

## **WQB Microplastics Watching Brief**

This watching brief summarizes the current state of the microplastics issue and developments related to the management of plastics, and microplastics within the Great Lakes basin, and regions beyond, that may be applicable to or have implications for the Great Lakes basin.

### **1) State of the Microplastics Issue**

Microplastics have been found to be ubiquitous in the global environment, having been found in [marine](#) and [fresh waters](#) (including the [Great Lakes](#) and its [tributaries](#)), [sediments](#), [deep sea sediments](#) (including the [Mariana Trench](#)), the highest peak in the world ([Mt. Everest](#)), a wide range of [biota](#) (including [mussels](#), [fish](#), [whales](#) and [sea birds](#)), [household air](#), [ambient air](#), [arctic ice](#) and ice from Antarctica (both [ice cores](#) and an [invertebrate animal](#)). Research has also found microplastics in [beer](#), [salt](#), [tap water](#) and [bottled waters](#), [fruits and vegetables](#), and most recently [human stool](#). Microplastics have also been found to shed into baby formula when heating [baby bottles](#) and into tea when steeping plastic mesh [tea bags](#). In 2012 a [first-of-its-kind study](#) was conducted to look at open-water plastic pollution in the Great Lakes (Superior, Huron and Erie). The study found great spatial variability of microplastic abundance among the lakes, with Lake Erie samples being the most concentrated. Two of the Lake Erie samples had significantly elevated concentrations, accounting for 85% of all the microplastic particles collected in all samples combined and [three times greater than recorded elsewhere on earth](#). There has been increasing concern over the presence of microplastics in the GLB which has led to [increased awareness](#) and [scientific research](#).

#### **a. Definition**

[Plastic](#) is a synthetic material made from a range chemical compounds and used for many products, such as pop bottles (polyethylene terephthalate or PET), plastic bags (polyethylene or PE) and straws (polypropylene or PP). Microplastics are generally referred to as plastic particles measuring less than 5 mm in size, although there is [no official agreed upon definition](#) among the scientific community. They are also further categorized as [primary and secondary microplastics](#), where primary microplastics are manufactured products (e.g. microbeads, pellets) and secondary microplastics are the result of the breakdown of larger plastic items into smaller pieces.

#### **b. Sources**

[Sources of microplastics](#) in GLB streams and lakes have been identified as: 1) microbeads and pellets in personal care products, 2) fibers from synthetic clothing and textiles, 3) mechanical and photodegradation of litter, 4) preproduction pellets and powders, 5) sand blasting pellets for boat hulls, 6) overland sludge application, 7) medical uses, 7) pheromone flakes, and 8) atmospheric deposition. In 2016, [U.S. Great Lakes Adopt-a-Beach clean-up data](#) found that 87% of litter items collected were plastic, including cigarette filters, plastic pieces, foam, bottle caps, food wrappers, cigarette tips, straws and bottles. Similar [results were found in 2019](#), with 90% of items comprised of plastic, with plastic pieces and cigarette filters topping the list.

#### **c. Pathways**

Microplastics can enter the Great Lakes environment from both [land-based and sea-based sources](#) (e.g. derelict fishing gear). [Land-based pathways](#) include storm water runoff, improper waste disposal/management, wastewater effluent, combined sewer overflows and atmospheric deposition. These plastic particles are found along beaches, in the water column, water surface and sediments. In a [study of Great Lakes tributaries](#), microplastics were found in higher concentrations in urban streams than agricultural or rural streams. The study further found that the presence of pellets/beads and fibers, were not significantly related to wastewater effluent contributions. Another [study](#), similarly found that wastewater treatment plants were not a significant pathway of microfibers to the environment, but that wastewater plants actually acted as a sink for the fibers. Conversely, another [study](#) has reported that up to 40% of microfibers entering wastewater treatment plants were not filtered out. In 2014 the New York State Attorney General's Office [conducted a study](#) which found that 25 of 34 WWTPs were discharging microbeads in their effluents. [Atmospheric deposition of microfibers](#) has also been identified as a pathway of microplastics to the environment.

#### **d. Potential Impacts**

There are several [pathways by which microplastics can transfer](#) within an ecosystem and potentially impact biota and humans. Microplastics also contain chemicals inherent to the plastic itself (added during manufacture), as well as [persistent organic pollutants sorbed](#) from the water. It has also been asserted that [microplastics may act as a vector for microorganisms and pathogens](#). Research published in 2021 showed that, via wastewater treatment processes, microplastics can serve as [carriers of pathogenic microorganisms and antibiotic waste](#), allowing them to come together and spread antibiotic resistance genes. [Research published in 2018](#), found that commonly used plastics emit two greenhouse

gases, methane and ethylene, when exposed to sunlight. The study found that the rates of methane production from plastic are likely an insignificant component of the global methane budget. However, hydrocarbon gases with lower global emissions vs. methane, the emissions from the plastics might have more global relevance. A [journal article](#) published in late 2021 modelled how atmospheric plastic particles could be influencing climate. Based on the model inputs [plastic particles may both help contribute to cooling \(via reflection\) and heating](#) (via absorption). However, the results of the modelling can change as additional model inputs are considered, such as plastic colour and particle distribution.

#### Biota

Of concern is the ingestion of microplastics by aquatic life, mistaking these particles for food, and the potential negative impacts of the plastic particles themselves as well as the chemicals associated with them. The fate and effect of microplastics can be dependent on the [particle size and shape](#) (e.g. pellet vs. fiber), where particles at the nano-size have been shown to [cross membranes into cells](#). A limited number of laboratory studies have [shown negative sublethal effects](#) (e.g. reduced feeding, weight loss, liver toxicity) from exposure to chemically contaminated plastics, but negative effects from exposure to uncontaminated plastics have also been observed. However, many of these studies were not performed under environmentally realistic situations (e.g. chemical concentrations were much greater than those typically found in the natural environment). It has also been asserted that the bioaccumulation of chemicals from plastics is overwhelmed by other exposure pathways (e.g. ingestion of prey, water), implying that microplastic ingestion [will not likely increase the exposure to](#) and risks from chemicals in the environment; but this does not mean plastics do not have a negative impact on the environment. It has also been asserted that the presence of microplastics in the benthic zone may [alter sediment characteristics](#), which in turn may alter the behaviour and health of benthic ecosystem organisms. There has also been increasing concern about the presence of [microplastics in terrestrial systems](#) and their potential impacts on soil biota and geochemistry. Limited research has shown that earthworms exposed to environmentally relevant concentrations of microplastics [exhibited reduced growth and increased mortality](#). While there is limited data on the neurotoxicity of micro- and nanoplastics, [some studies indicate that plastic particles can induce](#) oxidative stress, alter neurotransmitter levels, and change behavior in several species. Whether similar effects may be seen in humans remains to be determined.

#### Human Health

In 2014, the [US EPA convened an expert forum](#) to explore the possible human health risks from microplastics in the marine environment. One of the main outcomes from the forum was that the current state of the science does not allow for an adequate assessment of possible human health risks from the ingestion of microplastics-contaminated food. There was also a split opinion as to whether there is sufficient evidence to support the transfer pathway of chemicals associated with microplastics to aquatic life tissue and ultimately to human tissue, via food consumption. There has been some research done to indicate that [microplastics are present in the tissues](#) of commercially grown marine bivalves; however there is limited information available to assess what consequences this may have on human health. Microplastics have also been recently [found in drinking water globally](#), in bottled water both [globally](#) and in [Canada](#), and [floating in the air of homes](#). The [WHO has completed a report](#) on the potential risks to human health of plastic particles in drinking water, which concluded there is little concern to human health, but acknowledges the limited data available. In 2020, a [study first discovered plastics in the placenta](#)s of four (of six) women examined. The plastics were small enough to be carried in the blood stream, thought to originate from packaging or cosmetics and personal care products. [The study](#) recommended that further studies are needed to assess if the presence of microplastics may trigger immune responses or may lead to the release of toxic contaminants, resulting in harm. In 2021, [researchers found that metal ions attached themselves to microplastics](#) and released under chemical conditions that mimic the human digestive tract, illustrating in principle, human bioavailability. In early 2022, researchers found plastic [nano-sized particles in the blood](#) of 17 of 22 of study participants, but further research is needed to understand the health risks. Also in 2022, researchers discovered [small plastic particles in the deep lung tissue](#) of living people. The human health effects of [exposure to microplastics are unknown](#) and continue to be an evolving area of scientific research.

#### Economic

The potential economic impacts from microplastics can be far ranging, including loss of revenue from beach tourism, loss of revenue from commercial fisheries and aquaculture, decrease in coastal property values, and increased costs for beach clean-ups. A 2015 journal article [estimated that the cost to combat plastic debris](#) in the Great Lakes region would amount to approximately \$468 million per year. This figure includes costs for beach/waterway clean-up, anti-littering campaigns and installation and maintenance of storm water capture devices.

#### e. Science and Policy Gaps

There are several studies and reports that outline the scientific research needs regarding microplastics in freshwater

systems, including the Great Lakes. The IJC, in 2016, held an [expert workshop](#) to explore potential approaches and policy needs for addressing the microplastics issue in the Great Lakes. Below are some of the science and policy needs highlighted by various researchers and through the IJC workshop. A [2021 review article](#) highlights that with the increasing amount of microplastics research there is a mismatch between field studies (i.e., presences/abundance/type) and lab studies (i.e., organismal impacts). For example, lab studies tend to use spheres vs. fibers, which are most predominant in the field; virgin plastics vs. aged plastics as found in the field; and particle sizes smaller than typically found in the field. Such differences between these two research areas can create challenges in interpreting and understanding impacts under environmentally relevant conditions.

#### *Science Needs*

- Determine the presence, abundance and fate of different types of microplastics
- Determine the extent of bioaccumulation of microplastics and associated chemicals along the food web and their impacts.
- Potential impacts of microplastics and associated chemicals on human health through direct use of resources such as drinking water and food
- Establish standardized methods for sampling and analysis of microplastics
- Estimate the economic costs of microplastics to justify monitoring and research and to support behaviour change and policy development

#### *Needs to Support Policy*

- Need to engage stakeholders including manufacturers, retailers, consumers, government agencies, elected officials, and resource users to identify and communicate where collaborative messages can emerge to support policy development and advocacy
- Need to conduct a risk analysis for reasonable potential alternatives to the regulated product during policy development
- Investigate and utilize municipal, county, and state level policies as a means to engage local and regional officials and the public on plastic pollution issues.

## **2) Microplastics Developments in the Great Lakes Basin and Beyond**

### **a. Media**

#### *News Headlines*

The issue of microplastics, and more specifically microbeads, was first identified in 2012 as a result of a [study conducted in the Great Lakes](#) by researchers from SUNY in Fredonia in collaboration with the 5 Gyres Institute. At that time microbeads and their potential threats and impacts on the environment was a prominent topic in the news. In 2016 news headlines focused on the signing of the [US Microbead Free Waters Act](#) in December 2015 and the proposed Canadian regulations in November 2016. With the advent of these bans ([Canadian microbead ban](#) signed in June 2017) the cosmetic microbead issue was addressed and media focus shifted to the broader issue of microplastics and heightened awareness of microfibers as a potential threat to the environment. There have been many efforts to [eliminate the use of plastic straws](#), including [bans enacted by cities](#), NGO campaigns ([The Last Straw](#), and [Let's Shedd Plastic](#) in the Great Lakes region), and [initiatives by the business and food industries](#) to eliminate or replace plastic straws. In 2018 the Collins Dictionary name "single-use" as the [2018 word of the year](#), in reference to products (often plastic) that are made to be used once before disposal. Collins saw a four-fold increase in the usage of the word since 2013. Additionally, the Royal Statistical Society named the winning [International Statistic of 2018](#) as "90.5%": the proportion of plastic waste that has never been recycled. In 2018 a number of countries committed to actions to help curb plastic pollution from entering the environment, from [amendments to the Basel Convention](#) to bans of single-use plastics introduced by the [EU](#) and [Canada](#), among others. In 2020, the [COVID-19 pandemic stymied efforts](#) to reduce or eliminate single-use plastics as a result of the rapid fall in oil prices, making "virgin" plastics cheaper to produce; delays in local bans and restrictions; reduced consumer desire to minimize use of single-use plastics due to virus concerns; and increased use of non-recyclable personal protective equipment (e.g. masks and gloves).

#### *Plastics Bans*

<b>Dec. 21, 2021</b>	<a href="#">Liberals release long-awaited regulations to ban single-use plastics, but there's a loophole</a> – Global News
<b>Jan. 9, 2018</b>	<a href="#">Canada Has Officially Banned Toiletries That Contain Plastic Microbeads</a> – Global Citizen
<b>Dec. 28, 2015</b>	<a href="#">Obama signs into law Upton's bill banning microbeads</a> – The Detroit News

#### *Microplastics/fibers*

<b>Apr. 8, 2022</b>	<a href="#">Plastics found in most Lake Huron water samples</a> – Blackburn News
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Current as of May 2022

Nov. 3, 2021	<a href="#">Thousands of microplastics found polluting Lake Ontario during "nurdle hunts" – A Greener Future</a>
Mar. 17, 2021	<a href="#">Microplastics and algae tangle in the Great Lakes – Environmental Health News</a>
Aug. 9, 2020	<a href="#">Microplastics found in Grand River mussels – The Record</a>
Feb. 3, 2020	<a href="#">Microplastics are filling the Great Lakes and birds' bellies – Great Lakes Echo</a>
Sept. 24, 2019	<a href="#">Great Lakes sediments show high levels of microplastic contamination – ZME Science</a>
Aug. 12, 2019	<a href="#">A new tiny enemy is threatening Lake Superior: microplastics – Michigan Radio</a>
Jan. 2, 2019	<a href="#">The Great Lakes are full of microfibers — but there might be an easy solution – CBC News</a>
Mar. 28, 2018	<a href="#">Microfibers are in the food web in three Lake Michigan rivers – Illinois-Indiana Sea Grant Newsroom</a>
Sep. 6, 2017	<a href="#">Plastic fibers found in tap water around the world, study reveals – The Guardian</a>
Feb. 15, 2017	<a href="#">Concern about microplastics in North America's Great Lakes - Radio Canada International</a>
Oct. 26, 2016	<a href="#">Plastic fibers emerge as Great Lakes pollutant - Great Lakes Echo</a>
Aug. 4, 2016	<a href="#">Microplastic pollution in the Great Lakes - Toronto and Region Conservation News</a>

#### *Plastics*

Sept. 7, 2021	<a href="#">Plastic pollution litters the Great Lakes. The problem is only getting worse – M-Live Michigan</a>
Oct. 8, 2020	<a href="#">Canada will ban single-use plastic items by the end of next year – CNN</a>
May 21, 2020	<a href="#">How much plastic is in the Great Lakes? Tons and tons – Rochester City News</a>
Nov. 27, 2019	<a href="#">Plastic Pollution in the Great Lakes Presents a Growing Concern: Study – Water Canada</a>
Jun. 10, 2019	<a href="#">Ottawa announces plans to ban single-use plastics starting in 2021 at the earliest – CBC News</a>
Dec. 17, 2018	<a href="#">With plastics, the message is the bottle – Great Lakes Echo</a>
Jun. 13, 2018	<a href="#">Plastic pollution isn't just a problem in our oceans - it's also affecting the Great Lakes – University of Toronto Scarborough News</a>

#### b. Academia and Research

While there are many studies on plastics/microplastics in the marine system, there is a [limited amount of published, peer-reviewed research](#) on the presence and impacts of microplastics on fresh water systems and the Great Lakes specifically. However, microplastics research is increasing and continuing to evolve. A sampling of some Great Lakes research is highlighted in the papers below. [Appendix A](#) provides a list of journal articles (Great Lakes relevant) and reports.

Munno, K. et al., 2021 [Microplastic contamination in Great Lakes fish](#). Conservation Biology

Arielle E., Kennedy B., Chelsea R., 2021. [A systematic review of the literature on plastic pollution in the Laurentian Great Lakes and its effects on freshwater biota](#). Journal of Great Lakes Research 47(1): 120-133

Helm P.A., 2020. [Occurrence, Sources, Transport, and Fate of Microplastics in the Great Lakes-St. Lawrence River Basin](#). In: Crossman J., Weisener C. (eds) Contaminants of the Great Lakes. The Handbook of Environmental Chemistry, vol 101.

Krantzberg, G., 2019. [Plastic Pollution in the Great Lakes and Marine Waters: Sources, Effects and Policy Responses](#). Journal of Waste Resources and Recycling 1(1)

Bartolotta, J. and Hardy, S., 2018. [Barriers and benefits to desire behaviors for single use plastic items in northeast Ohio's Lake Erie basin](#). Marine Pollution Bulletin 127: 576-585

Hoffman, M. and Hittinger, E. 2017. [Inventory and transport of plastic debris in the Laurentian Great Lakes](#). Marine Pollution Bulletin 115(1-2):273-281

Bladwin, A. et al. 2016. [Plastic Debris in 29 Great Lakes Tributaries: Relations to Watershed Attributes and Hydrology](#). Environmental Science and Technology 50(19): 10377–10385

Driedger, A. et al., 2015. [Plastic debris in the Laurentian Great Lakes: a review](#). Journal of Great Lakes Research 41: 9-19.

Castenada, R. et al., 2014. [Microplastic pollution in St. Lawrence River sediments](#). Canadian Journal of Fisheries and Aquatic Sciences 71: 1767-1771

Eriksen, M. et al., 2013. [Microplastic pollution in the surface waters of the Laurentian Great Lakes](#). Marine Pollution Bulletin 77: 177-182

In October 2020, the [Sustainable Cleveland 2020 Virtual Summit](#) was held, which included a session on [Plastic Pollution in our Great Lakes](#) that explored what is known about plastic in the Great Lakes and offered some science-based solutions.

From August to November 2018, Scientific American published a [three-part article series](#) examining the growing

Current as of May 2022

understanding of the scope and impacts of microplastics pollution, which includes several references to the Great Lakes.

In May 2018 [National Geographic launched](#) a multi-year effort entitled “Planet or Plastic?” to raise awareness about the global plastic pollution problem, including the publication of a number of [articles on the topic](#). One of these articles, published in August 2019, includes a map of the various [plastics bans throughout the U.S.](#)

The International Association of Great Lakes Research (IAGLR) and Healing our Waters Great Lakes Restoration Conference (HOW) have included sessions on the issue of microplastics in their conferences as outlined below:

- [IAGLR 2021](#) Virtual conference that includes a session on marine debris and microplastic in the Great Lakes - sources, impacts, and solutions. Conference also includes a plenary presentation on bridging knowledge gaps in plastic pollution.
- [IAGLR 2020](#) IAGLR holds a virtual conference, with pre-recorded session presentations. The session topic on Great Lakes plastic pollution focused on identifying and addressing knowledge gaps and taking action.
- [IAGLR 2019](#) Sessions topics included advancements in understanding the distribution and transportation of microplastics in freshwater environments, as well as their chemical and biological impacts.
- [IAGLR 2018](#) Session included new findings on the occurrence, sources, and fate of plastic debris and microplastic particles in aquatic and terrestrial environments, potential impacts and harm, and solutions to reduce the release of plastic into the environment.
- [IAGLR 2017](#) Session topics included plastics research in the Great Lakes, with a focus on research priorities and data needs for Great Lakes plastic litter (nano- to micro- to macro-sized plastics).
- [IAGLR 2016](#) Session topics included sources, fate, impacts and management of microplastics in the Great Lakes.
- [IAGLR 2015](#) Session topics included microplastic impacts on the ecosystem; presence along shorelines, in sediments and waters; and microplastic filtration in wastewater treatment plants.
- [IAGLR 2014](#) Session topics were organized to [increase awareness of microplastics](#) in the lakes and highlight recent research in freshwater systems.
- [HOW 2017](#) Session explored issue of microplastics and its interactions with Great Lakes wildlife.

The [U.S. EPA Trash Free Waters Program hosts a series of webinars](#) to increase understanding and knowledge of addressing marine litter, including the sources, distribution and impacts of plastics and microplastics in the environment.

### c. Reports

- May. 2022** A report is published by Beyond Plastics and The Last Beach Cleanup, titled [The Real Truth About the U.S. Plastic Recycling Rate: 2021 U.S. Facts and Figures](#). The report estimates that the U.S. recycled 5 to 6 percent of their plastics, down from the 8.7 percent in 2018.
- Dec. 2021** The National Academy of Science releases a report [Reckoning with the U.S. Role in Global Ocean Plastic Waste](#). [The report finds](#) that, plastics waste in the U.S. is ubiquitous and increasing; it is having detrimental impacts on ocean and marine wildlife health; and that there is a need to enhance municipal solid waste management in the U.S. The report recommends the establishment of a U.S. federal policy and research strategy by Dec. 31, 2022, addressing 6 major areas – reducing plastic production; innovating substitutes; decreasing waste generation; improving waste management; capturing was in the environment; and minimizing at-sea disposal.
- Mar. 2021** NOAA Marine Debris Program and Materevolve, release a workshop proceedings report on [California Microfiber Update: Textile Perspective](#). The workshop brought experts together to advance microfiber solutions by answering questions regarding how to break-down knowledge barriers between sectors and consumers and what the priorities are for research and innovation.
- Dec. 2020** The United Nations Environment Programme releases a report on [Water pollution by plastics and microplastics: A review of technical solutions from source to sea](#), which, presents solutions to reduce plastic and microplastic pollution from the source to waters, with a focus on wastewater.
- Aug. 2020** The National Sea Grant Law Center provides a [memorandum to the Ohio Sea Grant on plastic bag legislation](#) in the U.S. and Canada, including the Great Lakes region, including state laws, local laws and state laws that

ban enacting local laws.

- Jul. 2020** The National Academies of Science, Engineering and Medicine publish a workshop proceedings report on [Emerging Technologies to Advance Research and Decisions on the Environmental Health Effects of Microplastics](#). The workshop included sessions on, the prevalence of microplastics in the environment; how to reduce the level of microplastics in the environment; evaluating human health exposure and risk assessment; and on how emerging science and technology could be applied to policy and decision making.
- Aug. 2019** The World Health Organization releases a report on [Microplastics in Drinking Water](#), which finds that based on available research, microplastics contained in drinking water pose a low risk to human health. The report also recommends further research to better understand the overall exposure to microplastics from the broader environment (including food and air).
- Jun. 2019** World Wide Fund for Nature releases a report [No Plastic in Nature: Assessing Plastic Ingestion from Nature to People](#) that explores the key pathways plastics enter the human body. The report estimates that the average person could be ingesting ~5 grams of plastic per week.
- Dec. 2017** US EPA, as part of its Trash Free Waters program, releases a [Microplastics Expert Workshop Report](#). The workshop sought to identify and prioritize the scientific information needed to understand the risks posed by microplastics to human and ecological health in the U.S. The priority science needs identified included, analytical methods; sources, fate and transport; and human health and ecological assessments.
- Dec. 2021** US EPA releases an updated report to their Dec. 2017 Microplastics Expert Workshop Report. The updated report entitled, [A Trash Free Waters Report on Priority Microplastics Research Needs: Update to the 2017 Microplastics Expert Workshop](#), provides an update on the state of the science for four categories explored in 2017 - analytical methods; sources, transport, and fate; ecological assessments; and human health assessments.
- Jun. 2017** The NOAA and the National Park Service releases a report [Quantification of Microplastics on National Park Beaches](#) and associated [story map](#), investigating the presence and distribution of microplastics at across U.S. coastal parks, including beaches on Lake Superior and Lake Michigan. The Great Lakes sites had some the largest abundances of microplastics observed. Microfibers constituted 97% of all microplastics found across all sites sampled for this study.
- Dec. 2016** The United Nations Environment Programme (UNEP) publishes a report entitled [Marine plastic debris and microplastics – Global lessons and research to inspire action and guide policy change](#) that highlights the presence, abundance and potential impacts of microplastics and provides policy relevant recommendations to address the issue of marine plastic litter.
- Dec. 2016** The US EPA releases a report entitled [A Summary of Literature on the Chemical Toxicity of Plastics Pollution to Aquatic Life and Aquatic-Dependent Wildlife](#). It provides a state of the science on potential toxicity of chemicals inherent to, and associated with, ingested plastics on aquatic organisms and aquatic dependent wildlife.
- Apr. 2016** Environmental Defense releases a report [Turning the Plastic Tide: How to Protect the Great Lakes and Fight Plastic Pollution](#). The report recommends that Ontario institute a plastic bottle deposit program to combat plastic pollution from single-use plastic bottles. The report also recommends increased fees for industrial and commercial water users and encourages the use of refillable water containers.
- Jul. 2015** Environment Canada publishes a [Science Summary for Microbeads](#) report, as a means of determining whether microbeads should be added to the List of Toxic Substances under the Canadian Environmental Protection Act (CEPA). Although focused on microbeads, much of the report contains information on microplastics more broadly, including presence, sources and effects.
- Apr. 2015** The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) releases a report on [Sources, Fate and Effects of Microplastics in the Marine Environment: A Global Assessment](#). The report includes recommendations on actions to improve future assessments of microplastics, such as including particles in the nano-size range; evaluating the significance of plastics as a vector for organisms; and the chemical risk posed by ingested microplastics. A subsequent [Part 2](#) of this report was released in 2016.

- Apr. 2014** The US EPA publishes a [Summary of Expert Discussion Forum on Possible Human Health Risks from Microplastics in the Marine Environment](#). The document summarizes discussions regarding the availability of data and studies to assess possible human health risks from microplastics in the environment and identifies data gaps and research needs.

**d. Non-Government Organizations**

**Globally**

There are a number of global movements working towards combating plastic pollution through collaborative efforts to change habits, practices, policies and improve education and outreach.

- Jan. 2021** The [Interstate Technology and Regulatory Council](#) (ITRC) establishes a [Microplastics Team](#) to develop free [resources and fact sheets](#) providing information and best management practices for issues surrounding microplastics.
- Dec. 2020** A coalition of 550 NGOs publicly release a [Presidential Plastic Action Plan](#) on December 8th, via [a press release](#), that urges President-elect Biden to address plastic pollution with a series of executive orders. The plan includes eight recommended actions, such as joining international efforts to curtail plastic pollution; mitigating the impacts of abandoned fishing gear; and making plastics producers accountable for the plastic waste produced.
- Aug. 2020** The [U.S. Plastics Pact is launched](#), a collaborative led by The Recycling Partnership and World Wildlife Fund. The initiative brings together public-private stakeholders across the plastics value chain to create a path toward a circular economy for plastic in the United States by rethinking the way plastics are designed, used, and reused. The Pact includes a [Roadmap to 2025](#) with targets around improved plastic packaging recycling and reuse; recyclable content of plastic materials; and eliminating problematic or unnecessary packaging.
- Jan. 2022** The [U.S. Plastics Pact releases its "Problematic and Unnecessary Materials List"](#), which fulfills a commitment by the U.S. Pact identified in their Roadmap to 2025. The list identifies 11 items that are not currently reusable, recyclable, or compostable at scale in the U.S., such as cutlery, straws, stirrers, and polystyrene. This is a first step to improving progress toward a circular economy for plastic packaging in the United States.
- 2019** The [10,000 Changes initiative](#) is launched. The initiative was created to help Canada move toward zero plastic waste by sharing information on the impacts of plastic waste and helping individuals and business make better choices about plastic to reduce their use, production and waste.
- 2017** The [Clean Seas Initiative](#) is established by the United Nations Environment Programme (UNEP). The initiative aims to engage governments, the public and private sectors to combat plastic litter by changing habits, practices and policies to reduce plastic litter globally. Its goal is to [eliminate major sources of marine litter by 2022](#), with a focus on single-use plastics and microplastics in cosmetics. In [North America the UNEP works](#) by raising awareness of the plastic issue and shares best practices in preventing plastic litter at the source.
- 2016** [Break Free From Plastic](#) is founded. This organization is made up of hundreds of NGOs from around the world, working together to combat plastic pollution across the plastics value chain, focusing on prevention.
- 2011** The [Plastic Soup Foundation](#) is founded. The organization seeks to eliminate plastic pollution in waters through the development of education campaigns and programs and searching for innovative solutions to address the issue at the source.
- Oct. 2019** A global [Plastic Health Summit](#) is held that explored the impacts of microplastics on human health, including the effects of plastics additives; regulations of the plastics additives; and highlights of organizations developing solutions to the microplastics issue.
- 2009** The [Plastic Pollution Coalition](#) is founded. The coalition is a global alliance of organizations and businesses working together toward a world free of plastic pollution and its impacts on humans, animals and the environment. They advocate for the adoption of the [4Rs pledge](#) when it comes to plastics – refuse, reduce, reuse, and recycle. The coalition has also developed a [map and data sets](#) that tracks global plastic pollution legislation.

- 2009** [The 5 Gyres Institute](#) is founded. The organization's mission is to inspire action against global plastic pollution through science and education.
- 2008** [Plastic Oceans](#) is founded. The organization seeks to end plastic pollution through education and outreach campaigns, encouraging consumers, governments, and businesses to rethink how they view, use, and dispose of plastics.
- 2008** [The Story of Stuff Project](#) is founded. The organization's mission is to transform the way products are made, used and disposed to be more sustainable.

*[Great Lakes](#)*

The Alliance for the Great Lakes operates a voluntary [Adopt-a-Beach program](#) that cleans-up debris from US Great Lakes shorelines, [much of which is plastics](#). The data that is gained from beach clean-ups is used for scientific research; to initiate local public awareness campaigns; and inform management efforts. Similarly, in Canada, the [Great Canadian Shoreline Clean-up](#), also through volunteer efforts, cleans-up debris from Canadian shorelines, including the Great Lakes.

The NGO group [EcoSuperior](#), strives to achieve greater environmental stewardship in the Lake Superior basin, through education and collaboration. They also run, since Nov. 2018, [The Last Straw Thunder Bay Campaign](#) that provides local restaurants and bars with alternatives to plastic straws to encourage consumers to use these alternatives. Their goal is to make switching to eco-friendly products as easy as possible for businesses, by removing cost-barriers and doing the research for them.

- Oct. 2020** The [University of Windsor receives funding from the Canadian government](#) to research the removal of microplastics from wastewater before entering the bio-solids which are land-applied to the soil.
- May 2020** Researchers at Rochester Institute of Technology receive funding from NOAA Sea Grant College Program to examine how microplastics are transported and transformed in Lake Ontario, where they ultimately end up and what effects they have on the ecosystem.
- May 2020** The Council of the Great Lakes Region, with support from Environment and Climate Change Canada, [leads two projects](#) to clean-up plastics pollution. The first will pilot an innovative technology to capture and recover plastic debris along Ontario's Great Lakes shorelines. The second will pilot a cloud-based marketplace to connect Ontario businesses and institutions to develop new reuse and recycling opportunities for hard-to-recycle materials. This project also aims to link Ontario's pilot marketplace to existing marketplaces in Michigan and Ohio.

**Aug. 2020** The [Council of the Great Lakes Region \(CGLR\) launches its first phase](#) of the [Great Lakes Plastic Cleanup initiative](#). The first phase will deploy two innovative technologies to capture and recover plastic debris along Ontario's Great Lakes shorelines. The captured litter will provide researchers with information on the sources and accumulation of plastic pollution in local freshwater ecosystems.

**May 2021** The [Great Lakes Plastic Cleanup](#) kicks-off its "[Little Bits, Big Problems](#)" anti-pollution campaign. The campaign introduces a [public service announcement](#) aimed at bringing greater awareness to how big of a problem little plastics can be and encourage communities to join in the efforts to address plastic pollution in the Great Lakes.

- Nov. 2018** Wayne State University (Michigan) [receives a \\$929,000 grant](#) from the Great Lakes Protection Fund to undertake a three-year research study to identify and monitor microplastic inputs from various sources and then use this data to identify mitigation initiatives.
- Oct. 2018** The Council of the Great Lakes Region in partnership with Pollution Probe hosts a [Great Lakes Plastic Forum](#) that brought together experts from government, academia, industry and the non-profit sector to explore the issue of plastics and microplastics in the Great Lakes; innovations in packaging, recycling, reuse, and remanufacturing of plastics products; and the policy/regulatory steps that all levels of government need to take to shift toward a circular economy. Further conversation on material flows and a Great Lakes circular economy will continue as part of the Council of the Great Lakes Region's [Great Lakes Economic Forum](#) in May 2019.
- 2018** The [Lake Huron Centre for Coastal Conservation](#) initiates a [Microplastics Awareness Project](#) with the goal of reducing plastic pollution in the Lake Huron watershed and increasing public awareness of the issue of

plastic pollution in the Great Lakes.

- Feb. 2017** The Alliance for the Great Lakes develops its [2017 Great Lakes Action Agenda](#) listing their priorities for lawmakers, which includes keeping a continued watch on plastic pollution. While they applaud the signing of the US 2015 Microbead Free Waters Act, they note this solves only part of the plastic problem and that addressing other issues, such as fragments and microplastic fibers, will require a greater effort.
- Mar. 2015** Lake Ontario Waterkeeper has been advocating for the protection of the Great Lakes from microplastics, through its [request to add microbeads](#) to Canada's Priorities Substances List and [public education](#).
- Oct. 2013** The Great Lakes St. Lawrence Cities Initiative issues a [press release](#) for action on microplastics, calling on regulators and industry to remove microplastics from consumer products; to clean up microplastics in the Great Lakes; and to encourage mayors to educate citizens and businesses about the threat of microplastics to the waters of the Great Lakes.

**e. Governments**

The Duke Nicholas Institute maintains a [searchable plastics policy inventory](#) consisting of public policy documents targeting plastic pollution at subnational, national, and international level governments. [Appendix B](#) provides a list of plastics legislation (e.g., bans, fees) in select jurisdictions of the United States, Canada and other select countries (not an exhaustive list).

Globally

- Mar. 2022** At the UN Environment Assembly, [175 nations endorse a resolution](#) to tackle the problem of plastic pollution. The [End Plastic Pollution resolution](#) commits the nations to develop an international, legally-binding agreement by 2024 that would address the full-life cycle of plastic. The resolution establishes an Intergovernmental Negotiating Committee (INC), which will begin work on a draft agreement in 2022.
- Jan. 2020** [China announces country-wide ban](#) to reduce single-use plastics. The policy includes, ban on the use of non-degradable bags by end of 2022; ban on single-use straws by restaurants by end of 2020; ban on the production and sale of microbead-containing products by end of 2020; and hotels must not offer free single-use plastic items by 2025.
- May 2019** The [Basel Convention is ratified by 187 countries](#) (including Canada, but not the US), adding plastic waste to the Convention that controls the international movement of hazardous waste. The amendment will require countries exporting contaminated, mixed or unrecyclable plastic waste to obtain consent from the receiving nations.
- May 2019** The [UK government announces a ban](#) on the use of plastic straws, stirrers and cotton swab sticks to come into force by April 2020.
- May 2019** The [Council of the EU adopts measures](#) to tackle single-use plastic items. The measures include bans on select single-use products (such as cutlery, straws, stirrers and others); measures to reduce consumption of plastic food and beverage containers; extended producer responsibility strategies to cover clean-up costs of products such as tobacco filters; and 90% collection rate of plastic bottles by 2029 and contain 25% recycled content by 2025. Member States are to implement the legislation by 2021.
- Jan. 2018** The [European Commission \(EC\) announces a strategy](#) to combat plastic pollution that includes plans to make all plastic packaging in the EU recyclable by 2030, reduce the use of single-use plastic items, and restrict the intentional use of microplastics in products. A directive under this strategy that proposes EU-wide rules [targeting single-use plastic items](#), reached a provisional agreement between the European Parliament and the Council of the EU. The provisional agreement still requires formal approval by the European Parliament and Council. If approved, Member States will have two years to implement the directive, placing the EU a [global leader in tackling plastic marine litter](#).
- Jan. 2018** The Prime Minister of [the UK announces a plan to eliminate all avoidable plastic](#) waste by 2042, which includes items such as plastic bags, food packaging and straws. However, these plans are not yet backed by any legislation. The announcement of this plan came a few days after the [UK ban on microbeads](#) in personal care products came into force on January 9th, 2018.
- Jul. 2017** China announces that will [no longer import plastic waste](#) items (such as water bottles) beginning in early

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2018. This announcement [spurs the European Commission and the UK](#) to develop strategies to combat plastic pollution.

#### Canada and the United States

Since the discovery of microbeads in the waters of the Great Lakes in 2012 bans in both the US ([2015 Microbead Free Water Act](#)) and Canada ([2017 Microbeads in Toiletries Regulations](#)) have been signed. Both the US and Canada have also been working to address microplastics more broadly through litter and waste reduction initiatives. Within the purview of the Great Lakes Water Quality Agreement, specifically the Lakewide Action and Management Plans (LAMPs), microplastics have been identified as an emerging issue of concern in both the [2017-21 Lake Huron LAMP](#) and the [2015-19 Lake Superior LAMP](#). The draft [2020-24 Lake Superior LAMP](#) again identified microplastics as a threat to the lake.

#### Canada

The Government of Canada collaborates with other jurisdictions through the Canadian Council of Ministers of the Environment (CCME) to improve waste diversion and management, such as the [Canada-wide Action Plan \(CAP\) for Extended Producer Responsibility](#) and the [CAP Strategy for Sustainable Packaging](#). These two programs can help in managing plastics at their end-of-life, reducing the amount of plastics and ultimately microplastics released to the environment.

- Dec. 2021** The Government of Canada announces that [draft regulations prohibiting certain single-use plastics](#) have been [published for public comment](#) until March 5, 2022. The proposed rules, which would be added to Schedule 1 of the Canadian Environmental Protection Act, prohibit the manufacture, import, and sale of six categories of single-use plastics - checkout bags, cutlery, foodservice ware made from or containing problematic plastics, ring carriers, stir sticks, and straws. Manufacture, import, and sale for the purposes of export would not be subject to the prohibition. The government's intent, after considering comments received, is to finalize and bring into force the regulations as soon as possible, potentially by late 2022.
- May 2021** [Government of Canada adds plastic manufactured items to the List of Toxic Substance](#) of the Canadian Environmental Protection Act, which enables the proposal of risk management measures on certain plastic manufactured items to manage potential ecological risks associated with those items becoming plastic pollution. Plastics industry stakeholders have expressed opposition, and [plan to sue the Canadian government](#), arguing that plastics are not toxic and the decision is not supported by available science and will have far reaching and unintended consequences.
- May 2021** The [Government of Canada announces](#) \$7 million to support [seven research projects](#) to close gaps in knowledge and improve understanding of the threats posed by plastic pollution. The funding of these projects supports [Canada's Plastics Science Agenda](#) and Canada's [Zero Plastic Waste agenda](#). [One of these projects includes measuring microplastics in wastewater](#) discharged to Ontario waterways that feed into the Great Lakes. The research will also seek to better understand which treatments best remove microplastics; impacts on aquatic creatures; and impacts on crops and organisms in the soil. Results are expected by 2025.
- Oct. 2020** The Government of Canada announces [ban on single-use plastic items](#) (e.g. checkout bags, straws, stir sticks, six-pack rings, cutlery) by the end of 2021. The ban is part of [Canada's plan to achieve zero plastic waste](#) by 2030. The list of banned items is listed in the discussion paper [Proposed Integrated Management Approach to Plastic Products to Prevent Waste and Pollution](#), which is open for public comment until Dec. 9, 2020.
- Jul. 2020** ECCC and the Natural Sciences and Engineering Research Council of Canada (NSERC) are [collaborating to support research](#) that will increase scientific knowledge to achieve Canada's zero plastic waste targets. Invited proposals (due Oct. 1, 2020) are to focus on detection, quantification, and characterization of microplastics in the environment and/or impacts on human health, wildlife, and the environment.
- Jul. 2019** The Government of Canada and Province of Ontario [post for public comment](#) the draft [2020 Canada-Ontario Agreement \(COA\) on Great Lakes Water Quality and Ecosystem Health](#) (the 2014 COA agreement will expire in December 2019). The Agreement is a five year work plan outlining how Canada and Ontario will work together to restore and protect the Great Lakes, including how provisions of the GLWQA will be implemented. The draft 2020 COA Agreement includes actions to reduce plastic pollution in the lakes such as, supporting the Canada-wide Strategy on Zero Plastic Waste; advancing research and monitoring activities; and enhancing education and awareness to reduce plastic waste.

**May 2021** The Governments of [Canada and Ontario sign the 2021 COA](#). The COA addresses [plastic pollution in the Great Lakes through Annex 2 \(Harmful Pollutants\)](#). It includes provisions such as supporting clean-up projects; supporting the Canada-wide Strategy on Zero Plastic Waste; standardize monitoring and analysis procedures; and consider plastic pollution in wastewater and stormwater policies.

**Jun. 2019** [Canada announces ban on select single-use plastics](#) (such as straws, plastic bags, cutlery, and stirrers) by 2021 as well as work with provinces and territories to introduce standards for manufacturers of plastic products and companies selling items with plastic packaging to become responsible for the plastic waste. The measures are intended to align, where possible, with action in the EU and in support of the Canada-wide [Strategy on Zero Waste Plastic](#) and Canada's broader [Plastics Science Agenda](#). The Government of Canada is [undertaking a number of actions](#) to reduce plastic pollution.

**Jan. 2020** Canada publishes a [Draft Science Assessment of Plastic Pollution](#) to summarize the state of potential impacts from plastics on environmental and human health and to inform future regulatory activities. The draft assessment is [available for public comment](#) until Apr. 1, 2020.

**Nov. 2018** CCME endorses a [Strategy on Zero Plastic Waste](#), which outlines an approach to keep all plastics in the economy and out of the environment. CCME will develop an action plan that sets out the measures and actions needed to implement the strategy in 2019.

**Jun. 2018** Canada hosts the [G7 Summit](#) in Charlevoix, Québec on June 8-9. Five of the seven countries (excluding the United States and Japan) and the European Union [endorse a G7 Ocean Plastics Charter](#) that will encourage further recycling and re-purposing of single-use plastic items.

**Apr. 2018** The [Government of Canada solicits public comment](#) on moving Canada toward zero plastic waste, asking what the most important plastics management issues are, how to achieve zero plastic waste and who needs to be involved.

**Jun. 2015** Canada commits to taking action on marine litter through the [G7 Action Plan to Combat Marine Litter](#) and the [United Nations 2030 Agenda for Sustainable Development](#).

**2015-2020** Canada's Department of Fisheries and Oceans (DFO) is undertaking different investigations related to microplastics including (1) [assessing the presence, abundance and impacts of microplastics on shellfish aquaculture](#) (2) [assessing exposure, ingestion and effects on biota in the Arctic](#) and (3) [assessing the uptake and effects of micro- and nano-sized plastics on aquatic life in marine and freshwater ecosystems](#). The DFO is also funding research specific to Great Lakes fish [to assess the sources, sinks and ecological effects of microplastics and their associated chemicals](#). These projects are to be completed throughout 2018 to 2020.

#### *United States*

The [US EPA's Trash Free Waters](#) program explores innovative strategies for preventing trash and litter from entering U.S. waterways to ensure healthy waters, habitats and communities. Their website offers a variety of information on their program including, [newsletters](#), [projects](#), [research](#) and informational [webinars](#).

**Feb. 2022** California becomes the [first state to adopt a strategy](#) for the reduction of microplastics – the [Statewide Microplastics Strategy](#). The strategy includes a multi-year roadmap with actions to reduce and manage microplastics pollution. Some actions include, eliminating plastic waste at the source; developing a state-wide monitoring approach; prioritizing pathways to identify management solutions and improving understanding of impacts to aquatic and human health.

**May 2021** The [Plastic Pellet Free Waters Act is introduced](#), prohibiting the discharge of plastic pellets and other pre-production plastic into waterways from facilities and sources that make, use, package, or transport pellets. The [Plastics Industry Association expressed concern](#) that the proposed legislation opens the door to regulatory overreach and heavy-handed federal enforcement. The Plastics Industry Association cites the 30-year old voluntary Operation Clean Sweep program that promotes best practices for containing pellets, flakes and powders during refining, transportation and manufacturing.

**Jan. 2021** The [Great Lakes Restoration Initiative announces \\$5 million](#) for funding for trash removal projects, via the Trash Free Waters initiative, which include the use of devices to remove trash from Great Lakes river mouths and harbors. This is an increase from the previous year in which [\\$2.1 million was provided](#) for trash

removal projects.

**Jun. 2021** The city of [Toledo installs trash capture devices](#) in waterways near Lake Erie to catch debris before it even reaches the lake.

**Dec. 2020** [President Trump signs the Save our Seas 2.0](#), which tackles marine debris with a focus on ocean plastics. The legislation includes the development of federal definitions and testing for microfibers and microplastics that can impact industries; addressing derelict fishing gear; increased U.S. participation in international plastics pollution efforts; and strengthening domestic infrastructure to prevent plastics pollution.

**May 2022** To fulfill requirements under the Save our Seas 2.0 [a draft report, currently under interagency review, has been developed](#) that will, provide a definition of “microfiber”; assess sources, prevalence and causes of microfiber pollution; and provide a standard methodology to measure microfiber pollution and its reduction. The final report is scheduled for release for public comment in summer 2022.

**Jun. 2020** California becomes the first state to [adopt an official definition of “microplastics” in drinking water](#), as a first step in an international effort to standardize methods for monitoring microplastics in drinking water, surface water, sediment and fish tissue. A [provision in California’s Safe Drinking Water Act](#) requires, by July 1, 2021, the adoption of a standard methodology for testing drinking water for microplastics; conduct four years of testing and reporting, including to the public. California [will be the first in the nation](#) to test for microplastics in drinking water.

**Oct. 2020 - Sept. 2021** A [series of public webinars](#) held on ecological and human health effects of microplastics in water, which will inform how such science will be used in meeting the legislative mandates in California (i.e., measuring microplastics in drinking water and implementing a statewide strategy for reducing the ecological risks of microplastics to coastal ecosystems). The [September 2021 webinar](#) reported out findings of an experts workshop that investigated the feasibility of developing thresholds for when biological effects are likely to be triggered as a result of microplastics exposure from drinking water and for organisms in the ambient environment. Adoption of a standard methodology for sampling and analysis of microplastics is expected [in winter of 2021-22](#).

**Feb. 2020** [Break Free From Plastic Pollution Act](#) is introduced. The [Act includes elements](#) regarding producer responsibility for recovery and recycling of plastic products; beverage container refund programs; bans on non-recyclable products that have alternatives (e.g. straws, plastic bags); standardize recycling and composting labels; and limitations on the export of plastic waste to other countries.

**Mar. 2021** The [Break Free From Plastic Pollution Act is reintroduced](#) in congress. [Updates to the bill](#) include, actions to address microfiber pollution; funding for pilot programs for the removal and prevention of microplastic pollution; and minimum standards for considering carryout bags as “reusable”.

**Dec. 2019** A [Congressional Plastics Solutions Task Force](#) is launched. The task force is comprised of federal, state, local and industry representatives. Its goal will be to facilitate investment in recycling technologies and promote education on plastics generation and recovery.

**Nov. 2019** Two bills introduced in Congress, [Realizing the Economic Opportunities and Value of Expanding Recycling \(RECOVER\) Act](#) and the [Recycling Enhancements to Collection and Yield through Consumer Learning and Education \(RECYCLE\) Act](#). These two acts, which would be overseen by the EPA, authorizes spending and matching grants to fund recycling infrastructure, programs and education. Shortly after the introduction of these two bills the U.S. Department of Energy launched the [Plastics Innovation Challenge](#). This program seeks to accelerate innovations in plastics recycling technologies, such as novel collection technologies to prevent plastics from entering oceans; support a domestic upcycling plastics supply chain; and chemical and biological methods for deconstructing plastic waste.

**Mar. 2021** The [RECYCLE Act is reintroduced](#).

**Aug. 2021** The Invest in America Act is passed by the Senate and [includes the full text of the RECYCLE Act](#).

**May 2018** The first U.S. state bill of its kind is passed ([HB 5360](#)) in [Connecticut to address the issue of microfiber pollution](#) in the state’s waters. The bill requires the creation of a Microfiber Working Group, comprised of representatives from the apparel industry and environmental community, to develop a consumer

awareness campaign, including practices both consumers and the apparel industry can undertake to reduce the shedding of microfibers from clothing into the environment.

**Jan. 2020** Microfiber Working Group develops [a Report to the Legislature on the Findings of the Synthetic Microfiber Working Group](#). The report discusses approaches to create consumer awareness of the issue and suggested practices to reduce or eliminate synthetic microfiber pollution.

**2014-2015** The USGS, through a Great Lakes Restoration Initiative funded project, undertakes [sampling of Great Lakes tributaries](#) to determine microplastics abundance and type. The study found that microbeads made-up a small fraction of all the microplastic found, with [71% of the total particles comprised of fibers](#). It is hoped this study will help to better understand the many forms and fate of microplastics in waterways.

**May 2014** The National Oceanic and Atmospheric Administration (NOAA) develops a [Great Lakes Land-based Marine Debris Action Plan](#) to be undertaken from 2014-2019. The action plan provides a framework for action to ensure that the Great Lakes, its shorelines, people and wildlife are free from the impacts of marine debris (including plastics), with both US and Canadian organizations participation. Through the Marine Debris Action plan, NOAA also maintains a [Great Lakes Marine Debris Collaborative](#) website, meant to serve as a tool for partners around the region to access information on projects, upcoming events, education and outreach resources, as well as resources on legislation, action plans, and publications. Progress on the action plan is provided via [annual summaries](#). The actions taken to reduce the impacts of marine debris in the Great Lakes over the 5 years of the plan are documented in their [Accomplishments Report](#).

**Jan. 2020** NOAA releases its [2020-2025 Great Lakes Marine Debris Action Plan](#). The plan was updated using feedback from its previous 2014-2019 Action Plan as well as input from a workshop. The goals include addressing research and monitoring knowledge gaps; informing policy and decision making; prevention and reduction through education; and removal of debris to minimize impacts.

#### *Ontario*

The government of Ontario continues to stay abreast of the issue of microplastics through going [work with researchers in the US and Canada](#) to gain a better understanding of the sources, composition and fate of microplastics entering the Great Lakes.

**Oct. 2020** The [Government of Ontario provides \\$375,000](#) to support the Great Lakes Plastic Cleanup initiative, which will collect plastic waste from marinas around the province using innovative plastic-capture technology. The types and amounts of waste collected will be analyzed and results publicly shared to help increase awareness of plastic pollution and its proper disposal.

**Mar. 2019** [Ontario releases for public comment](#) a “[Discussion Paper on Reducing Litter and Waste in our Communities](#)” to obtain feedback on how to implement waste commitments included in the Made-in-Ontario Environment Plan. The discussion paper seeks feedback on questions such as, whether bans on single-use plastics would be effective in reducing waste; what the most effective means for reducing plastic waste to the environment are; and views on reducing plastic litter through deposit return programs.

**Nov. 2018** Ontario releases its [Made-in-Ontario Environment Plan](#), which describes actions Ontario is proposing to take to address [four key environmental challenges](#), including reducing litter and waste. The plan outlines actions to reduce plastic waste such as, working with other provinces, territories and the federal government to develop a plastics strategy to reduce plastic waste and limit micro-plastics from entering waterways; seeking federal commitment to implement national standards for recyclability and labelling of plastic products; and ensuring the Great Lakes and other inland waters are included in international agreements and strategies that address plastic waste. The plan also includes an action to renew [Ontario's Great Lakes Strategy](#) to protect coastal wetlands and water by reducing plastic litter, amongst other priorities.

**Nov. 2015** Ontario passes the [Great Lakes Protection Act](#), which contains a provision that requires the monitoring and reporting of harmful pollutants, including microplastics, for the purposes of improving understanding and the management of the Great Lakes basin [section 7(1) of the Act].

#### f. Business and Industry

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In the US, through the [American Chemistry Council](#) (ACC), plastic makers work together to reduce waste, increase plastics recovery and [reduce litter to waterways](#). The ACC is working to combat plastic pollution through a [variety of efforts](#) including, being a signatory on the [Declaration of the Global Plastics Associations for Solutions on Marine Litter; supporting innovations](#) in plastics recycling; contributing to the 2016 UNEP report on best technologies for waste management to combat marine litter; supporting the 2015 Microbead Free Waters Act; and developing and promoting [Operation Clean Sweep](#), a series of best practices to manage plastic pellets, flakes and powders from manufacturing to end-use.

In Canada, the [Chemistry Industry Association of Canada](#) (CIAC) includes a plastics division that represents members from across the plastic production value chain (from resin production to final products). The CIAC also works toward producing plastics in a way that limits or eliminates plastic waste while working toward a circular economy for plastics. They are [committed to](#) 100% of plastics packaging being recyclable or recoverable by 2030 and 100% of plastic packaging being reused, recycled, or recovered by 2040.

- Mar. 2020** The Plastics Industry Association, as a result of the COVID-19 pandemic, sends a [letter to the U.S. Department of Health and Human Services](#) requesting a public statement be made as to the health and safety benefits of single-use plastics and to further speak out against bans on these products. Several states and cities in the U.S. [temporarily lift bag bans](#) or have delayed bag bans from going into effect.
- Jan. 2019** The [Loop initiative is launched](#), which includes some of the largest consumer products companies [partnering in the development of a circular shopping platform](#). The [Loop](#) initiative takes consumer product packaging, such as shampoo bottles and ice cream containers, that can be returned and refilled over and over again. The program is expected to launch in the U.S. and France in spring 2019 and in [Toronto late 2019](#).
- Jan. 2019** Almost 30 [global companies form the Alliance to End Plastic Waste](#), committing over \$1 billion USD to help end plastic waste in the environment by enabling a circular economy.
- Oct. 2018** Over 250 organizations, including major companies such as, Coca-Cola, Johnson & Johnson, and Unilever, join together to sign the [New Plastics Economy Global Commitment](#). The initiative unites businesses, industry, NGOs, universities and other organizations with a [common vision](#) to eliminate unnecessary plastic items; ensure needed plastics are reusable, recyclable or compostable; and keep plastics in the economy and out of the environment.
- Sept. 2018** The [Circular Economy Leadership Coalition](#) in Canada is launched to provide a collaborative platform for the development of solutions to eliminate waste at all stages of the life cycle of products and move toward a circular economy.
- Jun. 2018** CPIA and the Chemistry Industry Association of Canada [announce waste reduction goals](#) of 100% of plastics packaging being reused, recycled, or recovered by 2040 and an interim goal of 100% of plastics packaging being recyclable or recoverable by 2030.
- May 2018** The ACC's Plastics Division announces [goals to recycle or recover all plastic packaging](#) used in the United States by 2040 and to enhance plastic pellet stewardship by 2022. Focus areas include product redesign for improved recycling and reuse; developing new technologies and systems for collecting, sorting, recycling and recovering materials; making it easier for more consumers to participate in recycling and recovery programs; and expanding the types of plastics collected and repurposed.

Below are some examples of actions companies are taking to combat the plastics and microplastics issue:

- **Patagonia** - A company that sells clothing and gear for outdoor activities has [made a commitment](#) to gain a better understanding of the microfiber issue and determining the role that the company can play in developing solutions. They are [taking steps](#) to minimize their impact on the environment from microfibers by: investigating how to minimize fiber shedding through fabric construction; supporting research to gain a better understanding of the types, sources and impacts of microfibers; and proactively communicating with customers and the public.
- **Dell** - Dell [began an initiative](#) to use plastics collected from beaches, waterways and coastal areas in their laptop packaging. Dell [began shipping its first laptops](#) with this packaging (25% recovered plastics, 75% other recycled HDPE plastics) in April 2017.
- **Adidas** – Since 2015 Adidas has [undertaken several initiatives](#) to reduce their plastic impact on the environment, including ending the use of microbeads in their body care products, manufacturing shoes from reclaimed and recycled ocean plastics, and phasing out the use of plastic bags in their stores.

- **G-Star Fashion** – The first company to make [denim from recycled ocean plastics](#), with a goal of substituting 100% of the polyester in their products with recycled plastics and other materials. It is hoped that such initiatives will encourage other companies to follow similar approaches
- **Starbucks** – The company has committed to [phasing-out plastic straws by 2020](#) and replacing them with recyclable strawless lids and paper and/or compostable straws. The move has drawn [mixed reactions](#) as some have criticized the replacement of one plastic (straws) with another (lids). There have also been [concerns raised by advocates of disabled persons](#), who need straws to safely drink liquids.
- **Hyatt Hotels** – Hyatt hotels around the world will [eliminate plastic straws and picks](#) by Sept. 2018, offering them only upon request, with environmentally friendly alternatives made available.
- **McDonald's** – McDonald's will be [switching to paper straws](#) at its locations in the UK and Ireland by the end of 2019. Testing of plastic straw alternatives will take place in some of their locations in the U.S., France, Sweden and Norway. McDonald's Canada [announced they will introduce](#) wooden cutlery, wooden stir sticks and paper straws to its restaurants across the country by December 2021. This is in support of [their goals](#) to source 100% of guest packaging (fiber and plastic) from renewable, recycled or certified sources, and to recycle guest packaging in 100% of McDonald's restaurants, by 2025.
- **Hasbro** – One of the world's largest toy manufacturers is [phasing out all plastics used to package](#) its toys and games by the end of 2022. This initiative is part of a longer-term effort to reduce the impact of its products on the environment
- **Marriott** – The world's largest hotel chain will [eliminate small plastic shampoo and bath gel](#) bottles from its hotel rooms by the end of 2020. This is a continuation of their efforts to reduce their plastic use as they banned plastic straws and stirrers in 2018.
- **Suzuki** – In October 2020, Suzuki announced the development of a [filtration system for their outboard motors](#), which collects microplastics from the water used to cool the engine. Suzuki plans to introduce the filter as optional equipment to start and as standard equipment in the future.
- **Samsung** – In Jan. 2022, Samsung announced they are partnering with clothing company Patagonia to [design washing machines to minimize the release](#) and subsequent impacts of microplastics. The company is also increasing the amount of recycled plastic that is used in its home appliances.

#### **g. Innovative Solutions**

##### *Plastic Eating Bugs*

In 2015 a [first of its kind study](#) was conducted on the mineralization of Styrofoam (polystyrene) by mealworms. The byproducts of the Styrofoam consumption were carbon dioxide and biodegradable droppings, with no observed ill-effects on the health of the worms. [Subsequent studies of this type](#) have been conducted by other researchers using wax worms (moth larvae that live on the wax of beehives) to break-down polyethylene (used in plastic bags). However, the rates at which the plastics are degraded would require a massive number of worms to deal with the amount of plastic waste generated, and therefore [may not be feasible solution](#). The studies attribute the insects' [plastic-eating abilities to their gut bacteria](#) and scientists may be able to replicate the process, creating more efficient and powerful enzymes. In 2018, researchers [isolated the enzyme that breaks down PET](#) and enhanced its rate of degradation. In 2020, the same researchers [linked two enzymes from the plastic-eating bug](#), which increased the rate of PET degradation. It is hoped the enzyme can be used, at a large scale, to break down the plastic into its original components to be recycled back into plastic; thereby reducing the need to produce products with virgin plastics and reducing the amount of plastics entering the environment.

##### *Laundry Innovations to Reduce Release of Microfibers*

Innovators in the US have created products to capture microfibers in the laundry, before the water is discharged. One such innovation is the [Cora Ball](#), which is made from 100% recycled plastic and is put into the washing machine with each load of laundry. The ball allows water to flow while catching the small pieces of microfibers. Another product is the [Guppyfriend](#), which is a synthetic fiber bag into which clothes are placed before putting them into the washing machine. The bag captures any fibers that may shed from the clothing. Both products require removal and disposal of the fibers from the product. The Cora ball [captures up to 35% of microfibers](#) per load, while Guppy friend [can capture 90%-100%](#), depending on the type and age of clothing. There are also in-line lint filtration systems, such as the [Lint LUV-R](#) and [Fitrol-160](#), which promote one of their benefits as capturing microplastic fibers from washing machine discharge water.

##### *Sewage Effluent Filter*

High school students, after collaboration with environmental groups and politicians, [created a filter](#) that could be placed at the end of existing sewage filtration systems to capture microplastics. The filter utilizes negatively and positively charged filter grids to capture the particles. It is hoped the concept will be pursued by companies at a larger-scale. There is also

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research underway in Europe on the development of gels to bind microplastics. Two such projects include [Wasser 3.0](#) and [GoJelly](#). The Wasser 3.0 project is examining the use of silica gels to trap microplastics (and pharmaceuticals) in wastewater. The gel forms clumps that float on the surface for easy removal. The GoJelly project, being funded by the European Union, is studying the use of jellyfish mucus to bind microplastics.

#### *Biodegradable Plastics*

[Biodegradable plastics](#) are those that degrade in a process whereby microorganisms cause decomposition and breakdown of the structure of the biodegradable plastic. Biodegradable plastics have been [marketed as a green alternative](#) that could reduce the amount of plastic waste that ends up in the environment. However, [rates of biodegradation](#) are dependent upon the environment in which it is occurring, with fresh water having a slower rate than other environments, such as compost. Biodegradable plastics can be [challenging to recycle and are most suited to biological waste treatment](#) via industrial and/or household composting. It has also been asserted that the use of biodegradable products [may make people think it is OK](#) to throw away the product and does not tackle the real issue of changing people's attitudes and behaviours when it comes to proper disposal.

#### *Upcycling*

In April 2017 the world's first mobile waste recycling plant, the [TRASHPRESSO](#) was unveiled. The machine has been created to upcycle post-consumer plastic waste into architectural tiles that can be used as interior or exterior finishes or as flooring. It is a mobile unit powered by solar energy with a zero water footprint (water is continually filtered and re-used in the system). The developers of the machine have taken it to areas in China with plans to visit North America in late 2018.

#### *Plastic Roadways*

There are companies currently using discarded plastics in the production of roads – either as an added material or as a fully plastic roadway. A UK company, [MacRebur](#), uses waste plastics to replace a portion of bitumen in asphalt, which the company claims reduces fossil fuel usage and discarded plastics while improving the strength and durability of the road. The company has [provided plastic pellets for roads](#) in the UK, Canada, Australia and New Zealand. A Netherlands-based company, [KWS](#), is using recycled plastics to fabricate modular, plastic roads that are expected to last three times longer than traditional paved roads. A first pilot of these roads was installed as a [bike path in the Netherlands](#) in September 2018. The 100-foot path is made from the equivalent of 500,000 bottle caps. Additional research and testing is being conducted to determine the feasibility of its use for vehicular roadways. In August 2020, a one-mile stretch of California highway became the first state road to be [paved with recycled plastic bottles](#).

#### *Ocean and River Clean-up System*

In 2013 a young Dutch inventor established the [Ocean Cleanup](#) project and developed a floating boom barrier with the [goal of collecting floating debris and plastic](#) from the Great Pacific Garbage Patch. After many tests and trials the boom was [launched from June to October 2019](#), collecting debris from the Pacific patch, which included large plastics such as fishing nets to microplastics. The Ocean Cleanup intends to work with partners to clean and recycle the collected plastics to [create consumer products](#) by fall 2020. The ultimate goal is to remove 50% of the Pacific Garbage Patch by 2025 and 90% of ocean plastic by 2040. The project also aims to implement such a [system, by 2025, in rivers](#) that transport plastics to the oceans. The device has [come under criticism](#) by some that it will harm floating marine life; that it only captures a small fraction of what exists in the oceans; and it takes away from the issue of preventing plastic from entering the environment to begin with.

#### **h. International Joint Commission (IJC)**

- Mar. 28, 2022** IJC Great Lakes Regional Office staff member does an [informational talk on microplastics](#) in the Great Lakes as part of Toronto Zoo's Great Lakes Road Trip educational program.
- Nov. 28, 2017** The [IJC releases its 2017 Triennial Assessment of Progress](#) (TAP) Report, which includes a [section on microplastics](#), highlighting the complexity of the problem. Accompanying the release of the TAP Report is the [Summary of Public Comment Appendix](#), which provides a list of issues, ordered according to how often they were raised. Microplastics are noted as number 33 out of 70 issues.
- Feb. 13, 2017** The [IJC releases a set of recommendations](#) to the governments of Canada and the United States on actions to prevent and reduce the release of microplastics to the Great Lakes. The recommendations include the development of a binational plan with measurable goals to prevent microplastics from entering the Great Lakes, using approaches such as policy, market-based instruments, outreach education and research; filling knowledge gaps on the science of microplastics sources, abundance and distribution and their

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impacts on aquatic life and human health; adopting policies that promote life-cycle responsibility of plastic producers; and providing funding for local programs and organizations that deliver educational outreach to reduce the release of plastics and microplastics.

**Apr. 26-27, 2016** The IJC convenes a binational workshop on [\*Microplastics in the Great Lakes\*](#), the purpose of which is to develop 5-10 recommendations for the IJC to reflect upon and potentially forward to the governments of Canada and the United States to help address the challenges posed by microplastics in the Great Lakes.

## Appendix A - Journal Papers (Great Lakes Relevant)

Title	Year	Journal	Author(s)	Link to Abstract
Distribution, abundance and spatial variability of microplastic pollution on the surface of Lake Superior	2021	Journal of Great Lakes Research	Kara Cox, Emily Brocious, Simon C. Courtenay, Mark R. Vinson, Sherri A. Mason	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0380133021001714?dgcid=author_email">https://www.sciencedirect.com/science/article/abs/pii/S0380133021001714?dgcid=author_email</a>
Biofilm growth on buoyant microplastics leads to changes in settling rates: Implications for microplastic retention in the Great Lakes	2021	Marine Pollution Bulletin	Patricia O. Semcesen and Mathew G. Wells	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0025326X2100607X?dgcid=raven_sd_via_email">https://www.sciencedirect.com/science/article/abs/pii/S0025326X2100607X?dgcid=raven_sd_via_email</a>
Microplastic contamination in Great Lakes fish	2021	Conservation Biology	Keenan Munno, Paul A. Helm, Chelsea Rochman, Tara George, Donald A. Jackson	<a href="https://onlinelibrary.wiley.com/doi/epdf/10.1111/cobi.13794">https://onlinelibrary.wiley.com/doi/epdf/10.1111/cobi.13794</a>
Sequestration of microfibers and other microplastics by green algae, Cladophora, in the US Great Lakes	2021	Environmental Pollution	Julie Peller, Meredith B. Nevers, Muruleedhara Byappanahalli, Cassie Nelson, Bharath Ganesh Babu, Mary Anne Evans, Eddie Kostelnik, Morgan Keller, Jenna Johnston, Sarah Shidler	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0269749121002736">https://www.sciencedirect.com/science/article/abs/pii/S0269749121002736</a>
A systematic review of the literature on plastic pollution in the Laurentian Great Lakes and its effects on freshwater biota	2021	Journal of Great Lakes Research	Arielle Earn, Kennedy Bucci, Chelsea M. Rochman	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0380133020302513">https://www.sciencedirect.com/science/article/abs/pii/S0380133020302513</a>
Incorporation of anthropogenic debris into double-crested cormorant nests, Toronto, Ontario	2020	Journal of Great Lakes Research	Melina Damian and Gail S. Fraser	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0380133020301878">https://www.sciencedirect.com/science/article/abs/pii/S0380133020301878</a>
Microplastic pollutants in the coastal dunes of Lake Erie and Lake Ontario	2020	Journal of Great Lakes Research	Jansen D. Costello and James R. Ebert	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0380133020301829">https://www.sciencedirect.com/science/article/abs/pii/S0380133020301829</a>
Spatial Distribution of Microplastics in Surficial Benthic Sediment of Lake Michigan and Lake Erie	2020	Environmental Science & Technology	Peter L. Lenaker, Steven R. Corsi, and Sherri A. Mason	<a href="https://pubs.acs.org/doi/full/10.1021/acs.est.0c06087">https://pubs.acs.org/doi/full/10.1021/acs.est.0c06087</a>
A comprehensive investigation of industrial plastic pellets on beaches across the Laurentian Great Lakes and the factors governing their distribution	2020	Science of the Total Environment	Patricia L. Corcoran, Johannade Haan Ward, Ian A. Arturo, Sara L. Belontz, Tegan Moore, Carolyn M. Hill-Svehla, Kirsty Robertson, Kelly Wood, Kelly Jazvac	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0048969720347562">https://www.sciencedirect.com/science/article/abs/pii/S0048969720347562</a>
Microplastics entering northwestern Lake Ontario are diverse and linked to urban sources	2020	Water Resources	Jelena Grbic, Paul Helm, Samantha Athey, Chelsea M. Rochman	<a href="https://pubmed.ncbi.nlm.nih.gov/32088386/">https://pubmed.ncbi.nlm.nih.gov/32088386/</a>
Factors Controlling the Distribution of Microplastic Particles in Benthic Sediment of the Thames River, Canada	2020	Environmental Science & Technology	Patricia L. Corcoran, Sara L. Belontz, Kelly Ryan, and Mary Jane Walzak	<a href="https://pubs.acs.org/doi/abs/10.1021/acs.est.9b04896">https://pubs.acs.org/doi/abs/10.1021/acs.est.9b04896</a>
The Widespread Environmental Footprint of Indigo Denim Microfibers from Blue Jeans <b>[Note this paper includes sampling from fish from L. Huron and L. Ontario]</b>	2020	Environmental Science & Technology Letters	Samantha N. Athey, Jennifer K. Adams, Lisa M. Erdle, Liisa M. Jantunen, Paul A. Helm, Sarah A. Finkelstein, and Miriam L. Diamond	<a href="https://pubs.acs.org/doi/abs/10.1021/acs.estlett.0c00498">https://pubs.acs.org/doi/abs/10.1021/acs.estlett.0c00498</a>
Distribution, abundance, and diversity of microplastics in the upper St. Lawrence River	2020	Environmental Pollution	Alex Crew, Irene Gregory-Eaves and Anthony Ricciardi	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0269749119348419?dgcid=raven_sd_via_email">https://www.sciencedirect.com/science/article/abs/pii/S0269749119348419?dgcid=raven_sd_via_email</a>
Modeling the three-dimensional transport and distribution of multiple microplastic polymer types in Lake Erie	2020	Marine Pollution Bulletin	Juliette Daily and Matthew J. Hoffman	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0025326X20301429">https://www.sciencedirect.com/science/article/abs/pii/S0025326X20301429</a>

Vertical Distribution of Microplastics in the Water Column and Surficial Sediment from the Milwaukee River Basin to Lake Michigan	2019	Environmental Science & Technology	Peter L. Lenaker, Austin K. Baldwin, Steven R. Corsi, Sherri A. Mason, Paul C. Reneau, John W. Scott	<a href="https://pubs.acs.org/doi/10.1021/acs.est.9b03850">https://pubs.acs.org/doi/10.1021/acs.est.9b03850</a>
Microplastics in the diet of nestling double-crested cormorants ( <i>Phalacrocorax auratus</i> ), an obligate piscivore in a freshwater ecosystem <b>[Note this paper includes sampling from Great Lakes sites]</b>	2019	Canadian Journal of Fisheries and Aquatic Sciences	Cole B. Brookson, Shane R. de Solla, Kim J. Fernie, Monina Cepeda, Chelsea M. Rochman	<a href="https://cdnsciencepub.com/doi/abs/10.1139/cf-as-2018-0388">https://cdnsciencepub.com/doi/abs/10.1139/cf-as-2018-0388</a>
Plastic Pollution in the Great Lakes and Marine Waters: Sources, Effects and Policy Responses	2019	Journal of Waste Resources and Recycling	Gail Krantzberg	<a href="https://www.researchgate.net/publication/335313343_Plastic_Pollution_in_the_Great_Lakes_and_Marine_Waters_Sources_Effects_and_Policy_Responses">https://www.researchgate.net/publication/335313343 Plastic Pollution in the Great Lakes and Marine Waters Sources Effects and Policy Responses</a>
Microplastic Abundance and Composition in Western Lake Superior As Determined via Microscopy, Pyr-GC/MS, and FTIR	2018	Environmental Science & Technology	Erik Hendrickson, Elizabeth C. Minor, and Kathryn Schreiner	<a href="https://pubs.acs.org/doi/abs/10.1021/acs.est.7b05829">https://pubs.acs.org/doi/abs/10.1021/acs.est.7b05829</a>
Microplastic in riverine fish is connected to species traits <b>[Note this paper examines presence of microplastics in fish caught from Lake Michigan tributaries]</b>	2018	Scientific Reports	R. McNeish, L. Kim, H. Barrett, S. Mason, J. Kelly, and T. Hoellein	<a href="https://www.nature.com/articles/s41598-018-29980-9">https://www.nature.com/articles/s41598-018-29980-9</a>
Anthropogenic contamination of tap water, beer, and sea salt <b>[Note this paper cites the presence of microplastics in beer and tap water sourced from the Great Lakes ]</b>	2018	PLoS ONE	Mary Kosuth, Sherri A. Mason, Elizabeth V. Wattenberg	<a href="https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0194970">https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0194970</a>
Barriers and benefits to desired behaviors for single use plastic items in northeast Ohio's Lake Erie basin	2018	Marine Pollution Bulletin	Jill F. Bartolotta and Scott D. Hardy	<a href="https://www.sciencedirect.com/science/article/pii/S0025326X17310706">https://www.sciencedirect.com/science/article/pii/S0025326X17310706</a>
Distribution and Modeled Transport of Plastic Pollution in the Great Lakes, the World's Largest Freshwater Resource	2017	Frontiers in Environmental Science	Rachel N. Cable, Dmitry Beletsky, Raisa Beletsky, Krista Wigginton, Brendan W. Locke and Melissa B. Duhaime	<a href="https://www.frontiersin.org/articles/10.3389/fenvs.2017.00045/full">https://www.frontiersin.org/articles/10.3389/fenvs.2017.00045/full</a>
Inventory and transport of plastic debris in the Laurentian Great Lakes	2017	Marine Pollution Bulletin	Matthew Hoffman and Eric Hittinger	<a href="http://www.sciencedirect.com/science/article/pii/S0025326X1630981X">http://www.sciencedirect.com/science/article/pii/S0025326X1630981X</a>
A citizen engagement approach to water advocacy: experiences from "eXXpedition Great Lakes"	2016	Journal of the National Maritime Foundation of India	Jennifer Pate and Elaine McKinnon	<a href="https://www.tandfonline.com/doi/abs/10.1080/09733159.2016.1246767">https://www.tandfonline.com/doi/abs/10.1080/09733159.2016.1246767</a>
Pelagic plastic pollution within the surface waters of Lake Michigan, USA	2016	Journal of Great Lakes Research	Sherri A. Mason, Laura Kammin, Marcus Eriksen, Ghadah Aleid, Stiv Wilson, Carolyn Box, Nick Williamson, Anjanette Riley	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0380133016300922">https://www.sciencedirect.com/science/article/abs/pii/S0380133016300922</a>
Standardized methods are required to assess and manage micorplastic contamination of the Great Lakes system	2016	Journal of Great Lakes Research	Michael R. Twiss	<a href="http://www.sciencedirect.com/science/article/pii/S0380133016301290">http://www.sciencedirect.com/science/article/pii/S0380133016301290</a>
Sources and sinks of microplastics in Canadian Lake Ontario nearshore, tributary and beach sediments	2016	Marine Pollution Bulletin	Anika Ballent, Patricia L. Corcoran, Odile Madden, Paul A. Helm, Fred J. Longstaffe	<a href="http://www.sciencedirect.com/science/article/pii/S0025326X16304416">http://www.sciencedirect.com/science/article/pii/S0025326X16304416</a>
Plastic debris in 29 Great Lakes tributaries: relations to watershed attributes and hydrology	2016	Environmental Science & Technology	Austin K. Baldwin, Steven R. Corsi and Sherri A. Mason	<a href="https://pubs.acs.org/doi/10.1021/acs.est.6b02917">https://pubs.acs.org/doi/10.1021/acs.est.6b02917</a>
Plastic debris in the Laurentian Great Lakes: A review	2015	Journal of Great Lakes Research	Alexander G.J. Driedger, Hans H. Dürr, Kristen Mitchell, Philippe Van Cappellen	<a href="http://www.sciencedirect.com/science/article/pii/S0380133015000064">http://www.sciencedirect.com/science/article/pii/S0380133015000064</a>
Hidden plastics of Lake Ontario, Canada and their potential preservation in the sediment record	2015	Environmental Pollution	Patricia L. Corcoran, Todd Norris, Trevor Ceccanese, Mary Jane Walzak, Paul Helm, Chris H. Marvin	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0269749115001980">https://www.sciencedirect.com/science/article/abs/pii/S0269749115001980</a>

Microplastic pollution in St. Lawrence River sediments	2014	Canadian Journal of Fisheries and Aquatic Sciences	Rowshyra A. Castañeda, Suncica Avlijas, M. Anouk Simard, and Anthony Ricciardi	<a href="https://cdnsciencepub.com/doi/abs/10.1139/cjfas-2014-0281">https://cdnsciencepub.com/doi/abs/10.1139/cjfas-2014-0281</a>
Comparison of the distribution and degradation of plastic debris along shorelines of the Great Lakes, North America	2014	Journal of Great Lakes Research	Maciej Zbyszewski, Patricia Corcoran, Alexandra Hockin	<a href="https://www.sciencedirect.com/science/article/abs/pii/S038013301400046X">https://www.sciencedirect.com/science/article/abs/pii/S038013301400046X</a>
Microplastic pollution in the surface waters of the Laurentian Great Lakes	2013	Marine Pollution Bulletin	Marcus Eriksen, Sherri Mason, Stiv Wilson, Carolyn Box, Ann Zellers, William Edwards, Hannah Farley, Stephen Amato	<a href="http://www.sciencedirect.com/science/article/pii/S0025326X13006097">http://www.sciencedirect.com/science/article/pii/S0025326X13006097</a>
Distribution and degradation of fresh water plastic particles along the beaches of Lake Huron, Canada	2011	Water, Air and Soil Pollution	Maciej Zbyszewski and Patricia Corcoran	<a href="https://link.springer.com/article/10.1007/s11270-011-0760-6">https://link.springer.com/article/10.1007/s11270-011-0760-6</a>

## Appendix A Continued - Reports (Great Lakes Relevant and Beyond)

Title	Year	Month	Source	Link
The Real Truth About the U.S. Plastic Recycling Rate: 2021 U.S. Facts and Figures	2022	May	Beyond Plastics and The Last Beach Cleanup	<a href="https://static1.squarespace.com/static/5eda91260bbb7e7a4bf528d8/t/62726edceb7cc742d53eb073/1651666652743/The+Real+Truth+about+the+U.S.+Plastic+Recycling+Rate+2021+Facts+and+Figures+-+5-4-22.pdf">https://static1.squarespace.com/static/5eda91260bbb7e7a4bf528d8/t/62726edceb7cc742d53eb073/1651666652743/The+Real+Truth+about+the+U.S.+Plastic+Recycling+Rate+2021+Facts+and+Figures+-+5-4-22.pdf</a>
A Trash Free Waters Report on Priority Microplastics Research Needs: Update to the 2017 Microplastics Expert Workshop	2021	December	US EPA	<a href="https://www.epa.gov/system/files/documents/2021-12/tfw-report-on-priority-microplastics-research-needs_0.pdf">https://www.epa.gov/system/files/documents/2021-12/tfw-report-on-priority-microplastics-research-needs_0.pdf</a>
Reckoning with the U.S. Role in Global Ocean Plastic Waste	2021	December	National Academy of Science	<a href="https://www.nap.edu/catalog/26132/reckoning-with-the-us-role-in-global-ocean-plastic-waste#toc">https://www.nap.edu/catalog/26132/reckoning-with-the-us-role-in-global-ocean-plastic-waste#toc</a>
California Microfiber Update: Textile Perspective	2021	March	NOAA Marine Debris Program and Materevolve	<a href="https://marinedebris.noaa.gov/file/5517/download?token=oJidZbc8">https://marinedebris.noaa.gov/file/5517/download?token=oJidZbc8</a>
Water pollution by plastics and microplastics: A review of technical solutions from source to sea	2020	December	United Nations Environment Programme	<a href="https://www.unep.org/resources/report/water-pollution-plastics-and-microplastics-review-technical-solutions-source-sea?utm_source=miragenews&amp;utm_medium=miragenews&amp;utm_campaign=news">https://www.unep.org/resources/report/water-pollution-plastics-and-microplastics-review-technical-solutions-source-sea?utm_source=miragenews&amp;utm_medium=miragenews&amp;utm_campaign=news</a>
Emerging Technologies to Advance Research and Decisions on the Environmental Health Effects of Microplastics	2020	July	National Academies of Sciences, Engineering and Medicine	<a href="https://www.nap.edu/read/25862/chapter/1">https://www.nap.edu/read/25862/chapter/1</a>
Microplastics in Drinking Water	2019	Aug	World Health Organization	<a href="https://apps.who.int/iris/bitstream/handle/10665/326499/9789241516198-eng.pdf?ua=1">https://apps.who.int/iris/bitstream/handle/10665/326499/9789241516198-eng.pdf?ua=1</a>
No Plastic in Nature: Assessing Plastic Ingestion from Nature to People	2019	June	World Wide Fund for Nature	<a href="https://d2ouvy59p0dg6k.cloudfront.net/downloads/plastic_ingestion_web_spreads.pdf">https://d2ouvy59p0dg6k.cloudfront.net/downloads/plastic_ingestion_web_spreads.pdf</a>
Plastic & Health: The Hidden Costs of a Plastic Planet	2019	February	Center for International Environmental Law	<a href="https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf">https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf</a>
Ocean Pollutants Guide: Toxic Threats to Human Health and Marine Life	2018	October	National Toxics Network and IPEN	<a href="https://ipen.org/sites/default/files/documents/ipen-ocean-pollutants-v2_1-en-web.pdf">https://ipen.org/sites/default/files/documents/ipen-ocean-pollutants-v2_1-en-web.pdf</a>

Microplastics Expert Workshop Report	2017	December	US EPA Trash Free Waters	<a href="https://www.epa.gov/sites/production/files/2018-03/documents/microplastics_expert_workshop_report_final_12-4-17.pdf">https://www.epa.gov/sites/production/files/2018-03/documents/microplastics_expert_workshop_report_final_12-4-17.pdf</a>
Invisibles: The plastic inside us	2017	September	Orb Media	<a href="https://orbmedia.org/invisibles-text">https://orbmedia.org/invisibles-text</a>
Quantification of Microplastics on National Park Beaches	2017	June	NOAA and the National Park Service	<a href="https://marinedebris.noaa.gov/sites/default/files/publications-files/Quantification_of_Microplastics_on_National_Park_Beaches.pdf">https://marinedebris.noaa.gov/sites/default/files/publications-files/Quantification_of_Microplastics_on_National_Park_Beaches.pdf</a>
Microplastics in fisheries and aquaculture: Status of knowledge on their occurrence and implications for aquatic organisms and food safety	2017		Food and Agriculture Association of the United Nations	<a href="http://www.fao.org/3/a-i7677e.pdf">http://www.fao.org/3/a-i7677e.pdf</a>
State of the Science White Paper: A Summary of Literature on the Chemical Toxicity of Plastics Pollution to Aquatic Life and Aquatic-Dependent Wildlife	2016	December	US EPA	<a href="https://www.epa.gov/sites/production/files/2017-02/documents/tfw-trash_free_waters_plastics-aquatic-life-report-2016-12.pdf">https://www.epa.gov/sites/production/files/2017-02/documents/tfw-trash_free_waters_plastics-aquatic-life-report-2016-12.pdf</a>
Marine plastic debris and microplastics – Global lessons and research to inspire action and guide policy change	2016	December	UNEP	<a href="https://wedocs.unep.org/rest/bitstreams/11700/retrieve">https://wedocs.unep.org/rest/bitstreams/11700/retrieve</a>
Presence of microplastics and nanoplastics in food, with particular focus on seafood	2016	May	European Food Safety Authority	<a href="https://efsajournals.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2016.4501">https://efsajournals.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2016.4501</a>
Microbeads: “Tip of the Toxic Plastic-berg”? Regulation, Alternatives, and Future Implications	2016	April	University of Ottawa	<a href="https://issp.uottawa.ca/sites/issp.uottawa.ca/files/microbeads - literature_review_2.pdf">https://issp.uottawa.ca/sites/issp.uottawa.ca/files/microbeads - literature_review_2.pdf</a>
Turning the Plastic Tide: How to Protect the Great Lakes and Fight Plastic Pollution	2016	April	Environmental Defense	<a href="https://environmentaldefence.ca/PlasticPollution_Report_final_lores.pdf">PlasticPollution_Report_final_lores.pdf (environmentaldefence.ca)</a>
A Problem too Big to Ignore: Microplastics in the Great Lakes Basin (Section 3.2)	2015	November	Environmental Commissioner of Ontario Annual Report 2015	<a href="https://www.auditor.on.ca/en/content/reportopicse/EnvReports/Env15/2014-2015-AR.pdf#page=80">https://www.auditor.on.ca/en/content/reportopicse/EnvReports/Env15/2014-2015-AR.pdf#page=80</a>
Microbeads - A Science Summary	2015	July	Environment Canada	<a href="http://www.ec.gc.ca/ese-ees/ADDA4C5F-F397-48D5-AD17-63F989EBD0E5/Microbeads_Science%20Summary_EN.pdf">http://www.ec.gc.ca/ese-ees/ADDA4C5F-F397-48D5-AD17-63F989EBD0E5/Microbeads_Science%20Summary_EN.pdf</a>

Scientific Evidence Supports a Ban on Microbeads	2015	March	Society for Conservaiton Biology	<a href="http://conbio.org/images/content_policy/03.24.15_Microbead_Brief_Statement.pdf">http://conbio.org/images/content_policy/03.24.15_Microbead_Brief_Statement.pdf</a>
Discharging Microbeads to Our Waters: An Examination of Wastewater Treatment Plants in New York	2015	April	New York State Office of the Attorney General	<a href="http://www.ag.ny.gov/pdfs/2015_Microbeads_Report_FINAL.pdf">http://www.ag.ny.gov/pdfs/2015_Microbeads_Report_FINAL.pdf</a>
Sources, Fate and Effects of Microplastics in the Marine Environment: A Global Assessment	2015	April	GESAMP	<a href="http://ec.europa.eu/environment/marine/good-environmental-status/descriptor-10/pdf/GESAMP_microplastics%20full%20study.pdf">http://ec.europa.eu/environment/marine/good-environmental-status/descriptor-10/pdf/GESAMP_microplastics%20full%20study.pdf</a>
Ontario Solving the Microbead Problem: Briefing Note	2015	May	Canadian Environmental Law Association	<a href="https://cela.ca/wp-content/uploads/2019/07/Microbeads-Ont-Briefing-Note-May-6-15.pdf">https://cela.ca/wp-content/uploads/2019/07/Microbeads-Ont-Briefing-Note-May-6-15.pdf</a>
Alliance for the Great Lakes Written Testimony: Examining Microbeads in Cosmetic Products	2015	May	Alliance for the Great Lakes	<a href="https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/Testimony-Flanagan-HE-Microbeads-2015-5-1.pdf">https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/Testimony-Flanagan-HE-Microbeads-2015-5-1.pdf</a>
Unseen Threat: How Microbeads Harm New York Waters, Wildlife, Health and Environment	2015	May	New York State Office of the Attorney General	<a href="https://ag.ny.gov/sites/default/files/microbeads_report.pdf">https://ag.ny.gov/sites/default/files/microbeads_report.pdf</a>
Summary of Expert Discussion Forum on Possible Human Health Risks from Microplastics in the Marine Environment	2014	April	USEPA	<a href="https://www.epa.gov/sites/production/files/2015-02/documents/trash_free_waters_microplastics_expert_forum_meeting_summary_2-6-15.pdf">https://www.epa.gov/sites/production/files/2015-02/documents/trash_free_waters_microplastics_expert_forum_meeting_summary_2-6-15.pdf</a>
Assessing and Mitigating Plastic Pollution in Lake Huron: Prepared forThe Lake Huron Centre for Coastal Conservation	2013	April	University of Western Ontario, Center for Environment and Sustainability	<a href="https://9cf4491b-02a7-4038-a046-22c8be7f1bec.filesusr.com/ugd/697a03_8bef6fc80c564f439ad2fcacf14729900.pdf">https://9cf4491b-02a7-4038-a046-22c8be7f1bec.filesusr.com/ugd/697a03_8bef6fc80c564f439ad2fcacf14729900.pdf</a>
Plastic microbeads in Minnesota: Potential impacts of plastic microbeads, used in many consumer products, on environmental and human health	2014	December	Minnesota Pollution Control Agency	<a href="http://www.pca.state.mn.us/index.php/view-document.html?gid=22038">http://www.pca.state.mn.us/index.php/view-document.html?gid=22038</a>
Report on current relevant biodegradation and ecotoxicity standards	2013	February	European Union Seventh Framework Programme	<a href="https://www.biobasedeconomy.eu/app/uploads/sites/2/2017/03/Report-on-current-relevant-biodegradation-and-ecotoxicity-standards.pdf">https://www.biobasedeconomy.eu/app/uploads/sites/2/2017/03/Report-on-current-relevant-biodegradation-and-ecotoxicity-standards.pdf</a>

## Appendix B - Plastics Legislation and Bills\*

### CANADA

**\*Not exhaustive list**

Jurisdiction	Province/ Territory	Initiative	Link	Status	Type	Product	Effective Date	Description
National	Canada	Microbeads in Toiletries Regulation	<a href="http://www.gazette.gc.ca/rp-pr/p2/2017/2017-06-14/html/sor-dors111-eng.html">http://www.gazette.gc.ca/rp-pr/p2/2017/2017-06-14/html/sor-dors111-eng.html</a>	In effect	Ban	Microbeads	Jul. 2018 (manufacture) Jul. 2019 (sale)	Bans the manufacture and sale of toiletries that contain microbeads (except prescription drugs).
National	Canada	Amendments to the Canadian Environmental Protection Act (supports the Strategy on Zero Plastic Waste)	<a href="https://www.gazette.gc.ca/rp-pr/p1/2021/2021-12-25/html/reg2-eng.html">https://www.gazette.gc.ca/rp-pr/p1/2021/2021-12-25/html/reg2-eng.html</a>	Pending  Public comment until Mar. 2022	Ban	checkout bags, cutlery, foodservice ware made from or containing problematic plastics, ring carriers, stir sticks, and straws	Anticipated end of 2022	The proposed rules, which would be added to Schedule 1 of the Canadian Environmental Protection Act, prohibit the manufacture, import, and sale of six categories of single-use plastics - checkout bags, cutlery, foodservice ware made from or containing problematic plastics, ring carriers, stir sticks, and straws. Manufacture, import, and sale for the purposes of export would not be subject to the prohibition. ( <b>Dec. 2021</b> )
Provincial	Alberta	None proposed		No legislation proposed	N/A	N/A	N/A	Alberta government has no plans to implement legislation around single-use plastics, particularly bags. The government plans to have consultations with the private sector on approaches to eliminating the use of plastic bags. ( <b>Sept. 2019</b> ) <a href="https://calgaryherald.com/business/Local-business/kenney-calls-nova-scotias-ban-on-plastic-bags-a-meaningless-symbolic-gesture">https://calgaryherald.com/business/Local-business/kenney-calls-nova-scotias-ban-on-plastic-bags-a-meaningless-symbolic-gesture</a> Alberta expresses concerns about planned federal plastics ban that could impact Alberta's economy. ( <b>Oct. 2020</b> ) <a href="https://www.cbc.ca/news/canada/edmonton/plastics-ban-ottawa-alberta-recycling-1.5753840">https://www.cbc.ca/news/canada/edmonton/plastics-ban-ottawa-alberta-recycling-1.5753840</a>
Provincial	British Columbia	Amendments to the Environmental Management Act	<a href="https://www.leg.bc.ca/parliamentary-business/legislation-debates-proceedings/42nd-parliament/2nd-session/bills/first-reading/gov24-1">https://www.leg.bc.ca/parliamentary-business/legislation-debates-proceedings/42nd-parliament/2nd-session/bills/first-reading/gov24-1</a>	Introduced (Oct. 2021)	Ban	packaging product containers single-use products	TBD	The province held public consultations in fall 2019 on policy opportunities to address plastic waste. Options include bans on single-use packaging, extended producer responsibility, and expanding deposit-refund systems for containers. ( <b>Jan. 2020</b> ) <a href="https://cleanbc.gov.bc.ca/app/uploads/sites/436/2019/08/CleanBC_PlasticsActionPlan_ConsultationPaper_07252019_B.pdf">https://cleanbc.gov.bc.ca/app/uploads/sites/436/2019/08/CleanBC_PlasticsActionPlan_ConsultationPaper_07252019_B.pdf</a> Province-wide bans on the sale, distribution or use of prescribed single-use and short-term products, to apply fees on alternatives to single-use products where necessary, and/or require that businesses make items available only by request. ( <b>Oct. 2021</b> )
Provincial	Manitoba	Amendment to the Waste Reduction and Prevention Act	<a href="https://web2.gov.mb.ca/bills/41-4/b244e.php">https://web2.gov.mb.ca/bills/41-4/b244e.php</a>	Introduced (2019)	Ban	Bags Straws Foodware	N/A	Province introduced amendments to the Waste Reduction and Prevention Act to ban plastic bags and straws (by Jan. 2021) and food packaging (by Jan. 2025) ( <b>2019</b> )
Provincial	New Brunswick	Amendment to the Clean Environment Act's Designated Materials Regulation (section 5.3)	<a href="https://www.canlii.org/en/nb/laws/regu/nb-reg-2008-54/latest/nb-reg-2008-54.html">https://www.canlii.org/en/nb/laws/regu/nb-reg-2008-54/latest/nb-reg-2008-54.html</a>	Pending (Oct. 2021)	EPR	packaging	N/A	Hasn't considered bans, but looking into regulations around EPR programs. Expected regulations in place by Feb. 2021. ( <b>Feb. 2020</b> ) EPR program for packaging and paper products expected to be in place by spring 2023. ( <b>Oct. 2021</b> ) <a href="https://www.recyclingproductnews.com/article/37508/new-brunswick-epr-for-paper-and-packaging-to-be-first-in-atlantic-canada">https://www.recyclingproductnews.com/article/37508/new-brunswick-epr-for-paper-and-packaging-to-be-first-in-atlantic-canada</a> N.B. does not have any bans on plastic bags ( <b>Jan. 2021</b> )

							<a href="https://atlantic.ctvnews.ca/we-re-certainly-working-on-it-n-b-only-atlantic-province-without-a-ban-on-plastic-bags-1.5255765">https://atlantic.ctvnews.ca/we-re-certainly-working-on-it-n-b-only-atlantic-province-without-a-ban-on-plastic-bags-1.5255765</a>
Provincial	Newfoundland and Labrador	Regulation 1/20 under the Environmental Protection Act	<a href="https://www.assembly.nl.ca/legislation/sr/_annualregs/2020/nr200001.htm">https://www.assembly.nl.ca/legislation/sr/_annualregs/2020/nr200001.htm</a>	In effect	Ban	Bags	Oct.. 2020  Bans the use/sale of single-use plastic retail bags. Ban was to come into effect in Jul. 2020, but was pushed to Oct. 2020 over COVID concerns using reusable bags. <a href="https://www.saltwire.com/newfoundland-labrador/news/plastic-bag-ban-in-newfoundland-and-labrador-starts-oct-1-492152/">https://www.saltwire.com/newfoundland-labrador/news/plastic-bag-ban-in-newfoundland-and-labrador-starts-oct-1-492152/</a>
Territory	Northwest Territories	Single-use Retail Bag Regulations under the Waste Reduction and Recovery Act	<a href="https://www.justice.gov.nt.ca/en/files/legislation/waste-reduction-recovery/waste-reduction-recovery.r2.pdf">https://www.justice.gov.nt.ca/en/files/legislation/waste-reduction-recovery/waste-reduction-recovery.r2.pdf</a>	In effect	Fee	Bags	Feb. 2011  Fee of 25 cents for each single-use bag from a retail store (includes plastic, paper and biodegradable bags). Fees collected go into the Environment Fund, which is used to create new waste reduction and recovery programs. <a href="https://www.enr.gov.nt.ca/en/services/waste-reduction-and-recycling/single-use-retail-bag-program">https://www.enr.gov.nt.ca/en/services/waste-reduction-and-recycling/single-use-retail-bag-program</a>
Provincial	Nova Scotia	Plastic Bags Reduction Act	<a href="https://nslegislature.ca/sites/default/files/legc/PDFs/annual%20statutes/2019%20Fall/c025.pdf">https://nslegislature.ca/sites/default/files/legc/PDFs/annual%20statutes/2019%20Fall/c025.pdf</a>	In effect	Ban	Bags	Oct. 2020  Bans the use of plastic bags by retailers.
Territory	Nunavut	None proposed	<a href="https://plasticactioncentre.ca/directory/plastics-in-nunavut/">https://plasticactioncentre.ca/directory/plastics-in-nunavut/</a>	No legislation proposed	N/A	N/A	N/A  Nunavut does not yet have legislation directly related to solid waste management.
Provincial	Ontario	Private Member's Bill to amend the Resource Recovery and Circular Economy Act, 2016	<a href="https://www.ola.org/en/legislative-business/bills/parliament-42/session-1/bill-82">https://www.ola.org/en/legislative-business/bills/parliament-42/session-1/bill-82</a>	Passed 1st reading (March, 2019)	Ban	straws and stirrers; polystyrene containers, plastic bags, water bottles	N/A  A Private Member's Bill was also introduced in March 2019 (Bill 82, Single-Use Plastics Ban Act) to eliminate the use of single-use plastics by 2025. Items include straws and stirrers; polystyrene containers, plastic bags, water bottles. It has passed first reading. ( <b>Mar. 2019</b> )
Provincial	Prince Edward Island	Plastic Bag Reduction Act Chapter P-9.2	<a href="https://www.princeedwardisland.ca/sites/default/files/legislation/p-09-2-plastic_bag_reduction_act.pdf">https://www.princeedwardisland.ca/sites/default/files/legislation/p-09-2-plastic_bag_reduction_act.pdf</a>	In effect	Ban	Bags	Jul. 2019  Bans the use/sale of single-use plastic retail bags. First province to ban plastic bags.
Provincial	Quebec	None proposed		No legislation proposed	N/A	Bags	N/A  Québec Minister of Environment expected to release a strategy on plastic bags in the spring 2020. ( <b>Jan. 2020</b> ) <a href="https://www.cbc.ca/news/canada/montreal/quebec-ban-plastic-bags-1.5445367">https://www.cbc.ca/news/canada/montreal/quebec-ban-plastic-bags-1.5445367</a>
Provincial	Saskatchewan	None proposed		No legislation proposed	N/A	N/A	N/A  Plastic bag bans have not been considered at the provincial level <a href="https://regina.ctvnews.ca/video?clipId=1297099">https://regina.ctvnews.ca/video?clipId=1297099</a>
Territory	Yukon	Environment Act, Reduction of Single-Use Bags Regulation	<a href="https://laws.yukon.ca/cms/images/LEGISLATION/SUBORDINATE/2021/2021-0131/2021-0131_1.pdf">https://laws.yukon.ca/cms/images/LEGISLATION/SUBORDINATE/2021/2021-0131/2021-0131_1.pdf</a>	In effect	Ban	Bags	Jan. 2022 (plastic bags) Jan. 2023 (paper bags)  Government of Yukon held public consultations in Feb - Apr 2019 on a proposed fee on single-use shopping bags, types of bags to be included and timelines for implementation. ( <b>Jul. 2019</b> ) <a href="https://yukon.ca/sites/yukon.ca/files/engage/engage-env-whh-single-use-bags.pdf">https://yukon.ca/sites/yukon.ca/files/engage/engage-env-whh-single-use-bags.pdf</a> Ban is for single-use plastic and paper bags of all sizes supplied by retailers to customers ( <b>Jan. 2022</b> ) <a href="https://yukon.ca/en/bagban">https://yukon.ca/en/bagban</a>

**Appendix B Continued - Plastics Legislation and Bills**  
**UNITED STATES**

Jurisdiction	State	Initiative	Link	Status	Type	Product	Effective Date	Description
National	United States	Public Law 114 - 114 (Microbead-Free Waters Act of 2015)	<a href="https://www.congress.gov/114/plaws/pub_l114/PLAW-114publ114.pdf">https://www.congress.gov/114/plaws/pub_l114/PLAW-114publ114.pdf</a>	In effect	Ban	microbeads	Jul. 2017 (manufacture) Jul. 2019 (sale)	Prohibits the manufacturing and sale of rinse-off cosmetics containing plastic microbeads. Applies to products that are both cosmetics and non-prescription drugs, such as toothpastes.
National		Break Free From Plastic Pollution Act of 2020	<a href="https://www.congress.gov/bill/116th-congress/house-bill/5845">https://www.congress.gov/bill/116th-congress/house-bill/5845</a>	Introduced (Feb. 2020)	Ban Fees EPR	Multiple		Break free from plastics Bill introduced Feb. 2020. Reintroduced in Mar. 2021. - producers fiscally responsible for collecting, managing, and recycling or composting the products after consumer use (e.g., packaging, paper, single-use products, beverage containers, or food service products) - phases out a variety of single-use products - refund programs for beverage containers - tax on carry-out bags - product labelling
		Break Free From Plastic Pollution Act of 2021	<a href="https://www.congress.gov/bill/117th-congress/senate-bill/984/all-info#:~:text=Introduced%20in%20Senate%20(03%2F25%2F2021)&amp;text=This%20bill%20sets%20forth%20requirements,or%20compost%20products%20and%20materials">https://www.congress.gov/bill/117th-congress/senate-bill/984/all-info#:~:text=Introduced%20in%20Senate%20(03%2F25%2F2021)&amp;text=This%20bill%20sets%20forth%20requirements,or%20compost%20products%20and%20materials</a>	Introduced (Mar. 2021)	Deposit program			
		Plastic Pellet Free Waters Act	<a href="https://www.congress.gov/bill/117th-congress/senate-bill/1507">https://www.congress.gov/bill/117th-congress/senate-bill/1507</a>	Introduced (Apr. 2021)	Prohibits discharge	Pellets		Pellet free waters bill introduced in Apr. 2021. Prohibits certain discharges of plastic pellets and other preproduction plastic into waters of the United States.
National	United States	Save our Seas 2.0	<a href="https://www.congress.gov/bill/116th-congress/senate-bill/1982/text">https://www.congress.gov/bill/116th-congress/senate-bill/1982/text</a>	In effect		N/A	Dec. 2020	Establishes requirements and incentives to reduce, recycle, and prevent marine debris.
State	Alabama	None currently						A Senate bill that would have prevented cities and municipalities from banning plastic bags was introduced in 2019, but did not advance ( <b>May 2019</b> ):  <a href="https://www.montgomeryadvertiser.com/story/news/2019/05/07/alabama-senate-prevents-ban-plastic-bag-bans-coming-vote/1134794001/">https://www.montgomeryadvertiser.com/story/news/2019/05/07/alabama-senate-prevents-ban-plastic-bag-bans-coming-vote/1134794001/</a> <a href="http://alisondb.legislature.state.al.us/alison/searchableinstruments/2019RS/bills/SB244.htm">http://alisondb.legislature.state.al.us/alison/searchableinstruments/2019RS/bills/SB244.htm</a>
State	Alaska	None currently (Local level bans/fees for bags)						Alaska has no statewide plastic bag ban, many communities across the state have enacted their own codes and ordinances banning them: <a href="https://dec.alaska.gov/eh/solid-waste/plastic-bag-bans/#:~:text=Although%20Alaska%20has%20no%20statewide,without%20a%20law%20requiring%20it.">https://dec.alaska.gov/eh/solid-waste/plastic-bag-bans/#:~:text=Although%20Alaska%20has%20no%20statewide,without%20a%20law%20requiring%20it.</a>
State	Arizona	Title 11, Chapter 269, Section 16 (ban on bag ban)	<a href="https://www.azleg.gov/viewdocument/?docName=https://www.azleg.gov/ars/11/00269-16.htm">https://www.azleg.gov/viewdocument/?docName=https://www.azleg.gov/ars/11/00269-16.htm</a>		Ban pre-emption		Apr. 2015 (ban on ban)	Local governments shall not restrict, tax, prohibit or regulate the use, disposition or sale of containers (e.g. bags, cups, straws).
State	Arizona	Chapter 277, Section 49-701 (recycling)	<a href="https://legiscan.com/AZ/text/SB1156/id/2331769">https://legiscan.com/AZ/text/SB1156/id/2331769</a>	In effect	Recycling	Multiple	Apr. 2021 (recycle)	Enable greater adoption of advanced recycling, which allows recycling greater amounts of plastics using innovative technologies. Working in tandem with mechanical recycling, advanced recycling will help be more effective in reducing plastic waste and creating a more circular economy. ( <b>Apr. 2021</b> )  <a href="https://www.americanchemistry.com/chemistry-in-america/news-trends/press-release/2021/arizona-is-12th-state-to-enact-advanced-recycling-legislation-to-help-end-plastic-waste">https://www.americanchemistry.com/chemistry-in-america/news-trends/press-release/2021/arizona-is-12th-state-to-enact-advanced-recycling-legislation-to-help-end-plastic-waste</a>

		Arkansas Code Title 14, Chapter 1, Subchapter 1	<a href="https://www.arkleg.state.ar.us/Acts/FTPDocument?path=%2FACTS%2F2021R%2FPublic%2F&amp;file=751.pdf&amp;ddBienniumSession=2021%2F2021R">https://www.arkleg.state.ar.us/Acts/FTPDocument?path=%2FACTS%2F2021R%2FPublic%2F&amp;file=751.pdf&amp;ddBienniumSession=2021%2F2021R</a>	Ban pre-emption			State law prohibits local governments from controlling what to-go containers businesses can use. ( <b>Apr. 2021</b> ) <a href="https://www.nwahomepage.com/news/arkansas-state-law-may-invalidate-fayettevilles-styrofoam-ban/#:~:text=On%20Monday%2C%20Governor%20Asa%20Hutchinson,polystrene%20and%20single%2Duse%20plastics.">https://www.nwahomepage.com/news/arkansas-state-law-may-invalidate-fayettevilles-styrofoam-ban/#:~:text=On%20Monday%2C%20Governor%20Asa%20Hutchinson,polystrene%20and%20single%2Duse%20plastics.</a>
State	Arkansas	<a href="https://www.arkleg.state.ar.us/Acts/FTPDocument?path=%2FACTS%2F2021R%2FPublic%2F&amp;file=1095.pdf&amp;ddBienniumSession=2021%2F2021R">https://www.arkleg.state.ar.us/Acts/FTPDocument?path=%2FACTS%2F2021R%2FPublic%2F&amp;file=1095.pdf&amp;ddBienniumSession=2021%2F2021R</a>	In effect	Multiple	Apr. 2021 (ban on bans)		Enable greater adoption of advanced recycling, which allows recycling greater amounts of plastics using innovative technologies. <a href="https://www.americanchemistry.com/chemistry-in-america/news-trends/press-release/2021/arkansas-is-13th-state-to-pass-advanced-recycling-legislation-to-help-end-plastic-waste/">https://www.americanchemistry.com/chemistry-in-america/news-trends/press-release/2021/arkansas-is-13th-state-to-pass-advanced-recycling-legislation-to-help-end-plastic-waste/</a>
			Recycling		Apr. 2021 (recycling)		
State	California	Public Resources Code, Part 3, Division 30, Chapter 5.3 Single-Use Carryout Bags	<a href="https://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=PRC&amp;division=30.&amp;title=&amp;part=3.&amp;chapter=5.3.&amp;article=">https://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=PRC&amp;division=30.&amp;title=&amp;part=3.&amp;chapter=5.3.&amp;article=</a>	Bags	Nov. 2016 (bags)		(Was suspended from implementation of original Jul. 2015 date, until voters approved Proposition 67. Prohibits most grocery stores, retail stores with a pharmacy, convenience stores, food marts, and liquor stores from providing single-use plastic carryout bags to their customers. Instead, these stores may provide a reusable grocery bag or recycled paper bag to a customer at the point of sale at a charge of at least 10 cents. A status report to the Legislature on the implementation of the bill's provisions is required by Mar. 2018, found here: <a href="https://www2.calrecycle.ca.gov/Publications/Details/1647">https://www2.calrecycle.ca.gov/Publications/Details/1647</a>
State	California	Public Resources Code, Part 3, Division 30, Chapter 5.2 Single-Use Foodware Accessories and Condiments	<a href="https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&amp;division=30.&amp;title=&amp;part=3.&amp;chapter=5.2.&amp;article=">https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&amp;division=30.&amp;title=&amp;part=3.&amp;chapter=5.2.&amp;article=</a>	In effect	Ban		
				Utensils Straws Spirrers	Jan. 2022 (straws, utensils, etc.)		A food facility, for on-premises dining or when using a third-party food delivery platform, shall not provide any single-use foodware accessory or standard condiment packaged for single use to a consumer unless the single-use foodware accessory or standard condiment is requested by the consumer.
State	Colorado	Title 25, Article 17, Part 5, Plastic Pollution Reduction Act	<a href="https://advance.lexis.com/documentpage/?pdmfid=1000516&amp;crid=876f291a-5fad-4403-8d7e-c9186e2cae31&amp;pdistocdocslderrace=true&amp;config=014FJAyNGJky2Y4Z1mNjgyLT RkN2YtYmE4OS03NTYzNzYzOTg0OGEKAF BvZENhdGFsb2d592qv2Kywl8caKqYROP5 &amp;pddocfullpath=%2Fshared%2Fdocument%2Fstatutes-legislation%2Furn%3AcontentItem%3A63J F-YW73-GXJ9-34VT-00008-00&amp;pdccomponentid=234177&amp;pdtocnodeid=AAZAAHAARAFAAD&amp;ecomp=rsdkkk&amp;prid=64498506-fad3-467b-976c-6e87a64d19be">https://advance.lexis.com/documentpage/?pdmfid=1000516&amp;crid=876f291a-5fad-4403-8d7e-c9186e2cae31&amp;pdistocdocslderrace=true&amp;config=014FJAyNGJky2Y4Z1mNjgyLT RkN2YtYmE4OS03NTYzNzYzOTg0OGEKAF BvZENhdGFsb2d592qv2Kywl8caKqYROP5 &amp;pddocfullpath=%2Fshared%2Fdocument%2Fstatutes-legislation%2Furn%3AcontentItem%3A63J F-YW73-GXJ9-34VT-00008-00&amp;pdccomponentid=234177&amp;pdtocnodeid=AAZAAHAARAFAAD&amp;ecomp=rsdkkk&amp;prid=64498506-fad3-467b-976c-6e87a64d19be</a>	Passed	Ban	Bags Containers	Jan. 2024
							The law phases out single-use plastic bags, polystyrene cups and containers, and reverses a 1993 law that prohibits municipalities from passing their own ordinances to address plastic waste. (Jul. 2021) <a href="https://leg.colorado.gov/bills/hb21-1162">https://leg.colorado.gov/bills/hb21-1162</a>

							Retailers must charge a 10 cent fee for plastic carry-out bags (until Jun. 2021). Starting Jul. 2021 no retailer may offer or sell plastic carry-out bags
State	Connecticut	Title 22a, Chapter 446d, Sec. 22a- 246a Single-use checkout bags	<a href="https://www.cga.ct.gov/current/pub/chap446d.htm#sec_22a-246a">https://www.cga.ct.gov/current/pub/chap446d.htm#sec_22a-246a</a>	In effect	Fees Ban	Bags	Aug. 2019 (Fees) Jul. 2021 (Ban)
							<a href="https://www.nbcconnecticut.com/news/local/single-use-plastic-bag-ban-to-soon-replace-fee-in-ct/2510656/#:~:text=Connecticut's%20plastic%20bag%20ban%20takes,allowed%20at%20the%20store%20checkout.">https://www.nbcconnecticut.com/news/local/single-use-plastic-bag-ban-to-soon-replace-fee-in-ct/2510656/#:~:text=Connecticut's%20plastic%20bag%20ban%20takes,allowed%20at%20the%20store%20checkout.</a>
State	Delaware	Delaware Code, Title 7, Chapter 60, Subchapter IX Recycling and Waste Reduction	<a href="https://delcode.delaware.gov/title7/c060/sc09/index.html">https://delcode.delaware.gov/title7/c060/sc09/index.html</a>	In effect	Ban	Bags	Jan. 2021
							Bans plastic bags from stores with more than 7,000 square feet of retail space and chain stores with three or more locations with at least 3,000 square feet each. <a href="https://news.delaware.gov/2019/07/29/governor-carney-signs-legislation-to-ban-plastic-bags-reduce-litter-in-delaware/">https://news.delaware.gov/2019/07/29/governor-carney-signs-legislation-to-ban-plastic-bags-reduce-litter-in-delaware/</a>
		Chapter 403, Section 7033	<a href="http://www.leg.state.fl.us/statutes/index.cfm?mode=View%20Statutes&amp;SubMenu=1&amp;App_mode=Display_Statute&amp;Search_String=auxiliary+containers&amp;URL=0400-0499/0403/Sections/0403.7033.html">http://www.leg.state.fl.us/statutes/index.cfm?mode=View%20Statutes&amp;SubMenu=1&amp;App_mode=Display_Statute&amp;Search_String=auxiliary+containers&amp;URL=0400-0499/0403/Sections/0403.7033.html</a>	In effect (ban on bans)	Ban pre-emption		2008 (ban on bans)
State	Florida					Multiple	No local government, ay enact any rule, regulation, or ordinance regarding use, disposition, sale, prohibition, restriction, or tax of such auxiliary containers, wrappings, or disposable plastic bags.
		SB320/HB6063	<a href="https://www.flsenate.gov/Session/Bill/2022/320">https://www.flsenate.gov/Session/Bill/2022/320</a>	Introduced Jan. 2022	Repeal of ban preemption		Senate and House bills (SB 320 and HB 6063) have been introduced to remove the state's preemption on banning single-use plastic and Polystyrene. (Jan. 2022) <a href="https://floridapolitics.com/archives/466617-stewart-grieco-single-use-plastics/">https://floridapolitics.com/archives/466617-stewart-grieco-single-use-plastics/</a>
State	Georgia	Senate Bill 280	<a href="http://www.legis.ga.gov/Legislation/20192020/187870.pdf">http://www.legis.ga.gov/Legislation/20192020/187870.pdf</a>	Introduced (Jan. 2020)	Ban	Bags	N/A
		Hawaii					No retailer to provide plastic bags to customers.
Local	Hawaii (Hawaii County)	Rules of Practices and Procedure Rule 15	<a href="https://hawaiizerowaste.org/site-content/uploads/2022-03-01-Rules-of-Practice-and-Procedure-for-the-Department-of-Environmental-Management-Revised.pdf">https://hawaiizerowaste.org/site-content/uploads/2022-03-01-Rules-of-Practice-and-Procedure-for-the-Department-of-Environmental-Management-Revised.pdf</a>	In effect	Ban	Bags	Jul. 2013
Local	Hawaii (Honolulu County)	Chapter 9, Article 9	<a href="https://www.honolulu.gov/cms-ocs-menu/site-ocs-sitearticles/839-table-of-contents.html">https://www.honolulu.gov/cms-ocs-menu/site-ocs-sitearticles/839-table-of-contents.html</a>			Bags	Jul. 2015
		Bill 40	<a href="http://www.honolulu.gov/rep/site/ccl/ccl_docs/2019-12-04 - CCL_News_Release_Bill_40 - Plastics_Ban.pdf">http://www.honolulu.gov/rep/site/ccl/ccl_docs/2019-12-04 - CCL_News_Release_Bill_40 - Plastics_Ban.pdf</a>			Utensils Straws	Jan. 2021
Local	Hawaii (Kauai County)	Ordinance No. 885	<a href="https://www.kauai.gov/Portals/0/PW_Rycling/PlasticBagReductionOrdinance885.pdf?ver=2015-04-22-155309-027">https://www.kauai.gov/Portals/0/PW_Rycling/PlasticBagReductionOrdinance885.pdf?ver=2015-04-22-155309-027</a>	In effect	Ban	Bags	Jan. 2011
Local	Hawaii (Maui County)	Chapter 17-105	<a href="https://www.maicounty.gov/DocumentCenter/View/11358/Rules-Relating-to-Plastic-Bag-Reduction?bidId=">https://www.maicounty.gov/DocumentCenter/View/11358/Rules-Relating-to-Plastic-Bag-Reduction?bidId=</a>	In effect	Ban	Bags	Jan. 2011
							Businesses are prohibited from providing plastic bags to their customers at the point of sale

		Title 67, Chapter 23, Section 40	<a href="https://legislature.idaho.gov/statutesrules/idstat">https://legislature.idaho.gov/statutesrules/idstat</a>	In effect (preemption)	Ban pre-emption	Multiple	Mar. 2016	Local governments shall naot restrict, tax, prohibit or regulate the use, disposition or sale of auxiliary containers (e.g. bags, cups, staws).
State	Idaho	HB54	<a href="https://legislature.idaho.gov/sessioninfo/2021/legislation/H0054/">https://legislature.idaho.gov/sessioninfo/2021/legislation/H0054/</a>	Introduced Jan. 2021	Repeal of ban preemption		Bill has been introduced to repeal the ban preemption. (Jan. 2021) <a href="https://idahodispatch.com/hb-54-would-allow-cities-counties-to-ban-plastic-bags-and-other-auxiliary-containers-in-idaho/">https://idahodispatch.com/hb-54-would-allow-cities-counties-to-ban-plastic-bags-and-other-auxiliary-containers-in-idaho/</a>	
State	Illinois	HB 3335/SB 1240	<a href="https://www.ilga.gov/legislation/fulltext.asp?DocName=&amp;SessionId=108&amp;GA=101&amp;DocTypeId=HB&amp;DocNum=3335&amp;GAID=15&amp;LegID=119837&amp;SpecSess=&amp;Session=">https://www.ilga.gov/legislation/fulltext.asp?DocName=&amp;SessionId=108&amp;GA=101&amp;DocTypeId=HB&amp;DocNum=3335&amp;GAID=15&amp;LegID=119837&amp;SpecSess=&amp;Session=</a>	Introduced (Feb. 2019)	Fees	Bags	HB 3335 - carryout bag fee of \$0.10, except in municipalities with a population greater than 1,000,000 SB 1240 - tax of \$0.07 on each checkout bag used <a href="https://www.illinoispolicy.org/illinois-senate-committee-approves-statewide-plastic-bag-tax-exempts-chicago/">https://www.illinoispolicy.org/illinois-senate-committee-approves-statewide-plastic-bag-tax-exempts-chicago/</a>	Bills to ban polystyrene foam introcuded in Feb. 2020 <a href="https://www.bnd.com/news/politics-government/article240420436.html">https://www.bnd.com/news/politics-government/article240420436.html</a>
State	Indiana	House Bill 1053	<a href="https://iga.in.gov/legislative/2016/bills/house/1053#digest-heading">https://iga.in.gov/legislative/2016/bills/house/1053#digest-heading</a>	In effect	Ban pre-emption	Multiple	Mar. 2016	Bill prohibits any local government unit from imposing any prohibition, restriction, fee or tax with respect to auxilliary containers designed for one-time use or for transporting merchandise or food from food or retail facilities.
State	Iowa	Section 331.301	<a href="https://www.legis.iowa.gov/docs/code/2020/364.3.pdf">https://www.legis.iowa.gov/docs/code/2020/364.3.pdf</a>	In effect	Ban pre-emption	Multiple	Mar. 2017	Local governments shall naot restrict, tax, prohibit or regulate the use, disposition or sale of containers (e.g. bags, cups, staws).
State	Kansas	HB 2625	<a href="http://kslegislature.org/li/b2019_20/measures/documents/hb2625_01_0000.pdf">http://kslegislature.org/li/b2019_20/measures/documents/hb2625_01_0000.pdf</a>	Introduced (Feb. 2020)	Ban pre-emption	bags		Would prohibit municipalites from prohibiting or regulating paper or plastic carryout bags and other single-use plastic items.
State	Kentucky	HB 85	<a href="https://apps.legislature.ky.gov/record/20rs/hb85.html">https://apps.legislature.ky.gov/record/20rs/hb85.html</a>	Introduced (Jan. 2020)	Ban	Bags Straws	Food Service Containers	Prohibit the intentional release of more than 25 plastic balloons; establish a ban on plastic, single-use carryout bags; establish a ban the provision of single-use plastic straws and Styrofoam food and beverage containers by retail food and beverage establishments. Bills introduced in both 2020 and 2021.
		SB 58	<a href="https://apps.legislature.ky.gov/record/21RS/sb58.html">https://apps.legislature.ky.gov/record/21RS/sb58.html</a>	Introduced (Jan. 2021)		Advanced recycling		Bill to support "advanced recycling" that breaks down plastics into raw materials for use in new products as manufacturers. <a href="https://www.wasteadvantage.org/article/kentucky-becomes-18th-state-pass-advanced-recycling-law-spurring-job-growth-and-more-circular-economy-plastics-waste-advantage-magazine">Kentucky Becomes 18th State to Pass Advanced Recycling Law, Spurring Job Growth and a More Circular Economy for Plastics - Waste Advantage Magazine</a>
		HB 45	<a href="#">22RS HB 45 (ky.gov)</a>	In effect		Mar. 2022		

State	Louisiana	Revised Statutes Title 30, Section 2153, 2154, 2157 <a href="https://www.legis.la.gov/legis/ViewDocument.aspx?d=1236234">https://www.legis.la.gov/legis/ViewDocument.aspx?d=1236234</a>	In effect	Advanced recycling	Aug. 2021	Supports advanced, chemical recycling to encourage more investment in facilities that transform hard-to-recycle plastics into new high-value materials and products. <a href="https://www.plasticstoday.com/advanced-recycling/louisiana-14th-state-pass-legislation-supporting-advanced-recycling">https://www.plasticstoday.com/advanced-recycling/louisiana-14th-state-pass-legislation-supporting-advanced-recycling</a>
State	Maine	Title 38, Chapter 16, Section 1611 Plastic bag reduction <a href="https://legislature.maine.gov/legis/statute/s/38/title38sec1611.html">https://legislature.maine.gov/legis/statute/s/38/title38sec1611.html</a>	In effect	Ban	Bags	Retailers may not provide disposable plastic carry-out bags and can only offer reusable and/or paper bags for at least a 5 cent fee. Ban was originally to begin Apr. 2020, but delayed to Jan. 2021 due to COVID-19 concerns. <a href="https://www.nrcm.org/programs/sustainability/sustainable-maine-community-toolkits/reusable-bag-ordinance-toolkit/">https://www.nrcm.org/programs/sustainability/sustainable-maine-community-toolkits/reusable-bag-ordinance-toolkit/</a>
		Title 38, Chapter 15-A Disposable food service containers, Section 1571-73 <a href="https://legislature.maine.gov/legis/statute/s/38/title38ch15-Asec0.html">https://legislature.maine.gov/legis/statute/s/38/title38ch15-Asec0.html</a>		Food Service Containers	Jan. 2021	A covered establishment may not process, prepare, sell or provide food or beverages in or on a disposable food service container that is composed in whole or in part of polystyrene foam.
State	Maryland	House Bill 314/Senate Bill 223 <a href="https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/HB0314?ys=2021RS">https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/HB0314?ys=2021RS</a>	Pending (1st reading)	Ban	Bags	The bill stops retailers from distributing single-use plastic bags starting in July 2022. ( <b>Mar. 2021</b> ) <a href="https://environmentmaryland.org/news/mde/statement-plastic-bag-reduction-act-passes-maryland-house#:~:text=ANNAPOLIS%20E2%80%94%20The%20Maryland%20House%0fbill%2C20SB223%2C%20from%20Sen.">https://environmentmaryland.org/news/mde/statement-plastic-bag-reduction-act-passes-maryland-house#:~:text=ANNAPOLIS%20E2%80%94%20The%20Maryland%20House%0fbill%2C20SB223%2C%20from%20Sen.</a>
		HB 992 <a href="https://malegislature.gov/Bills/192/H992">https://malegislature.gov/Bills/192/H992</a>	Introduced (Mar. 2021)	Ban	Bags	Prevents retailers from providing single-use carry-out bags. Referred to Joint Committee on Environment, Natural Resources and Agriculture ( <b>Apr. 2022</b> )
State	Michigan	State Senate Bill 853 <a href="http://www.legislature.mi.gov/documents/2015-2016/publicact/pdf/2016-PA-0389.pdf">http://www.legislature.mi.gov/documents/2015-2016/publicact/pdf/2016-PA-0389.pdf</a>	In effect	Ban pre-emption	Mar. 2017	An Act that prohibits local ordinances regulating the use, disposition, or sale of, prohibiting or restricting, or imposing any fee, charge, or tax on certain containers including; bags, cups, bottles, utensils, reusable or single-use; includes many materials, such as plastic, paper, cloth, metal, recycled materials, coated materials, etc. <a href="https://www.smithsonianmag.com/smart-news/why-michigan-banned-banning-plastic-bags-180961630/">https://www.smithsonianmag.com/smart-news/why-michigan-banned-banning-plastic-bags-180961630/</a>
		SB 358 <a href="https://www.legislature.mi.gov/(S(jfrffbfps5bhifstc1cm1jb))/milleg.aspx?page=getobject&amp;objectname=2021-SB-0358&amp;query=on">https://www.legislature.mi.gov/(S(jfrffbfps5bhifstc1cm1jb))/milleg.aspx?page=getobject&amp;objectname=2021-SB-0358&amp;query=on</a>	Introduced (Mar. 2021)	Repeal ban preemption	Multiple	Senate bill introduced to repeal the 2016 ban preemption law. ( <b>Mar. 2021</b> ) <a href="https://www.wxyz.com/news/new-bill-would-allow-plastic-bags-to-be-banned-in-michigan-communities#:~:text=A%20new%20bill%20would%20allow,or%20tax%20on%20certain%20containers.">https://www.wxyz.com/news/new-bill-would-allow-plastic-bags-to-be-banned-in-michigan-communities#:~:text=A%20new%20bill%20would%20allow,or%20tax%20on%20certain%20containers.</a>

							Cities are prohibited from banning any type of bag — paper, plastic or reusable.
State	Minnesota	Minnesota Statutes, Chapter 471.9998 Section 471.9998	<a href="https://www.revisor.mn.gov/statutes/cite/471.9998">https://www.revisor.mn.gov/statutes/cite/471.9998</a>	In effect	Ban pre-emption	Bags	May 2017
		HF 511/SF1903	<a href="#">HF 511 as introduced - 91st Legislature (2019 - 2020) (mn.gov)</a>	Second Reading (Feb. 2020)	Repeal ban preemption		Seeks to repeal the bag ban pre-emption statute: <a href="https://www.house.mn/SessionDaily/Story/13749">https://www.house.mn/SessionDaily/Story/13749</a>
							Prohibits local governments from regulating use of plastic bags, paper cups or other auxiliary containers by retailers or food vendors.
State	Mississippi	State Senate Bill 2570 Sec. 1-3	<a href="https://legiscan.com/MS/text/SB2570/id/1757825/Mississippi-2018-SB2570-Enrolled.html">https://legiscan.com/MS/text/SB2570/id/1757825/Mississippi-2018-SB2570-Enrolled.html</a>	In effect	Ban pre-emption	Multiple	Jul. 2018
							<a href="https://www.clarionledger.com/story/news/politics/2018/03/20/new-law-prohibit-local-government-banning-plastic-bags-other-type-containers/442256002/">https://www.clarionledger.com/story/news/politics/2018/03/20/new-law-prohibit-local-government-banning-plastic-bags-other-type-containers/442256002/</a>
State	Missouri	Title 16, Chapter 260, Section 283	<a href="https://revisor.mo.gov/main/OneSection.aspx?section=260.283&amp;bid=13924&amp;hl=bags%u2044">https://revisor.mo.gov/main/OneSection.aspx?section=260.283&amp;bid=13924&amp;hl=bags%u2044</a>	In effect	Ban pre-emption	Bags	Oct. 2015
State	Montana	HB 407	<a href="https://legiscan.com/MT/text/HB407/2021">https://legiscan.com/MT/text/HB407/2021</a>	In effect	Ban pre-emption	Multiple	Apr. 2021
State	Nebraska	Sec. 6. Section 13-2023	<a href="https://nebraskalegislature.gov/FloorDocs/106/PDF/Slip/LB632.pdf">https://nebraskalegislature.gov/FloorDocs/106/PDF/Slip/LB632.pdf</a>	Pending	Ban pre-emption	Multiple	Nov. 2020
State	Nevada	None currently					
State	New Hampshire	HB 1194, HB 559	<a href="https://openstates.org/nh/bills/2020/HB1194/">https://openstates.org/nh/bills/2020/HB1194/</a>	Introduced (Jan. 2020)  Deferred (Mar. 2020)	Ban	Straws, Bags	prohibits food service businesses from providing a single-use plastic straw to a customer unless specifically requested. House Bill 559 would require that New Hampshire stores charge between 10 and 50 cents for plastic bags given to customers at the point of sale. And it would require stores to carry plastic bags of a minimum thickness — 4 one-thousandths of an inch, or mils. Bill defeated Mar. 2020. <a href="https://www.surfrider.org/campaigns/yes-to-single-use-fees-in-new-hampshire">https://www.surfrider.org/campaigns/yes-to-single-use-fees-in-new-hampshire</a>
State	New Jersey	Title 13, Chapter 117	<a href="https://www.nj.gov/dep/plastic-ban-law/docs/plastic-bag-law-c117.pdf">https://www.nj.gov/dep/plastic-ban-law/docs/plastic-bag-law-c117.pdf</a>	In effect	Ban	Bags Food Service Containers Straws	Nov. 2021 (straws) May. 2022 (bags, containers)
State	New Mexico	None currently - local laws in place					
State	New York	Title 28, Article 27 Plastic Bag Waste Reduction Law	<a href="https://www.nysenate.gov/legislation/laws/ENV/A27T28">https://www.nysenate.gov/legislation/laws/ENV/A27T28</a>		Ban		all plastic carryout bags (other than an exempt bag) banned from distribution; cities and counties authorized to adopt 5 cent fee for paper bags.  <a href="https://www.dec.ny.gov/chemical/50034.html#:~:text=The%20law%20takes%20effect%20March,stores%20and%20most%20grocery%20stores">https://www.dec.ny.gov/chemical/50034.html#:~:text=The%20law%20takes%20effect%20March,stores%20and%20most%20grocery%20stores</a>
		Title 30, Article 27 Expanded Polystyrene Foam Container and Polystyrene Loose Fill Packaging Ban	<a href="https://www.nysenate.gov/legislation/laws/ENV/A27T30">https://www.nysenate.gov/legislation/laws/ENV/A27T30</a>	In effect		Bags Containers	Jan. 2022 (containers)
							No covered food service provider or store (retail or wholesale) will be allowed to sell, offer for sale, or distribute disposable food service containers that contain expanded polystyrene foam. <a href="https://www.dec.ny.gov/chemical/120762.html">https://www.dec.ny.gov/chemical/120762.html</a>

State	North Carolina	None currently					The Outer Banks area previously had a bag ban in place, since 2009, that was later repealed in 2017. <a href="https://www.outerbanksvoice.com/2017/10/04/plastic-bag-ban-repealed-after-override-of-governors-veto/">https://www.outerbanksvoice.com/2017/10/04/plastic-bag-ban-repealed-after-override-of-governors-veto/</a>
State	North Dakota	Chapter 216	<a href="https://www.legis.nd.gov/assembly/66-2019/session-laws/documents/ENVQAL.pdf#CHAPTER19">https://www.legis.nd.gov/assembly/66-2019/session-laws/documents/ENVQAL.pdf#CHAPTER19</a>	In effect	Ban pre-emption	Multiple	Aug. 2019 Local governments may not regulate, prohibit or impose fees on auxiliary containers (e.g. bags, cups, staws).
State	Ohio	House Bill 242	<a href="#">05 (state.oh.us)</a>	In effect (until Jan. 2022)	Ban pre-emption	Multiple	Jan. 2021 To temporarily (for a period of 12 months from effective date) prohibit local governments from imposing a tax or fee on containers (e.g. bag, can, cup, food or beverage service items). <a href="https://ohiocapitaljournal.com/2021/06/18/senate-budget-blocks-cities-from-taxing-plastic-bags/">https://ohiocapitaljournal.com/2021/06/18/senate-budget-blocks-cities-from-taxing-plastic-bags/</a>
State	Oklahoma	Title 27A, Section 2-11-504	<a href="http://webserver1.lsb.state.ok.us/cf_pdf/2019-20%20ENR/SB/1001%20ENR.PDF">http://webserver1.lsb.state.ok.us/cf_pdf/2019-20%20ENR/SB/1001%20ENR.PDF</a>	In effect	Ban pre-emption	Multiple	Apr. 2019 Local governments shall not restrict, tax, prohibit or regulate the use, disposition or sale of auxiliary containers (e.g. bags, cups, staws).
State	Oregon	Chapter 434	<a href="https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2019orlaw0434.pdf">https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2019orlaw0434.pdf</a>	In effect	Ban	Bags	Prohibits retailers from providing single-use plastic bags and can only offer reusable and/or paper bags for at least a 5 cent fee.
		Chaprter 362	<a href="https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2019orlaw0362.pdf">https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2019orlaw0362.pdf</a>			Straws	Prohibits distribution of straws unless upon request.
State	Pennsylvania	1929 Act 176, Section 1706E	<a href="https://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?txtType=HTM&amp;yr=199&amp;sessInd=0&amp;act=0176.&amp;chpt=017E&amp;subchpt=000.&amp;sctn=006.&amp;subsctn=000.">https://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?txtType=HTM&amp;yr=199&amp;sessInd=0&amp;act=0176.&amp;chpt=017E&amp;subchpt=000.&amp;sctn=006.&amp;subsctn=000.</a>	Expired Dec. 2021	Ban pre-emption	Multiple	Jun. 2019 Requires the Independent Fiscal Office to evaluate the economic impact for any regulation impacting single-use plastics, reusable plastics, auxiliary containers by Jul 2020. Until that time, local governments may not enact a law, rule, regulation or ordinance imposing a tax on or relating to the use, disposition, sale, prohibition or restriction of single-use plastics, reusable plastics, auxiliary containers. A provision was later added/signed into law that extends the pre-emption until Jul. 2021 due to health issues related to the COVID 19 pandemic. Philadelphia and four suburban towns sued in March 2021 over the General Assembly's preemption of laws aimed at curbing the prevalence of single-use plastics and the resulting litter that makes its way into rivers and streams. That measure delayed implementation of any current plastic bag bans — such as those passed in Philadelphia, West Chester and Narberth — at least until July 1, 2021, or six months after Gov. Tom Wolf lifted the COVID-19 state of emergency. Wolf did so in May, making Dec. 8, 2021, the date at which the preemption now expires, at least under the former budget.
							<a href="https://www.spotlightpa.org/news/2021/06/pa-plastic-bag-ban-preemption-philly-pittsburgh/">https://www.spotlightpa.org/news/2021/06/pa-plastic-bag-ban-preemption-philly-pittsburgh/</a> Pittsburg (Apr. 2022) and Philidelphia (2021) enact bag bans. <a href="https://www.thecentersquare.com/pennsylvania/pittsburgh-joins-philadelphia-in-banning-plastic-bags/article_ce49bd66-bb65-11ec-a870-57033bf62593.html">https://www.thecentersquare.com/pennsylvania/pittsburgh-joins-philadelphia-in-banning-plastic-bags/article_ce49bd66-bb65-11ec-a870-57033bf62593.html</a>

		SB 2003 Sub A (Plastic Waste Reduction Act)	<a href="https://legiscan.com/RI/bill/S2003/2020">https://legiscan.com/RI/bill/S2003/2020</a>	Introduced (Jan. 2020)			Retail sales establishments are prohibited from making available any bag that is not a reusable bag or recyclable paper bag.
State	Rhode Island	SB 2446 (Plastic Waste Reduction Act)	<a href="https://legiscan.com/RI/bill/S2446/2022#:~:text=Rhode%20Island%20Senate%20Bill%202446&amp;text=Creates%20the%20%22Plastic%20Waste%20Reduction,nd%20providing%20penalties%20for%20violations.">https://legiscan.com/RI/bill/S2446/2022#:~:text=Rhode%20Island%20Senate%20Bill%202446&amp;text=Creates%20the%20%22Plastic%20Waste%20Reduction,nd%20providing%20penalties%20for%20violations.</a>	Re-Introduced (Apr. 2022)	Ban	Bags	Same bill reintroduced.
State	South Carolina	None currently - local bans/fees in place					
State	South Dakota	SB 54	<a href="https://mylrc.sdlegislature.gov/api/Documents/Bill/67863.pdf?Year=2020">https://mylrc.sdlegislature.gov/api/Documents/Bill/67863.pdf?Year=2020</a>	In effect	Ban pre-emption	Multiple	Feb. 2020 No other political subdivision of the state may enact any law restricting the use in commerce of plastic auxiliary containers, beverage containers, garbage bags, straws used for beverage consumption, or plastic packaging materials.
State	Tennessee	Title 7, Chapter 51, Section 2002  House Bill 2369/Senate Bill 2131	<a href="https://publications.tnsosfiles.com/acts/11/pub/pc0158.pdf">https://publications.tnsosfiles.com/acts/11/pub/pc0158.pdf</a> <a href="https://wapp.capitol.tn.gov/apps/BillInfo/default.aspx?BillNumber=HB2369&amp;GA=111">https://wapp.capitol.tn.gov/apps/BillInfo/default.aspx?BillNumber=HB2369&amp;GA=111</a>	In effect  Introduced (Feb. 2020)	Ban pre-emption  Fee	Multiple  Bag	Apr. 2019 Local governments shall not restrict, tax, prohibit or regulate the use, disposition or sale of auxiliary containers (e.g. bags, cups, staws). Bills introduced that would prohibits grocery stores, retail stores, and food service businesses from providing free paper or plastic bags to customers.
State	Texas	Health and Safety Code Sec. 361.0961(a)(1)	<a href="https://statutes.capitol.texas.gov/Docs/HS/htm/HS.361.htm">https://statutes.capitol.texas.gov/Docs/HS/htm/HS.361.htm</a>	In effect	Ban pre-emption	Multiple	1993 Local governments may not regulate, prohibit or impose fees on containers (e.g. bags, cups, staws).
State	Utah	None currently - local bans/fees in place					Variouys municipalities have banned plastic bags. Moab (2018), Park City (2017), Logan (2019).
State	Vermont	Act 69	<a href="https://legislature.vermont.gov/Documents/2020/Docs/ACTS/ACT069/ACT069%20As%20Enacted.pdf">https://legislature.vermont.gov/Documents/2020/Docs/ACTS/ACT069/ACT069%20As%20Enacted.pdf</a>	In effect	Ban	Bag Straws Stirrers Food Service Containers	Jul. 2020 Retailers cannot provide single-use plastic bags (paper bags for 10 cent fee). Restaurants can only provide plastic straws upon request. Plastic stirrers cannot be provided. Retailers cannot provide expanded polystyrene containers food service product (e.g coffee cups, takeout containers). <a href="https://vtidigger.org/2019/06/17/vermont-now-nations-broadest-single-use-plastics-ban/">https://vtidigger.org/2019/06/17/vermont-now-nations-broadest-single-use-plastics-ban/</a>
State	Virginia	Guidelines for the Virginia Disposable Plastic Bag Tax	<a href="https://townhall.virginia.gov/l/GetFile.cfm?File=C%5CTownHall%5Cdocroot%5CGuidanceDocs_Proposed%5C161%5CGDoc_TAX_4922_20210901.pdf">https://townhall.virginia.gov/l/GetFile.cfm?File=C%5CTownHall%5Cdocroot%5CGuidanceDocs_Proposed%5C161%5CGDoc_TAX_4922_20210901.pdf</a>	In effect	Fee	Bag	Jan. 2021 Allows localities to impose a five-cent (\$0.05) per bag tax on plastic bags provided to customers by retailers <a href="https://www.tax.virginia.gov/disposable-plastic-bag-tax">https://www.tax.virginia.gov/disposable-plastic-bag-tax</a>
State	Washington	Title 70A, Chapter 70A.530 Carryout bags	<a href="https://app.leg.wa.gov/RCW/default.aspx?cite=70A.530">https://app.leg.wa.gov/RCW/default.aspx?cite=70A.530</a>	In effect	Ban	Bag	Oct. 2021 The bag ban prohibits the distribution of single-use plastic carry-out bags by restaurants, retail, small vendor, and grocery stores. The ban was originally scheduled to begin Jan. 1, 2021, but the limited availability of compliant bags pushed the ban to Oct. 2021 <a href="https://ecology.wa.gov/About-us/Who-we-are/News/2021/Statewide-bag-ban-begins-Oct-1">https://ecology.wa.gov/About-us/Who-we-are/News/2021/Statewide-bag-ban-begins-Oct-1</a>

		Title 8, Subchapter A, Chapter 1	<a href="https://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/Anacostia%20Clean%20Up%20and%20Protection%20Act%20of%202009_3.20.15.pdf">https://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/Anacostia%20Clean%20Up%20and%20Protection%20Act%20of%202009_3.20.15.pdf</a>	In effect	Fees	Bags	Jan. 2010	Requires businesses that sell food or alcohol charge a \$0.05 fee for each paper and plastic bag distributed with any purchase
District	Washington D.C.	Title 4, Subtitle A (Sustainable DC Omnibus Amendment Act of 2014)	<a href="https://lims.dccouncil.us/downloads/LIMS/30722/Meeting2/Enrollment/B20-0573-Enrollment.pdf#page=7">https://lims.dccouncil.us/downloads/LIMS/30722/Meeting2/Enrollment/B20-0573-Enrollment.pdf#page=7</a>	In effect	Fines	Straws, Stirrers, Food Service Containers. Polystyrene (foam)	2014	<p><b>Reducing Food Service Waste:</b> District food-serving entities and third-party food ordering platforms must only provide disposable utensils and other small items if first requested by the customer.</p> <p><b>Foam Ban:</b> Food service ware, storage containers, and packing materials made from expanded polystyrene, commonly known as foam, are banned from use or retail sale in the District.</p> <p><b>Food Service Ware Material Requirements:</b> District restaurants and other food-serving institutions must only use food service ware determined to be compostable or recyclable to serve consumers. More information can be found on this page.</p> <p><b>A ban on single-use plastic straws:</b> Plastic straws are not recyclable or compostable and violate the food service ware material requirements. See Our Last Straw and information on the page below for more details.</p>
								As above - The Sustainable DC Omnibus Amendment Act of 2014 and the Zero Waste Omnibus Amendment Act of 2020 both include requirements related to food service waste that have been introduced in phases. As of January 1, 2022, all District restaurants, and food-serving entities are prohibited from automatically including small disposable food service items in customer orders.
State	West Virginia	Chapter 73, Article 63	<a href="http://www.wvlegislature.gov/Bill_Text_HML/2021_SESSIONS/RS/signed_bills/house/HB2500%20ENR_SIGNED.pdf">http://www.wvlegislature.gov/Bill_Text_HML/2021_SESSIONS/RS/signed_bills/house/HB2500%20ENR_SIGNED.pdf</a>	In effect	Ban pre-emption	Multiple	Apr. 2021	Local government may not regulate the use or sale of auxiliary containers; prohibit or restricts auxiliary containers; or impose a fees, charge, or tax on auxiliary containers.
								Prohibits local governments from regulating the commercial use of plastic bags or other auxiliary containers such as cups, bottles or other packaging designed to be reusable or single-use for transporting or protecting merchandise, food, or beverages from a food service or retail facility. It also prohibits local governments from enacting measures that attach a fee or surcharge on plastic bags.
State	Wisconsin	WI Act 302	<a href="https://docs.legis.wisconsin.gov/2015/released/acts/302">https://docs.legis.wisconsin.gov/2015/released/acts/302</a>	In effect	Ban pre-emption	Multiple	Mar. 2016	Local bag bans in place, such as Jackson Hole (Apr. 2019), Teton County (Jan. 2019). Other cities are considering this model are Laramie (Jan. 2020),
								<a href="https://www.jacksonholechamber.com/blog/jackson-hole-plastic-bag-ban/">https://www.jacksonholechamber.com/blog/jackson-hole-plastic-bag-ban/</a> <a href="https://www.wyomingnews.com/news/local_news/laramie-begins-effort-to-reduce-or-ban-plastic-bag-use/article_f58011bb-d7ae-586e-a020-3652e4894094.html">https://www.wyomingnews.com/news/local_news/laramie-begins-effort-to-reduce-or-ban-plastic-bag-use/article_f58011bb-d7ae-586e-a020-3652e4894094.html</a>

## Appendix B Continued - Plastics Legislation and Bills

### SOUTH AMERICA

Jurisdiction	Country	Initiative	Link	Status	Type	Product	Effective Date	Description
Provincial	Argentina	Province of Buenos Aires - Law 13868	<a href="http://www.gob.gba.gov.ar/legislacion/legislacion/l-13868.html">http://www.gob.gba.gov.ar/legislacion/legislacion/l-13868.html</a>	In effect	Ban	Bags	2009	Law prohibits in all the territory of the Province of Buenos Aires, the use of polyethylene bags and all other conventional plastic material, used and delivered by supermarkets, self-service stores and stores in general to transport products or merchandise.
National	Bolivia	None currently						
National	Brazil	None currently						There is no general framework specifically regulating packing and plastics waste, but there are some relevant provisions in law that all concern the incentive to recycle.
National	Chile		<a href="https://www.bbc.com/news/world-latin-america-45066268">https://www.bbc.com/news/world-latin-america-45066268</a>	In effect	Ban	Bags	Aug. 2018	The bill bans plastic bags in the entire country making Chile the first country in South America to take this initiative. Signed into law Aug. 2018, business have 2-years to comply.
National	Chile		<a href="https://plasticoceans.org/chile-passes-law-that-regulates-single-use-plastics/">https://plasticoceans.org/chile-passes-law-that-regulates-single-use-plastics/</a>	In effect	Ban	Multiple	Feb. 2022	All single use plastics to be phased out gradually.
National	Colombia		<a href="https://latinamericanpost.com/index.php/environment/14287-colombia-bans-small-plastic-bags-distribution">https://latinamericanpost.com/index.php/environment/14287-colombia-bans-small-plastic-bags-distribution</a>	In effect	Ban Fees	Bag	Jan. 2017	The distribution of plastic bags smaller to 30x30cm is prohibited and tax (currently 0.01 cents) is applied to large plastic bags.
National	Ecuador	Organic Law for the Rationalization, Reuse and Reduction of Single Use Plastics	<a href="https://www.loc.gov/item/global-legal-monitor/2021-02-16/ecuador-law-on-restrictions-on-the-use-of-plastic-enters-into-force/#:~:text=(Feb.,of%20single%2Duse%20plastic%20products.">https://www.loc.gov/item/global-legal-monitor/2021-02-16/ecuador-law-on-restrictions-on-the-use-of-plastic-enters-into-force/#:~:text=(Feb.,of%20single%2Duse%20plastic%20products.</a>	In effect	Ban	Multiple	Dec. 2020	A gradual phasing out of single use plastic bags, utensils, shipping packaging within 12 months and more plastics products added to list over 24 and 36 months
National	Guyana		<a href="https://www.epaguyana.org/epa/single-use-plastics/about-the-ban/163-the-impending-ban-on-single-use-plastic-products">https://www.epaguyana.org/epa/single-use-plastics/about-the-ban/163-the-impending-ban-on-single-use-plastic-products</a>	In effect	Ban	Multiple	Jan. 2021	The proposed ban is on the importation, manufacture, distribution and use of plastic bags and other single-use plastic products including plastic plates, food containers, cups, straws, and utensils (spoons, knives, forks), beginning in 2021.
National	Paraguay	None currently						
National	Peru	Act No. 30884	<a href="https://cms.law/en/int/expert-guides/plastics-and-packaging-laws/peru">https://cms.law/en/int/expert-guides/plastics-and-packaging-laws/peru</a>	In effect	Ban	Multiple	2018	Ban bags, plates, utensils and other packaging. By December 2021 every commercial establishment must replace non-reusable plastic bags with reusable bags that do not generate pollution

National	Suriname	None currently					
National	Uruguay	Law 19,655 <a href="https://g20mpl.org/partners/uruguay#:~:text=3%2F019%20regulates%20Law%20N,o,are%20not%20compostable%20or%20biodegradable.">https://g20mpl.org/partners/uruguay#:~:text=3%2F019%20regulates%20Law%20N,o,are%20not%20compostable%20or%20biodegradable.</a>	In effect	Ban	Bags	Mar. 2019	Objective is to reduce the environmental impact of the use of plastic bags, discouraging their use and promoting their reuse and recycling. It prohibits the manufacture, import, distribution, sale and delivery of plastic bags that are not compostable or biodegradable.
National	Venezuela	None currently					

**Appendix B Continued - Plastics Legislation and Bills**  
**CENTRAL AMERICA**

Jurisdiction	Country	Initiative	Link	Status	Type	Product	Effective Date	Description
National	Belize	Pollution from Plastics Regulation 2020	<a href="https://doe.gov.bz/download/pollution-from-plastics-regulations-2020/">https://doe.gov.bz/download/pollution-from-plastics-regulations-2020/</a>	In effect	Ban	Multiple	Jan. 2020	Prohibits the importation, manufacture, sale, and possession of Prohibited Products listed in Schedule II (such as styrofoam and plastic clamshells, plates, bowls, cups and lids, forks, spoons, knives, cutlery, straws and shopping bags)
		SI No 17. of 2022 Environmental Protection (Pollution from Plastics) Amendment	<a href="https://doe.gov.bz/download/si-no-17-of-2022-environmental-protection-pollution-from-plastics-amendment/">https://doe.gov.bz/download/si-no-17-of-2022-environmental-protection-pollution-from-plastics-amendment/</a>	In effect	Permit	Multiple	Jan. 2022	Regulates the importation and manufacture of Restricted Products listed in Schedule I (such as cups and lids, forks, spoons, knives, cutlery, straws and shopping bags and the raw materials to produce them) through a licensing and permitting process <a href="https://www.islandexpeditions.com/belize-vacations-blog/belize-bans-single-use-plastic">https://www.islandexpeditions.com/belize-vacations-blog/belize-bans-single-use-plastic</a>
National	Costa Rica	Law to combat plastic pollution and protect the environment, No. 9786 (26 Nov. 2019)	<a href="http://www.pgrweb.go.cr/scii/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&amp;nValor1=1&amp;nValor2=90187">http://www.pgrweb.go.cr/scii/Busqueda/Normativa/Normas/nrm_texto_completo.aspx?param1=NRTC&amp;nValor1=1&amp;nValor2=90187</a>	In effect	Ban	Bags Straws	Nov. 2019	This law bans the sale or distribution of plastic bags by supermarkets and other retail establishments. Art. 4. The law allows for the use of biodegradable bags and reusable bags certified as having a low environmental impact and meeting certain design standards including at least 50% recycled content. The law recommends businesses incentivize customers to bring their own packaging, cloth bags, baskets, etc. to carry their merchandize away. Art. 10.  This law also bans selling or distributing plastic straws. Art. 3. The Minister of Health will define exceptions to the ban by regulation. Id.  <a href="https://elaw.org/CR_PlasticLaws">https://elaw.org/CR_PlasticLaws</a>
National	El Salvador	None currently						Proposal was put forward in 2018 to replace plastic bags with bags made of alternative materials.  <a href="https://www.centralamericanadata.com/en/article/home/El_Salvador_Proposal_to_Ban_Plastic_Bags">https://www.centralamericanadata.com/en/article/home/El_Salvador_Proposal_to_Ban_Plastic_Bags</a>
National	Guatemala	Acuerdo Gubernativo No. 189-2019 (not translated)	<a href="https://elaw.org/system/files/attachments/publicresource/15329.pdf">https://elaw.org/system/files/attachments/publicresource/15329.pdf</a>	In effect	Ban	Multiple	Jul. 2019	Prohibits the use and distribution of single-use plastic bags, plastic straws, disposable plastic plates, glasses and stirrers, and disposable plastic or expanded polystyrene food containers across Guatemala.  <a href="https://elaw.org/plastic/GT_PlasticLaws#:~:text=189%2D2019%20prohibits%20the%20use,polystyrene%20food%20containers%20across%20Guatemala.">https://elaw.org/plastic/GT_PlasticLaws#:~:text=189%2D2019%20prohibits%20the%20use,polystyrene%20food%20containers%20across%20Guatemala.</a>
National	Haiti		<a href="https://www.csmonitor.com/World/Americas/2012/0928/Haiti-bans-plastic-bags-and-styrofoam-containers">https://www.csmonitor.com/World/Americas/2012/0928/Haiti-bans-plastic-bags-and-styrofoam-containers</a>	In effect	Ban	Multiple	Oct. 1, 2012	Ban on importing, manufacturing, and marketing plastic bags made of polyethylene and polystyrene foam cups, plates, trays, and other plastic containers.

National	Honduras	Non currently - local laws						City of Utila has banned plastic bags and limited plastic soda bottles (2015). Roatan bans plastic bags and straws (2014) <a href="https://www.utilaguide.com/eliminatingplasticonutila/">https://www.utilaguide.com/eliminatingplasticonutila/</a>
National	Nicaragua	None currently						
National	Panama	<a href="https://www.audubon.org/news/panama-bans-use-plastic-bags">https://www.audubon.org/news/panama-bans-use-plastic-bags</a>	In effect	Ban	Bags	Jan. 2018	First Central American country to ban the use of plastic bags. Banning of the commercial distribution of bags, will go into effect in early 2020. <a href="https://www.globalcitizen.org/en/content/panama-plastic-bag-ban/">https://www.globalcitizen.org/en/content/panama-plastic-bag-ban/</a>	

**Appendix B Continued - Plastics Legislation and Bills**  
**EUROPE**

Jurisdiction	Country	Initiative	Link	Status	Type	Product	Effective Date	Description
Multi-National	European Union	Directive 94/62/EC	<a href="https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015L0720">https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015L0720</a>	In Effect	Multiple	Bags	2013	A proposal aiming to reduce the consumption of lightweight (thickness below 50 microns) plastic carrier bags. Under the proposal, EU member states can choose the most appropriate measures to discourage the use of plastic bags. A good number of member states charge a fee for plastic bags.
		Directive (EU) 2019/904 (the Single-Use Plastics Directive)	<a href="https://cms.law/en/int/expert-guides/plastics-and-packaging-laws/european-union">https://cms.law/en/int/expert-guides/plastics-and-packaging-laws/european-union</a>	In effect	EPR Recycling	Multiple	Jul. 2021	The Directive sets out targets for the separate collection of plastics for recycling (a 90% separate collection target for plastic bottles by 2029 (and 77% by 2025)) which can be achieved through deposit return schemes or separate collection targets for extended producer responsibility schemes. Other measures under the Single-Use Plastics Directive include: plastic cotton buds, cutlery, plates, straws, beverage stirrers, balloon sticks and all products made from oxo-degradable plastics will be banned in the EU from 3 July 2021; tethered bottle caps for plastic bottles will become mandatory on 3 July 2024; and PET drinks bottles will be required to contain at least 25% recycled plastic from 2025 and 30% recycled plastic from 2030.
National	Belgium		<a href="https://www.brusselstimes.com/all-news/belgium-all-news/94860/brussels-bans-plastic-produce-bags-from-1-march">https://www.brusselstimes.com/all-news/belgium-all-news/94860/brussels-bans-plastic-produce-bags-from-1-march</a>	In effect	Ban	Bags	Sep. 2017	Ban on plastic checkout bags for single use (2017). Thin fruit and vegetable bags banned (2020).
		Directive (EU) 2019/904 (the Single-Use Plastics Directive)	<a href="https://www.retaildetail.eu/news/general/belgium-bans-plastic-cotton-buds-and-tableware/">https://www.retaildetail.eu/news/general/belgium-bans-plastic-cotton-buds-and-tableware/</a>	In effect	Bans	Multiple	Jan. 2022	Multiple single use products banned (e.g., plastic ear buds, tableward, cutlery) banned per EU Directive 2019/904 (as above)
National	Bulgaria	Ecotax on Plastic bags	<a href="http://plasticbagbanreport.com/bulgaria-hikes-ecotax-on-plastic-bags/">http://plasticbagbanreport.com/bulgaria-hikes-ecotax-on-plastic-bags/</a>	In effect	Fees	Bags	2012	A thirty-seven cent charge on all bags made of conventional plastic polymers and used by consumers for holding and carrying goods. An exception is made for bags that can be disposed off through composting and biodegradation. Bulgaria has not yet adopted the EU Directive 2019/904 (Jul. 2021) <a href="https://rethinkplasticalliance.eu/wp-content/uploads/2021/06/SUP-Assessment-Design-final.pdf#page=15">https://rethinkplasticalliance.eu/wp-content/uploads/2021/06/SUP-Assessment-Design-final.pdf#page=15</a>
National	Cyprus		<a href="http://cyprus-mail.com/2018/01/04/shops-ignoring-plastic-bag-ban/">http://cyprus-mail.com/2018/01/04/shops-ignoring-plastic-bag-ban/</a>	In effect	Fees	Bags	Jan. 2018	Five cents charge per plastic bag. Has still not adopted Directive 2019/904. There is an extension until Sept 30 2022 to implement or face EU fines. <a href="https://cyprus-mail.com/2022/04/20/eu-ban-on-single-use-plastics-in-place-from-sept-30/">https://cyprus-mail.com/2022/04/20/eu-ban-on-single-use-plastics-in-place-from-sept-30/</a>
National	Czech Republic		<a href="https://news.expats.cz/weekly-czech-news/czech-republic-bids-farewell-free-plastic-bags-2018/">https://news.expats.cz/weekly-czech-news/czech-republic-bids-farewell-free-plastic-bags-2018/</a>	In effect	Fees	Bags	Jan. 2018	Shops are required to charge for all plastic bags with a thickness of 15 microns or more. The price varies from shop to shop as the price is determined by shop owners but must cover the cost of the bag. Will adopt EU Directive 2019/904 in July 2023. Will align Czech law and EU policies for plastics <a href="https://www.expats.cz/czech-news/article/last-straw-czech-lower-house-supports-disposable-plastic-ban">https://www.expats.cz/czech-news/article/last-straw-czech-lower-house-supports-disposable-plastic-ban</a>

National	Denmark	<a href="http://www.earth-policy.org/plan_b_updates/2014/update123">http://www.earth-policy.org/plan_b_updates/2014/update123</a>	In effect	Fees	Bags	1994	First country in the country to tax producers of plastic and paper shopping bags in 1994 (currently \$4 per kilogram of plastic bags). Manufacturers pass the cost on to retailers, who then decide if they will in turn charge customers. Consumers generally pay thirty-seven to sixty-five cents.	
		<a href="https://www.euromeatnews.com/Article-Denmark-makes-severe-changes-for-plastic-bags-use/3547">https://www.euromeatnews.com/Article-Denmark-makes-severe-changes-for-plastic-bags-use/3547</a>	In effect	Ban	Bags	Jan. 2021	A complete ban on free plastic bags in stores.	
		<a href="http://www.france24.com/en/20160701-france-bans-plastic-bags-distributed-stores">http://www.france24.com/en/20160701-france-bans-plastic-bags-distributed-stores</a>	In effect	Ban	Bags	Jan. 2017	A complete ban on plastic bags thinner than 50 micrometres from being distributed at cashiers regardless of volume, and regardless of whether or not the retailer charges customers for the bag.	
National	France	Government Decree	<a href="https://perma.cc/BU37-4U8F">https://perma.cc/BU37-4U8F</a>	In effect	Ban	Bags	Jan. 2022	On January 1, 2022, a ban on single-use plastic packaging for the sale of approximately 30 types of fruits and vegetables took effect in France. The ban serves to implement part of a February 2020 law aimed at fighting against waste and promoting a circular economy. <a href="https://www.loc.gov/item/global-legal-monitor/2022-01-18/france-government-bans-single-use-plastic-packaging-for-various-perishable-products/#::text=On%20January%202022%2C%20a%20promoting%20a%20circular%20economy.">https://www.loc.gov/item/global-legal-monitor/2022-01-18/france-government-bans-single-use-plastic-packaging-for-various-perishable-products/#::text=On%20January%202022%2C%20a%20promoting%20a%20circular%20economy.</a>
National	Germany	German Packaging Act Amendment to the German Packaging Act of 2019	<a href="https://www.lizenzero.de/en/blog/amendment-of-the-german-packaging-act-verpackg-changes-in-force-since-3-july-2021/">https://www.lizenzero.de/en/blog/amendment-of-the-german-packaging-act-verpackg-changes-in-force-since-3-july-2021/</a>	In effect	Fees	Bags	Jul. 2016	Germany has a voluntary agreement with retailers to stop giving out free plastic bags. Every plastic bag now costs at least 6 to 7 cent at retailers with more than 250 employees, which are mainly retail chains.
								From 2022, lightweight plastic bags will also be banned and may no longer be handed out to customers. As part of the amendment to the German Packaging Act, the deposit obligation will be extended from 2022. In future the deposit will also apply to disposable plastic beverage bottles and beverage cans. From 2024, all containers for milk and dairy products will also be subject to a deposit. The amendment to the German Packaging Act requires the minimum recycled content (recyclate = recycled plastic) for PET disposable beverage bottles to increase to 25 percent from 2025; from 2030, 30 percent recyclate is mandatory. From 2023 onwards, catering establishments (i.e. restaurants) must also offer reusable packaging as an alternative to disposable containers for food and drinks that are handed out for take-away. Exceptions apply to small businesses, which must at least fill containers brought in by customers (this is also a requirement of the amendment to the German Packaging Act of July 2021).
National	Ireland	Plastic bag Tax	<a href="https://www.nytimes.com/2008/01/31/world/europe/31iht-bags.4.9650382.html">https://www.nytimes.com/2008/01/31/world/europe/31iht-bags.4.9650382.html</a>	In effect	Fees	Bags	2002	Currently, a plastic bag costs thirty-three cents. There was a ninety-four percent drop in plastic bag usage within weeks of the coming into force of the tax.
		EU Directive 2019/904 and Directive 2020/2151	<a href="https://www.gov.ie/en/publication/ef24a-single-use-plastics/">https://www.gov.ie/en/publication/ef24a-single-use-plastics/</a>	In effect	Ban	Multiple	Jul. 2021	Adoption of EU Directive 2019/904 and Directive 2020/2151. Banned items include cutlery, plates, stirrers, etc.

National	Italy	<a href="https://www.environmentalleader.com/2011/01/italy-carries-out-plastic-bag-ban/">https://www.environmentalleader.com/2011/01/italy-carries-out-plastic-bag-ban/</a>	In effect	Bans	Bags	Jan. 2011	A complete ban on the distribution of lightweight plastic bags that are not from biodegradable sources.
	Directive (EU) 2019/904 (the Single-Use Plastics Directive)	<a href="#">Italy Transposes into National Law the EU Single-Use Plastic Products Directive</a>	In effect	Bans	Multiple	Jan. 2022	Italy transposes EU plastics products directive into Italian law.
National	United Kingdom (Wales)	<a href="https://gov.wales/single-use-carrier-bags-charge-wales-amendment-regulations-2020">https://gov.wales/single-use-carrier-bags-charge-wales-amendment-regulations-2020</a>	In effect	Fees	Bags	Oct. 2011	A minimum of five pence charge is for almost all single use bags including paper and biodegradable bags as well as plastic bags.
National	United Kingdom (Northern Ireland)	<a href="https://www.nidirect.gov.uk/articles/carrier-bag-levy">https://www.nidirect.gov.uk/articles/carrier-bag-levy</a>	In effect	Fees	Bags	Apr. 2013	A five pence charge on all single use bags as well as reusable bags.
		<a href="https://www.independent.co.uk/news/uk/home-news/scotlands-5p-carrier-bag-charge-comes-into-effect-9806706.html">https://www.independent.co.uk/news/uk/home-news/scotlands-5p-carrier-bag-charge-comes-into-effect-9806706.html</a>	In effect	Fees	Bags	Oct. 2014	A five pence minimum charge for single-use carrier bags including biodegradable paper bags.
National	United Kingdom (Scotland)	<a href="https://www.zerowastescotland.org.uk/single-use-plastics/regulations">https://www.zerowastescotland.org.uk/single-use-plastics/regulations</a>	In effect	Ban	Multiple	Jun. 2022	The ban means it is unlawful to make and supply commercially any of the following single-use plastic items:  Cutlery (forks, knives, spoons, chopsticks and other similar utensils) Plates; Beverage stirrers; Food containers made of expanded polystyrene; Cups made of expanded polystyrene.
National	United Kingdom (England)	<a href="https://www.bbc.com/news/uk-34346309">https://www.bbc.com/news/uk-34346309</a>	In effect	Fees	Bags	Oct. 2015	The last country in the UK to introduce the five cents charge per single use bag. Unlike the other UK countries, the charge does not apply to paper bags or bags made from other natural materials.
		<a href="https://www.bbc.com/news/uk-england-54366461">https://www.bbc.com/news/uk-england-54366461</a>	In effect	Ban and regulation		Apr. 2021	Stirrers, straws, cotton buds et al. items

**Appendix B Continued - Plastics Legislation and Bills**  
**AFRICA**

Jurisdiction	Country	Initiative	Link	Status	Type	Product	Effective Date	Description
National	Benin	Law No. 2017-39	<a href="https://nicholasinstitute.duke.edu/sites/default/files/plastics-policies/2376_TR_Final_N_Benin%202017%20plastic%20bag%20ban.pdf">https://nicholasinstitute.duke.edu/sites/default/files/plastics-policies/2376_TR_Final_N_Benin%202017%20plastic%20bag%20ban.pdf</a>	In Effect	Ban	Bags	Dec. 2017	Ban on the production, importation, exportation, commercialisation, distribution, utilisation and safeguarding of non-biodegradable plastic bags.  <a href="http://observers.france24.com/en/20180515-benin-plastic-bag-recycled-bags">http://observers.france24.com/en/20180515-benin-plastic-bag-recycled-bags</a>
National	Botswana		<a href="https://www.averda.com/rsa/news/bots_wana-ban-plastic-bags">https://www.averda.com/rsa/news/bots_wana-ban-plastic-bags</a>	In Effect	Ban	Bags	Nov. 2018	Ban on the use of carrier plastic bags. A levy on plastic bags of 24 or more microns thickness.
National	Cameroon		<a href="https://face2faceafrica.com/article/plastic-bags-in-cameroon">https://face2faceafrica.com/article/plastic-bags-in-cameroon</a>	In Effect	Ban	Bags	Apr. 2014	Ban on the use of non-biodegradable of plastic bags.
National	Congo		<a href="https://www.reuters.com/article/ozatp-congo-environment-plastic-20110602-idAFJOE7510G320110602">https://www.reuters.com/article/ozatp-congo-environment-plastic-20110602-idAFJOE7510G320110602</a>	In Effect	Ban	Bags	2011	The use of plastic bags to pack food, groceries, water and other beverages is prohibited.
National	Eritrea		<a href="https://figre4eri.wordpress.com/2017/08/29/banning-plastic-bags-the-case-of-eritrea/">https://figre4eri.wordpress.com/2017/08/29/banning-plastic-bags-the-case-of-eritrea/</a>	In Effect	Ban	Bags	Jan. 2005	The importation, production, sale, or distribution of plastic bags is outlawed.
National	Ethiopia		<a href="https://www.theafricareport.com/8045/ethiopias-green-revolution-on-plastic-bags-and-energy/">https://www.theafricareport.com/8045/ethiopias-green-revolution-on-plastic-bags-and-energy/</a>	In Effect	Ban	Bags	2011	A ban preventing the manufacture and import of disposable or single-use plastic shopping bags.
National	Gabon	Order No. 1489	<a href="https://nicholasinstitute.duke.edu/sites/default/files/plastics-policies/2399_TR_FinalGabon%202010%20plastic%20bag%20ban.pdf">https://nicholasinstitute.duke.edu/sites/default/files/plastics-policies/2399_TR_FinalGabon%202010%20plastic%20bag%20ban.pdf</a>	In Effect	Ban	Bags	Jul. 2010	Prohibition of the import and marketing of non-recyclable plastic bags.
National	Gambia		<a href="https://thepoint.gm/africa/gambia/article/plastic-bag-use-importation-to-be-banned-in-gambia">https://thepoint.gm/africa/gambia/article/plastic-bag-use-importation-to-be-banned-in-gambia</a>	In Effect	Ban	Bags	Jul. 2015	Ban on the use and importation of plastic bags.
National	Guinea-Bissau		<a href="https://www.bahamas.gov.bs/wps/wcm/connect/e8d4a940-99bf-4bc7-9cb0-c77e420ccaf/Plastic+Ban+Countries.pdf?MOD=AJPERES">https://www.bahamas.gov.bs/wps/wcm/connect/e8d4a940-99bf-4bc7-9cb0-c77e420ccaf/Plastic+Ban+Countries.pdf?MOD=AJPERES</a>	In Effect	Ban	Bags	2016	A law banning the use of plastic bags was enacted in 2016 but te government has failed to implement the ban.
National	Ivory Coast	Decree No. 2013-327 of 22 May 2013	<a href="https://nicholasinstitute.duke.edu/sites/default/files/plastics-policies/2391_TR_Final_Ivory%20Coast%20Policy.pdf">https://nicholasinstitute.duke.edu/sites/default/files/plastics-policies/2391_TR_Final_Ivory%20Coast%20Policy.pdf</a>	In Effect	Ban	Bags	Aug. 2014	Law prohibits the production, importation, commercialisation, possession and the use of any non-biodegradable plastic bags made of lightweight polyethylene, or similar plastic derivates with a thickness of less than 50 microns.  <a href="http://www.ipsnews.net/2014/09/cote-divoire-chokes-on-its-plastic-shopping-bags/">http://www.ipsnews.net/2014/09/cote-divoire-chokes-on-its-plastic-shopping-bags/</a>

National	Kenya	<a href="https://www.bbc.com/news/world-africa-41069853">https://www.bbc.com/news/world-africa-41069853</a>	In Effect	Ban	Bags	Aug. 2017	The use, manufacture and importation of all plastic bags used for commercial and household packaging is banned. Anyone found selling, manufacturing or carrying them could face fines of up to \$38,000 or prison sentences of up to four years.  In Jun. 2020 Kenya banned single-use plastics in protected natural areas including national Parks, beaches, forests and conservation areas <a href="https://www.unep.org/news-and-stories/story/kenya-bans-single-use-plastics-protected-areas">https://www.unep.org/news-and-stories/story/kenya-bans-single-use-plastics-protected-areas</a>	
National	Madagascar	<a href="https://www.greenpeace.org/africa/en/logs/11156/34-plastic-bans-in-africa/">https://www.greenpeace.org/africa/en/logs/11156/34-plastic-bans-in-africa/</a>	In Effect	Ban	Bags	2015	The production, import, commercialization and use of bags made of plastic less than 0.05 millimeters thick is prohibited.	
National	Malawi	<a href="https://www.times.mw/plastic-bag-manufacturers-honeymoon-ends-monday/">https://www.times.mw/plastic-bag-manufacturers-honeymoon-ends-monday/</a>	In Effect	Ban	Bags	2015	Ban on the use, sale, production, exportation and importation of plastic bags of less than 60 microns. However, it was overturned by the high court in 2016 and then in 2019 found that the original 2015 law should be upheld.  <a href="https://www.globalcitizen.org/en/content/malawi-plastic-bag-ban-supreme-court/">https://www.globalcitizen.org/en/content/malawi-plastic-bag-ban-supreme-court/</a>	
National	Mali	Law No. 2014-024 of 03 July 2014	<a href="https://nicholasinstitute.duke.edu/sites/default/files/plastics-policies/2419_TR_Final_Mali%202014%20plastic%20bag%20ban.pdf">https://nicholasinstitute.duke.edu/sites/default/files/plastics-policies/2419_TR_Final_Mali%202014%20plastic%20bag%20ban.pdf</a>	In Effect	Ban	Bags	Jan. 2014	Prohibits the production, import and marketing of nonbiodegradable plastic bags.  <a href="http://www.france24.com/en/20130103-2013-plastic-bag-ban-mauritania-mali">http://www.france24.com/en/20130103-2013-plastic-bag-ban-mauritania-mali</a>
National	Mauritania		<a href="https://www.bbc.co.uk/news/world-africa-20891539">https://www.bbc.co.uk/news/world-africa-20891539</a>	In Effect	Ban	Bags	2013	Ban on the use of plastic bags. Plastic bag manufacturers could be jailed for up to a year.
National	Morocco	Law 77.15 on the ban of plastic bags	<a href="http://www.africanews.com/2016/07/01/morocco-enforcing-nationwide-ban-on-plastic-bags/">http://www.africanews.com/2016/07/01/morocco-enforcing-nationwide-ban-on-plastic-bags/</a>	In Effect	Ban	Bags	Jul. 2016	Ban on the nationwide production, import, sale and distribution of plastic bags. The Law 77.15 was amended in 2019 to add new provisions, such as new definitions for the raw plastic material and semi-finished plastic material used in bag-making and new articles defining a legal framework for inspections and seizures.  <a href="https://www.moroccoworldnews.com/2019/01/262489/morocco-law-banned-plastic-bags">https://www.moroccoworldnews.com/2019/01/262489/morocco-law-banned-plastic-bags</a>
National	Mozambique		<a href="https://www.shine.cn/archive/article/article_xinhua.aspx?id=320689">https://www.shine.cn/archive/article/article_xinhua.aspx?id=320689</a>	In Effect	Ban	Bags	2016	A government decree bans plastic bags which measure less than 30 micrometers. In 2020 the government was considering a bill to ban most plastic bags. Exceptions to business in the Special Economic Zones  <a href="https://www.afrik21.africa/en/mozambique-some-plastic-bags-to-be-banned-from-2021/#:~:text=The%20bill%20is%20expected%20to,Ministry%20of%20Territory%20and%20Environment.">https://www.afrik21.africa/en/mozambique-some-plastic-bags-to-be-banned-from-2021/#:~:text=The%20bill%20is%20expected%20to,Ministry%20of%20Territory%20and%20Environment.</a>
National	Niger		<a href="https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/_singleUsePlastic_sustainability.pdf#page=41">https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/_singleUsePlastic_sustainability.pdf#page=41</a>	In Effect	Ban	Bags	2014	Parliament has passed a bill banning the production, import, trade and use of plastic bags.

National	Nigeria	None currently					The country considered a bill in 2019 to prohibit the use, manufacture and importation of all plastic bags used for commercial and household packaging. However, it has not advanced. <a href="https://theconversation.com/nigerias-plastic-pollution-is-harming-the-environment-steps-to-combat-it-are-overdue-177839">https://theconversation.com/nigerias-plastic-pollution-is-harming-the-environment-steps-to-combat-it-are-overdue-177839</a>	
National	Rwanda	<a href="https://www.theguardian.com/commentisfree/2014/feb/15/rwanda-banned-plastic-bags-so-can-we">https://www.theguardian.com/commentisfree/2014/feb/15/rwanda-banned-plastic-bags-so-can-we</a>	In Effect	Ban	Bags	2008	Bans the importation and use of non-biodegradable packaging bags	
		<a href="http://www.dailymail.co.uk/wires/ap/article-3102733/Kicking-plastic-Senegal-latest-ban-flimsy-bags.html">http://www.dailymail.co.uk/wires/ap/article-3102733/Kicking-plastic-Senegal-latest-ban-flimsy-bags.html</a>				2015	Law prohibits the production, importation, possession and use of plastic shopping bags.	
National	Senegal	<a href="https://elaw.org/plastic/SN_PlasticLaws">https://elaw.org/plastic/SN_PlasticLaws</a>	In Effect	Ban	Multiple	Apr. 2020	Senegal's 2020 law bans production, import, stocking to sell, putting up for sale, selling, putting it in place to be used, the use in any form of single-use or disposable plastic. This applies to beverage containers and lids, cutlery and plates, straws and beverage stir sticks, sachets used for selling water or other beverages. The law separately bans plastic bags out of their box, regardless of thickness, or whether they have handles. Also includes provisions for EPR, taxes and deposit-refund systems.	
National	Somalia	<a href="https://globalnews.ca/news/4310799/al-shabab-plastic-ban-somalia-al-qaeda/">https://globalnews.ca/news/4310799/al-shabab-plastic-ban-somalia-al-qaeda/</a>	In Effect	Ban	Bags	2018	Militant group, Al-Shabab, has banned the use of single-use plastic bags in territories under its control.	
National	South Africa	<a href="http://news.bbc.co.uk/2/hi/africa/3013419.stm">http://news.bbc.co.uk/2/hi/africa/3013419.stm</a>	In Effect	Ban	Bags	2003	A ban on plastic bags with a thickness of less than 30 microns. Violators face a fine of 100,000 Rand (\$13,800) or a 10-year jail sentence.	
National	Tanzania	<a href="https://tz.usembassy.gov/prohibition-of-plastic-bags-effective-june-1-2019/">https://tz.usembassy.gov/prohibition-of-plastic-bags-effective-june-1-2019/</a>	In Effect	Ban	Bags	Jun. 2019	All plastic carrier bags, regardless of their thickness, will be prohibited from being imported, exported, manufactured, sold, stored, supplied, and used	
National	Tunisia	Decree No. 32	<a href="https://www.unep.org/uneepam/index.php/news/news/ban-single-use-plastic-bag-introduced-tunisia-uneepam-support">https://www.unep.org/uneepam/index.php/news/news/ban-single-use-plastic-bag-introduced-tunisia-uneepam-support</a>	In Effect	Ban	Bags	Mar. 2020	Prohibits the manufacturing, import and use of conventional single-use plastic bags.
National	Uganda	Uganda Standard; US 773:2007 National Environment Act, 2019	<a href="https://nema.go.ug/media/enforcement-ban-plastic-carrier-bags-below-30-microns#:~:text=Clause%209%20provides%20that%20no,force%20on%2027th%20June%202019.">https://nema.go.ug/media/enforcement-ban-plastic-carrier-bags-below-30-microns#:~:text=Clause%209%20provides%20that%20no,force%20on%2027th%20June%202019.</a>	In Effect	Ban	Bags	2007 Jun. 2019	No person, company, industry or trader shall manufacture, import, stockpile, trade or distribute for local use plastic carrier bags The National Environment Act, 2019, under section 76 (1) prohibits the importation, export, local manufacture, use or re-use of categories of plastic carrier bags or plastic products made of polymers of polyethylene or polypropylene below thirty (30) microns.

## Appendix B Continued - Plastics Legislation and Bills ASIA

Jurisdiction	Country	Initiative	Link	Status	Type	Product	Effective Date	Description
National	Bangladesh	Environment Conservation Act	<a href="http://ecosppearbd.com/bangladesh-world-leader-in-banning-plastic-bags/">http://ecosppearbd.com/bangladesh-world-leader-in-banning-plastic-bags/</a>	In Effect	Ban	Bags	2002	First country in the world to ban the production, import and use of thinner plastic bags after they were found to have choked the drainage system during devastating floods.
National	Cambodia		<a href="https://leap.unep.org/countries/kh/national-legislation/sub-decree-no-168-management-plastic-bags">https://leap.unep.org/countries/kh/national-legislation/sub-decree-no-168-management-plastic-bags</a>	In Effect	Ban	Bags	Apr. 2018	A complete ban on the production and importing of plastic bags smaller than 25 cm wide and thinner than 0.03 cm. A charge of 400 riel (US\$0.10) for every plastic bag dispensed at supermarket checkouts.  <a href="https://www.phnompenhpost.com/national/environment-ministry-rolls-out-plastic-bag-fee">https://www.phnompenhpost.com/national/environment-ministry-rolls-out-plastic-bag-fee</a>
National	China		<a href="https://www.loc.gov/item/global-legal-monitor/2021-03-23/china-single-use-plastic-straw-and-bag-ban-takes-effect/#:~:text=(Mar.,from%20providing%20plastic%20shopping%20bags.">https://www.loc.gov/item/global-legal-monitor/2021-03-23/china-single-use-plastic-straw-and-bag-ban-takes-effect/#:~:text=(Mar.,from%20providing%20plastic%20shopping%20bags.</a>	In Effect	Ban	Multiple	Jan. 2020	Phased-in ban of single-use plastic products: End of 2020: Plastic bags banned in shopping malls, supermarkets, pharmacies, book stores, and food takeout services in the major cities; single-use plastic utensils and straws at restaurants End of 2022: star rated hotels prohibited from voluntarily providing single-use plastics; products with microbeads cannot be sold; thin plastic bags, styrofoam clam shells by end of 2025; prohibit plastic postal and courier packaging
		Federal - The Plastic Waste Management Rules	<a href="http://pib.nic.in/newsite/PrintRelease.aspx?relid=138144">http://pib.nic.in/newsite/PrintRelease.aspx?relid=138144</a>	In Effect		Bags	2016	No manufacturer or vendor is allowed to use a plastic bag which is below 50 microns.
National	India		<a href="https://www.hindustantimes.com/india-news/states-told-to-ready-single-use-plastic-ban-starting-july-1-101645382162965.html">https://www.hindustantimes.com/india-news/states-told-to-ready-single-use-plastic-ban-starting-july-1-101645382162965.html</a>	Pending	ban	Multiple	Jul. 2022	The prohibited plastic items include ear buds, flags, candy and ice-cream sticks, decorative thermocol, PVC banners less than 100 micron thick, stirrers, wrapping films, cups, glasses, and cutlery, among others. Additionally, no plastic carry bags less than 120 micron thick can be used from December 31.
National	Indonesia	Plastic Bag Diet Program	<a href="http://www.thejakartapost.com/news/2016/02/22/minimum-plastic-bag-tax-set-negligible-rp-200.html">http://www.thejakartapost.com/news/2016/02/22/minimum-plastic-bag-tax-set-negligible-rp-200.html</a>	In Effect	Fees	Bags	2016	The program obliges retailers to charge customers Rp 200 (less than 10 cents) for plastic bags in an effort to reduce waste.  The capital of Jakarta started a plastic bag ban in Jul. 2020 in traditional markets, modern supermarkets and minimarkets. Other regions have also imposed similar bans.  <a href="https://www.thejakartapost.com/news/2020/07/01/jakarta-begins-new-chapter-in-plastic-waste-reduction.html">https://www.thejakartapost.com/news/2020/07/01/jakarta-begins-new-chapter-in-plastic-waste-reduction.html</a>
National	Israel	Plastic bag Law	<a href="https://www.jpost.com/Israel-News/No-more-free-plastic-bags-at-Israeli-supermarkets-477165">https://www.jpost.com/Israel-News/No-more-free-plastic-bags-at-Israeli-supermarkets-477165</a>	In Effect	Fees	Bags	Jan. 2017	According to the law, the distribution of bags with a thickness of 20 microns or less is now forbidden at supermarkets, while customers must pay for those between 20 and 50 microns. Israel is also considering doubling purchase taxes on single-use plastics and disposable plasticware to possibly come into effect by the end of 2022.  <a href="https://nocamels.com/2021/07/israel-new-tax-reduce-single-use-plastic/">https://nocamels.com/2021/07/israel-new-tax-reduce-single-use-plastic/</a>

National	Malaysia	Malaysia's Roadmap Towards Zero Single-Use Plastics 2018-2030	<a href="https://www.pmo.gov.my/ms/2019/07/pelan-hala-tuju-malaysia-ke-arah-sifar-penggunaan-plastik-sekali-guna-2018-2030/">https://www.pmo.gov.my/ms/2019/07/pelan-hala-tuju-malaysia-ke-arah-sifar-penggunaan-plastik-sekali-guna-2018-2030/</a>  <a href="https://www.straitstimes.com/asia/se-asia/ban-on-non-biodegradable-plastic-bags-takes-effect-in-malaysias-federal-territories#:~:text=Ban%20on%20non%20biodegradable%20plastic%20bags%20takes%20effect%20in%20Malaysia's%20Federal%20Territories,-The%20price%20of&amp;text=PETALING%20AYA%20(The%20Star%2FAsia, on%20Friday%20(Sept%2021).">https://www.straitstimes.com/asia/se-asia/ban-on-non-biodegradable-plastic-bags-takes-effect-in-malaysias-federal-territories#:~:text=Ban%20on%20non%20biodegradable%20plastic%20bags%20takes%20effect%20in%20Malaysia's%20Federal%20Territories,-The%20price%20of&amp;text=PETALING%20AYA%20(The%20Star%2FAsia, on%20Friday%20(Sept%2021).</a>	In Effect	Fees	Bags	Sept. 2017	2018	This Roadmap is to undertake actions for a more sustainable pathway towards a cleaner and healthier environment by 2030, beginning in 2018. Increased fees charged for plastic consumer bags and food container take-out boxes in the Malaysia Federal Territories.
National	Nepal	Plastic Bag Directive- 2071	<a href="https://thehimalayantimes.com/kathmandu/ban-production-use-plastic-bags-comes-effect/">https://thehimalayantimes.com/kathmandu/ban-production-use-plastic-bags-comes-effect/</a>	In Effect	Ban	Bags	Jul. 2016	A nationwide ban on the use, sale, distribution, import and export of plastic bags. Amended 2019 Environmental Protection Act 2019 (2076). The directive received limited enforcement and a bag ban has been announced for a third time in 2021.  <a href="https://english.onlinekhabar.com/nepal-announces-banning-plastic-bags-for-the-third-time-there-are-doubts-if-it-will-translate-to-action.html">https://english.onlinekhabar.com/nepal-announces-banning-plastic-bags-for-the-third-time-there-are-doubts-if-it-will-translate-to-action.html</a>	
National	Sri Lanka	National Environmental (Plastic Material Identification Standards) Regulations No. 01 of 2021	<a href="https://www.unep.org/news-and-stories/story/sri-lanka-ban-single-use-plastics-it-joins-cleanseas-campaign-against-ocean">https://www.unep.org/news-and-stories/story/sri-lanka-ban-single-use-plastics-it-joins-cleanseas-campaign-against-ocean</a>  <a href="https://sri-lanka-ban-on-use-of-plastics-goes-into-effect-from-march-31-colombopage.com">Sri Lanka : Ban on use of plastics goes into effect from March 31 (colombopage.com)</a>	In Effect	Ban	Bags	2017	A ban on the use and manufacture of polythene products such as plastic shopping bags and styrofoam boxes including food containers, plates, cups and spoons made from expanded polystyrene.	
National	Taiwan		<a href="https://www.globalcitizen.org/fr/content/taiwan-ban-on-plastic-bags-straws-utensils-contain/">https://www.globalcitizen.org/fr/content/taiwan-ban-on-plastic-bags-straws-utensils-contain/</a>	In Effect	Ban Fees	Multiple	Mar. 2021	The use of Polyethylene terephthalate (PET) or polyvinyl chloride (PVC) material for packing agrochemicals used for any process, trade or industry is prohibited. In addition, the ban applies to any plastic item specified for any process, trade or industry: Sachets having less than or equal to a net volume of 20ml/ net weight of 20g (except for packing food and medicines); inflatable toys (except balloons, balls, water floating/pool toys and water sports gear); cotton buds with plastic stems (except plastic cotton buds used for medical/clinical treatment).	
National	Thailand		<a href="https://www.reuters.com/article/us-thailand-environment-plastic-idUSKBN1Z01TR">https://www.reuters.com/article/us-thailand-environment-plastic-idUSKBN1Z01TR</a>	In Effect	Ban	Bags	2020	From 2019, food and beverage stores such as fast food chains will stop providing plastic straws for in-store use. From 2020, free plastic straws will be banned from all food and beverage outlets. From 2025, the public will have to pay for takeaway plastic straws, and a blanket ban is to be imposed in 2030. Free plastic shopping bags, disposable food containers and disposable utensils will also be banned from all retail stores in 2020.  Single use plastic bag ban working toward complete ban by 2021.  In Apr. 2022 Thailand announced that single-use plastics and foam containers are banned from all 155 national parks around the country.  <a href="https://www.tatnews.org/2022/04/thailand-imposes-a-ban-on-single-use-plastic-in-national-parks/">https://www.tatnews.org/2022/04/thailand-imposes-a-ban-on-single-use-plastic-in-national-parks/</a>	

## Appendix B Continued - Plastics Legislation and Bills

### OCEANIA

Jurisdiction	Country	Initiative	Link	Status	Type	Product	Effective Date	Description
National	Australia	The National Plastics Plan 2021	<a href="https://perma.cc/M3L2-KJNL">https://perma.cc/M3L2-KJNL</a>					Establishes the government's goals to reduce plastic waste and increase recycling rates, find alternatives to the plastics to un-needed plastics; and reduce the amount of plastics impacting the environment. <a href="https://www.awe.gov.au/environment/protection/waste/plastics-and-packaging/national-plastics-plan">https://www.awe.gov.au/environment/protection/waste/plastics-and-packaging/national-plastics-plan</a>
State	Australia (South Australia)	Plastic Shopping Bags (Waste Avoidance) Act	<a href="https://www.legislation.sa.gov.au/_legislation/lz/c/a/plastic%20shopping%20bags%20(waste%20avoidance)%20act%202008/2008.45.auth.pdf">https://www.legislation.sa.gov.au/_legislation/lz/c/a/plastic%20shopping%20bags%20(waste%20avoidance)%20act%202008/2008.45.auth.pdf</a>	In effect	Ban	Bags	May 2009	First state in Australia to ban single-use, light-weight polyethylene shopping bags at checkout, with retailers facing fines of up to \$5,000 for distributing banned bags and retailer suppliers fined up to \$20,000. <a href="https://www.epa.sa.gov.au/page/view_by_id/3885">https://www.epa.sa.gov.au/page/view_by_id/3885</a>
		Single-use and Other Plastic Products (Waste Avoidance) Act 2020	<a href="https://perma.cc/QU4J-SM9S">https://perma.cc/QU4J-SM9S</a>	In effect	Ban	Multiple	Mar. 2021	Single-use plastic straws, cutlery and stirrers prohibited from sale, supply or distribution in South Australia including bioplastic alternatives. Also includes polystyrene food containers.
Territory	Australia (Northern territory)	Environment Protection (Beverage Containers and Plastic Bags) Act 2011	<a href="https://legislation.nt.gov.au/Legislation/ENVIRONMENT-PROTECTION-BEVERAGE-CONTAINERS-AND-PLASTIC-BAGS-ACT-2011">https://legislation.nt.gov.au/Legislation/ENVIRONMENT-PROTECTION-BEVERAGE-CONTAINERS-AND-PLASTIC-BAGS-ACT-2011</a>	In effect	Ban	Bags	Sep. 2011	Complete ban on plastic bags; biodegradable and heavier bags remain legal. <a href="https://nepa.nt.gov.au/your-environment/recycling-and-reuse/plastic-bag-ban">https://nepa.nt.gov.au/your-environment/recycling-and-reuse/plastic-bag-ban</a>
Territory	Australia (Australian capital Territory)		<a href="https://www.cityservices.act.gov.au/recycling-and-waste/single-use-plastics">https://www.cityservices.act.gov.au/recycling-and-waste/single-use-plastics</a>	In effect	Ban	Bags	Nov. 2011	The ban applies to all retailers in the ACT for single-use, lightweight polyethylene polymer plastic bags that are less than 35 microns in thickness. The ban does not apply to other bags such as barrier bags for fruit and vegetables.
		Plastic Reduction Act 2021	<a href="https://perma.cc/475Z-289K">https://perma.cc/475Z-289K</a>	In effect	Ban	Multiple	Jul. 2021	Items prohibited from sale, supply or distribution include single-use plastic cutlery and stirrers (including bioplastics) and polystyrene food containers. By Jul. 2022 will include straws, produce bags and cotton bud plastic sticks. <a href="https://www.loc.gov/item/global-legal-monitor/2021-05-10/australia-ban-on-single-use-plastic-products-enacted-in-australian-capital-territory/">https://www.loc.gov/item/global-legal-monitor/2021-05-10/australia-ban-on-single-use-plastic-products-enacted-in-australian-capital-territory/</a>
State	Australia (Western Australia)		<a href="https://www.der.wa.gov.au/your-environment/wa-plastic-bag-ban">https://www.der.wa.gov.au/your-environment/wa-plastic-bag-ban</a>	In effect	Ban	Bags	Jul. 2018	The ban applies to all retailers currently supplying lightweight plastic bags with handles - 35 microns thick or less. It includes degradable, biodegradable and compostable plastic bags because these also breakdown in the environment and pose a threat to wildlife. <a href="https://bagbanwa.com.au/about-the-ban/">https://bagbanwa.com.au/about-the-ban/</a>
			<a href="https://www.wa.gov.au/government/document-collections/information-retailers">https://www.wa.gov.au/government/document-collections/information-retailers</a>	In effect	Ban	Multiple	Jan. 2022	Ban the sale, supply and distribution of specific single-use plastics including plates, bowls, cutlery, drink stirrers, drinking straws, thick plastic bags, expanded polystyrene (EPS) food containers. Phase-in of additional banned items in 2023. <a href="https://www.wa.gov.au/service/environment/business-and-community-assistance/western-australias-plan-plastics">https://www.wa.gov.au/service/environment/business-and-community-assistance/western-australias-plan-plastics</a>

Region	Location	Regulation Name	Link	Status	Type	Effective Date	Description	Links	
State	Australia (New South Wales)	Plastic Reduction and Circular Economy Act 2021	<a href="https://legislation.nsw.gov.au/view/pdf/bill/efc59978-8583-47c7-aa00-f46cb67e1adc">https://legislation.nsw.gov.au/view/pdf/bill/efc59978-8583-47c7-aa00-f46cb67e1adc</a>	Pending	Ban	Multiple	Jun. 2022	The broad objectives are: Prohibiting the supply of problematic or unnecessary plastic items; setting design standards for items of environmental, human health or economic purposes; and Establishing mandatory product stewardship requirements for brand owners of regulated products. Product bans phased in, including stirrers, straws, cutlery, microbeads, polystyrene food containers.	<a href="https://www.nsw.gov.au/news/single-use-plastics-banned-under-new-law">https://www.nsw.gov.au/news/single-use-plastics-banned-under-new-law</a>
		Waste Minimisation (Plastic Shopping Bags) Regulations 2018	<a href="https://www.legislation.govt.nz/regulation/public/2018/0270/latest/LMS140914.html?search=ts_act%40bill%40regulation%40deemedreg_plastic+bag_reseal_25_a&amp;p=1">https://www.legislation.govt.nz/regulation/public/2018/0270/latest/LMS140914.html?search=ts_act%40bill%40regulation%40deemedreg_plastic+bag_reseal_25_a&amp;p=1</a>	In effect	Ban	Bags	De. 2018	Retailers can no longer sell or distribute single-use plastic shopping bags to customers	<a href="https://environment.govt.nz/what-you-can-do/campaigns/single-use-plastic-bags-banned/facts-for-businesses/#:~:text=to%20the%20offence.-,About%20the%20ban,or%20distributing%20their%20sold%20goods.">https://environment.govt.nz/what-you-can-do/campaigns/single-use-plastic-bags-banned/facts-for-businesses/#:~:text=to%20the%20offence.-,About%20the%20ban,or%20distributing%20their%20sold%20goods.</a>
National	New Zealand	Plastic and Related Products Regulations 2022	<a href="https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/plastic-phase-out/">https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/plastic-phase-out/</a>	In effect	Ban	Multiple	Jun. 2021	Phase out certain hard-to-recycle plastics and six single-use items. By Oct. 2022 : PVC pre-formed, rigid food trays and containers, PS food and beverage packaging, plastic drink stirrers, plastic stemmed cotton buds By 2023: Plastic produce bags, plastic plates, bowls and cutlery, plastic straws, plastic produce labels By 2025: All other PVC food and beverage packaging, all other PS food and beverage packaging	
National	Vanuatu	Waste Management Regulations Order No. 15 of 2018 and the Waste Management (Penalty Notice) Regulation Order No. 17 of 2018.	<a href="https://environment.gov.vu/images/Environmental.Protection/Official-Gazette-No-10-of-2018-dated-2-February-2018.pdf">https://environment.gov.vu/images/Environmental.Protection/Official-Gazette-No-10-of-2018-dated-2-February-2018.pdf</a>	In effect	Ban	Multiple	Jul. 2018	The ban makes it an offence to manufacture, sell or give away single-use plastic bags, plastic drinking straws and polystyrene boxes.	<a href="https://environment.gov.vu/index.php/environmental-protection/plastic-ban">https://environment.gov.vu/index.php/environmental-protection/plastic-ban</a>