Compostable/Biodegradable Plastics

Noah Snell
Plastics are problematic

- They do not degrade fully, just break up into smaller pieces
  - They end up getting ingested by marine life
- They contain toxins that can make their way up the food chain
  - They are a leading cause of pollution in many environments
  - They kill marine life and other organisms
Compostable/biodegradable plastics have been introduced as solutions to the issues surrounding the use of plastics
## “Breaking down” the terms

<table>
<thead>
<tr>
<th>Compostable</th>
<th>Biodegradable</th>
<th>Bio-based</th>
<th>Degradable</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Breaks down to organic matter which can facilitate plant growth</td>
<td>-Can be broken down by action of living organisms</td>
<td>-Microbes and plants rather than fossil fuel based sources</td>
<td>-Able to break down from weathering effects</td>
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<tr>
<td>-Cannot leave toxic residue</td>
<td>-Can leave toxic residue</td>
<td>-Not necessarily compostable / biodegradable and vice versa</td>
<td>-Almost all plastics are degradable</td>
</tr>
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<td>-ASTM D6400</td>
<td>-Often no time restrictions</td>
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Certifications?

➔ Only way to verify compostability status

➔ ASTM International (formerly American Society for Testing and Materials)

➔ ASTM D6400 certification for compostability (most commonly used and includes compostable straws, compost bags and other products)

➔ Other countries have different certifications
Problems with Compostable/Biodegradable Plastics

- Must end up in the right industrial facilities with high temperatures, high moisture levels, and the right microorganisms.
- These facilities are limited. There is only one in our area - Chemainus.
- Will not degrade in any other conditions, including marine environments, landfills, or home compost systems.
- Therefore, unless they end up in the correct industrial facilities, they pose the same challenges as conventional plastics.
Problems with Compostable/Biodegradable Plastics

→ Even if effective, compostable/biodegradable plastics are still single use!

→ Emissions created and energy used in the production of every product.
   → We should focus on reducing consumption overall.

→ Many businesses will likely be hesitant to eliminate all single-use products.
   Understandable, since many customers request take-out.

→ Are there better forms of single use products?
   → Paper?
Other Things to Consider

➔ Money is being wasted

➔ Ethical issues - using food products to create plastics?
  ➔ Land & energy use for these crops

➔ Produce methane when composting in landfills
## Solutions

<table>
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<tr>
<th>Consumers</th>
<th>Businesses</th>
<th>Municipal</th>
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<tbody>
<tr>
<td>-Limit single-use product usage, including compostable / biodegradable plastics</td>
<td>-Provide reusable alternatives to single-use products</td>
<td>-Include compostable / biodegradable plastics in plastics bans</td>
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<tr>
<td>-Encourage businesses to provide alternatives to single-use products</td>
<td>-Do not provide single-use products unless specifically requested by customer</td>
<td></td>
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<tr>
<td>-Facilitate conversations about compostable / biodegradable plastics</td>
<td>-Provide paper alternatives when single-use is absolutely necessary</td>
<td></td>
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</tbody>
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Thoughts/Questions?