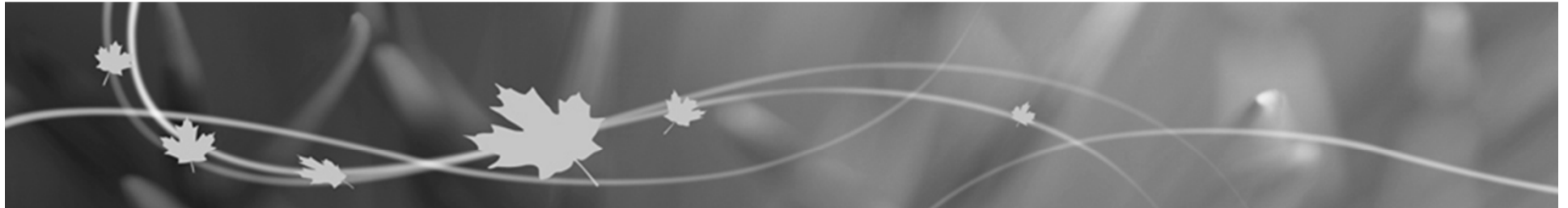




Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Canada



Government of Canada efforts related to marine litter and microplastics

**LP/LC Scientific Groups Meeting
Valparaiso, Chile
May 3, 2018**

**Presented by: Julia Brydon
Prepared by: Sarah Da Silva**

Overview

- Overview of plastic pollution globally and in Canada
- Canada's domestic approach to plastic pollution prevention
 - Spotlight on LC/LP related work
- Canada's 2018 G7 Presidency

Global Plastics and our Oceans

- Global plastic resin production increased by 620% since 1975, outpacing any other manufactured material.
 - About 40% of plastics are used in packaging.
- 8 million tonnes of plastic waste enters the ocean from land annually.
- More than 150 million tonnes of plastics are in the ocean.
- Significant wasted material value and embedded energy (GHGs).
 - USD 80-120 B/year in plastic packaging material value lost to the economy.
 - 6% of global oil consumption (20% by 2050).
- > \$13 billion/year damage to marine ecosystems.

Marine Litter in Canada

- Marine litter and microplastics found on all three coasts and in freshwater systems, including the Great Lakes
 - In surface waters, water column, sediment, aquatic life and on shorelines.
- In 2010, contributed about 8,000 tonnes of plastic waste into oceans from land.
 - <0.1% of global contribution.
 - Without any action this could almost double by 2025.
- ~11% of plastics recycled in 2014.
 - Comparable to the global average of 9%



Macrodebris UN Environment



Microbeads pixabay.com



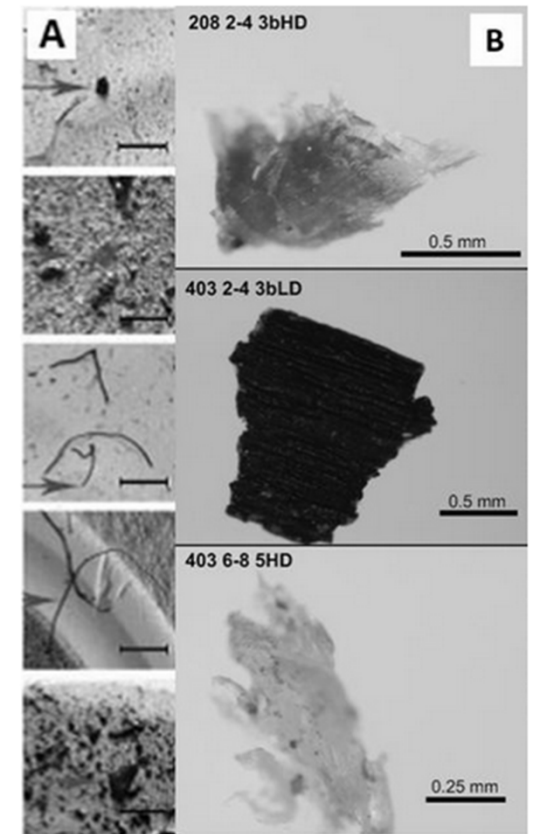
Pellets © Dave Crawford



Fragments 5 Gyres

Accumulation in the Environment

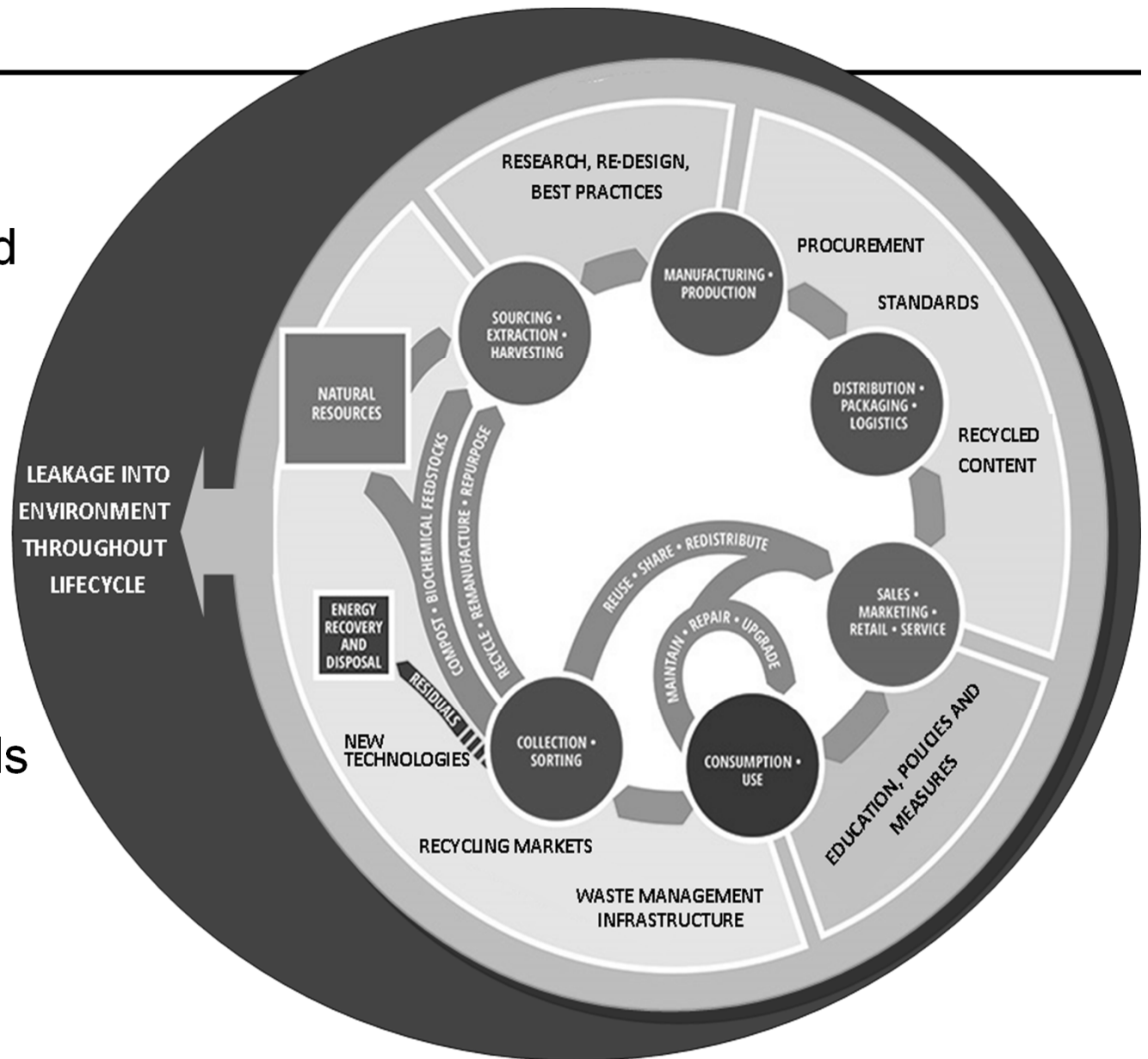
- Obbard (2014), microplastics were measured in frozen ice cores of the Arctic Ocean. Polar sea ice is becoming a major sink for microplastic contamination which are being released as the ice melts.
 - At current sea ice melt rates, over 1 trillion pieces of plastics will enter the environment by 2025.
- Corcoran et al. (2015), microplastics were found to be accumulating in sediment cores of Lake Ontario (10.5 pieces/m²) for the past 38 years.
 - Indicative of rise of plastic use since the 1970s.
- Thompson et al. (2004), plastic fibers measured in archived plankton samples dating as far as the 1960s with concentrations increasing overtime.



(A) Images of microplastics (at arrows) found in ice cores from the Arctic Ocean (Obbard et al., 2014); and (B) images of microplastics found from sediment cores of Lake Ontario (Corcoran et al., 2015). Scale bars are 1 mm

Plastic Pollution Prevention

- A comprehensive and circular approach is needed to reduce plastic waste and prevent marine litter and microplastics
- Focus on actions throughout the lifecycle of materials – from design to removal from coastlines



Domestic Approach

- The Government of Canada, provinces and territories, in consultation with civil society, industry and others, are developing an approach to keep plastics within the economy and out of landfills and the environment.
- Pursuing solutions along the plastics lifecycle:
 1. Sustainable design and production
 2. Collection and management
 3. Sustainable lifestyle and education
 4. Research and innovation
 5. Action on the ground

Complementary Action in Canada

- **Legislation**

- ✓ >10 related federal acts, regulations and agreements
- ✓ Subnational Extended Producer Responsibility (Plastic packaging)
- ✓ Subnational bag bans & fees, litter by-laws

- **Voluntary government waste reduction measures**

- ✓ National waste vision and action plan (2014)
- ✓ Provincial waste reduction targets (e.g. Ontario zero waste)
- ✓ Collection & recycling programs
- ✓ Technical guidance and best practice development and exchange (e.g. 2017 Solid Waste Management for Northern and Remote Communities)

Complementary Action in Canada

- **Mitigation initiatives**

- ✓ Great Canadian Shoreline Clean-up
- ✓ Canadian Code of Conduct for Responsible Fishing Operations
- ✓ Fishing gear collection and recycling, mammal rescue
- ✓ Operation Clean Sweep
- ✓ Implementation of pilot projects (e.g. Commission for Environmental Cooperation North American trilateral marine litter projects)
- ✓ Government and voluntary community clean-up activities
- ✓ Youth education initiatives

- **Research** (monitoring methods; sources, distribution, and impacts of marine litter and microplastics in the aquatic environment and biota)

- ✓ Federal departments
- ✓ Universities
- ✓ Not-for-profits (e.g. Ocean Wise)
- ✓ Industry (e.g. outdoor clothiers)

Complementary Action in Canada

- **Innovation & infrastructure development**
 - ✓ Technology development programs (Sustainable Development Technology Canada, National Research Council)
 - ✓ Infrastructure funding (Green Municipal Fund, Invest Canada Fund, Clean Water and Wastewater Fund)
- **Additional funding support**
 - ✓ Research (e.g. Northern Contaminants Program, Atlantic Ecosystems Initiative, NSERC)
 - ✓ On-the-ground action (e.g. EcoAction Community Funding)

Spotlight:

Monitoring disposal sites

- As part of routine monitoring at disposal sites, we are planning to conduct investigative projects to establish analytical methods to detect plastics at disposal sites.
 - Assessing plastics in sediment samples collected from beaches in Quebec next to authorized loading sites.
 - Looking for a laboratory to conduct fluorescent tagging study.
 - Reviewing monitoring methods to quantify microplastics to inform design of future monitoring studies on the Pacific Coast.

Spotlight:

Microbeads in Toiletries Regulations

Milestone	Date
Microbeads science summary	Jul. 2015
Microbeads listed as a toxic substance (Schedule 1)	Jun. 29, 2016
Regulations came into force	Jan. 1, 2018
Manufacture and import of toiletries containing microbeads prohibited (<u>excluding</u> natural health products and non-prescription drugs)	Jan. 1, 2018
Manufacture and import of toiletries containing microbeads prohibited (<u>including</u> natural health products and non-prescription drugs)	Jul. 1, 2018
Sale of toiletries containing microbeads prohibited (excluding natural health products and non-prescription drugs)	Jul. 1, 2018
Sale of toiletries containing microbeads prohibited (including natural health products and non-prescription drugs)	Jul.1, 2019

Spotlight: Fisheries and Aquaculture Clean Technology Adoption Program

- In December 2017, Canada announced the establishment of the *Fisheries and Aquaculture Clean Technology Adoption Program* (FACTAP)
 - \$20 million Cdn financial contribution program over four years (2017 – 2021), to assist existing fisheries and aquaculture operators to adopt clean technologies and practices into their day-to-day activities.
- The aim of Program is to encourage the use of clean technologies and measures in order to reduce potential environment impacts thereby improving environmental performance and increasing the global competitiveness of Canadian seafood products.
- Eligible recipients include commercial enterprises (both individuals and companies), indigenous organizations, and professional associations.
- Contributions are targeted to small and medium-sized enterprises with a focus on short term projects (e.g. 1 – 3 yrs).
- Although not focused on plastics, the Program would consider proposals aimed at reducing the introduction of plastics into aquatic ecosystems.

Canadian Dialogue on Plastics

- The Canadian Dialogue on Plastics was launched on Earth Day (Apr. 22).
- We are seeking Canadians views and suggestions to move toward zero plastic waste and reduce marine litter.
- The public consultation will inform the domestic approach.



Emerging international leadership

Initiatives and commitments to address marine litter and microplastics have recently been adopted by many international bodies



Canada's G7 Presidency



- Oceans health, resiliency and addressing plastic pollution are a priority under Canada's G7 Presidency in 2018.
- Building on existing G7 commitments on marine litter and resource efficiency.
 - G7 Action Plan to Combat Marine Litter (2015)
 - Toyama Framework on Material Cycles (2016)
 - G7 Bologna Roadmap (2017)
- Advocating for a G7 commitment to take action on plastics throughout their lifecycle and reduce marine litter through a G7 Plastics Charter.

Thank you!

Contact:

Sarah.Dasilva@Canada.ca