

Compostable/Biodegradable Plastics

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Note: I use the terms compostable/biodegradable plastics and bioplastics interchangeably in this presentation. While these are different types of plastic, they have similar issues.

Conventional Plastics and Marine Environments

- They do not degrade fully, just break up into smaller pieces
- They contain toxins that can make their way up the food chain
- They end up getting ingested by marine life
- They are a leading cause of pollution
- They kill marine life and other organisms



Many businesses have introduced compostable/biodegradable plastics as solutions to “the plastics problem”. Why?

- Pressure from consumers to become more “environmentally-friendly” (without specific direction on what that means).
- Compostable/biodegradable plastics are marketed by industry as a “green” solution.
- Marketing tactic - wanting to appear as a green businesses.
- Legitimately wanting to reduce their environmental impact.

Are compostable/biodegradable plastics effective?

Businesses are paying a premium for these products.



“Breaking down” the terms

Compostable*	Biodegradable*	Bio-based	Degradable
<ul style="list-style-type: none">-Breaks down to organic matter which can facilitate plant growth-Cannot leave toxic residue-ASTM D6400	<ul style="list-style-type: none">-Can be broken down by action of living organisms-Can leave toxic residue-Often no time restrictions	<ul style="list-style-type: none">-Microbes and plants rather than fossil fuel based sources-Not necessarily compostable / biodegradable and vice versa	<ul style="list-style-type: none">-Able to break down from weathering effects-Almost all plastics are degradable

*given that the product is certified by organizations such as ASTM International and assumes very specific composting conditions

Certifications

- Only way to verify compostability status
- ASTM International (formerly American Society for Testing and Materials)
 - ASTM D6400 certification for compostability (most commonly used for compostable straws, compost bin liners etc.)
 - Other countries have different certifications

Certifications

- Compostable and biodegradable plastics must end up in industrial facilities with high temperatures, high moisture levels, and the right microorganisms (in accordance with ASTM D6400 certification)
- Compostable/biodegradable plastics will not degrade in any other conditions, including marine environments, landfills, or home compost systems.
- Therefore, **they pose the same challenges as conventional plastics** as a source of pollution.

Waste Management: Vancouver Island Case Study

- Only one facility exists on Vancouver Island capable of processing compostable/biodegradable plastics (Coast Environmental).
 - ◆ Issues with identification, especially if the plastic is partially broken down.
 - ◆ Issues with required processes and profit maximization - if the facility adapted to the conditions required for compostable plastics, would they still be profitable? There would be investments needed and compost loads would need to be held/stored for a longer period of time.
- While thin compostable plastic bans often break down at Coast Environmental, most other bioplastics are filtered out and sent to the landfill.

Waste Management: Facilities in Canada

- This issue isn't specific to Vancouver Island - most compost facilities in Canada don't host the conditions necessary to facilitate the degradation of bioplastics.
- Metro Vancouver states that "most municipal food scraps recycling programs in Metro Vancouver currently do not accept plastic items labelled "biodegradable" or "compostable." ([link](#))
- Compostable/biodegradable plastics can contaminate entire loads of compost or recycling, ultimately sending the entire load to landfill
- Were waste management facilities consulted in the discussions about production of bioplastics?

Greenwashing?

- Businesses are often given the information that bioplastics are an effective solution, and choose to implement bioplastics based on misleading information
- Producers should be held responsible for the information they provide and how they market their products.
- **Greenwashing**: when companies and organisations mislead their consumers or audiences by making them believe that a product, service they provide, or the organisation itself is environmentally friendly or sustainable, when it is not.
- Bioplastics are perceived as an environmentally-friendly solution, unlike conventional plastics. This, in a way, contributes to the problem.

Consumer Behaviour

- The intention behind compostable/biodegradable plastics is to keep waste out of the landfill
- If these materials are not disposed of in a compost bin, they face a nearly certain route to the landfill
- Metro Vancouver ([link](#)) states that compostable plastics are not accepted in recycling facilities across B.C. and suggests that these materials be disposed of in the **garbage**.
- If municipalities and waste management facilities suggest sending these materials directly to the landfill, how can we say they are more effective than regular plastics?

Consumer Behaviour: UVic Waste Audit

- Consumers are not given information on where to dispose of compostable/biodegradable plastics!
- A small-scale waste audit at UVic ([here](#)) found more compostable plastics in the garbage/recycling than the compost
- 39.3% of survey respondents didn't even know that some of the plastic products at UVic were compostable plastics
- 51.8% claimed that they do check labels on waste items, whereas 35.7% “sometimes” check labels, and 12.5% do not.
- Poor accountability in both situations, consumers are not provided with the correct information nor are they taking accountability to find the information.

Bigger Picture Issues: The Circular Economy

- Even if they were effective, compostable/biodegradable plastics are still single use
- There are emissions created and energy used in the production of every product.
 - We should focus on reducing consumption overall.
 - Reusable containers are still the best option whenever possible.
- What kinds of systems can we implement to focus more heavily on reusable containers?
- While we transition to reusable systems, are there better single-use products we can use? Paper has shown to be fully compostable, as long as it is not lined with plastic.

Responsibilities in a Circular Economy

Consumers	Businesses	Governments
<ul style="list-style-type: none">-Limit consumption of single-use products (including compostable / biodegradable plastics).-Encourage businesses to provide alternatives to single-use products.-Facilitate conversations about compostable / biodegradable plastics and the circular economy.	<ul style="list-style-type: none">-Provide reusable alternatives to single-use products.-Do not provide single-use products unless specifically requested by a customer.-Adopt truly compostable alternatives to plastics where single-use products are still required. Paper is currently the most affordable option.	<ul style="list-style-type: none">-Fund projects and systems that promote a circular economy.-Explore the best options to phase out all single-use plastics, including compostable and biodegradable plastics, in the near future.-Identify barriers to local production of plastics alternatives.

Surfrider Bioplastics Resources

- [Surfrider Foundation Bioplastics Toolkit](#)
- [Surfrider Foundation Vancouver Island Bioplastics Resources](#)
 - Scroll down to “resources”

Discussion

- Any questions/comments?
- Are businesses in your area using bioplastics?
- Does your community have general awareness of the issues with bioplastics?
- Are you aware of any single-use alternatives to bioplastics (other than paper)?
- Has your local government included bioplastics in policy discussions?