

SUBMISSION TO CLEAN BC'S POLICY ACTION PLAN ON PLASTICS

BACKGROUND:

Plastic in our oceans has become one of the biggest environmental issues facing our planet. Eight to nine million tons of plastic enter the ocean every year from the land, the equivalent of one large garbage truck full of plastic every minute.¹ This plastic ends up floating, submerged, or sinking to the ocean floor, leaching and absorbing toxic chemicals,² and harming and killing marine life, through either entanglement or ingestion.

“We’re encountering a pollutant unlike any pollutant we’ve ever seen before,” says Dr. Peter Ross, Research and Executive Director of Coastal Ocean Research Institute. Samplings taken by Ross and his team off the B.C. coast in 2017 contained an average of 3,200 and up to 25,000 plastic particles and fibres per cubic meter of ocean.³

Plastic is also a threat to land organisms and human health. Microplastics and associated chemicals are being passed up the food chain and are being found not only in the food and drink we consume, but also in the air we breath. A recent scientific study estimated that in the U.S., annual human microplastics consumption and inhalation ranges from 74,000 to 121,000 particles and this increases significantly for those who drink only bottled water.⁴

Globally, since 1950, 8.3 billion tonnes of plastic, equal to 18 times the weight of the entire human population, have been produced. Of the 6.3 billion tonnes of plastic that has already become waste, only nine percent has been recycled, 79 percent of the rest ending up in landfills and the environment, and 12 percent incinerated.⁵

The oceans are our life support system, providing food, sustaining the water cycle, absorbing greenhouse gases and reducing global temperature rise, regulating climate, and providing us with over half of the oxygen we breath. It is imperative that we eliminate all plastic waste, including bio-plastic waste, from entering the oceans as well as other aquatic environments. To do this we must substantially reduce the demand, use, and production of plastics and the amount of plastic waste going to landfills, substantially increase recycling while strongly promoting and supporting reuse and refill models, eliminate all non-essential single use plastics, and ensure that petroleum-based plastic alternatives are truly biodegradable/compostable.

Though target dates have been included in this submission, plastic pollution is a first-order environmental issue⁶ and measures should be implemented as soon as possible.

References:

¹ R. Jambeck, R. Geyer, C. Wilcox, T. R. Siegler, M. Perryman, A. Andrady, R. Narayan, K. L. Law. **Plastic waste inputs from land into the ocean.** *Science*, 2015; 347 (6223): 768 DOI:[10.1126/science.1260352](https://doi.org/10.1126/science.1260352)

² European Commission, **Plastics can concentrate toxic pollutants, endangering marine ecosystems**, May 2013, https://ec.europa.eu/environment/integration/research/newsalert/pdf/326na6_en.pdf

³ Greg Rasmussen, CBC News, **B.C. researchers race to find the source of microplastics choking the world’s oceans**, March 2017, <https://www.cbc.ca/news/canada/british-columbia/bc-microplastics-research-1.4017502>

⁴ Kieran D. Cox, Garth A. Covernton, Hailey L. Davies, John F. Dower, Francis Juanes, Sarah E. Dudas, **Human Consumption of Microplastics**, June 5 2019, *Environ. Sci. Technol.* 201953127068-7074 <https://doi.org/10.1021/acs.est.9b01517>

⁵ University of Georgia. **More than 8.3 billion tons of plastics made: Most has now been discarded**, ScienceDaily. ScienceDaily, July 2017, www.sciencedaily.com/releases/2017/07/170719140939.htm

⁶ Boris Worm, Heike K. Lotze, Isabelle Jubinville, Chris Wilcox, Jenna Jambeck, **Plastic as a Persistent Marine Pollutant**, Annual Review of Environment and Resources, October 2017, Vol. 42:1-26, <https://www.annualreviews.org/doi/10.1146/annurev-environ-102016-060700>

INPUT TO POLICY PAPER CONSULTATION SOLUTIONS:

1. BANS ON SINGLE USE PACKAGING

1a. ELIMINATE NON-ESSENTIAL SINGLE USE PLASTICS

By 2022, ban the production, distribution, and sale of all unnecessary or non-essential petroleum-based single use plastics, including, but not limited to:¹

- Carry out and produce bags, balloons², straws, plates, cups (including plastic lined), glasses, lids, cutlery, cotton buds, drink stirrers, cigarette filters, plastic water bottles (less than four litres), single use condiments and toiletries (in plastic bottles or sachets).
- Multilayer packaging, packing straps, all multipack rings, take away packaging, mixed material packaging (foil lined snack bags, plastic windows in paper bags, etc.).
- Products made of expanded polystyrene (Styrofoam).
- Products that are not easy-to-recycle³ or have additives that make them non-recyclable.

Immediately ban all petroleum-based plastic products that claim to be degradable, biodegradable, or oxo-biodegradable, which aren't truly 100 percent biodegradable and only degrade more quickly than regular plastic products, contaminate waste streams, and, once fragmented, are more dangerous to land and marine organisms than regular plastic products.

1b. FURTHER REDUCE NON-ESSENTIAL SINGLE USE PLASTICS

- Immediately impose bans on the use of potentially misleading marketing terms and labelling, such as “environmentally friendly” when applied to plastic products and packaging that do not meet truly biodegradable standards.
- Work with sectors involved in the distribution and sale of fresh, prepared, shelf-stable foods, and household products and sectors involved in the distribution and sale of other consumer products, to set plastic packaging reduction targets.
- Work with BC FOODSAFE and the agri-food sector to better align food safety regulations and environmental obligations to achieve a substantial reduction of plastic (and other) waste.

2. SUBSTANTIALLY INCREASE RECYCLING

IMPROVE AND EXPAND RECYCLING ACROSS BRITISH COLUMBIA:⁴

Recycling should be expanded and improved with a goal to achieve collection and recycling of 75% of all petroleum-based and bio-based plastics residential waste by 2024 and as close to 100 percent of all residential petroleum-based and bio-based plastics as soon as possible after 2024.

2a. FOR PETROLEUM-BASED PLASTICS:

To increasingly move to a closed loop system and circular economy, recycling rates need to be substantially increased so as to keep plastic waste out of the environment and landfills and to create a sufficient and reliable quality of recycled plastic for consumer brands to commit to substantial levels of recycled content. To achieve this:

- Expand extended producer responsibility (EPR).
- Ensure also that companies manufacturing plastic products or selling items with plastic packaging in British Columbia take measures to reduce resource consumption, take environmental considerations into account, and provide closed loop solutions in providing their products and services.

- Improve and harmonize plastic recycling targets, programs, and procedures, so as to be able to substantially increase recycling rates.
- Include all types of residential plastics in collection and recycling programs, even if the BC government has to fund what is not covered by the EPR program (e.g. currently, hard plastics).
- Reduce contamination and increase participation by implementing measures including, but not limited to:
 - Developing easily accessed educational material for the public to inform them of the types of plastic that are accepted, what level of cleaning is required, and how to sort items to be recycled (e.g. compostable separated from petroleum-based plastics).
 - Filling gaps in recycling between currently accepted Recycle BC recycling of residential plastic waste and plastic waste that is business-related (and the financial and operational responsibility of businesses to be recycled), such as from non-profit and citizen events.
 - Mandating that all provincial and municipal parks in Canada provide for disposal, collection, and recycling of all recyclable plastics through provincial recycling programs.
 - Expanding current deposit-refund systems to include all beverage containers and increase the deposit price.
- Prioritize upgrades, as appropriate, to mechanical recycling that is already in place and the addition of more mechanical recycling plants, as necessary.
- Research and invest in, as appropriate, chemical recycling as a means to enable recycling of more contaminated and complex, difficult-to-recycle plastic waste.

2b. FOR PLANT-BASED/COMPOSTABLE PLASTICS:

IMMEDIATELY, ENABLE THE CREATION OF A CLOSED LOOP MARKET SYSTEM FOR POST-CONSUMER COMPOSTABLE WASTE.

Although our end goal must be moving towards a waste free society, the transition will take time. In the interim, compostable products are increasingly being produced and used and demand is growing from both the food sector and the consumer as a viable means to eliminate petroleum-based plastics. However, if these products cannot be routed to industrial composters and end up in landfills, they are worse than easy-to-recycle plastics.

Therefore, the proper disposal of compostable ‘plastic’ packaging and other products must be addressed immediately by working with manufacturers and sellers of compostable plastic products available in British Columbia, representative from recycling facilities, and representatives from industrial composting facilities to:

- Mandate that all plant-based/compostable ‘plastic’ products must be 100 percent compostable and toxic free and meet the conditions in the existing ASTM6400 standard (or in newly established Provincial or Canada-wide standards for compostability – see 4b). This normally translates into 99 percent compostable material and one percent chemical for impact resistance. The latter must be non-toxic.
- To avoid contamination of plastic waste streams, mandate that all compostable products are clearly identified as 100 percent compostable and whether they are “only compostable in industrial composting facilities” or “compostable in home compost”.
- Where industrial composting facilities exist within a feasibly transportable distance, include compostable waste in recycling collection systems, upgrade mechanical sorting to sort out compostable ‘plastic’ waste, and route post-consumer compostable waste to industrial compost facilities.⁵

- Ensure that compostable products are only sold where industrial composting is available within a feasible distance for transfer of post-consumer compostable waste.
- Create a market system for post-consumer compostable waste, such that the large majority of the resulting post-consumer, high-quality flaked post-consumer compost would be purchased by manufacturers of compostable products.⁶ This may also provide market incentive for additional industrial composting facilities.
- Collaborate on producing reusable and marine biodegradable products.
- Educate the public on the importance of proper disposal of compostable waste (as part of education under 2a). E.g.: Compostable products do not biodegrade in landfills; the majority is currently not marine biodegradable and thus poses a threat to marine life and, even if it evolves to become marine biodegradable, introducing nutrients from bio-based plastics impacts the balance of marine ecosystems.

2c. SET TARGETS FOR MANDATORY RECYCLED CONTENT FOR COMPANIES THAT PRODUCE AND UTILIZE PETROLEUM-BASED PACKAGING PRODUCTS based on the current and projected availability of sufficient, reliable quality and quantity of post-consumer, petroleum-based recycled plastic resins (estimated at 75 percent recycling of consumer plastic waste).⁷

2d. SUPPORT UPCYCLING over recycling

Since upcycling is preferable to recycling because it values a plastic's material and features and thus is comparatively inexpensive and easy and results in less production costs and greenhouse gas emissions, subsidize start ups with innovations to upcycle plastic waste.

3. REDUCE PLASTICS OVERALL

3a. SUPPORT AND PROMOTE REUSE MODELS so as to move towards an increasingly waste free society. Measures include, but are not limited to:

- Invest in business innovation that focus on new food and product delivery systems with packaging alternatives based on reuse and refill models.
- Mandate that all supermarket chains in British Columbia implement reuse and refill options as soon as they become available in their locations (such as LOOP⁸).
- Mandate that, by 2021, all supermarkets and other food and household goods markets in British Columbia implement (if not already available) the ability to subtract the tare weight of customer owned/bought containers for all of their bulk food and produce, provide for bring-your-own contains for bulk foods, stock an adequate supply of reusable bags and containers, and convert to as much bulk food/bring-your-own-containers availability as possible.
- In consultation with brands, distributors, and sellers of food and other household goods, set reusable and refillable packaging targets for their products for 2022.
- For all products containing petroleum-based plastics:
 - Support and promote remanufacturing to produce higher quality, longer lasting, repairable goods and incentivize related sellers to stock such goods.
 - Support and promote refurbishment and repair initiatives.
 - Discourage, through education, consumer purchases of cheaper, low-quality, short lifetime products.
- Encourage manufacturers of compostable or other acceptable alternatives to develop and offer reusable products as much as possible.

3b. ENSURE THAT BIODEGRADABLE ALTERNATIVES ARE 100 PERCENT TRULY BIODEGRADABLE⁹, preferably also 100 percent marine biodegradable, and contain no toxic additives. Currently PHAs (polyhydroxyalkanoates) appear to be the only biodegradable alternative that meets these criteria.¹⁰

4. OTHER

4a. INVOLVE ALL SECTORS¹¹ IN THE LIFE CYCLE OF PLASTIC PRODUCTS to provide a holistic approach, based on the complete life cycle of plastic products, in providing input and recommendations, including, but not limited to:

- Ensuring a consistent supply of raw material for recycling and thus create the stability for investment in increased recycling and the creation of a closed loop system for plastic products.
- Establishing a legal framework to ensure access to information regarding the ingredients/substances in products and production processes (in place of existing intellectual property rights of plastic manufacturers and brands that utilize plastic packaging).
- Addressing the wide assortment of polymers and waste streams and setting guidelines for plastic products to be simplified and standardized so that they are food safe, designed for easy recyclability, in particular by mechanical recycling, and have high-quality values for the recycled plastics market. This will help to ensure that there is a supply for a continued market for post-consumer resins. [This may only be applicable at a federal level.]

4b. SCIENTIFICALLY INFORMED STANDARDS need to be defined/established as soon as possible to enable clarification and compliance for regulatory or legislative policy relating to biodegradability, compostability, recyclability, and sustainability. Parameters must also be set for easy-to-recycle, high value, food safe petroleum-based plastics.

FOOTNOTES:

¹ Bans on single use plastics should prioritize targeting those that most impact the oceans and other aquatic environments and those that are unnecessary. Additional bans may be legislated over time, based on the evolution of truly biodegradable alternatives.

² Many marine animals, in particular birds, can get entangled in balloons and string and often die from this. Balloons can also look like jellyfish to sea turtles and other ocean animals that eat jellyfish, so are often ingested by them. Though there are no direct alternatives for balloons, there are many environmentally safe alternatives to replace the decorative and playful aspects of balloons.

³ Easy-to-recycle definition: IE. Practically and profitably recyclable.

- There is collection in place for most consumer's plastic waste.
- There is a technical method capable of recycling that waste to scale.
- The quality of the recycled waste material is such that there are viable markets.
- The end users of the recycled products are ensured that the material is consistently high quality and that the quantity is reliable.

⁴ It is important to stress that alternatives and recycling are only temporary 'band-aids' to get us to the point where we can move our dependence away from disposability. This is extremely important as even marine biodegradable waste can impact marine ecosystems. However, since it will likely take many years to evolve to widespread and economically-viable-for-all reuse and refill availability, as well as a huge change in public perceptions and actions, more immediately attainable, short-term solutions are necessary to substantially reduce plastic waste.

⁵ This is also extremely important as a method to keep compostable waste out of landfills where, in most cases, they do not break down due to lack of oxygen, and the marine environment.

⁶ Creating a sufficient and reliable quantity of high-quality post-consumer compost will create a large-scale market for compostable producers to rely on as source material for their products and will enable compostable 'plastic' products to compete with petroleum-based plastic products in also creating a circular economy/closed loop system for bio-based/compostable products. As well, this would eliminate much of the demand for appropriate crops for bio-based/compostable products and reduce the risk of substantially diminishing food supplies and incentivizing the production of genetically modified feedstocks for compostable products.

⁷ According to Brett Stevens, TerraCycle's VP of Material Sales and Procurement, there is already a good market for recycled resins, but changes to include high levels of recycled content are currently limited by the amount of post-consumer recycled material available. Substantial market demand is already being demonstrated by the commitments that many brands have made to moving to using substantial levels of recycled material (25 percent to 100 percent).

⁸ Loop will be piloted by Loblaw's in Toronto, starting January 2020.

⁹ Truly biodegradable, environmentally benign plastics are composed of materials that degrade within a standardized, acceptable time frame into products that are readily incorporated into the natural carbon cycle, are non-toxic, and do not lead to the accumulation of persistent additives in the food chain. A standard is required for each environment in which such degradation occurs (marine, home compost, industrial compost, landfill).

¹⁰ 'Polyhydroxyalkanoates (PHAs) are a group of naturally occurring biopolyesters that are produced by a variety of bacterial species and will completely biodegradable into simple components upon exposure to microorganisms typically found in soil, compost, and the marine environment. In aquatic environments, bacteria recognize the material as a food source and consume it, thus converting PHA to biomass, water, carbon dioxide, and naturally occurring monomers. PHAs have been developed for a number of applications and several companies produce and sell a variety of PHA formulations with varying rates of biodegradability. Production sources include methane from water treatment plants, farms, and landfills, and wastewater streams from the food industry. Thus, production of PHAs also reduces greenhouse gas emissions from these sources. In some cases, PHA can be home composted.

¹¹ All sectors in the life cycle of plastics:

- Consumer brands that physically make the product.
- Converters who make bottles and other packaging on behalf of the brands.
- Consumers who buy the brands.
- Provinces/municipalities that collect waste.
- Recyclers who take sorted materials and process them into post-consumer resin.
- End manufacturers that buy the post-consumer resin pellets or flakes.
- Retailers who decide what brands of products to buy and stock.