

INTERNATIONAL REGULATION OF PLASTIC WASTE POLLUTION IN THE OCEANS AND EFFECTS ON HUMAN LIFE AND MARINE ENVIRONMENT

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PROBLEM AND HYPOTHESIS

Problem: Pollution with plastic materials is an ongoing increasing global environmental problem threatening human health and marine wildlife, despite current international laws and conventions regulating the responsibilities of the states. Hypothesis: There is a great need for more effective legal international and national actions and room for great improvement of the environment in order to preserve global wellbeing.

INTRODUCTION TO THE ISSUE

The seas and oceans are home to some of the biggest and most important resources in our world today. The waters provide us with food, oil and a magnificent marine life filled with vastly shifting flora and fauna. Unfortunately, with the great possibilities that have risen from the industrialization and growing economy the marine environment in the waters has taken a toll. In recent times, the issues of plastic waste pollution in the seas have become a very real and serious issue which is having deadly effects on the marine environment. Though the size of the seas and oceans are enormous, the problem of plastic waste pollution is growing, rapidly. Even if major Conventions are in place in order to protect the marine environment and its inhabitants, it seems to not be a sufficient solution to the problem. With a growing population of people and globalisation occurring it is worth discussing whether the current obligations of “protection and preservation” in United Nations Convention on Law of the Sea (UNCLOS) is fulfilled by the state parties to the Convention. The Convention, though having good intentions, possibly has certain shortcomings which enable the continuation of plastic waste pollution. The Convention and the outcome of its regulations need to be examined and discussed with reference to the problem of plastic waste pollution as it is a current issue that is speculated to only get worse.

DEFINING PLASTIC AND IMPORTANT HISTORICAL ASPECTS

“Plastic is the general common term for a wide range of synthetic or semi-synthetic materials used in a huge, and growing, ranges of applications.”¹ A very simple question one might think, but an important one to have a clear answer and understanding of before discussing

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¹ Plastics Europe, *What is plastic?*, ASSOCIATION OF PLASTIC MANUFACTURERS, <<http://www.plasticseurope.org/what-is-plastic.asp>> Accessed on: Oct. 12, 2017, 02:16 PM

further implications of the product. It is the material that our containers, toys and clothing are in large numbers made of, packaged or wrapped in. Plastic it is a product that has changed the world greatly. The cheap production and long durability is one of the key aspects that make the compound so attractive to producers. Even though plastic has been around for a millennium and a half before Christ with rubber balls found created by the Olmecs in Mexico, the big "revolution" of this compound can be said to have happened in 1907 as the first synthetic plastic was created.² The plastic as a product become enormously successful as it could easily replace more expensive products such as cotton and iron.³ However, with the revolution also came a responsibility, which is questionable if states have followed.

In 2013, 299 million tonnes of plastic was produced in the world, of which 57 million tonnes were produced in Europe and China being the largest producer includes plastic materials thermoplastics and polyurethanes and other plastics thermosets, adhesives, coatings and sealants. Does not include the following bers: PET-, PA-, PP- and polyacryl- bers⁴, However, in 2014 only 7,5 million tonnes of plastic were collected for recycling.⁵ About 50% of plastic is used for single-use disposable applications, such as packaging, agricultural products and disposable consumer items.⁶ Of course, it is not possible to trace where all produced plastic ends up, but one can begin to worry when there is such an enormous difference between recent productions of plastic in comparison to the re-collection of plastic material. Even if it is impossible to collect or recycle all plastic that has been produced, it is frightening how low the recycling-quota is. So where does the plastic end up? It has been reported that in a recent global study, an overall of 83% of the tap water tested was polluted with plastic particles with the US being the top country of pollution and a contamination rate of 94%.⁷ Hence, it is showing up in our waters.

THE EFFECTS ON THE MARINE ENVIRONMENT

To understand the importance and necessity of authority regulation of pollution of the marine environment on an international level, it is of great importance to first look at the environmental effects that the plastic waste pollution leads to. As stated previously, the increase in production of plastics has resulted in a greater amount of the material ending up in the oceans and waters. The property that plastic substances once were appreciated for, durability, is now a huge part of the problem since it stays and accumulates in the

² Laurence Knight, *A briefhistoryof plastic*, natural and synthetic, BBC NEWS, <<http://www.bbc.com/news/magazine-27442625>> Accessed on: (Oct. 7, 2017, 02.30 PM

³ ChemicalHeritage Foundation, *Plastics: An AmericanSuccess Story*, Conflics in Chemistry: The Case of Plastics, <<https://www.chemheritage.org/case-study-plastics-an-american-success-story>> Accessed on: Oct. 8, 2017, 10.10 AM

⁴ Messe Düsseldorf, *Plastics –the Facts 2016*, PLASTICS EUROPE, 3, 8, 2016

⁵ Ibid at 9

⁶ European Commission, *Plastic Waste: Ecological and Human Health Impacts*, SCIENCE FOR ENVIRONMENT POLICY, 4, 4, 2011

⁷ Chris Tyree& Dan Marrison, *Invisibles*, ORB MEDIA, <https://orbmedia.org/stories/Invisibles_plastics> Accessed on: Oct. 7, 2017, 06.35 PM

environment. Most plastic, cannot be broken down naturally, but instead remains in the ocean eco-systems forever.⁸ In the past years, the increase in plastic as an environmental pollutant in the waters has been shown to have had damaging effect on the marine environment and the biological life within it. The plastic waste has in studies shown to carry a heavy toll on wildlife as thousands of animals, all from small finches to great white sharks die horrific deaths from ingesting or getting caught in plastic material.⁹ Fish in the North Pacific ingest between 12,000 to 24,000 tons of plastic each year which can cause intestinal injuries or death. It is more problematic when this plastic transfers up higher in the food chain to bigger fish and mammals, as sharks and whales, as it increases the amount of plastic microfibers in each animal.¹⁰

Sea turtles as well as seabirds are two animal groups that are heavily affected by plastic pollution as they ingest the material, mistaken for food, which leads to internal failures of different kinds and eventually leads to death. The Center for Biological Diversity states that “Nearly all Laysan albatross chicks — 97.5 percent — have plastic pieces in their stomachs; their parents feed them plastic particles mistaken for food. It is estimated that 60 percent of all seabird species have eaten pieces of plastic, and that number is predicted to increase to 99 percent by 2050. Based on the amount of plastics found in seabird stomachs, the amount of garbage in our oceans has rapidly increased over the past 40 years.”¹¹ Larger marine mammals are also being affected by the large increase in plastic pollution causing the monk seals to be on the brink of extinction, as well as the endangered stellar sea lion. In 2008, it was horrific to find out that two sperm whales were stranded along the California coast with gross amounts of plastic debris in their stomachs. As shown, the world and global community has a huge environmental problem with plastic pollution, the production of the modern and easily-accessible matter does not go unnoticed and is showing its damaging the marine environment.

UNITED NATIONS CONVENTION ON LAW OF THE SEA

When discussing environmental aspects of pollution of the oceans and the respective state responsibilities to ensure that the marine environment is preserved, there are many aspects to be considered. One of the most important aspects for maintaining an environmentally friendly and preventive attitude is to have proper and strict international legislation that clearly expresses what is required of the states to enforce the laws and conventions. It is also important to have a clear understanding/definition of what is meant by “protection and

⁸ Chemical Heritage Foundation, *Plastics: An American Success Story*, Conflicts in Chemistry: The Case of Plastics, <<https://www.chemheritage.org/case-study-plastics-an-american-success-story>> Accessed on: Oct. 8, 2017, 10.10 AM

⁹ Center for Biological Diversity, *Ocean Plastics Pollution – A Global Tragedy for Our Oceans and Sea Life*, CENTER FOR BIOLOGICAL DIVERSITY, <http://www.biologicaldiversity.org/campaigns/ocean_plastics/> Accessed on: (Oct. 7, 2017, 07.00 PM)

¹⁰ Ibid

¹¹ Ibid

preservation” of the environment. One of the currently biggest and most important international conventions controlling the sea and marine environment is the UNCLOS. This Convention came into force in 1994 after the third extended United Nations Conference on Law of the Sea.¹² With 164 parties to the Convention it is one of the most successful international conventions as it has managed to unite a large number of states to have the similar goals and aims.¹³ The purpose of the Convention was to define the responsibilities and rights of states and nations with regard to the oceans and marine life. The Convention focuses on 7 key provisions; 1) limits of Maritime Zones; 2) rites of passage and navigation; 3) Peace and Security of oceans and seas; 4) conservation and management of marine living resources; 5) protection and preservation of the marine environment; 6) marine scientific research and 7) dispute settlement procedures. The protection and preservation came about as there was an increasing need and an expression for the protection of the marine environment and its wildlife, as the globalisation and industrialization grew with time.¹⁴ The articles regulating the marine environment is mostly focused on the issue of pollutions of the waters and how such incidents can be prevented and controlled. Further the United Nations states that “...*the biggest threat to the health of the marine environment stems from land-based activities. Pollutants and nutrient input into the marine environment can disrupt the delicate balance of marine ecosystems and destroy particularly vulnerable ecosystems. This type o pollution poses danger to human health by contaminating shell sheries water intakes and bathing.*” confirming the extent of the problem of plastic pollution in the seas and oceans.¹⁵

In article 1(4) of part 1 of UNCLOS the term “pollution of the marine environment” is defined as “the means the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities”, and is based on a definition produced by United Nations Educational, Scientific and Cultural Organization’s (UNESCO) Inter-governmental Oceanographic Commission and the UN’s Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP).¹⁶ The definition suggests that the aim of international law is not to prevent all substances from being put into the oceans and seas, but especially those who have or might have harmful effects.¹⁷ The definition is often criticized for being insufficient as it does not take into account changes of the marine environment, but only immediately identifiable possible deleterious effects.¹⁸

¹² United Nations, *UNCLOS at 30*, United Nations Convention on Law of the Sea, 1, 1, 2012.

¹³ Ibid 2-7

¹⁴ Ibid 7

¹⁵ Ibid 16

¹⁶ GUDMUNDUR EIRIKSSON, *THE LAW OF THE SEA*, 328 (1st Ed. 2000)

¹⁷ Ibid 329

¹⁸ Ibid

In section 1 part XII of UNCLOS, “Protection and preservation of the marine environment” the issue of pollution and its regulations are present. The section of the Convention has as a purpose to define actions that are required from the states to fulfil the requirement to protect the marine environment, and with this perspective, particularly when it comes to plastic pollution. Article 192, 194 and 197 of UNCLOS are the most vital regulations concerning pollution and the state parties’ obligations. The concept of protection and preservation is introduced in article 192, general obligation, stating “States have the obligation to protect and preserve the environment.” There is no doubt that the state parties do have an obligation to protect the marine environment from plastic pollution. The problem and challenge is to determine how far the responsibility stretches, which leaves room for differential interpretations of the convention.

Whilst the purpose of article 192 is to prevent and protect the marine environment, article 194 of the Convention discusses the scope of this obligation, which is of great importance to the examination of this paper. Article 194 requires states to take “all measures consistent with this Convention that are necessary” in order to “prevent, reduce and control pollution of the marine environment from any source”.¹⁹ There are two requirements set out within this article when trying to prevent, reduce and control pollution - the measures have to be in accordance with the Convention, as well as needed. The requirement that measures have to be in accordance with the convention means that the actions need to have legal backing in the Convention. Secondly, the requirement to use all measures that are necessary provides an outer-boundary for the state obligations that no less, or more, than what is practically needed to prevent and protect the marine environment from pollution is required. Article 197 of the Convention states that “States shall cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features.” Thus, enforcing a global cooperation between the parties, as well as a sovereign responsibility.

ARE OBLIGATIONS AND ENFORCEMENT BY STATE PARTIES BEING FOLLOWED?

The meaning of “prevent and preserve” regarding the marine environment, what it entails and the scope of the term is defined when reviewing the above three articles. The question is whether the purpose of the convention is practically met. When discussing if the state parties are following their obligation to prevent and protect there are two vital articles of UNCLOS that need to be taken into account, to understand how each state should enforce the laws. Firstly, section 5 of part XII of UNCLOS, “International rules and national legislation to

¹⁹ Global CCS Institute, *United Nations Convention on the Law of the Sea (UNCLOS)*, GLOBAL CCS INSTITUTE, <https://hub.globalccsinstitute.com/publications/offshore-co2-storage-legal-resources/united-nations-convention-law-sea-unclos> Accessed on: Oct. 8, 2017, 08:35 AM

prevent, reduce and control pollution of the marine environment” article 207 regarding “Pollution from land-based sources” stating that states “shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources” as well as they” shall take other measures as may be necessary” in order prevent, reduce and control pollution. Secondly, under section 6 part XII, Enforcement, article 213, “Enforcement with respect to pollution from land-based sources”, is found. The article has a great impact on the Convention as it mandates the state parties a responsibility of self-enforcement. The outcome of the article, “States shall enforce their laws and regulations adopted in accordance with article 207 and shall adopt laws and regulations and take other measures necessary to implement applicable international rules and standards established through competent international organizations or diplomatic conference to prevent, reduce and control pollution of the marine environment from land-based sources.”, is therefore that it is entirely up to the states to prevent the plastic waste pollution through international cooperation and national legislations.

A problem with the above mentioned articles that is important to emphasize is how vague the articles are. The articles do not provide strict obligations on how the states should make sure that the obligation of “protection and prevention” is followed but only that the responsibility is given to the states. Arguably, sovereignty and self-determination is important and one of the key pillars of the UN. On the other hand one may argue that such rights are only to be given when it does not have a negative impact or allows one of the main purposes of the Convention to be disregarded. Even though UNCLOS seems to have an extensive legislation and grand goals regarding the protection of the marine environment, studies suggest and highlights that the problem of plastic waste pollution is not under control but rather increases with time. United Nations Environment Programme (UNEP) states that more than 8 million tonnes of plastic waste leaks into the ocean each year, which is equal to a garbage truck of plastic waste every minute of the day.²⁰ The European Commission also stated in their report “Plastic waste: Ecological and Human Health Impacts” that plastic waste in the oceans is in fact a growing concern, despite the legislative matters that are in place.²¹

Thus, despite current international conventions meant to protect the marine environment the problem of plastic pollution of the seas progresses and from a global perspective, this threatens both future human and marine life if this trend continues. There is an urgent need to strengthen international laws and more clearly define the responsibilities for action both internationally and nationally. A problem with international law, not only from an environmental aspect, is the issue with enforcement upon the states. Even if there are Commissions and Tribunals, there is no “One Authority” to ensure that the state parties follow the Convention, as well as there is no sanction if the Convention is breached, other

²⁰ UNEP, *UN Declares War on Ocean Plastic*, UN ENVIRONMENT, <<http://www.unep.org/newscentre/un-declares-war-ocean-plastic>> Accessed on: Oct. 8, 2017, 09.15 AM

²¹ European Commission, *Plastic Waste: Ecological and Human Health Impacts*, SCIENCE FOR ENVIRONMENT POLICY, 1, 1, 2011.

than possible public shame. It has been argued extensively that the problem with enforcement on an international level is one of the failures of international law we have today. Because of the problem with enforcement of international laws and in this case, the enormous amount of responsibility given to the states, there needs to be a change within the national legislation of states in order to prevent the issue from further deterioration.

FUTURE PREDICTIONS AND SUGGESTIONS

As of now, it has been predicted that unless there is a collective change in the way in which we handle out plastic waste, the amount of plastic and micro plastic in oceans and seas will only increase.²² According to studies by the UNEP, at the rate plastic waste is being dumped now, by 2050 oceans will carry more plastic than fish and around 99% of seabirds will by then have ingested plastic.²³ Not only will this continue to harm and endanger species of the environment but also affect the overall human health as we use the water and ingest the contaminated fish.²⁴ The UNEP has on the 23rd of February this year launched their “Clean Seas Campaign” urging governments to pass plastic reduction policies which are targeting industry to minimize plastic packaging and redesign products as well as the consumers and how to change their throwaway habits.²⁵

Erik Solheim, Head of UN Environment has said that “It is past time that we tackle the plastic problem that blights our oceans. Plastic pollution is surfing onto Indonesian beaches, settling onto the ocean floor at the North Pole, and rising through the food chain onto our dinner tables. We’ve stood by too long as the problem has gotten worse. It must stop. In order to tackle this problem I believe there are some areas that need to be targeted by states nationally. The issue of plastic waste pollution needs to be addressed both from a political, jurisdictive, financial and educational perspective.

Firstly, the backbone of any nation and its sovereignty is the political agenda and stance in issues. The political and judicial agenda are very much related and will thus be discussed together. Many countries have moved towards more environmentally friendly governments. However, the environmental problems do not get the sufficient attention needed to create practical resolutions to the problem. An example of a government policy with an aim to decrease the use of plastic is a treaty that came into force 13th of December 2016 in Sweden. This treaty imposes a strict responsibility for shops and shop owners to inform the customer of the negative environmental effect of using plastic bags.²⁶ This has resulted in that many large companies, such as H&M, have decided to charge the customer an extra fee if they want

²² United Nations, *UNCLOS at 30*, United Nations Convention on Law of the Sea, 1, 7, 2012.

²³ UNEP, *UN Declares War on Ocean Plastic*, UN ENVIRONMENT, (Oct. 12, 2017, 08.55 AM)

²⁴ European Commission, *Plastic Waste: Ecological and Human Health Impacts*, SCIENCE FOR ENVIRONMENT POLICY, 4, 4, 2011.

²⁵ UNEP, *UN Declares War on Ocean Plastic*, UN ENVIRONMENT, (Oct. 12, 2017, 09.15 AM)

²⁶ Svensk Handel, *Nya regler kring plastkassar*, SVENSK HANDEL, <<http://www.svenskhandel.se/verksam-i-handeln/radgivning/plastkassar/>> Accessed on: Oct. 14, 2017, 08.30 PM

a plastic bag for their purchase. The purpose is to change the consumer's attitude towards less use of plastic bags and awareness of the throw-away culture it maintains. The aim is thus to reduce the use of plastic bags per person in Sweden to a maximum of 40 bags a year.²⁷ If more policies restricting the use of plastic bags or mandating requirements for shops to openly inform their customers about the environmental problem with plastic waste pollution, the attitude towards the issue will hopefully turn towards a more positive direction.

Secondly, the financial approach is one that can be problematic when discussing as there is not "one united economic situation", meaning that states have very differing economic resources and possibilities. It is understandable that in poorly developed countries where there is possible famine, low levels of education and a large poor population, environmental issues might not have a key focus. However, there are possible ways to increase the improvement of the environmental standards by creating monetary incentives. An example of this is the state funded recycling-mechanisms that occur in Sweden. Plastic bottles are handled into state-owned recycling stations and for each plastic bottle a small amount is paid back on returning the bottle. This provides both a monetary incentive to recycle the plastic bottles and by that avoiding unnecessary littering. This incentive has made Sweden into one of the most successful states to recycle used bottles and cans with 1.6 billion cans and bottles being handed in for recycling each year.²⁸ In states where economic assistance for environmental issues such as plastic waste pollution is a possibility there should be an incentive to increase the subsidization and an aim to do so. The financial means needed to help clean the oceans and seas are huge but need to receive a much larger focus, international funding may potentially be necessary. Ocean pollution by plastics needs to be acknowledged as a serious global problem that needs action now and not in the future.

Finally, and what I believe to be a key-aspect in the battle of environmental issues relating to the plastic waste pollution of the seas, is education and an altered attitude of the people. This can be provided on different levels, starting at home with parental guiding, continued in schools and throughout life. We need to educate children from early age of the impacts of littering and the consequences on the global environment in general and marine environment in particular. For instance, on a national level, both radio and TV campaigns are options to increase the awareness of the consequences of global pollution. The world needs a change in the mind-set of how we view environmental issues, not as something occurring distant and far away, but a collective responsibility in that every small action counts and that we all share the same planet.

CONCLUSION

²⁷ Ibid.

²⁸ Panta Mera, *BURK & PET*, PANTAMERA <<http://pantamera.nu/pantsystem/fakta/burk-pet/>> Accessed on: Oct. 14, 2017 11.10 PM

Plastic waste pollution of the seas is a growing and serious environmental problem and has been shown to have deleterious effects on marine wildlife and has started to move up into the human food chain, putting us at risk of serious harm. It is projected that this vicious circle will continue without a serious action plan. The United Nations Conference on Law of the Sea (UNCLOS), has protection and preservation of marine environment as one of the key goals. However, it can view as being insufficient as it allows the state parties much freedom of enforcement without specific goals or aims. The always present issue with enforcement on an international level is a challenge that UNCLOS experiences as well. Despite the existing convention, the lack of proper enforcement mechanisms leaves it up to the states to be responsible and ensure that the marine environment is kept safe. There are several possible ways that states can approach the problem, depending on their political ability and financial systems. The issue of plastic waste pollution needs to be addressed not only from a political and jurisdictive, but also from a financial and educational perspective in order to change this dangerous development.