/271c0bfc-34a2-4c6c-9b02-01204ebcof43/files/indigenous.pdf](http://www.environment.gov.au/system/files/resources/271c0bfc-34a2-4c6c-9b02-01204ebcof43/files/indigenous.pdf).

²⁷⁶ SeaWeb, “Ocean Issue Briefs: Global Fisheries,” at: <http://www.seaweb.org/resources/briefings/fishery.php>.

²⁷⁷ Ocean Unite, “Slavery at Sea: The Human Cost of Illegal Fishing,” The Huffington Post (July 31, 2015), at: www.huffingtonpost.com/ocean-unite/slavery-at-sea-the-human-_b_7912334.html.

²⁷⁸ Sam Jones, “Trafficked into Slavery on a Thai Fishing Boat: ‘I Thought I’d Die There’,” The Guardian (Dec. 16, 2015), at: <https://www.theguardian.com/global-development/2015/dec/16/enslaved-on-thai-fishing-boathought-i-would-die-there>.

²⁷⁹ Angel Braestrup, Jessie Neumann, & Michaela Gold, “Human Rights & The Ocean: Slavery and the Shrimp on Your Plate,” The Ocean Foundation, p. 4 (Apr. 5, 2016), at: <https://www.oceanfdn.org/sites/default/files/SlaveryandtheShrimponYourPlate1.pdf> (quoting Jon Bowermaster, “Slavery: The Fishing Industry’s Shameful Bycatch,” TakePart (June 28, 2013)).

²⁸⁰ The South-east Regional Marine Plan Assessment Reports, “Sea Country: An Indigenous Perspective,” at: <https://www.environment.gov.au/system/files/resources/271c0bfc-34a2-4c6c-9b02-01204ebcof43/files/indigenous.pdf>.

²⁸¹ Michael Slezak, “The Great Barrier Reef: A Catastrophe Laid Bare,” The Guardian (June 6, 2016), at: www.theguardian.com/environment/2016/jun/07/the-great-barrier-reef-a-catastrophe-laid-bare.

²⁸² Katie Campbell & Saskia De Melker, “Northwest ‘Salmon People’ Face Future with Less Fish,” PBS NewsHour (July 18, 2012), at: http://www.pbs.org/newshour/updates/climate-change-july-dec12-swinomish_07-18.

²⁸³ Danny Clemens, “Climate Change by the Numbers: 760 Million Displaced by Rising Sea Levels,” DSCOVRD (Discovery Blog) (Nov. 10, 2015), at: <http://www.discovery.com/dscovrd/nature/climate-change-by-the-numbers-760-million-displaced-by-rising-sea-levels>.

²⁸⁴ Naomi Klein, “Donald Trump’s Presidency Could Literally Mean the End of Their World,” The Nation (Nov. 10, 2016), at: <https://www.thenation.com/article/donald-trumps-presidency-could-literally-mean-the-end-of-their-world>.

²⁸⁵ Brian Owens, “Sea-Level Rise May Displace 13 Million People in the US by 2100,” New Scientist (Mar. 14, 2016), at: <https://www.newscientist.com/article/2080502-sea-level-rise-may-displace-13-million-people-in-the-us-by-2100>.

²⁸⁶ US Global Change Research Program, “Changes in Hurricanes,” at: <http://nca2014.globalchange.gov/report/our-changing-climate/changes-hurricanes>.

²⁸⁷ Channel Islands National Marine Sanctuary Advisory Council Charter. July 21, 2014. Available at: <https://nmssanctuaries.blob.core.windows.net/sanctuaries->

<prod/media/archive/management/ac/pdfs/cinmsrevisedcharter.pdf>.

²⁸⁸ Te Awa Tupua (Whanganui River Claims Settlement) Bill, Government Bill 129—2, <http://www.legislation.govt.nz/bill/government/2016/0129/atest/whole.html#DLM6830851>

²⁸⁹ Cornell Law School, Public Trust Doctrine, available at: https://www.law.cornell.edu/wex/public_trustDoctrine.

²⁹⁰ 42 USC § 4321.

²⁹¹ 42 USC § 4331.

²⁹² 42 USC § 4344.

²⁹³ Trees, *supra* at 57.

²⁹⁴ 16 U.S.C. § 1361.

²⁹⁵ Natalia Greene, The First Successful Case of the Rights of Nature Implemented in Ecuador, Global Alliance for the Rights of Nature, available at: <http://therightsofnature.org/first-ron-case-ecuador/>.

²⁹⁶ Boyd, David R., The Rights of nature - A legal revolution that could save the world, s. 203.

²⁹⁷ Facts ABout the Great Barrier Reef, Great Barrier Reef Marien Park Authority, Australian Government, 2018, <http://www.gbrmpa.gov.au/about-the-reef/facts-about-the-great-barrier-reef>.

²⁹⁸ Boyd, David R., The Rights of nature - A legal revolution that could save the world, s. 203.

²⁹⁹ Jennifer Collins, Largest ever coral die-off confirmed on Great Barrier Reef, Deutsche Welle, Nov. 2016, <http://p.dw.com/p/2TOZ7>.

³⁰⁰ Global Alliance for the Rights of Nature, Universal Declaration of Rights of Mother Earth (2015) <<http://therightsofnature.org/universal-declaration/>>.

³⁰¹ *Id.*

³⁰² Boyd, David R., The Rights of Nature - A legal revolution that could save the world, p. 203.

³⁰³ Boyd, David R., The Rights of Nature - A legal revolution that could save the world, p. 205.

³⁰⁴ Maloney, M., Finally being heard: The Great Barrier Reef and the International Rights of Nature Tribunal, Griffith Journal of Law & Human Dignity Vol 3(1) 2015, Griffith University, Queensland, Australia, available at <https://therightsofnature.org/finally-being-heard-great-barrier-reef-case/>, latest accessed 2018-03-28

³⁰⁵ *Id.*

³⁰⁶ *Id.*

³⁰⁷ Nicole Rogers and Michelle Maloney, 'The Australian Wild Law Judgment Project' (2014) 39(3) Alternative Law Journal 172.

³⁰⁸ *Id.*

³⁰⁹ National Geographic Society, Case Study: Galápagos Marine Reserve (2011), available at: https://media.nationalgeographic.org/assets/file/Case_Study_Galapagos_Marine_Reserve.pdf.

ENDNOTES

³¹⁰ Julia W. Novy, Incentive Measures for Conservation of Biodiversity and Sustainability: A Case Study of the Galapagos Islands, 87 (undated), available at: <https://www.cbd.int/doc/case-studies/inc/cs-inc-ec-galapagos-en.pdf>.

³¹¹ Ley Especial Para La Provincia De Galapagos, Ley No. 67. RO/278 (1998), Art. 3, available at: <http://www.gobiernogalapagos.gob.ec/wp-content/uploads/downloads/2014/05/LOREG.pdf>.

³¹² Calvopiña M, S Chamorro, E Cruz, W Tapia and A Izurieta. 2015. The Management Plan for the Protected Areas of Galapagos for Good Living: An innovative tool that contributes to the integrated management of the Archipelago. Pp. 13-17. In: Galapagos Report 2013-2014. GNPD, GCREG, CDF and GC. Puerto Ayora, Galapagos, Ecuador, available at: https://www.galapagos.org/wp-content/uploads/2015/09/GalapagosReport_2013-2014-1-Calvopina-13-17.pdf ("Management Plan Galapagos").

³¹³ Ley Especial Para La Provincia De Galapagos, Ley No. 67. RO/278 (1998), available at: <http://www.gobiernogalapagos.gob.ec/wp-content/uploads/downloads/2014/05/LOREG.pdf>.

³¹⁴ *Id.*

³¹⁵ Peter JS Jones, A Governance Analysis of the Galápagos Marine Reserve, Marine Policy (2013), available at: http://www.homepages.ucl.ac.uk/~ucfwpej/pdf/MPAGGM_R.pdf.

³¹⁶ Nat. Geo Society, *supra*.

³¹⁷ *Id.*

³¹⁸ Peter JS Jones, A Governance Analysis of the Galápagos Marine Reserve, Marine Policy (2013), available at: http://www.homepages.ucl.ac.uk/~ucfwpej/pdf/MPAGGM_R.pdf.

³¹⁹ Nat. Geo Society, *supra*.

³²⁰ Management Plan Galapagos, *supra* at 13.

³²¹ *Id.* at 15.

³²² Ley Especial Para La Provincia De Galapagos, Ley No. 67. RO/278 (1998), Art. 2, available at: <http://www.gobiernogalapagos.gob.ec/wp-content/uploads/downloads/2014/05/LOREG.pdf>.

³²³ *Id.*

³²⁴ *Id.*

³²⁵ *Id.* at Art. 48.

³²⁶ *Id.* at Art. 49.

³²⁷ *Id.*

³²⁸ Sea Change, Hauraki Gulf Marine Spatial Plan, 17 (Apr. 2017), available at http://www.seachange.org.nz/PageFiles/1166/5086_SCTTP_Marine%20Spatial%20Plan_WR.pdf ("Sea Change").

³²⁹ *Id.* at 18.

³³⁰ *Id.* at 17.

³³¹ *Id.* at 20.

-
- ³³² *Id.* at 31.
- ³³³ *Id.* at 52.
- ³³⁴ *Id.* at 26.
- ³³⁵ *Id.* at 118.
- ³³⁶ *Id.* at 161.
- ³³⁷ *Id.* at 164.
- ³³⁸ *Id.*
- ³³⁹ *Id.* at 118
- ³⁴⁰ *Id.* at 118-119.
- ³⁴¹ *Id.* at 119.
- ³⁴² *Id.* at 40.
- ³⁴³ *Id.* at 43.
- ³⁴⁴ *Id.*
- ³⁴⁵ *Id.* at 115.
- ³⁴⁶ *Id.* At 116.
- ³⁴⁷ *Id.* at 40.
- ³⁴⁸ *Id.* at 5.
- ³⁴⁹ Thad Williamson, What an Environmentally Sustainable Economy Looks Like, Dollars & Sense, August 1999, at <https://rbutler.sdsu.edu/envir3.htm>.
- ³⁵⁰ Brown 2002, *supra*.
- ³⁵¹ *Id.*
- ³⁵² Food and Agriculture Organization of the United Nations, The State of the World's Fisheries and Aquaculture: Opportunities and Challenges, 2014, available at <http://www.fao.org/3/a-i3720e.pdf>.
- ³⁵³ World Ocean Review, Classic Approaches to Fisheries Management, 2010, available at <http://www.fao.org/3/a-i3720e.pdf>.
- ³⁵⁴ Craig Dahlgren, Review of the Benefits of No-take Zones: A Report to the Wildlife Conservation Society, March 2014, at https://appliedecology.cals.ncsu.edu/absci/wp-content/uploads/Review-of-the-Benefits-of-No-Take-Zones_Final.pdf.
- ³⁵⁵ Energy Systems, Center for Environmental Policy, University of Florida, 2018, <https://cep.ees.ufl.edu/emergy/resources/templates.shtml>.
- ³⁵⁶ Mary Jane Angelo, Harnessing the Power of Science in Environmental Law: Why We Should, Why We Don't, and How We Can, 86 Tex. L. Rev. 1527 (2008), available at <https://scholarship.law.ufl.edu/cgi/viewcontent.cgi?article=1034&context=facultypub>, p. 1527.
- ³⁵⁷ IUCN, Governance, equity and rights, Protected Areas, at <https://www.iucn.org/theme/protected-areas/our-work/governance-equity-and-rights>.
- ³⁵⁸ Global Ocean Refuge System, Criteria 2017, Marine Conservation Institute, at <https://globaloceanrefuge.org/refuges/criteria/>.
- ³⁵⁹ *Id.* at 29.
- ³⁶⁰ Mariquo-Russell, Atus. "Rights of Nature and the Precautionary Principal." In: "Can Nature Have Rights? Legal and Political Insights," edited by Anna Leah Tabios Hillebrecht and María Valeria Berros, RCC Perspectives: Transformations in Environment and Society 2017, no. 6, 21-27. doi.org/10.5282/rcc/8211.
- ³⁶¹ Anna Leah Tabios Hillebrecht and María Valeria Berros, Can Nature Have Rights? Legal and Political insights, Transformations in Environment and Society, 2017, doi.org/10.5282/rcc/8164is, p. 23.
- ³⁶² Runyu Wang, The Precautionary Principle in Maritime Affairs, WMU Journal of Maritime Affairs, (2011) 10: 143. <https://doi.org/10.1007/s13437-011-0009-7>.
- ³⁶³ IUCN Green List of Protected and Conserved Areas: Standard, Version 1.1, 2017, https://www.iucn.org/sites/dev/files/iucn_green_list_standard_version_1.1_nov_2017_3.pdf, p. 10.
- ³⁶⁴ International League of Conservation Photographers, Changing Planet, National Geographic, <https://blog.nationalgeographic.org/2016/10/17/marine-ecotourism-the-wealth-of-the-oceans-goes-well-beyond-fisheries/>.
- ³⁶⁵ Food and Agriculture Organization of the United Nations, Fisheries management. 4. Marine protected areas and fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 4. Rome, FAO. 2011. 198p, at <http://www.fao.org/docrep/015/i2090e/i2090e.pdf>.
- ³⁶⁶ *Id.* at 114.
- ³⁶⁷ *Id.*
- ³⁶⁸ Newman, S (2014) Practical implementation of Article 17 of the CFP: allocating fishing opportunities using environmental criteria. RSPB Scotland, Edinburgh, at https://ieep.eu/uploads/articles/attachments/a397f615-f4b3-4c05-b9ab-f5b64fefe7d8/IEEP_2014_Practical_implementation_of_CFP_Art_17.pdf?v=63664509874, p. 8.
- ³⁶⁹ Ocean Health Index, Key Findings, at <http://www.oceanhealthindex.org/region-scores/key-findings>.
- ³⁷⁰ Healthy Reefs for Healthy People, MesoAmerican Reef Report Card: An Evaluation of Ecosystem Healthy, 2018, at <http://www.healthyreefs.org/cms/wp-content/uploads/2012/12/2018-MAR-Report-Card-Web.pdf>.
- ³⁷¹ Wagner, S. C. (2010) Keystone Species. *Nature Education Knowledge* 3(10):51, at <https://www.nature.com/scitable/knowledge/library/keystone-species-15786127>.
- ³⁷² National Geographic, Keystone Species, at <https://www.nationalgeographic.org/encyclopedia/keystone-species/>.
- ³⁷³ Barbara Paterson; Ethics for Wildlife Conservation: Overcoming the Human–Nature Dualism, *BioScience*, Volume 56, Issue 2, 1 February 2006, Pages 144–150, [https://doi.org/10.1641/0006-3568\(2006\)056\[0144:EFWCOT\]2.0.CO;2](https://doi.org/10.1641/0006-3568(2006)056[0144:EFWCOT]2.0.CO;2).

³⁷⁴ IUCN Green List of Protected and Conserved Areas:
Standard, Version 1.1, 2017,

https://www.iucn.org/sites/dev/files/iucn_green_list_standard_version_1.1_nov_2017_3.pdf, p. 17.