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Fish Don't Litter in Your House: Is International Law the Solution to the Plastic Pollution Problem?

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FISH DON'T LITTER IN YOUR HOUSE: IS INTERNATIONAL LAW THE SOLUTION TO THE PLASTIC POLLUTION PROBLEM?

Taylor G. Keselica*

“Limitless and immortal,
the waters are the beginning and end
of all things on earth.”

- Heinrich Zimmer¹

ABSTRACT

This article addresses the complex issue of plastic pollution—focusing on ocean plastics. Specifically, this article examines the ocean plastics problem, critiques current binding and non-binding international environmental law surrounding ocean plastics, hazardous wastes, and pollution, and proposes a more effective solution to the ocean plastics problem. Section I provides a basic history of the creation of plastics and discusses plastics as they are used today. Section II considers the concerns surrounding ocean plastics, focusing on impacts of plastic on marine ecosystems as well as human health effects. Section III, IV, and V discuss the ongoing attempts to address the ocean plastics problem. Sections III and IV provide a brief overview of individualized and domestic attempts at addressing the ocean plastics problem, while Section V discusses attempts at addressing the problem at a global level. Section V specifically discusses the United Nations Convention on the Law of the Sea, the Basel

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¹ Sailors for the Sea (@SailorsforSea), TWITTER, (June 23, 2017, 7:28 AM), <https://twitter.com/SailorsforSea/status/878213059059253248>.

Convention, and the United Nations resolutions on marine plastics and microplastics in marine environments. Section VI proposes a solution to the issue of ocean plastics: a binding international treaty requiring all parties to take measures to address the ocean plastics problem by mandating the phasing out of all plastics with timetables for compliance; mandating consumption habits; directing countries to focus on alternative renewable resources; and requiring countries to repurpose recycling facilities. Section VI also proposes the treaty include: a clean-up fund; incentives for countries who ratify the treaty, in accordance with the General Agreement on Tariffs and Trade; the principle of common but differentiated responsibilities; the precautionary principle; and strict enforcement mechanisms for noncompliance. Finally, Section VII summarizes the main points of this article regarding the necessity of a plastics treaty.

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I. HISTORY OF PLASTIC

Human history has always revolved around the use of natural materials for human benefit.² Society regarded the introduction of plastics in the 1800s as an extreme benefit to humans and a saving grace for the environment.³ However, the first forms of plastic still used natural items—rubber, galalite, collagen, and nitrocellulose—with inherent plastic-like properties.⁴ Polyvinyl chloride (PVC) was also created in the mid-to-late-1800s as one of the first plastics discovered and was composed of synthetic polymers and natural items.⁵ It was not until the creation of another form of plastics—celluloids—that humans no longer needed to rely on certain natural elements for their needs.⁶

In the early 1900s, a new form of plastic not requiring the use of any molecule found in nature—Bakelite, “the first fully synthetic plastic”—was created.⁷ With this development came the creation of even more new forms of plastic.⁸ The plastic industry once again expanded during World War II as the United States’ use of plastics became an important contribution to its military successes.⁹

² See *History of Plastics, Plastics: a story of more than 100 years of innovation*, PLASTICSEUROPE, <https://www.plasticseurope.org/en/about-plastics/what-are-plastics/history> (last visited Dec. 15, 2020), for a discussion on the historical uses of natural materials with “intrinsic plastic properties,” including shellac and chewing gum as early forms of plastic.

³ See *History and Future of Plastics*, SCI. HIST. INST., <https://www.science-history.org/the-history-and-future-of-plastics> (last visited Dec. 15, 2020), which praises the creation of cellulose as being “the savior of the elephant and the tortoise” because it provides a better substitute for imitating “natural substances like tortoiseshell, horn, linen, and ivory.”

⁴ *History of Plastics*, *supra* note 2.

⁵ *Id.*; see also *Polyvinyl Chloride*, PLASTICSEUROPE, <https://www.plasticseurope.org/en/about-plastics/what-are-plastics/large-family/polyvinyl-chloride> (last visited Dec. 15, 2020) (listing the natural items used in PVC, including salt and oil or gas).

⁶ See *History and Future of Plastics*, *supra* note 3, which describes the creation of cellulose as “revolutionary” because it “was not constrained by the limits of nature[,]” like resources such as “wood, metal, stone, bone, tusk, and horn . . . [were and it] could protect the natural world from the destructive forces of human need.”

⁷ *Id.*

⁸ *Id.*

⁹ See *id.* (stating that plastics such as “[n]ylon[were] invented . . . as a synthetic silk . . . used during the war for parachutes, ropes, body armor,

Plastic's popularity continued to grow after World War II due to its versatility, resistance, lightweight design, and cost-effectiveness.¹⁰ At that time, society regarded plastic as a benefit to the environment and to public health and safety.¹¹ Reliance on plastic was so prevalent amongst this era that the era became known as “the age of disposability.”¹² This disposability phrasing is a direct result of the reliance on Tupperware's prominent use by housewives for a “[m]ore [c]arefree [l]ife[.]” since Tupperware was able to be thrown in the trash, minimizing household cleanup.¹³

Since the 1950s, global plastic production has reached over 8.3 billion tons.¹⁴ There are now seven different plastic materials in existence.¹⁵ The fact that there exists a variety of synthetic plastic materials makes it unsurprising that plastic is found in a multitude of consumer products. For example, soda cans and disposable coffee cups are lined with different plastics to prevent corrosion and leakage of liquids, well-known brands' consumer tea bags are sealed with plastics, and sunscreens and other beauty products—such as exfoliators, cleansers, body washes and body gels—contain microbeads.¹⁶ Additionally,

helmet liners, and more”).

¹⁰ Hannah Ritchie & Max Roser, *Plastic Pollution*, OUR WORLD IN DATA (Sept. 2018), <https://ourworldindata.org/plastic-pollution>.

¹¹ See *id.*, for a discussion on plastic's beneficial uses in the fields of food quality and safety and food waste reduction; see also *Plastic Pollution*, NAT'L GEOGRAPHIC, https://www.nationalgeographic.org/topics/resource-library-plastic-pollution/?q=&page=1&per_page=25 (last visited Dec. 15, 2020), for a discussion on plastic's beneficial uses in the fields of medicine and public safety.

¹² TOM SZAKY & ALBE ZAKES, MAKE GARBAGE GREAT 23 (2015).

¹³ *Id.* The authors refer to an article featured in the October 1947 issue of *House Beautiful* magazine, highlighting Tupperware “as the ultimate answer to the prayers of housewives everywhere.” *Id.*

¹⁴ *Our planet is drowning in plastic pollution: This World Environment Day, it's time for a change*, UN ENV'T, <https://www.unenvironment.org/interactive/beat-plastic-pollution/> (last visited Dec. 5, 2020) [hereinafter *Our planet is drowning in plastic pollution*].

¹⁵ TOM SZAKY, OUTSMART WASTE: THE MODERN IDEA OF GARBAGE AND HOW TO THINK OUR WAY OUT OF IT 96–98 (2014). The seven categories of plastics existing today are polyethylene terephthalate (PET), high-density polyethylene (HDPE), polyvinyl chloride (PVC), low-density polyethylene (PE-LD), polypropylene (PP), polystyrene (PS), and an “other” category, which includes products such as contact lenses and DVDs. *Id.*

¹⁶ Ben Verpaalen, *It's everywhere! Did you know these five everyday*

cigarette butts, chewing gum, menstrual tampons and pads, books, sneakers, and clothing all contain some form of plastic material.¹⁷ The above list is non-exhaustive and only provides an illustration of the vast number of products, once plastic-free, now containing harmful plastic substances.

Products consisting mostly or partly of plastics, such as those listed above, are among those considered to be “crude products”—products not predominantly designed for human and ecological health—and are, instead, “unintelligent and inelegant.”¹⁸

II. CONCERNS SURROUNDING OCEAN PLASTICS

Evidence shows that approximately 300 million tons of plastic waste is generated each year; more than half of which finds its way into landfills or the natural environment.¹⁹ This evidence dates back to the 1960s when concerns surrounding plastic’s impact on the environment began.²⁰ Specifically, concerns for the marine environment are prevalent today due to the fact that approximately eight million tons of plastic ends up in the oceans each year.²¹ This ocean plastics problem is partially caused by land-based commercial and recreational sources,²² as

products contain plastic?, ENV’T INVESTIGATION AGENCY (Dec. 18, 2018), <https://eia-international.org/blog/everywhere-know-five-everyday-products-contain-plastic/>; Ashley Lutz & Erin Brodwin, *Your face wash could contain an ingredient that’s killing fish and turtles*, BUS. INSIDER (May 26, 2015), <https://www.businessinsider.com/products-that-contain-microbeads-2015-5>.

¹⁷ Tom Bawden, *Revealed: The everyday products that contain ‘invisible’ plastic*, I NEWS, <https://inews.co.uk/news/environment/revealed-the-everyday-products-that-contain-invisible-plastic-268483> (Oct. 9, 2020, 12:14 PM); Alejandra Borunda, *How tampons and pads became so unsustainable*, NAT’L GEOGRAPHIC (Sept. 6, 2019), <https://www.nationalgeographic.com/environment/2019/09/how-tampons-pads-became-unsustainable-story-of-plastic/>; Alejandra Borunda, *Your shoes are made of plastic. Here’s why.*, NAT’L GEOGRAPHIC (Oct. 18, 2019), <https://www.nationalgeographic.com/science/2019/10/shoes-sneakers-plastic-problem/>; WILLIAM McDONOUGH & MICHAEL BRAUNGART, CRADLE TO CRADLE: REMAKING THE WAY WE MAKE THINGS 58 (2002).

¹⁸ William McDonough & Michael Braungart, *What’s Really in the Products We Use Every Day?*, GLOBALIST (July 19, 2010), <https://www.theglobalist.com/whats-really-in-the-products-we-use-every-day/>.

¹⁹ *Our planet is drowning in plastic pollution*, *supra* note 14.

²⁰ *History and Future of Plastics*, *supra* note 3.

²¹ *Our planet is drowning in plastic pollution*, *supra* note 14.

²² *Plastic Pollution*, SURFRIDER FOUND., <https://www.surfrider.org/initiatives/plastic-pollution> (last visited Dec. 15, 2020).

plastic wastes are carried into the oceans through rivers—some of which carry these plastic wastes from deep inland.²³ Particularly, 90% of plastic wastes in the oceans come from only ten rivers globally.²⁴ The concern for plastic production and plastic waste's negative impacts on the marine environment continues to grow as more evidence emerges showing plastics unceasingly floating in the oceans.²⁵

The term “plastic pollution” is defined as the “accumulation in the environment of synthetic plastic products to the point where they create problems for wildlife and their habitats as well as for human populations.”²⁶ While some organizations define plastic pollution simply as “plastic where it shouldn't be[,]”²⁷ other organizations instead use the phrase “marine debris” to encompass, among other things, plastics that are lost or discarded and enter the marine environment.²⁸ Plastic pollution's threatening effects are widely recognized amongst these organizations for its negative impacts on marine species, human health, food safety and quality, coastal tourism, and climate change.²⁹

Ocean plastics are routinely publicized in news media outlets, further demonstrating reasonable concerns for marine life and human health.³⁰ Recent news articles evidence the tragedy

²³ *Our planet is drowning in plastic pollution*, *supra* note 14.

²⁴ *Id.* The biggest river contributors to the ocean plastics problem are the Yangtze River, the Indus River, the Yellow River, the Hai He River, the Nile River, the Meghna, the Brahmaputra, the Ganges River, the Pearl River, the Amur River, the Niger River, and the Mekong River. *Id.*

²⁵ *History and Future of Plastics*, *supra* note 3.

²⁶ Charles Moore, *Plastic Pollution*, BRITANNICA, <https://www.britannica.com/science/plastic-pollution> (Oct. 15, 2020).

²⁷ *Plastic Pollution – Facts and Figures – What is plastic pollution?*, SURFERS AGAINST SEWAGE, <https://www.sas.org.uk/our-work/plastic-pollution/plastic-pollution-facts-figures/> (last visited Dec. 15, 2020).

²⁸ Marine Debris Program Office of Response and Restoration, *Discover the Issue: What is marine debris?*, NAT'L OCEANIC AND ATMOSPHERIC ADMIN., <https://marinedebris.noaa.gov/discover-issue> (last visited Dec. 15, 2020).

²⁹ *Issues Brief, Marine Plastics*, INT'L UNION FOR CONSERVATION OF NATURE, <https://www.iucn.org/resources/issues-briefs/marine-plastics> (last visited Dec. 15, 2020).

³⁰ Melissa Locker, *Undersea explorer goes deeper than any solo diver in history and finds plastic*, FAST COMPANY (May 13, 2019), <https://www.fastcompany.com/90348918/a-deep-sea-diver-found-plastic-at-the-bottom-of-the->

of plastics, not just on the surface, but also in the greatest depths of the ocean.³¹ Documentation reveals that plastic was found in the Mariana Trench three times—one of which was a plastic shopping bag, found 36,000 feet below the ocean's surface.³² Having one of the higher levels of overall pollution, researchers theorize that the breakdown of plastics in the ocean contributed to the Mariana Trench's high chemical pollution levels affecting the trench's marine life.³³

In addition, scientific studies are frequently produced that shed light on the concerns surrounding ocean plastics.³⁴ A particular area of concern is what is currently known as “The Great Pacific Garbage Patch,” which is located in the Pacific Ocean between Hawaii and California.³⁵ Researchers note that there is currently a minimum of 87,000 tons of plastic debris floating in the ocean as of 2018, which will eventually fragment into small particles, such as microplastics, sparking serious concern for marine life.³⁶

A. *Effects of Ocean Plastics on Marine Ecosystems*

The concern that plastics, once created, remain in the environment forever, has led to global concern for marine ecosystems, as noted above.³⁷ Among these concerns are concerns for marine organisms, such as fish and turtles, becoming entangled in fishing gear made entirely of plastic.³⁸ Hitchhiking—when a

mariana-trench; Sarah Gibbens, *Plastic proliferates at the bottom of world's deepest ocean trench*, NAT'L GEOGRAPHIC (May 13, 2019), <https://www.nationalgeographic.com/news/2018/05/plastic-bag-mariana-trench-pollution-science-spd/#close>; Livia Albeck-Ripka, *The 'Great Pacific Garbage Patch' Is Ballooning, 87,000 Tons of Plastic and Counting*, N.Y. TIMES (Mar. 22, 2018), <https://www.nytimes.com/2018/03/22/climate/great-pacific-garbage-patch.html>.

³¹ Locker, *supra* note 30; Gibbens, *supra* note 30; Albeck-Ripka, *supra* note 30.

³² Gibbens, *supra* note 30.

³³ *Id.*

³⁴ See L. Lebreton et. al., *Evidence that the Pacific Garbage Patch is Rapidly Accumulating Plastic*, SCI. REP., Mar. 22, 2018, at 1, 1–2, 7–13, for details regarding the amount of plastic in the Pacific Ocean.

³⁵ *Id.* at 1–2; Albeck-Ripka, *supra* note 30.

³⁶ Albeck-Ripka, *supra* note 30.

³⁷ *History and Future of Plastics*, *supra* note 3.

³⁸ Bethanie Carney Almroth & Håkan Eggert, *Marine Plastic Pollution*:

marine organism becomes attached to or floats throughout the water with plastics—results in the loss of marine ecosystems and encourages the introduction of invasive species in that ecosystem.³⁹ Specifically, plastic pollution is linked to harmful algal bloom species, viruses, microbial communities, and changes to genetic diversity, and contributes to the redistribution of harmful substances and the alteration of ecosystems and how they function.⁴⁰

Microplastics are commonly linked to concerns for marine life and are also commonly studied, showing that exposure to microplastics is irreversible.⁴¹ Primary microplastics are typically less than five millimeters in diameter and are “manufactured for industrial and domestic purposes”⁴² Secondary microplastics, on the other hand, are those plastics that break down from larger forms of plastic.⁴³ These secondary microplastics are of particular concern because marine life confuse them for food sources and consume them, causing them to enter the food chain.⁴⁴

Recent studies show that microplastics have been found in “100% of turtles, 66% of marine mammals, and 50% of seabirds”⁴⁵ Effects of ingestion on marine organisms include changes in nutrient cycles and food chains, changes in bacterial communities, endocrine disruption, developmental disorders, and

Sources, Impacts, and Policy Issues, 13 REV. ENV'T. ECON. & POL'Y 317, 319 (2019).

³⁹ *Id.*; Patricia Villarrubia-Gómez, Sarah E. Cornell & Joan Fabres, *Marine Plastic Pollution as a Planetary Boundary Threat – The Drifting Piece in the Sustainability Puzzle*, 96 MARINE POL'Y 213, 215 (2018).

⁴⁰ Villarrubia-Gómez, Cornell & Fabres, *supra* note 39, at 215.

⁴¹ *Id.*

⁴² Jil Sheth & Dhvanil Shah, *Marine Pollution from Plastics and Microplastics*, 8 J. MARINE BIOLOGY & OCEANOGRAPHY 1, 1 (2019).

⁴³ *Id.*

⁴⁴ Shaoliang Zhang et. al., *Microplastics in the Environment: A Review of Analytical Methods, Distribution, and Biological Effects*, 111 TRENDS IN ANALYTICAL CHEMISTRY 62, 70 (2019); *see also* Jia-Qian Jiang, *Occurrence of Microplastics and its Pollution in the Environment: A Review*, 13 SUSTAINABLE PROD. & CONSUMPTION 16, 18 (2018) (diagramming the potential pathways microplastics may be transported in marine environments, including ingestion of primary and secondary plastics by fish and zooplankton).

⁴⁵ Zhang et al., *supra* note 44, at 70.

reproductive abnormalities.⁴⁶ This ingestion also creates the likely accumulation and introduction of “biological toxins and chemicals in the food chain” which can “result[] in unpredictable ecological effects for bioaccumulation and biomagnification of the toxic pollutants in[marine] organisms.”⁴⁷

B. Effects of Ocean Plastics on Human Populations

As stated above, research indicates that microplastics are in water and food sources that humans consume—most prominently, seafood.⁴⁸ Studies show that human exposure to microplastic particles increases toxicity in the body, creating human health threats.⁴⁹ Possible human health effects include diseases from ingestion of microplastics through not only food, but also through air and beverages.⁵⁰

Further, plastics-related human health threats raise concerns of additives, such as bisphenol A (BPA), leaching into food, water, and the human body.⁵¹ An illustration of this is seen in PVC plastics.⁵² Scientists conducted a study from 2009-2010 to illustrate the prevalence of BPA and other harmful plastics in urine samples.⁵³ As a result, this toxicity in human cells can cause threats to human health such as inflammation, genotoxicity, oxidative stress, apoptosis, neurosis, tissue damage, fibrosis, and cancer.⁵⁴

In addition, crude plastic products contribute to increased average indoor air quality contamination.⁵⁵ In fact, indoor air

⁴⁶ Almroth & Eggert, *supra* note 38, at 319.

⁴⁷ Jiang, *supra* note 44, at 18.

⁴⁸ DAVID AZOULAY ET AL., *PLASTIC & HEALTH: THE HIDDEN COSTS OF A PLASTIC PLANET* 52 (Amanda Kistler ed., 2019).

⁴⁹ *Id.*

⁵⁰ *Id.* at 61. Endocrine disruption, cancer, reproductive abnormalities, and developmental disorders are all diseases related to the accumulation of microplastics in the human body. *Id.*

⁵¹ *History and Future of Plastics*, *supra* note 3.

⁵² McDONOUGH & BRAUNGART, *supra* note 17, at 5 (“If [a product is] made of PVC plastic, there[i]s a good chance it contains phthalates . . . along with toxic dyes, lubricants, antioxidants, and ultraviolet-light stabilizers.”).

⁵³ AZOULAY ET AL., *supra* note 48, at 35.

⁵⁴ *Id.* at 40.

⁵⁵ McDONOUGH & BRAUNGART, *supra* note 17, at 39.

quality contamination levels due to crude household plastic products are recorded as being higher than outdoor air quality contamination levels.⁵⁶ These elevated indoor air quality contamination levels are “suspected to cause cancer in humans at levels higher than those that would ‘trigger a formal risk assessment’”⁵⁷ Other indoor air quality contamination-related health concerns include “[a]llergies, asthma and ‘sick building syndrome.’”⁵⁸

III. ADDRESSING THE OCEAN PLASTICS PROBLEM AT THE INDIVIDUAL LEVEL

As the environmental movement grows, momentum for the opposition of single-use plastics becomes ever more prominent.⁵⁹ Private and public organizations are increasingly being created worldwide with the hope of addressing the issue of ocean plastic pollution; among these organizations are the Surfrider Foundation, the Earth Day Network Campaign, 4Ocean, The Ocean Cleanup, Global Water Girls, the Center for Biological Diversity, Our Ocean, and more.⁶⁰

The Surfrider Foundation is focused on reducing plastic’s negative impacts on the marine environment, raising awareness of plastic pollution dangers, and advocating for single-use plastic

⁵⁶ *Id.*

⁵⁷ *Id.* (quoting Wayne R. Orr & John W. Roberts, *Everyday Exposure to Toxic Pollutants*, 278 SCI. AM. 85, 90 (1998)).

⁵⁸ *See id.* at 39–40 (defining “[s]ick building syndrome” as a “condition affecting office workers, typically marked by headaches and respiratory problems, attributed to unhealthy or stressful factors in the working environment such as poor ventilation”).

⁵⁹ *History and Future of Plastics*, *supra* note 3.

⁶⁰ *Plastic Pollution*, *supra* note 22; *Campaigns – End Plastic Pollution*, EARTH DAY NETWORK, <https://www.earthday.org/campaign/end-plastic-pollution/> (last visited Dec. 15, 2020); *Our Impact: Cleaning the ocean, rivers, and coastlines, one pound at a time*, 4OCEAN, <https://www.4ocean.com/pages/our-impact> (last visited Dec. 15, 2020); People Places Planet Podcast, *Environmental Disruptors: Global Water Girls*, ENV’T L. INST. (Sept. 18, 2019), <https://www.eli.org/podcasts>; THE OCEAN CLEANUP, <https://theocean-cleanup.com/> (last visited Dec. 15, 2020); *Campaigns – Ocean Plastics Pollution: A Global Tragedy for Our Oceans and Sea Life*, CTR. BIOLOGICAL DIVERSITY, https://www.biologicaldiversity.org/campaigns/ocean_plastics/ (last visited Dec. 15, 2020); *Areas of Action*, OUR OCEAN, <https://ourocean2019.no/areas-of-action/> (last visited Dec. 15, 2020).

reduction and recycling.⁶¹ The Earth Day Network Campaign focuses on “changing human attitudes . . . and behavior” surrounding plastics and accelerating substantial plastic pollution reduction.⁶² The 4Ocean organization engages in ocean and coastline cleanup efforts while also encouraging changes in consumption habits.⁶³

The Ocean Cleanup is an organization that is known for being “the largest [ocean] cleanup in history,” developing advanced technologies to achieve its goal to clean up 90% of all ocean plastics.⁶⁴ The Global Water Girls organization is also focused on using technology to clean up ocean plastics.⁶⁵ Specifically, Global Water Girls uses technology validation by diverting plastics away from the ocean and converting these plastics into sources of energy for use by wastewater treatment plants.⁶⁶

The Center for Biological Diversity and Our Ocean take a more legal approach and seek to establish policies to improve the outlook of ocean plastics.⁶⁷ The approach taken by the Center for Biological Diversity focuses not only on stopping plastic pollution at the source before it reaches the oceans, but also on petitioning government agencies, such as the United States Environmental Protection Agency, to initiate plastic pollution regulation.⁶⁸ Our Ocean focuses on policy, technology, finance, and governance to obtain effective solutions to the ocean plastics problem.⁶⁹

⁶¹ *Plastic Pollution*, *supra* note 22.

⁶² *Campaigns – End Plastic Pollution*, *supra* note 60.

⁶³ *Our Impact: Cleaning the ocean, rivers, and coastlines, one pound at a time*, *supra* note 60.

⁶⁴ THE OCEAN CLEANUP, *supra* note 60.

⁶⁵ People Places Planet Podcast, *supra* note 60, at 7:02.

⁶⁶ *Id.* at 9:58.

⁶⁷ *Areas of action*, *supra* note 60; *Campaigns – Ocean Plastics Pollution: A Global Tragedy for Our Oceans and Sea Life*, *supra* note 60.

⁶⁸ *Campaign – Ocean Plastics Pollution: A Global Tragedy for Our Oceans and Sea Life*, *supra* note 60.

⁶⁹ *Areas of action*, *supra* note 60.

IV. ADDRESSING THE OCEAN PLASTICS PROBLEM AT THE DOMESTIC LEVEL

Domestic governments are also taking a stance on plastics reduction.⁷⁰ State and local governments within the United States are making efforts to reduce plastic by banning single-use plastic bags.⁷¹ The city of South Portland in Maine, for example, placed a fee of five cents on single-use plastic bags—effective March 1, 2016—with enforcement mechanisms for noncompliance on behalf of retailers.⁷² Connecticut is also making efforts to reduce single-use plastics by placing a fee on all consumer carry-out bags at stores across the state in an attempt to reduce plastic bag consumption.⁷³ In addition, New York State recently passed a bill banning plastic bags—effective March 1, 2020—and is deciding whether to also ban plastic straws in restaurants, unless requested by customers.⁷⁴

At the federal level, plastics-related legislation was recently drafted for the very first time in the United States.⁷⁵ Six months after being introduced in the Senate, the Save Our Seas 2.0 Act passed the Senate by a voice vote in January 2020 and is currently being presented to the President for consideration.⁷⁶ The main purpose of the bill is to “improve efforts to combat marine debris,” with the intent “to reduce plastic pollution in the environment, namely waterways”⁷⁷ Other countries are passing plastics-related legislation, as well. The National Green Tribunal in India, for example, imposed a ban on disposable plastics in its capital city as a result of illegal mass plastic burning and

⁷⁰ *History and Future of Plastics*, *supra* note 3.

⁷¹ *Id.*

⁷² *Reusable Bag Ordinance*, CITY OF S. PORTLAND, <https://www.southportland.org/departments/sustainability-office/single-use-carry-out-bags/> (last visited Dec. 12, 2020) (discussing Ordinance #3-15/16); *see also Reusable Bag Ordinance Frequently Asked Questions*, CITY OF S. PORTLAND, https://www.southportland.org/files/2314/4355/3547/FAQs_Reusable_Bag_Ordinance.pdf (last visited Dec. 12, 2020) (noting noncompliance from retailers will result in fines).

⁷³ CONN. GEN. STAT. ANN. § 22a-246a (West 2019).

⁷⁴ N.Y. ENV'T CONSERV. LAW § 27-2803 (McKinney 2020).

⁷⁵ Save Our Seas 2.0 Act, S. 1982, 116th Cong. (2019).

⁷⁶ *Id.*

⁷⁷ *Id.*; Katie Pyzyk & E.A. Crunden, *Senate passes ‘Save Our Seas 2.0’ bill focused on plastic waste*, WASTEDIVE, <https://www.wastedive.com/news/save-our-seas-act-plastics-congress/564108/> (Jan. 13, 2020, 9:54 AM).

dumping.⁷⁸ Effective January 1, 2017, the ban encompasses *all* forms of disposable plastic—including plastic bags, plastic utensils, and chai cups.⁷⁹

V. ADDRESSING THE OCEAN PLASTICS PROBLEM AT THE GLOBAL LEVEL

Member States are pushing for the United Nations Environment Assembly (UNEA) to promulgate new resolutions addressing plastic pollution and microplastics in oceans that provide a timetable for ocean plastics reduction.⁸⁰ Meanwhile, the International Union for Conservation of Nature (IUCN) advocates for exploration of the use of existing legally binding international laws.⁸¹

A. *Necessity for International Cooperation*

Addressing plastic pollution and ocean plastics through a binding international treaty is necessary for taking adequate steps to curb the ocean plastics problem. No international treaty currently exists that solely addresses plastics; no treaty currently implemented imposes regulations specifically on plastic manufacturing, use, or disposal with strong language and enforcement mechanisms. To the contrary, existing resolutions addressing marine plastics do exist;⁸² however, these resolutions are non-binding and do not hold weight.⁸³

⁷⁸ Shreya Kalra, *All Forms of Disposable Plastic Banned In Delhi-NCR!*, INDIA TIMES, <https://www.indiatimes.com/news/india/all-forms-of-disposable-plastic-banned-in-delhi-ncr-270237.html> (Jan. 25, 2017, 5:46 AM); Alex Gray, *India has banned all forms of disposable plastic in its capital*, WORLD ECON. F. (Mar. 13, 2017), <https://www.weforum.org/agenda/2017/03/india-bans-disposable-plastic-in-delhi/>.

⁷⁹ Kalra, *supra* note 78; Gray, *supra* note 78.

⁸⁰ See Tom Embury-Dennis, *UN resolution calling for targets to tackle ocean plastic waste rejected by US, China and India*, INDEP. (Dec. 7, 2017), <https://www.independent.co.uk/environment/un-ocean-plastic-waste-resolution-us-china-india-reject-pollution-sea-united-nations-environment-a8095541.html>, which notes a demand for a reduction target, implemented in the form of a timetable, rather than solely focusing on “long-term elimination” of ocean plastics.

⁸¹ *Issues Brief, Marine Plastics*, *supra* note 29.

⁸² Ruby Russell, *UN resolves to end ocean plastic waste*, DW (July 12, 2017), <https://www.dw.com/en/un-resolves-to-end-ocean-plastic-waste/a-41690999>.

⁸³ *Id.*

Additionally, as mentioned below, existing treaties that discuss pollution generally, or disposal of hazardous wastes generally, do not provide a necessary, effective, or adequate remedy for addressing the ocean plastics problem at the global level.⁸⁴ Therefore, an international plastics treaty is the preferred mechanism for addressing environmental issues caused by ocean plastics. Below is an in-depth discussion regarding existing international mechanisms that address ocean plastics and plastic pollution, directly and indirectly, followed by a discussion of why these mechanisms, as they stand, are ineffective in addressing the ocean plastics problem.

B. Existing International Law Targeting the Ocean Plastics Problem

This section looks at existing international environmental mechanisms that touch upon the issue of ocean plastics—specifically discussing existing international environmental treaties and United Nations (UN) resolutions addressing ocean plastics. This section addresses these laws by providing an overview of the differences between UN resolutions and treaties, followed by an in-depth discussion regarding their framework and further addresses their lack of feasibility in appropriately and effectively addressing the ocean plastics problem.

i. Resolutions and Treaties Comparison

UN resolutions are “formal expressions of the opinion or will of UN organs.”⁸⁵ Resolutions include both a preamble—a background or reasoning for the resolution—and an operative part—the opinion of the UN body publishing the report, or the resulting actions to be taken.⁸⁶ As previously stated, UN resolutions are not legally binding on Member States.⁸⁷ Instead, they

⁸⁴ See *infra* Sections V.B.1, V.B.2 for a discussion on the vague language of the United Nations Convention on the Law of the Seas and the lack of enforcement mechanisms within the Basel Convention.

⁸⁵ *UN Documentation: Overview – Resolutions & Decisions*, DAG HAMMARSKJÖLD LIB., <https://research.un.org/en/docs/resolutions> (last visited Dec. 15, 2020).

⁸⁶ *Id.*

⁸⁷ *What Did UNEA-4 Do for the Environment?*, IISD (Mar. 26, 2019), <https://sdg.iisd.org/commentary/policy-briefs/what-did-unea-4-do-for-the->

represent the common objectives of Member States, “frame consensus around actions to be taken, and help coordinate development aid and technical assistance” relating to Member States’ international objectives.⁸⁸

A treaty, on the other hand, is a written international agreement between Member States.⁸⁹ Treaties are “governed by international law,” and can either be comprised of one agreement or multiple agreements—such as in the form of protocols or amendments to the treaty.⁹⁰ Treaties are also referred to as agreements, covenants, conventions, or protocols.⁹¹ The body of international law that controls the international treaty process is the Vienna Convention on the Law of Treaties (Vienna Convention).⁹²

The Vienna Convention mandates that Member States may consent to be bound by a treaty in a few ways: “by signature, exchange of instruments constituting a treaty, ratification, acceptance, approval or accession, or by any other means if so agreed.”⁹³ Once a Member State consents to be bound by a treaty, that State becomes a Party to that treaty and must comply with its provisions.⁹⁴

ii. The United Nations Environment Assembly Resolutions Addressing the Ocean Plastics Problem

1. *The United Nations Environment Assembly’s 2016, 2017, and 2018 Resolutions*

UNEA promulgated a resolution addressing marine plastic litter and microplastics in May 2016, recognizing the rapidly increasing “presence of plastic litter and microplastics in the

environment/.

⁸⁸ *Id.*

⁸⁹ Vienna Convention on the Law of Treaties art. 2.1(a), May 23, 1969, 1155 U.N.T.S. 331 [hereinafter Vienna Convention].

⁹⁰ *Id.*

⁹¹ Malcolm Shaw, *Treaty: international relations*, BRITANNICA, <https://www.britannica.com/topic/treaty> (last visited Dec. 15, 2020).

⁹² *See generally* Vienna Convention, *supra* note 89, pmbl.

⁹³ *Id.* art. 11.

⁹⁴ *Id.* art. 2(1)(g).

marine environment” as a “serious issue of global concern” requiring “an urgent global response.”⁹⁵ UNEA released a non-binding draft resolution on marine litter and microplastics again in December 2017 (UNEA-3 Resolution), reaffirming its 2015 resolution, which adopted the 2030 Agenda and stressed the goal of reaching its target of “prevent[ing] and significantly reduc[ing] marine pollution of all kinds”⁹⁶ The UNEA-3 Resolution further recalls its prior resolutions addressing “marine plastic debris and microplastics” and “marine plastic litter and microplastics.”⁹⁷

The UNEA-3 Resolution was criticized for not generating enough Member State support along with the support of private actors and consumers.⁹⁸ However, it did receive praise for raising awareness, identifying relevant actors, requesting more research on plastic pollution, and bringing attention to the need for reducing unnecessary plastic use by consumers and moving toward more environmentally-sound alternatives.⁹⁹

2. *The United Nations Environment Assembly’s 2019 Resolutions*

UNEA’s 2016 to 2018 resolutions led to the current UNEA resolutions, released on March 15, 2019. The first 2019 UNEA resolution—Marine Plastic Litter and Microplastics—“[r]eiterate[s] the importance of a long-term elimination of discharge of litter and microplastics into the oceans and of avoiding

⁹⁵ Environment Assembly Res. 2/11, U.N. Doc. UNEP/EA.2/Res.11, at 2 (Aug. 4, 2016).

⁹⁶ Environment Assembly Draft Res., U.N. Doc. UNEP/EA.3/L.20, at 1 (Dec. 5, 2017) [hereinafter EA Draft Res. 2017] (quoting the 2030 Agenda’s Sustainable Development Goal 14 and its target 14.1); *see also* Russell, *supra* note 82 (noting that “more than 200 countries” adopted the UNEA-3 Resolution “promis[ing] to turn the tide on throwaway plastic packaging that is clogging our oceans and threatening marine ecosystems”).

⁹⁷ EA Draft Res. 2017, *supra* note 96, at 1.

⁹⁸ See Linda Finska, *Did the latest Resolution on Marine Plastic Litter and Microplastics take us any closer to pollution-free oceans?*, NCLOS BLOG (Oct. 1, 2018), <https://site.uit.no/nclos/2018/01/10/did-the-latest-resolution-on-marine-plastic-litter-and-microplastics-take-us-any-closer-to-pollution-free-oceans/>, which states that the resolution provides that Member States, human populations, and private actors must be willing, as a whole, to achieve “better practices to tackle the [ocean plastics] issue.”

⁹⁹ *Id.*

detriment to marine ecosystems and the human activities dependent on them from marine litter and microplastics,” as similarly stated in the previous resolutions.¹⁰⁰ The second UNEA resolution—Addressing Single-Use Plastic Products Pollution—“[w]elcom[es] global efforts to raise awareness of the negative impact of plastic pollution” and “[e]ncourages Member States to develop and implement national or regional actions, as appropriate, to address the environmental impact of single-use plastic products”¹⁰¹

a. The United Nations Environment Assembly’s Marine Plastic Litter and Microplastics Resolution

The objectives of UNEA’s Addressing Marine Plastic Litter and Microplastics resolution are specifically laid out in the resolution. This resolution sets forth the following goals:

1. To call upon Member States and local, national and international governments to address marine litter and microplastics;¹⁰²
2. To request UNEA’s Executive Director to “strengthen scientific and technological knowledge” surrounding marine litter and microplastics through various strategies and to develop guidelines for plastic use and production;¹⁰³
3. To invite Member States and relevant UN, regional and international organizations to:
 - a. Consider their contributions to address marine litter and microplastics;¹⁰⁴
 - b. Create awareness of sustainable consumption and production and its importance;¹⁰⁵ and
 - c. Promote environmentally friendly waste

¹⁰⁰ Environment Assembly Res. 4/6, U.N. Doc. UNEP/EA.4/Res.6, at 1 (Mar. 28, 2019).

¹⁰¹ Environment Assembly Res. 4/9, U.N. Doc. UNEP/EA.4/Res.9, at 1–2 (Mar. 28, 2019).

¹⁰² E.A. Res. 4/6, *supra* note 100, ¶ 1, at 2.

¹⁰³ *Id.* ¶¶ 2(a)–(d), at 2.

¹⁰⁴ *Id.* ¶ 6(a), at 4.

¹⁰⁵ *Id.* ¶ 6(b), at 4.

management processes;¹⁰⁶

4. To invite the Environment Management Group “to engage in and contribute to the work of the ad hoc open-ended expert group on marine litter and microplastics[;]”¹⁰⁷ and
5. To request UNEA’s Executive Director to report to UNEA “on the progress achieved in the implementation of the present resolution.”¹⁰⁸

b. The United Nations Environment Assembly’s
Addressing Single-Use Plastic Products Pollution
Resolution

The objectives of UNEA’s resolution Addressing Single-Use Plastic Products Pollution are also specifically laid out in the resolution and include the following goals:

1. To raise global awareness of plastic pollution’s negative impacts;¹⁰⁹
2. To encourage Member States to “develop and implement” strategies to address environmental concerns arising out of the use of single-use plastics, as well as to encourage Member States to promote the use of “environmentally friendly alternatives to single-use plastic products[;]”¹¹⁰
3. To encourage Member States to adopt legislation and international agreements, to improve waste management infrastructure and practices that support waste minimization and environmentally friendly clean-up activities, to participate in information sharing, and to support innovation;¹¹¹ and
4. To request UNEA’s Executive Director to:
 - a. Fund programs that support Member States’ development and implementation of strategies to address environmental concerns with single-use

¹⁰⁶ *Id.* ¶ 6(c), at 4.

¹⁰⁷ *Id.* ¶ 8, at 4.

¹⁰⁸ *Id.* ¶ 9, at 4.

¹⁰⁹ E.A. Res. 4/9, *supra* note 101, at 1.

¹¹⁰ *Id.* ¶¶ 1–2, at 2.

¹¹¹ *Id.* ¶ 6, at 2.

plastics;¹¹²

- b. Facilitate and coordinate policy support to governments, such as developing countries, that request assistance in sectors and communities that focus on environmental impacts of single-use plastic production and its alternatives;¹¹³ and
- c. Make information available regarding “action already taken by Member States to address plastic pollution” and alternatives.¹¹⁴

c. Ineffectiveness of the United Nations Environment Assembly’s Resolutions

UNEA’s resolutions generated various viewpoints among Member States.¹¹⁵ Some Member States opposed single-use plastic reduction targets, while other Member States hoped for the implementation of national bans on single-use plastics.¹¹⁶ Some Member States expressed a preference for the resolutions to exhibit stronger language and hoped for a more permanent “Open-Ended Working Group” on marine litter.¹¹⁷ Instead, UNEA only renewed the “*Ad Hoc* Expert Group on Marine Litter,” an entity whose role in addressing the ocean plastics problem is only temporary.¹¹⁸

UNEA’s resolutions advanced policy agendas in some areas where global governance is lacking; however, the resolutions did not generate enough consensus to effectively address the ocean plastics problem.¹¹⁹ The resolutions, on their face, do not utilize strict language regarding necessary efforts to be made by Member States.¹²⁰ Further, the UNEA resolutions are not legally binding on Member States.¹²¹ Thus, Member States are not

¹¹² *Id.* ¶ 8(a), at 2.

¹¹³ *Id.* ¶ 8(b), at 2.

¹¹⁴ *Id.* ¶ 8(c), at 2.

¹¹⁵ *What Did UNEA-4 Do for the Environment?*, *supra* note 87.

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ See, for example, E.A. Res. 4/6, *supra* note 100; and E.A. Res. 4/9, *supra* note 101, which exemplify a lack of strict, binding language.

¹²¹ *What Did UNEA-4 Do for the Environment?*, *supra* note 87.

required to comply with these resolutions because there is no enforcement mechanism requiring Member States to do so.¹²²

iii. The United Nations Convention on the Law of the Sea

The United Nations Convention on the Law of the Sea (UNCLOS)—a UN treaty—touches on the issue of pollution.¹²³ Various Member States ratified UNCLOS for the purpose of creating:

[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[.]¹²⁴

Although UNCLOS does not properly address plastic pollution specifically, UNCLOS addresses pollution generally.¹²⁵ Article 194(3) covers “all sources of pollution of the marine environment.”¹²⁶ Article 194(3) further states that measures taken to address pollution “*shall* include . . . (a) the release of toxic, harmful or noxious substances, especially those which are persistent, from land-based sources, from or through the atmosphere or by dumping; [and] (b) pollution from vessels . . . preventing intentional and unintentional discharges”¹²⁷ Although this language reads plastic pollution into Article 194 by using the phrase “*all* sources of pollution[.]” the language is vague and does not specifically state that plastic pollution is prohibited.¹²⁸

¹²² *Id.*

¹²³ U.N. Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, arts. 43, 194–95, 199, 204, 207–22, 277, 1833 U.N.T.S. 397 (entered into force Nov. 16, 1994) [hereinafter UNCLOS].

¹²⁴ *Id.* pmbl. For a list of Member States to the Convention of the Law of the Sea, see *Status of Treaties – Chapter XXI, § 6, Law of the Sea*, UNITED NATIONS TREATY COLLECTION, https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&clang=_en (last visited Dec. 14, 2020).

¹²⁵ *See generally* UNCLOS, *supra* note 123, pmbl (providing general international regulations addressing marine pollution).

¹²⁶ *Id.* art. 194(3).

¹²⁷ *Id.* art. 194(3)(a), (b) (emphasis added).

¹²⁸ *Id.* art. 194(3) (emphasis added).

iv. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention)—another UN treaty—does touch on the issue of plastics.¹²⁹ In doing so, the Basel Convention addresses plastics in the context of transboundary hazardous waste movement.¹³⁰ Specifically, it focuses on the importation and exportation of plastics to be recycled or disposed of in an environmentally-sound manner.¹³¹

The Basel Convention defines hazardous wastes as “[w]astes that belong to any category contained in Annex I” as well as “[w]astes that . . . are defined as, or are considered to be, hazardous wastes by the domestic legislation of the [Member State] of export, import or transit.”¹³² Annex I includes “[w]astes from production, formulation and use of . . . plasticizers” and “[w]astes resulting from surface treatment of plastics”¹³³

In addition to this language, in June 2018, Norway submitted proposals to amend the Basel Convention to address the issue of plastics entering the waste stream.¹³⁴ However, the language cited above and in the Norwegian Amendments does not effectively address the ocean plastics problem. This is a shortcoming because the Convention and its amendments only focus on the issue of plastics in waste trade and waste trade is not the primary source of ocean plastic pollution.¹³⁵

¹²⁹ THE SECRETARIAT OF THE BASIL CONVENTION, *BASEL CONVENTION ON THE CONTROL OF TRANSBOUNDARY MOVEMENTS OF HAZARDOUS WASTES AND THEIR DISPOSAL: TEXT AND ANNEXES REVISED IN 2019 3* (2020).

¹³⁰ Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal pmb., *opened for signature* Mar. 22, 1989, 1673 U.N.T.S. 126 (entered into force May 5, 1992) [hereinafter *Basel Convention*].

¹³¹ *Id.* pmb.

¹³² *Id.* art. 1(1)(a), (b).

¹³³ *Id.* annex I.

¹³⁴ ENV'T INVESTIGATION AGENCY, CIEL, BASEL ACTION NETWORK & IPEN, *NORWEGIAN PROPOSAL TO AMEND THE ANNEXES TO THE BASEL CONVENTION 1* (Apr. 2019).

¹³⁵ *See* Webinar: Russell Lamotte, *Global Review of Plastics Pollution: Managing Marine Litter*, held by the Environmental Law Institute, at 7:56 (Nov. 11, 2019) (on file with the Environmental Law Institute); *see also supra*

The Basel Convention and its proposed amendments do not address control measures for facing the plastic pollution problem.¹³⁶ Specifically, the Basel Convention does not address prohibitions or controls on single-use plastics; it does not directly impose design elements on recyclability nor does it impose mandatory extended producer responsibility schemes; and it does not directly affect the introduction of microplastics into the marine environment.¹³⁷

Additionally, the Basel Convention only addresses trade of hazardous wastes and does not include trading of hazardous substances in products prior to their end-of-life cycle.¹³⁸ New products, often containing cheap plastics, are regularly traded between borders and can end up in countries that have banned such hazardous substances at end-of-life.¹³⁹ To illustrate, in 2019 alone, Mexico was the first largest import market for “[p]lastics and articles thereof” from the United States, importing approximately 15.9 billion dollars’ worth of said “[p]lastics and articles thereof[,]” prior to their end-of-life.¹⁴⁰

VI. A BINDING INTERNATIONAL PLASTICS TREATY IS NEEDED THAT PROPERLY ADDRESSES THE OCEAN PLASTICS PROBLEM

There is currently a lack of feasibility in substantially removing plastic pollution and microplastics from oceans.¹⁴¹ Further, Member States currently have discretion in deciding

Section II (discussing plastics floating from instream rivers into the oceans).

¹³⁶ Lamotte, *supra* note 135; *see also* Basel Convention, *supra* note 130 (failing to account for plastics in the context of ocean plastic pollution).

¹³⁷ Lamotte, *supra* note 135.

¹³⁸ *Id.*

¹³⁹ MCDONOUGH & BRAUNGART, *supra* note 17, at 38–39.

¹⁴⁰ *See Data*, UN COMTRADE DATABASE, <https://comtrade.un.org/data/> (last visited Dec. 19, 2020) (providing trading information for goods or services between countries by selecting: 1) “goods” for “type of product” and “annual” for “frequency[;]” 2) “[a]s reported” for the classification of “HS[;]” 3) 2019 for the year, “[a]ll” for reporters, “USA” for partners, “import” for trade flows, and “39 – Plastics and articles thereof” for “HS (as reported) commodity codes[;]” and 4) the green button reading “[g]et data”). The author was able to see the results stating that the Mexico reported imports of “[p]lastics and articles thereof” in the amount of \$15,826,093,041 from the United States in 2019 alone. *Id.*

¹⁴¹ Villarrubia-Gómez, Cornell & Fabres, *supra* note 39, at 215.

whether to prioritize, or even address, plastic pollution.¹⁴² For this reason, the current international environmental law mechanisms addressing the ocean plastics problem cannot be standalone documents. Instead, a comprehensive, binding international environmental treaty specifically targeting plastics, in the context of plastic pollution and otherwise, is needed to properly address the ocean plastics problem.

A. *Previous Proposals of an International Treaty Aimed at Addressing the Ocean Plastics Problem*

i. Scholarly Proposal

Scholars previously proposed the idea of creating a plastics treaty.¹⁴³ This plastics treaty proposal discusses phasing out petroleum-based plastics and, instead, recommends reliance on the use of plant-based plastics.¹⁴⁴ This previously-proposed treaty also addresses Member States' "common but differentiated responsibilities"—a principle commonly found in international environmental treaties.¹⁴⁵ Finally, this previously-proposed treaty suggests the creation of a plastics clean-up fund.¹⁴⁶ The proposed clean-up fund would theoretically harness "the common

¹⁴² *What Did UNEA-4 Do for the Environment?*, *supra* note 87.

¹⁴³ See Elizabeth A. Kirk & Naporn Popattanachai, *Marine Plastics: Fragmentation, Effectiveness and Legitimacy in International Lawmaking*, 27 R. EUR., COMP. & INT'L ENV'T L. 222, 229–33 (2018), which proposes a plastics treaty focused on phasing out oil-based plastics, supporting alternative technologies, addressing common but differentiated responsibilities, and proposing a clean-up fund.

¹⁴⁴ *Id.* at 230, 232.

¹⁴⁵ See *id.* at 233; Shelley Ranii, *Do Common but Differentiated Responsibilities Belong in the Post-2015 SDGs?*, NYU CTR. ON INT'L COOP. (Mar. 21, 2014), <https://cic.nyu.edu/blog/global-development/do-common-differentiated-responsibilities-belong-post-2015-sdgs> (defining common but differentiated responsibilities as "an international environmental legal principle" in which "all states are responsible for addressing global environmental degradation yet not equally responsible" and further discussing the Stockholm Declaration's definition of common but differentiated responsibilities as "the applicability of standards which are valid for the most advanced countries but which may be inappropriate and of unwarranted social cost for the developing countries" (quoting Charlotte Epstein, *Common but differentiated responsibilities*, BRITANNICA, <https://www.britannica.com/topic/common-but-differentiated-responsibilities> (last updated Dec. 29, 2015); and U.N. Conference on the Human Environment, *Report of the U.N. Conference on the Human Environment*, at 5, U.N. Doc. A/CONF.48/14/Rev.1 (June 5–16, 1972)).

¹⁴⁶ Kirk & Popattanachai, *supra* note 143, at 233.

but differentiated responsibilities principle” by requiring developed Member States to contribute to the fund.¹⁴⁷ The clean-up fund would then contribute to ocean plastics removal costs.¹⁴⁸

ii. Organization Proposal

An organization—the Center for International Environmental Law (CIEL)—also previously proposed the creation of a Convention on Plastics and Plastic Pollution (the Convention).¹⁴⁹ CIEL first proposed the Convention implement binding global reduction targets aimed at reducing plastic pollution.¹⁵⁰ CIEL next proposed the Convention contain targets on plastics consumption and production,¹⁵¹ requirements addressing collection and recycling of plastics,¹⁵² and mandates on pre-production pellets.¹⁵³ Further, CIEL proposed the Convention include a financial support mechanism and knowledge exchange network.¹⁵⁴ In addition to proposing a knowledge exchange network, CIEL

¹⁴⁷ *Id.*

¹⁴⁸ *Id.*

¹⁴⁹ ENV'T INVESTIGATION AGENCY & CTR. FOR INT'L ENV'T L., TOWARD AN INTERNATIONAL LEGALLY BINDING AGREEMENT ON PLASTICS AND PLASTIC POLLUTION 1, 1–2 (2017) [hereinafter CTR. FOR INT'L ENV'T L.].

¹⁵⁰ *Id.* at 2. Specifically, CIEL recommends the implementation of a deadline to comply with reduction of plastic pollution and the establishment of mechanisms for reviewing and monitoring progress of plastics reduction, *Id.*

¹⁵¹ *Id.* CIEL proposes the adoption of restrictions on polymer consumption and production in order to, among other things: 1) “promote reusable packaging through innovative delivery and re-use models that replace single-use packaging;” 2) “create secondary markets for recyclates, thus improving the . . . recycling infrastructure;” 3) “promote better design and efficient use of resources as well as safe non-chemical alternatives, dis-incentivizing non-recyclable and single-use plastics;” and 4) “encourage the adoption of natural measures to reduce consumption.” *Id.*

¹⁵² *Id.* CIEL endorses the implementation of collection and end-of-life requirements, “including infrastructure, national reuse and recycling targets and restrictions on trade in scrap plastic” and mandates for “extended producer responsibility, taking into account common but differentiated responsibilities” while ensuring “the best model possible specific to each country while respecting waste workers already providing collection services.” *Id.*

¹⁵³ *Id.* (“Set out obligations on polymer producers, converters and transporters to prevent the loss of pre-production pellets, flakes and powders, which can be dramatically reduced through industry-wide implementation of best management practices at and between production and conversion facilities.”).

¹⁵⁴ *Id.* (“Create a fund to support developing countries to implement sustainable zero waste management models, cover incremental compliance costs, promote technology transfers, demonstration projects, and policy development, and establish knowledge exchange networks.”).

proposed the establishment of technical, economic, and scientific bodies in the policymaking aspect of the Convention.¹⁵⁵ Lastly, CIEL proposed the Convention address global quality standards and market restrictions.¹⁵⁶

B. A More Suitable Approach to an International Environmental Plastics Treaty that Effectively Addresses the Ocean Plastics Problem

i. Objective

The objective of the plastics treaty I propose should mimic that of the above-mentioned UNEA resolutions. Specifically, the plastics treaty's objective would read: it is the objective of this treaty to mandate Member States to develop and implement strategies to address environmental concerns arising out of the use of all plastics, in accordance with the provisions set out below.¹⁵⁷

ii. Phasing Out of *All* Plastics and Implementing Timetables for Compliance is Necessary to Address Ocean Plastic Pollution

1. Phasing Out All Plastics

While the scholarly treaty proposal discusses phasing out petroleum-based plastics and instead recommends reliance on the use of plant-based plastics, petroleum-based plastics are not the only forms of plastic posing environmental concerns.¹⁵⁸

¹⁵⁵ *Id.* at 2. CIEL recommends to “[e]stablish standing bodies of experts, economists, scientists and other stakeholders to provide review and analysis to support policymaking and national authorities[,]” which would allow for further “mandated multi-stakeholder participation in decision-making and implementation” of the Convention. *Id.*

¹⁵⁶ *Id.* CIEL proposes the adoption of “global quality standards on design and labelling [sic]” and the imposition of “market restrictions on certain polymers, additives and uses” with the goal to: 1) “restrict polymers and additives in certain uses to promote recyclability and discourage downcycling;” 2) “eliminate legacy substances harmful to public health and detoxify plastic waste streams; and” 3) “reduce top littered items.” *Id.*

¹⁵⁷ This objective is inspired by the U.N. Environment Assembly’s Resolution Addressing Single-Use Plastic Products. See E.A. Res. 4/9, *supra* note 101, ¶ 2, at 2.

¹⁵⁸ See Kirk & Popattanachai, *supra* note 143, at 232; see also Renee Cho,

Plant-based plastics and bioplastics are currently available for consumption, but these forms of plastic are still worrisome.¹⁵⁹ Considering the life cycles, compositions, and chemical properties of plant-based plastics and bioplastics, it is clear that these plastic alternatives are equally as troublesome for the environment as are petroleum-based plastics.¹⁶⁰ These environmental concerns cannot be ignored. Therefore, a plastics treaty *solely* focused on the phasing out of oil-based plastics is insufficient to properly address the ocean plastics problem. The treaty, therefore, must address *all* forms of plastic—oil-based plastics, bioplastics, and plant-based plastics alike.

2. Implementation of Timetables Setting Deadlines for Countries to Comply with the Phasing-Out Process

In order to phase out all forms of plastic, the treaty must impose timetables for compliance.¹⁶¹ Building on the above CIEL proposal, the timetables I propose should be modeled after the timetables implemented in the Montreal Protocol on Substances that Deplete the Ozone (Montreal Protocol).¹⁶² The Montreal Protocol imposed several timetables for Member States to phase out the use of chlorofluorocarbons (CFCs) and

The Truth About Bioplastics, COLUM. UNIV.: STATE OF THE PLANET (Dec. 13, 2017), <https://blogs.ei.columbia.edu/2017/12/13/the-truth-about-bioplastics/> (finding the environmental-friendliness of bioplastics to be controversial when considering their entire lifecycle, including “land use, pesticides and herbicides, energy consumption, water use, greenhouse gas and methane emissions, biodegradability, recyclability and more”); Maia McGuire, *Bioplastics vs. petroleum plastics*, UF/IFAS (May 14, 2018), <http://blogs.ifas.ufl.edu/flaglerco/2018/05/14/bioplastics-vs-petroleum-plastics/> (noting that compostable plastics, like petroleum plastics, are likely to remain in the environment for “decades or longer” if not composted under certain conditions; that not all bioplastics are biodegradable; and further that plant-based plastics and petroleum plastics have “similar chemical compositions” and properties, posing the same harms to marine environments and affecting hormone metabolism and regulation).

¹⁵⁹ Cho, *supra* note 158; McGuire, *supra* note 158.

¹⁶⁰ Cho, *supra* note 158 (“[B]ioplastics are not yet the silver bullet to our plastic problem.”); McGuire, *supra* note 159 (“[B]ioplastics are not necessarily more environmentally-friendly than traditional petroleum-based plastics.”).

¹⁶¹ See CTR. FOR INT’L ENV’T L., *supra* note 149, at 2 which recommends “a time-bound global reduction goal for plastic pollution.”

¹⁶² *Id.*; see also Montreal Protocol on Substances that Deplete the Ozone Layer art. 2A, 2F–2G, *opened for signature* Sept. 16, 1987, 1522 U.N.T.S. 3 (entered into force Jan. 1, 1989) [hereinafter The Montreal Protocol] (imposing timetables for phasing out CFC and HFC use).

hydrochlorofluorocarbons (HFCs).¹⁶³ The plastics treaty I propose should follow the example set in the Montreal Protocol, imposing strict timetables for the phasing out of all plastics to ensure compliance with the treaty. With input from scientists, these timetables will reflect reasonable timeframes in which plastics reduction can take place before more devastating plastics-related environmental, marine, and human health impacts occur.¹⁶⁴

iii. Recommendation regarding the Inclusion of the Principle of Common but Differentiated Responsibilities

The scholarly treaty proposal also addressed Member States' common but differentiated responsibilities (CBDR).¹⁶⁵ Member States' status as a country must be taken into consideration within the plastics treaty for the treaty to be effective and encourage Member States to ratify it. However, I argue that, while CBDR considers each Member States' specific situation, based on the scientific evidence and the threats imposed on the environment and human and marine life, CBDR would likely provide certain Member States with more lenient timetables to reduce plastics. While it is understandable that those developing and least developed countries might not have the means to phase out plastics as quickly as developed countries may, a clean-up fund would help to lessen this burden,¹⁶⁶ allowing for these timetables to remain stringent for all Member States, as discussed in the following subsection. With this in mind, CBDR should be implemented in the plastics treaty, while remaining committed to the need for stringent plastics reduction timetables.

¹⁶³ The Montreal Protocol, *supra* note 162, art. 2A, 2F–2G; *see also* Ian Rae, *Saving the ozone layer: why the Montreal Protocol worked*, THE CONVERSATION (Sept. 9, 2012, 4:23 PM), <http://theconversation.com/saving-the-ozone-layer-why-the-montreal-protocol-worked-9249> (“[A]ll 142 developing countries were able to meet the 100% phase-out mark for CFCs, halons and other [ozone-depleting substances]”).

¹⁶⁴ See discussion *infra* Section VI.B.10, on the need for involvement of scientists in the treaty negotiation and implementation processes.

¹⁶⁵ Kirk & Popattanachai, *supra* note 143, at 233.

¹⁶⁶ *Id.*

iv. Formation of a “Clean-up Fund”

The treaty I propose would include a clean-up fund similar to that of the previously-proposed plastics treaty and the previously proposed Convention on Plastics and Plastic Pollution.¹⁶⁷ This fund should be modeled after the Multilateral Fund developed by the Parties to the Montreal Protocol.¹⁶⁸ Similarly, this fund would provide “incremental funding” for waterfront developing countries who are most at risk of the negative effects of ocean plastics.¹⁶⁹ The clean-up fund would ensure that those most at risk from ocean plastics—who happen to be those countries that are among the least developed—are able to engage in the clean-up of their oceans and reduce the negative impacts ocean plastics have on their communities.

v. Addressing Plastics Consumption and Production Habits

Like the CIEL Convention proposal, the treaty I propose must impose mandates on plastic production and consumption. Specifically, the treaty would direct Member States to utilize efficient alternative renewable resources in terms of both consumption habits and plastic production processes within that Member State. The treaty I propose will build on the CIEL proposal by providing detailed recommendations for implementing precise consumption and production mandates.

1. Consumption Habits

In the consumption context, these provisions would include mandates for Member States to impose bans on single-use plastics in commercial establishments and, instead, encourage the use of reusable grocery store bags, individual coffee cups and takeaway containers, and alternative packaging for items such

¹⁶⁷ *Id.*; CTR. FOR INT'L ENV'T L., *supra* note 149, at 2.

¹⁶⁸ *About the Multilateral Fund*, MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL, <http://www.multilateralfund.org/aboutMLF/default.aspx> (last visited Dec. 15, 2020). The Multilateral Fund for the Implementation of the Montreal Protocol “provides funds to help developing countries comply with their obligations under the Protocol to phase out the use of ozone-depleting substances (ODS) at an agreed schedule.” *Id.* “The Montreal Protocol is one of the most successful and effective environmental treaties ever negotiated and implemented.” Rae, *supra* note 163.

¹⁶⁹ This proposal is derived from the success of the Multilateral Fund. See Rae, *supra* note 163.

as meats and fish, cheeses, and snack packages, to name a few. In addition to the restrictions on the use of carry-out plastic bags at all establishments, the treaty would also include restrictions on the use of non-compostable plastic produce bags used by consumers to carry items such as oranges, bananas, and avocados that already have a protective layer of skin to prevent germ contamination, for example.

To more adequately address consumption habits, the treaty I propose would regulate plastic consumption by imposing an international tax on all plastic products, with a higher tax imposed on those plastic products with reasonably accessible alternatives, to be enforced within each Member State. To illustrate an example of this: the treaty would impose an international tax of five percent on all standard plastic products, with an increased international tax of eight percent on items such as plastic water bottles, for example, where stainless steel reusable water bottles are a reasonably accessible alternative.

2. *Production Habits*

In addition to addressing plastics reduction and consumption, a provision must be reflected in the treaty that specifically targets plastic production in Member States. To tackle this, the treaty must contain a provision mandating caps on production within each Member State. Specifically, an additional timetable addressing plastic production would be implemented in the treaty, demonstrating each Member State's respective limit on plastic production levels, bearing in mind each Member State's common but differentiated responsibilities. The implemented table placing a cap on production in each Member State will ensure that production levels are not overreaching.

CIEL's proposed Convention on Plastics and Plastic Pollution recommends the use of "best management practices at and between production and conversion facilities."¹⁷⁰ The treaty I propose should incorporate this suggestion and mandate that all facilities use best management practices (BMPs) in the production of all plastic materials, in accordance with the plastics

¹⁷⁰ CTR. FOR INT'L ENV'T L., *supra* note 149, at 2.

reduction timetables set forth above.¹⁷¹ These BMP mandates should address plastic pollution prevention. Specifically, the BMP mandates should focus on recycling plastics “in an environmentally safe manner, whenever feasible”¹⁷² Where recycling is not feasible, plastics should be treated and disposed of in an environmentally sound manner—as modeled after the United States Pollution Prevention Act, enacted in 1990.¹⁷³

In addition to the proposal by CIEL to implement BMPs, CIEL proposed the Convention contain “global quality standards on design and labelling [sic]” and “market restrictions on certain polymers, additives and uses”¹⁷⁴ The treaty I propose would implement this suggestion, focusing on plastic production facilities in Member States and mandating that all facilities comply with these global standards. Addressing the issue of over-production will directly impact plastics consumption, thereby ensuring Member States meet the plastics reduction targets within the timeframes listed in the above-mentioned timetables.

vi. Mandating the Investment of Appropriate Recycling Facilities

The plastics treaty I propose must also contain a provision

¹⁷¹ *Id.*; see also 40 C.F.R. § 122.2 (2020), which defines “best management practices” as “schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of [waters] as well as “treatment requirements[and] operating procedures”; and EPA OFFICE OF WATER, GUIDANCE MANUAL FOR DEVELOPING BEST MANAGEMENT PRACTICES (BMP) 1–4 (1993), which explains that “[b]est management practices are inherently pollution prevention practices” traditionally focusing on “good housekeeping measures and good management techniques . . . to avoid contact between pollutants and water”

¹⁷² EPA OFFICE OF WATER, *supra* note 171, at 1–4; Pollution Prevention Act of 1990, 42 U.S.C. § 13101(b) [hereinafter PPA of 1990] (stating that Congress’s national policy regarding pollution in the United States is “that pollution should be prevented or reduced at the source whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible”).

¹⁷³ EPA OFFICE OF WATER, *supra* note 171, at 1–4; see also PPA of 1990, *supra* note 172, § 13101(b) (stating that “pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner”).

¹⁷⁴ CTR. FOR INT’L ENV’T L., *supra* note 149, at 2.

mandating Member States invest in appropriate recycling facilities and improve recycling facilities currently existing within their domestic borders. This mandate will reduce the number of plastics ending up in oceans by focusing on the reuse of existing post-consumer plastics. As reduction is the first step, reuse is the second step, and recycling is the third step in ensuring full use of a product, it is important to address all three steps. By mandating the recycling of plastics currently existing, reduction and reuse are being addressed indirectly, since recycling single-use plastics will provide for their reuse in the future and will cut down on production of new plastic materials. Additionally, by providing for a clean-up fund in the plastics treaty, Member States that are most affected by ocean plastics, and least able to properly address the ocean plastics problem, will be able to implement appropriate recycling facilities to ensure all plastics currently existing are reused, rather than simply being disposed of and instead ending up in the ocean.

The treaty I propose would build on CIEL's proposed Convention to include collection and recycling requirements by implementing timetables for compliance with this mandate. Timetables for compliance are important in ensuring Member States fully address the plastic pollution problem in accordance with each Member States' common but differentiated responsibilities. These timetables should be modeled in a similar manner as the timetables for plastics reduction discussed above.

vii. Inclusion of the Precautionary Principle

According to a 1998 consensus statement, the precautionary principle in the environmental science context was described as an advisable precautionary measure to be taken "when an activity raises threats of harm to human health or the environment . . . even if some cause and effect relationships are not fully established scientifically."¹⁷⁵ In the international environmental law

¹⁷⁵ David Kriebel et al., *The Precautionary Principle in Environmental Science*, 109 ENV'T HEALTH PERSPECTIVES 871, 871 (2001) (quoting PROTECTING PUBLIC HEALTH & THE ENVIRONMENT: IMPLEMENTING THE PRECAUTIONARY PRINCIPLE 8 (Carolyn Raffensperger & Joel A. Tickner eds., 1999)); see also Mary Stevens, *The Precautionary Principle in the International Arena*, 2 SUSTAINABLE DEV. L. & POL'Y 13, 13 (2002) (providing a similar, although not exact, quote by Wingspread Statement on the Precautionary Principle, 1998).

context, the precautionary principle is implemented in various treaties for the purpose of “anticipat[ing] and avoid[ing] environmental damage before it occurs.”¹⁷⁶

The United Nations Educational Scientific and Cultural Organization (UNESCO) World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) defines the precautionary principle as a method of handling potential risks to “human life or health[;] or” “serious and effectively irreversible” environmental harm; or “inequitable [harm] to present or future generations[;] or” environmental harm or harm to humans “imposed without adequate consideration of the human rights of those affected.”¹⁷⁷

The treaty I propose would implement the precautionary principle to ensure that harms to the marine environment and human populations are effectively considered. With the inclusion of the precautionary principle, the plastics treaty will reflect terms focused on reducing the irreversible risks that ocean plastics pose on marine species and their habitats, which, in turn, pose grave risks to human life and the health of present and future generations.

viii. Inclusion of Incentives for Countries that Ratify the Treaty and Exceptions to the General Agreement on Tariffs and Trade

The treaty I propose should also include incentives for countries who ratify it. These incentives may include the clean-up fund previously discussed that will aid certain Member States in the clean-up of ocean plastics as well as aid certain Member

¹⁷⁶ Stevens, *supra* note 175, at 13; see also JACQUELINE PEEL, THE PRECAUTIONARY PRINCIPLE IN PRACTICE Appendix B (2005), <https://www.federationpress.com.au/pdf/Peel,%20The%20Precautionary%20Principle,%20Appendix%20B.pdf>, which lists the various treaties containing the precautionary principle, including the most notable international environmental treaties, such as the Montreal Protocol on Substances that Deplete the Ozone Layer, the Vienna Convention on the Protection of the Ozone Layer, the United Nations Framework Convention on Climate Change, the Stockholm Convention on Persistent Organic Pollutants, the Convention on Biological Diversity, the Rio Declaration on Environment and Development, and many more.

¹⁷⁷ WORLD COMM'N ON THE ETHICS OF SCI. KNOWLEDGE & TECH., THE PRECAUTIONARY PRINCIPLE 14 (2005).

States in implementing appropriate recycling facilities. To ensure all Member States ratify the plastics treaty, trade tariffs may also be imposed on those Member States opposed to its ratification. However, the imposition of trade tariffs may run into problems with the General Agreement on Tariffs and Trade (GATT), unless an exception applies.¹⁷⁸ An exception to GATT applies when the trade tariff is “necessary to protect human, animal or plant life . . .”¹⁷⁹ or if the trade tariff is “relating to the conservation of exhaustible natural resources”¹⁸⁰ In the case of plastic pollution and ocean plastics, the proposed tariffs are both “relating to the conservation of exhaustible natural resources”—the oceans—and “necessary to protect human, animal [and] plant life” living within the negatively impacted marine ecosystems.¹⁸¹

ix. Creating Strict Enforcement Mechanisms are Essential to Ensure Compliance

The plastics treaty must, most importantly, impose strict enforcement mechanisms to ensure compliance. One way to enforce the treaty is to impose penalties on Member States not in compliance with any or all of the treaty’s provisions. The treaty would include multiple penalties for noncompliance; each penalty being tailored to the specific provision of the treaty that the Member State fails to comply with.

To illustrate, separate penalties should exist for: 1) failure to reduce *all* plastics within the Member State in accordance with the phase-out provisions of the treaty—meaning that the Member State is not phasing out plastics in accordance with the deadlines implemented in the treaty’s timetables; 2) failure to comply with the treaty respecting the Member State’s common but differentiated responsibilities; 3) failure of the Member State to contribute to the clean-up fund according to that Member State’s status; 4) failure to address plastics consumption or

¹⁷⁸ See General Agreement on Tariffs and Trade arts. XX, XXXVI, Oct. 30, 1947, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 55 U.N.T.S. 194, for a list of principles and objectives of the agreement, as well as the exceptions thereto.

¹⁷⁹ *Id.* art. XX(b).

¹⁸⁰ *Id.* art. XX(g).

¹⁸¹ *Id.* art. XX(b), (g).

production according to the treaty's provisions, with a higher penalty for failure to address **both** plastics consumption **and** plastic production; 5) failure to invest in appropriate recycling facilities; 6) failure to adhere to the precautionary principle; and 6) failure of a Member State to adhere to the provisions regarding trade.

Each of the above penalties should consist of monetary fines imposed on Member States not in compliance. Imposing strict enforcement mechanisms will serve to ensure compliance with the timetables set out in the treaty and will ensure compliance with all other mandates within the treaty.

x. Providing for the Addition of Scientists in the Treaty
Negotiation and Drafting Processes

Finally, negotiation of the plastics treaty must involve input from scientists, as was the case with the negotiations of the Montreal Protocol and as similarly proposed by CIEL. The Montreal Protocol is celebrated as a major success in international environmental law.¹⁸² This is evidenced by the number of Member States that ratified the agreement.¹⁸³ The Montreal Protocol involved scientists in the negotiation process, demonstrating the leading concerns of CFCs and HFCs through the depiction of images of the hole in the ozone.¹⁸⁴

In light of the scientific evidence discussed in Section II above, scientists must be involved in the decision-making and negotiations process to ensure the success of the plastics treaty. Photos of the Great Pacific Garbage Patch, as with the images of the hole in the ozone, are startling depictions of the severity of the ocean plastics problem.¹⁸⁵ In addition, photos are

¹⁸² Rae, *supra* note 163.

¹⁸³ *Id.* All 197 U.N. Member States have ratified the Montreal Protocol.
Id.

¹⁸⁴ *Id.*

¹⁸⁵ See *Great Pacific Garbage Patch*, NAT'L GEOGRAPHIC, <https://www.nationalgeographic.org/encyclopedia/great-pacific-garbage-patch/> (last visited Dec. 15, 2020), for an array of photos by various photographers illustrating plastics found in the Great Pacific Garbage Patch; see also Office of Response and Restoration, *How Big Is the Great Pacific Garbage Patch? Science vs. Myth*, NAT'L OCEANIC AND ATMOSPHERIC ADMIN., <https://response.restoration.noaa.gov/about/media/how-big-great-pacific-garbage-patch-science-vs->

continually circulated depicting marine animals with plastics lodged in their bodies.¹⁸⁶ The described photos are jarring and should pose the same environmental concern in Member States, prompting the ratification of a plastics treaty, as was the case with the Montreal Protocol.

In order for the plastics treaty to prove beneficial, scientific-involvement in the decision-making and negotiations process is a necessity. Input regarding plastic pollution's negative impacts on marine species and human health, measures necessary to properly and efficiently address the ocean plastics problem, and detailed, science-driven provisions must, therefore, be implemented in the treaty.

VII. SUMMARY

The plastics treaty I propose will be effective because it will encompass *all* plastics, not only oil-based plastics. The proposed treaty will also be effective because it will list specific mandates with actions Member States must take within their domestic borders. Some Member States will be likely to ratify the treaty when provided with incentives—such as the clean-up fund that will provide least developed countries with funding to clean-up ocean plastics directly affecting their countries' environments and human and marine populations—and other Member States will be incentivized to ratify the treaty to avoid the imposition of trade tariffs. Further, the imposition of strict enforcement mechanisms will ensure compliance with the treaty. For those reasons, an international environmental treaty solely addressing plastics and plastic pollution will provide a more effective solution to the ocean plastics problem.

myth.html (last updated Sept. 12, 2019, 1:22 PM), which provides an illustration of where within the Pacific Ocean plastics have been documented to be floating on the ocean's surface.

¹⁸⁶ *Great Pacific Garbage Patch*, *supra* note 185.