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Good morning. Thank you, Chairwoman McCollum, Ranking Member Joyce and members of the committee for the opportunity to testify on marine debris and plastic pollution. My name is Christy Leavitt, and I am the plastics campaign director with Oceana. Oceana is the largest international advocacy organization dedicated solely to ocean conservation. We work in North America, South America, Europe and the Philippines to advocate for science-based policies that will restore the ocean's abundance and biodiversity. Oceana has protected more than 4.5 million square miles of ocean habitat and won 200 victories to stop overfishing, habitat destruction, pollution and killing of threatened species.

Oceans Are Critical to Life on Earth

Oceans cover more than 70% of the Earth's surface and are critical to life on the planet. Over 50% of the Earth's oxygen comes from the oceans, supplying us with the air we breathe. More than 3 billion people worldwide depend on the ocean for their livelihoods. In the United States specifically, over half of the population lives in coastal communities, and the country derives $280 billion a year from the ocean economy with three-quarters of U.S. trade being marine-based.

Oceans hold 97% of the world's water and also deliver some vital fresh water to land in the form of rain derived from ocean water evaporation. Oceans are home to a million species, according to Census of Marine Life, many of which have yet to be described. The powerful circulation of the atmosphere and the regulation of the climate are driven by the heat generated in equatorial seas, which is transported by currents to the Earth's poles. The climate crisis would be far worse if the oceans did not absorb and store 25% of the planet's carbon dioxide emissions.

Despite the ocean's importance to life on Earth and the livelihoods of billions of people, humanity has altered or destroyed marine ecosystems and driven marine species to the brink of extinction. And now, as one scientist put it, the oceans are literally spitting plastic back at us with every wave.[1]

Plastic Pollution Is a Growing Problem for Ocean Health

Plastic pollution is a growing threat to the world's oceans, as well as our food, health and climate. Each year, an estimated 17.6 billion pounds of plastic enters the marine environment. This is roughly equivalent to a garbage truck full of plastic being dumped into the oceans every minute.[2] Freshwater

[1] J. Jambeck, Feb. 15, 2019; American Association for the Advancement of Science Annual Meeting, Washington D.C.
[2] Jambeck JR, Geyer R, Wilcox C, *et al.* (2015) Plastic waste inputs from land into the ocean. *Science* 347: 768-771. doi: 10.1126/science.1260352

lakes also suffer from plastic pollution. The Great Lakes, for example, are flooded with 22 million pounds of plastic annually.[3]

As of 2015, 8.3 billion metric tons of plastic have been produced, and 79% of that became waste, accumulating in landfills, on the ground or in the ocean.[4] None of that plastic in the environment ever goes away; it simply breaks up into smaller and smaller pieces.

More than 40% of all plastic produced is for packaging, most of which is used once and thrown away.[5] Single-use plastic is profoundly flawed by design. Bottles, grocery bags, utensils and other products are made from a material created to last forever even though these products are designed to be thrown away after one use.

Plastic pollution is everywhere. Scientists have found it around the globe, floating on the surface of the ocean, washing up on the world's most remote coastlines, melting in Arctic sea ice and even sitting at the deepest part of the ocean floor nearly 7 miles beneath the surface.[6,7 8] Plastic also has been found in rain in the Rocky Mountains and in the air above the secluded French Pyrenees mountains.[9,10]

As plastics continue to flood into the oceans, the list of marine species affected by plastic debris expands. A piece of plastic can look like food to a fish, turtle, marine mammal or bird. We are seeing increasing reports of dead whales beached with bellies full of plastic debris.[11] Tens of thousands of individual marine organisms — almost 700 species — have been observed suffering from entanglement or ingestion of plastic permeating the marine environment.[12] Plastic ingestion and entanglements can lead to death by starvation or suffocation. Ingested plastic may also cause ulcers or punctures and impair feeding, growth, mobility, reproduction and behavior.[13,14] Scientists estimate that 90% of seabird species have ingested plastic, and a 2019 study investigating plastic in 102 sea

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[3] Baldwin AK, Corsi SR and Mason SA (2016) Plastic Debris in 29 Great Lakes Tributaries: Relations to Watershed Attributes and Hydrology. *Environmental Science & Technology* 50: 10377–10385. doi: 10.1021/acs.est.6b02917

[4] Geyer R, Jambeck JR and Law KL (2017) Production, use, and fate of all plastics ever made. *Science Advances* 3. doi: 10.1126/sciadv.1700782

[5] Ibid.

[6] Lavers JL and Bond JL (2017) Exceptional and rapid accumulation of anthropogenic debris on one of the world's most remote and pristine islands. *Proceedings of the National Academy of Sciences* 114: 6052-6055. doi: 10.1073/pnas.1619818114

[7] Chiba S, Saito H, Fletcher R, *et al.* (2018) Human footprint in the abyss: 30 year records of deep-sea plastic debris. *Marine Policy* 96: 204-212. doi: 10.1016/j.marpol.2018.03.022

[8] Peeken I, Primpke S, Beyer B, *et al.* (2018) Arctic sea ice is an important temporal sink and means of transport for microplastic. *Nature Communications* 9 doi: 10.1038/s41467-018-03825-5

[9] Wetherbee G, Baldwin A and Ranville J (2019) It is raining plastic: Open-File Report 2019-1048. *United States Geological Survey*. doi: 10.3133/ofr20191048

[10] Allen S, Allen D, Phoenix VR, *et al.* (2019) Atmospheric transport and deposition of microplastics in a remote mountain catchment. *Nature Geoscience* doi: 10.1038/s41561-019-0335-

[11] Irfan U (2019) The alarming trend of beached whales filled with plastic, explained. In: *Vox*. Available: https://www.vox.com/2019/5/24/18635543/plastic-bags-whale-stomach-beached. Accessed Jun 25, 2019.

[12] Gall SC and Thompson RC (2015) The impact of debris on marine life. *Marine Pollution Bulletin*. 92: 170–179. doi: 10.1016/j.marpolbul.2014.12.041

[13] Cole M, Lindeque P, Fileman E, Halsband C and Galloway TS (2015) The Impact of Polystyrene Microplastics on Feeding, Function and Fecundity in the Marine Copepod *Calanus helgolandicus*. *Environmental Science & Technology* 49: 1130–1137. doi: 10.1021/es504525u

[14] Watts AJR, Urbina MA, Corr S, Lewis C and Galloway TS (2015) Ingestion of Plastic Microfibers by the Crab *Carcinus maenas* and Its Effect on Food Consumption and Energy Balance. *Environmental Science & Technology* 49: 14597–14604. doi: 10.1021/acs.est.5b04026

turtles found plastic in every individual.[15,16] Even zooplankton, tiny marine organisms that form the base of the ocean food chain, are eating plastic, which can then accumulate in larger ocean predators like fish.

Ultimately plastic breaks up into microplastics, which are pieces of plastic smaller than 5 millimeters. Microplastics act as magnets for harmful chemical pollutants.[17] When eaten by fish and shellfish, some of those contaminants from microplastics may work their way into our food supply.[18] Everything from salt to water to beer has been found to contain microplastics.[19] Scientists are still studying how humans might be affected by the plastics that are making their way into our food, water and air.

While we begin to realize the extent of plastic pollution's effects on the oceans, plastic production is increasing at a rapid rate. The petrochemical industry is investing significantly in the future of plastic production. Global production of plastics has outpaced all other bulk materials — including steel, aluminum and cement — and has nearly doubled since the start of the millennium.[20] It's now projected to increase at least fourfold between 2014 and 2050.[21] As plastic production increases, so will the amount of plastic entering the ocean. Projections show a threefold increase of the amount of plastic in the ocean between 2015 and 2025.[22]

Solution: Reduce Plastic Pollution at the Source

Recycling is not enough to solve the plastic pollution crisis. Waste-management solutions have not adequately dealt with plastic pollution in the past and cannot realistically keep up with the rising rates of plastic production. Only 9% of all the plastic ever produced has been recycled. [23] Unless companies change course, more plastic will inevitably end up in the ocean.

The solution to the plastic pollution problem is clear: Reduce the amount of plastic produced.

Oceana is focused on stopping plastic pollution from entering the oceans by reducing the amount of single-use plastic being produced at the source. We're calling on companies to significantly reduce the amount of plastic they are putting on the market and offer consumers plastic-free choices for their products. Whether it's a hotel room, supermarket aisle or restaurant, the onus should be on the manufacturers and retailers responsible for creating and selling throwaway plastics – not the

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[15] Wilcox C, Van Sebille E and Hardesty BD (2015) Threat of plastic pollution to seabirds is global, pervasive, and increasing. *Proceedings of the National Academy of Sciences* 112: 11899–11904. doi: 10.1073/pnas.1502108112

[16] Duncan, EM, Broderick, AC, Fuller, WJ, et al. Microplastic ingestion ubiquitous in marine turtles. Glob Change Biol. 2019; 25: 744–752. https://doi.org/10.1111/gcb.14519

[17] Cole M, Lindeque P, Fileman E, *et al.* (2013) Microplastic Ingestion by Zooplankton. *Environmental Science & Technology* 47: 6646-6655. doi: 10.1021/es400663f

[18] Rochman CM (2015) The Complex Mixture, Fate and Toxicity of Chemicals Associated with Plastic Debris in the Marine Environment. In: Bergmann M, Gutow L, Klages M, editors In: *Marine Anthropogenic Litter*. Cham: Springer International Publishing

[19] Kosuth M, Mason SA and Wattenberg EV (2018) Anthropogenic contamination of tap water, beer, and sea salt. *PLOS ONE* 13. doi: 10.1371/journal.pone.0194970

[20] -- (2018) The Future of Petrochemicals: Towards More Sustainable Plastics and Fertilisers. Executive summary. International Energy Agency and Organisation for Economic Cooperation and Development. 11p.

[21] -- (2016) The New Plastics Economy: Rethinking the future of plastics. World Economic Forum. 36p.

[22] Jambeck JR, Geyer R, Wilcox C, *et al.* (2015) Plastic waste inputs from land into the ocean.

[23] Geyer R, Jambeck JR and Law KL (2017) Production, use, and fate of all plastics ever made.

consumers. Oceana is also calling for policy change at the local, state and national levels that will require companies to reduce plastic production and use.

Governments Play a Critical Role in Reducing Plastic Pollution

While the responsibility to reverse the plastic pollution crisis should primarily fall on companies, governments play a critical role in moving society away from plastic, especially when companies are not motivated to change their ways. Policies governing the production and use of plastic can be effective in curbing the plastic pollution problem.

The United States has often been an international leader on environmental issues, but unfortunately it's falling behind other countries on addressing the plastics crisis on the national level. U.S. cities, towns, counties and states are not waiting for federal action and are instead leading the way in regulating single-use plastics. Around the world, other countries are announcing and implementing policies to reduce plastic pollution. The federal government should learn from these actions and implement national policies to stem the flow of plastic into our environment.

Local, state and national policies often focus on the plastic waste most commonly found on beaches, including plastic beverage bottles, grocery bags, straws, stirrers, lids, cups, foam and other containers. Policies like bans, fees, taxes, deposit return systems and extended producer responsibility can reduce plastic production, use and pollution.

U.S. cities, towns, counties and states that have taken action on plastics include:

- More than 450 cities and counties and seven states that have passed bans or put fees on plastic bags;
- **Washington, D.C.**, which passed a 5-cent plastic- and paper-bag fee in 2009 that resulted in more than a 60% reduction in single-use carryout bag consumption and reduced plastic bag litter in D.C.'s Anacostia River[24];
- **Chicago, Illinois,** which passed a 7-cent tax on both paper and plastic single-use bags at all stores, effective February 2017.[25] The bag tax resulted in a 42% reduction in the number of single-use bags consumers used per trip to the store[26];
- More than 200 cities and counties that have passed polystyrene, or foam, bans;
- **Maine, Maryland and Vermont**, which passed statewide polystyrene bans in 2019;
- **St. Paul, Minnesota**, which passed a law in 2019 requiring restaurants and stores to use compostable or recyclable packaging for to-go and takeout containers. The law will go into effect in 2021[27];

[24] D.C. Department of Energy and Environment & Alice Ferguson Foundation (2013) D.C. Resident and Business Bag Use Surveys. Opinion Works. 18p.
[25] CHICAGO, ILL., MUN. CODE § 3-50 (2019)
[26] -- (2017) Preliminary study suggests Chicago's bag tax reduces disposable bag use by over 40 percent. New York University Wagner, University of Chicago UrbanLabs & ideas42. 4p.
[27] ST. PAUL, MINN., CODE OF ORDINANCES ch. 236 (2019).

- **Michigan**, which implemented a bottle-deposit law in 1978, requiring a 10-cent deposit on certain containers under 1 gallon in size. [28] In 2017, Michigan's redemption rate was 91.2%.[29]; and
- **Berkeley, California,** which passed a comprehensive foodware ordinance in 2019 that ultimately will require food vendors to use only reusable foodware, with a few compostable exceptions.[30]

Other countries and regions have taken action to reduce single-use plastics, including:

- **The European Union** — In 2018, the European Union announced a phaseout of single-use plastics by 2021. The Single-Use Plastics Directive bans single-use plastic products, including plates, cutlery, polystyrene food and beverage containers, and other items that are estimated to represent 85% of single-use plastic found on beaches in the Union.[31]
- **Canada** — In June 2019, Canada announced plans to develop a strategy to address and reduce priority single-use plastics by the end of 2021.[32]
- **Peru** — In December 2018, Peru passed a law regulating throwaway plastics, which bans single-use plastics from sensitive areas like beaches and national parks; taxes plastics bags; and limits the manufacture and use of a broad swath of disposable plastics.[33]

The United States should join with the rest of the world and follow the lead of cities and states around the country to regulate the production and use of single-use plastic. Federal policies must enable states and localities to continue to lead the way and implement stronger regulations on plastics.

Thank you again for the opportunity to testify on the plastic pollution crisis threatening the future of our oceans.

[28] MICH. COMP. LAWS §§ 445.571–445.576 (2017).
[29] -- (2019) Michigan Bottle Deposit Law: Frequently Asked Questions. Michigan Department of Environmental Quality. 4p.
[30] BERKELEY, CAL., MUN. CODE ch. 11.64 (2019).
[31] Directive 2019/904 of the European Parliament and of the Council of 5 June 2019 On the Reduction of the Impact of Certain Plastic Products on the Environment, 2019 O.J. (L 155) 1–19 (EU).
[32] -- (2019) Canada-Wide Action Plan on Zero Plastic Waste: Phase 1. Canadian Council of Ministers of the Environment. 9p.
[33] Law No. 30884, Diciembre 7, 2018, DIARIO OFICIAL [D.O.] (Peru), available at http://www2.congreso.gob.pe/Sicr/TraDocEstProc/Expvirt_2011.nsf/Repexpvirt?OpenForm&Db=201602248&View.