The Threats and Developments in Marine Environments

The oceans' deep seabed, over-exploitation and experimentation; an environmental and political discussion.

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The critical role which the marine environment plays in the climate and function of the planet should never be underestimated. It has been suggested that more than 90 percent of animal and plant life originates within the oceans. In addition, roughly a quarter of global protein is taken from the oceans, thus the majority of the world is somehow dependent on a healthy marine environment to sustain populations. The ocean will exist without humans; however humans will not exist without the ocean; as a result, necessary steps need to be taken to avoid any destructive consequences.

The oceans are under an increasing threat from overfishing, pollution, climate change and, in general, over-exploitation. There truly is a very real impact occurring, examples of which include the near collapse of many commercially valuable fish stocks such as the Atlantic Bluefin, the destruction of fragile deep sea eco systems and the dumping of toxic waste. Many UN bodies such as the UNDP, UNESCO, IOC, FAO have completed scientific reports demonstrating the impact of marine exploitation.

International environmental law currently has legal gaps regarding the exploitation of the resources of the ocean areas outside national jurisdiction, especially those with regards to the oceans' deep seabed. The current definitions for the high seas are as follows: LOSC, Article 86 'all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a state, or in the archipelagic waters of an archipelagic state'. The ocean areas beyond national jurisdiction are divided into two different parts for which there are different rules. One is the high seas, which is the upper part of the oceans, the water . The other is the deep seabed, practically the bottom of the oceans (or 'the area'). 'The area' – as in LOSC Article 1 – is 'the

seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction.' Logistically separating the two is highly problematic, as they are a single entity.

The main issue is concentrated in the high seas' deep seabed. Even though the governing legal framework, UNCLOS, is providing for non-living resources, it does not provide for living resources. Non-living resources were thought to represent an important economic stake for the international community at the time UNCLOS was adopted in 1982 and up until recently. It was thought that these resources represented a 'common heritage' for humanity as a whole, according to which these resources belong to all and must be regulated as such. Thus, in 1994, the International Seabed Authority was founded for the regulation and protection of such resources. However, the position on living resources in the deep seabed in areas beyond national jurisdiction was quite different; living resources in the deep seabed were unknown when UNCLOS was being negotiated. As a result, there is a clear legal and policy gap. UNCLOS is now used to fill the gap, however not successfully as it is quite liberal and permissive overall. Thus, for the time being, living resources found in the deep seabed in international waters are in a kind of 'no man's land'.

For the past decades, the oceans' deep seabed has fascinated researchers, especially after discovering strange organisms perfectly adapted to unusual condition, such as eternal darkness, high pressure and high temperatures. These new organism have attracted scientists and biotech companies to the oceans in hope of finding unknown compounds for commercial exploitation.

Exciting discoveries have been made in the oceans' deep seabed for decades now. Even as early as the 1980s, the German scientist Karl Stetter discovered a hyperthermophilic archaebacterium that flourishes near submarine vents at temperatures of about 100 °C. More recent discoveries were the genome sequence of Photobacterium profundum strain SS9 and the jellyfish that use red fluorescent flashes to lure fish.

However, quite important research is Tim Shank's worm that lives at 80 °C in an oily tar-like pit near submarine vents, which, even though it lives in the presence of carcinogenic amounts of polyaromatic hydrocarbons, it does not develop cancer. If the worm's qualities can be put into use by pharmaceutical companies via genetic engineering, it might lead to new insights about cancer treatment. It can also lead to the over-exploitation and possible destruction of the worm's habitats and communities. Thus, it is no coincidence that the genetic wealth of the deep sea is sometimes called 'blue gold'.

Numerous new products have been manufactured using the unique organisms found in the oceans. As a result of this growing market, critics claim that many companies maintain active deep-sea research programs. Examples of such criticisms are articles on the company Diversa, which produces enzymes, proteins and biologically active compounds for pharmaceutical, agricultural and industrial use, even though the company claims that it is not the focus of their research.

Some argue that the existing law is enough, however others believe there should be a new agreement specifically aimed at the protection of the oceans' deep seabed. It would be unfair to say that there is currently nothing in place. Indeed there are many organisations which regulate human activities such as fishing, pollution and mining in areas beyond national jurisdiction, however there are no regulations regarding the living organisms found in 'the area'. The international community is recognising the importance of biodiversity as a fundamental characteristic to achieve global development. There is a move towards a preference of holistic management through ecosystem and precautionary approaches.

The establishment of marine protected areas (MPAs) is a useful tool when attempting to restrict the access and extraction of resources from the deep seabed. With proper management, MPAs allow for a concentration of efforts, from both a conservation and research perspective. The majority of MPAs exist within the limits of national jurisdiction, rendering them very vulnerable. Yet some do exist areas beyond national jurisdiction, eg. whaling sanctuaries in the Indian and Southern oceans, vessel-source pollution in the Southern Ocean and Mediterranean, marine mammal sanctuaries under the Mediterranean regional sea convention etc. Despite their existence, the Convention on Biological Diversity (CBD) Conference in 2005 claimed that MPAs only cover 0,5% of all marine environments in the world. The past decade however, has shown a growing interest in the establishment of MPAs.

The efficiency of the MPAs' management is based upon how effectively an MPA achieves its goals and objectives of conservation, protection and sustainable studies. Sometimes, they fall short on the grounds of insufficient financial or technical resources, unqualified staff or a lack of general support. In their 2010 meeting, the CBD set a 10-year goal of establishing sufficient conservation management efforts of at least 10% of coastal and marine areas. In response to the complaint of MPAs presenting insufficient plans, the CBD has set up regional workshops on the MPAs meeting varying criterion. This shows that despite the slow pace at which the effectiveness and establishment of MPAs is growing, it is in fact growing with the crucial commitment from Independent States all over the world. It is important, however, that this occurs in conjunction with

the rules regarding the access and extraction of resources from the deep seas as well. With regards to the high seas freedoms such as fishing and shipping, countries must show a willingness to compromise in order to reach the goals of protecting marine biodiversity and sustainable practices.

UN member states are currently assessing the feasibility of new or updated legal instruments in order to recognise the importance of the protection of the gaps in law with regard to areas beyond national jurisdiction. At the World Summit on Sustainable Development (WSSD), the Convention on Biological Diversity (CBD) and at other United Nations meetings, the need has been explicitly expressed as a priority to overcome the current shortfalls in the law. In a report by Petra Krankier, it has been suggested that a way to tackle issues with biodiversity in the high seas and areas beyond national jurisdiction is through establishing and maintaining marine protection areas, the footprint of man upon the ocean has never been so and many countries and organisations are arguing positively for these areas.

While there is a pressing need for new agreements, the issue of enforcement is of extreme importance. There are a number of existing and potential future compliance and enforcement deficiencies which must be addressed to protect the interests of the international community. Multilateral Environmental Agreements (MEAs) are central to any discussion surrounding enforcement. MEAs function as tools which address a range of different ecological issues generally or sometimes in specific geographical zones where environmental protection is necessary. There are certain MEAs specific to oceans issues. These issues consist of protecting marine biodiversity, long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks, dumping at sea in the 'sea, seabed and subsoil,' protecting the marine environment by preventing and controlling the discharge of harmful substances from ships etc. Another oceans issue where the useful application of MEAs is being considered is for ocean acidification for instance. Examples of particular oceans-oriented MEAs include: the aforementioned United Nations Convention on the Law of the Sea, the Convention on Biological Diversity, the United Nations Fish Stocks Agreement, the London Convention and Protocol, the MARPOL Convention, the OSPAR Convention, the Protocol on Environmental Protection to the Antarctic Treaty, and the Convention on the Conservation of Antarctic Marine Living Resources.

Although there are many MEAs in existence there continue to be a number of problems limiting their effectiveness. MEAs are becoming more prevalent worldwide, yet environmental degradation continues. A number of MEAs share the same objectives and requirements, however a lack of cooperation between them is evident. Apart from the lack of cooperation, it is commonplace that a

state signs on to multiple MEAs but lacks the capacity and resources for their successful implementation. This is made more problematic because implementation of conventions is often split between different state institutions which can put a strain on human and financial resources and lead to clashing interests in state governments.

However, the 'weakest' feature of the MEA is its limited power of enforcement since states are not forced to comply. There is also a need for more efficient mechanisms for monitoring and verification of compliance as well. Complying with environmental requirements hinges upon a state's willingness and capacity to comply. As such, active effort is required on the part of the state to follow environmental regulations. Removing barriers that discourage states from complying with such requirements calls for developing positive incentives for compliance, greater available financing and access to technical expertise.

Bearing in mind these insufficiencies in the enforcement of existing agreements, even if existing regulations could suffice for the protection of the living organisms of 'the area', the problem would still remain. There are also critical concerns surrounding the monitoring and enforcement of a future areas beyond national jurisdiction regime with regards to flag and port state control.

On the one hand, the principle of flag state jurisdiction comprises the legal framework for monitoring and enforcement in international law in areas beyond national jurisdiction. However, it also exposes what is one of the largest enforcement shortcomings in the legal regime (Rayfuse, 2009). Generally, commercial vessels sailing the high seas are under the jurisdiction of the state whose flag they fly; meaning that they are required to abide by the laws and safety standards set by that state. The flag state has the responsibility and authority to enforce regulations on those vessels flying its flag. This may necessitate that fishing vessels secure authorisations, permits or licences prior to fishing on the high seas or pollution prevention and safety documents. Certain flag states also establish gear restrictions, do not allow fishing techniques, or prohibit fishing in vulnerable areas of the high seas. Additional activities may include permitting other states to conduct searches or arrest its vessels ad hoc or via international agreements.

Flag state jurisdiction originated as a means to facilitate the monitoring and control of ships by states whose flags are flown. However, the primary weakness in this idea lies in the fact that registration or licensing rules on the nationality of ships are very loose. As a result, the rules do not in any way discourage the business of flagging ships in order to shirk international obligations (Rayfuse, 2009). The term "flag of convenience" describes the practice of registering ships in a

different state from that of the ship's owner and flying that state's flag on the ship. The particular state that the ship owner registers their vessel with is chosen for the purpose of reducing operating costs or avoiding regulations of the owner's state. For instance, the flagged state may not have signed onto relevant treaties, thus providing ample opportunity to avoid applying conservation and management measures set forth by Regional Fisheries Management Organisations (RFMOs) or to circumvent controls linked to vessel source pollution.

In general, an enforcement regime depending upon flag states is fruitless when the state's priorities clash with conservation and sustainable use goals. This is exacerbated when the states lack the resources or political will to manage the activities of their vessels or nationals. Remedying the enforcement gap will entail addressing the lack of incentives for vessels to abide by internationally agreed standards and rules and for flag states to require that their vessels follow these international obligations. This also calls for guidance regarding how compliance and responsible behaviour can be encouraged when a flag state fails to exercise its jurisdiction. Rayfuse (2009) calls for re-directing attention to cultivating the particular duties and responsibilities on states that enable their flag to be flown. States have both a right to grant their flags but also a primary duty to ensure enforcement of international rules and effective control and exclusive jurisdiction over their vessels, particularly when other states' interests are impacted.

Also linked to the issue of ocean enforcement is the functioning of Port State Control (PSC) which entails that port states are permitted to control access to their ports, activities and persons within their jurisdiction. Typically, this involves PSC officers inspecting foreign ships in their national ports in order to confirm that the ship's condition and its equipment as well as the competency of the master and officers on board meet the requirements of international conventions such as MARPOL, The International Convention for Safety of Life at Sea (SOLAS), The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) etc. Inspection also serves to ensure that the vessel is manned and operated in accordance with applicable international law. It is held that port state measures may potentially be very effective enforcement measures. In order to enhance their effectiveness, international agreements have been developed to establish consensus on the basic minimum content to the rights of port states to conduct inspection activities in accordance with internationally agreed measures (Rayfuse, 2009).

In addition, Regional Fisheries Management Organisations (RFMOs) are international organisations established by states with fishing interests in an area. Some RFMOs manage all fish stocks found in one particular area while others manage migratory species across expansive geographical areas.

RFMO activities also typically include advisory practices, management responsibilities to set limits to fishing catches and efforts as well as control powers, and technical measures. There are some criticisms that RFMOs are generally not as effective at fulfilling their duties as they should be. Thus there are suggestions to reform, strengthen and improve the accountability of RFMOs to better secure diversity and productivity of the ocean.

With respect to enforcement challenges in areas beyond national jurisdiction there is broadly poor harmonisation and coordination among RFMOs and MEAs (Currie, 2008). Furthermore, at present there is poor flag state implementation in general. However, there is great potential to use of flag state along with port state measures to strengthen enforcement in ABNJ in years to come. All of the aforementioned weaknesses in enforcement necessitate that a central body such as the United Nations General Assembly (UNGA) play a pivotal role in securing a sustainable future for ABNJ.

Monitoring of the fishing industry primarily occurs on a national scale by RFMOs, other organisations working alongside these and the State, which improves the implementation of measures. An example is the EU, represented by the Commission, which works alongside six tuna organisations and 11 non-tuna organisations which is active in European ocean territories. State compliance with set quotas, fishing effort limitations and other controls are monitored on a domestic level, where facts are drawn in by governmental institutions who then pass them on to the EU Commissions department on Maritime Affairs in charge of the EU control on the fishing industry. According to the Commission, changes must be made in order to establish a more effective mechanism on controlling the fish stocks. A large issue is that most ships bring on board fish far over their permitted quota, resulting in wasteful discarding of catch in order to stay within their limits. The EU is currently reviewing laws in order to phase out such behaviour, however there is much debate on whether a complete ban is appropriate and sufficient to curb the problem of overfishing.

The laws and regulations mentioned above can work, however there is still great difficulty with proper implementation and enforcement mechanism at national level. When in doubt over other State's compliance, Countries will take the all or nothing-approach to minimise the risk of restricting their own markets. Some initiatives from marine conservation organisations have instead attempted to assist the government on its task by compiling evidence of illegal fishing which will then be presented to the EU Commission for appropriate enforcement at such levels.

In conclusion, this paper has considered the important stance of the marine environment within the field of international environmental law, and how crucial it is to develop effective enforcement mechanisms. A large portion of animal and plant life is occurring in the oceans, but due to problems of overexploitation, pollution and climate change, such life forms are coming under threat. Unfortunately, there are not enough effective protective mechanisms in place within international environmental law. MEAs for example share similar objectives and requirements but there is a lack of resources (e.g. financial), cooperation, monitoring and verification schemes for successful enforcement., The registration and licensing rules on the nationality of ships are also very loose. Furthermore, MPAs can offer effective protection so long as they are given adequate financial and technical support, however this is rarely the case and they largely only exist within national jurisdiction, providing little support for areas beyond national territory. Despite such trends of weakness in international environmental law, there are still noteworthy examples of effectiveness. Accordingly, the paper has also considered that when proper enforcement mechanisms are adopted, effectiveness can be achieved. A combination of soft and hard law have been used with regards to issues of dumping and hazardous waste; international institutions have provided a good platform for information dissemination, and other methods like strict liability have proven successful in enforcing the requirements of MARPOL. The fishing industry is most effectively monitored on regional levels with States putting in equal efforts of control for the most effective conservation of fish stocks. Thus, as effectiveness is possible within international environmental law, so too are the great outcomes of effectiveness that both the marine environment and humans can benefit from.

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