Extended Producer Responsibility (EPR) as a Tool to Reduce Plastic Marine Debris
A British Columbia Case Study

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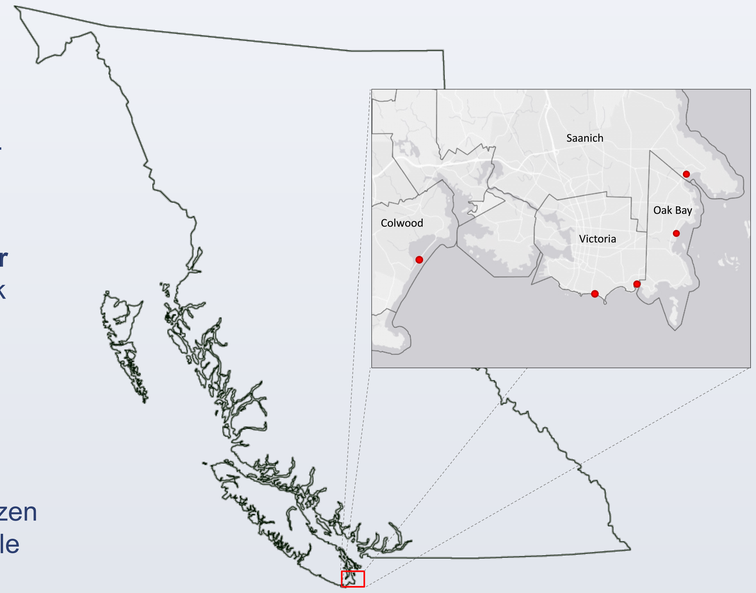
How can data created by citizen science shoreline cleanup projects be used to evaluate the effectiveness of EPR policy for packaging waste?

INTRODUCTION

- **EPR** is a waste management policy approach where a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle.[1]
- EPR is especially relevant to the increasing amount of **plastic marine debris** in the world's oceans as it incentivizes producers to prevent waste from being generated in the first place (i.e. source reduction) and aims to reduce leakage into the environment through funding, creating, and/or expanding infrastructure for post-consumer recycling.[2]
- Plastic marine debris is a highly **decentralized form of pollution**, originating from a variety of sources and contaminating oceans from the poles to the Equator and from shorelines to the deep sea.[3] This presents a significant problem for researchers and policy makers when assessing the effectiveness of centralized policy interventions, such as EPR.
- **Citizen science** is a decentralized, civic mode of quantitative data collection broadening the coverage and increasing the sampling power of marine debris monitoring that would otherwise not have been addressed due to a lack of resources, time, or geography.[4]
- The data citizen science projects create may act as a record of whether EPR is an effective management tool, however, it is unclear in what ways this information can address the **evaluation of EPR** and if there are challenges in merging these two domains.

METHODS

- The majority of plastic material found at shoreline cleanups in Canada and around the world is **packaging** waste.[5]
- **British Columbia** is the first and only coastal jurisdiction in North America to implement a province-wide 100% industry-funded EPR program for packaging in 2014.
- Study area: **Southern Vancouver Island** communities: Victoria, Oak Bay, Colwood and Saanich.
- Quantitatively analyze citizen science data to see temporal and spatial trends in packaging waste
- Qualitatively analyzing whether quantitative data produced by citizen science projects is commensurable with the goals of EPR



DATA

- This research utilizes data from citizen science shoreline cleanups events in the Southern Vancouver Island Area.
- The data includes results from:
  - The Vancouver Island Chapter of the **Surfrider Foundation**, which use NOAA's *Shoreline Survey Field Guide* for annual cleanups at the five locations in the study area.
  - The **Great Canadian Shoreline Cleanup**, which provide a standardized *Individual Data Card* to volunteers to tally the debris they collect.

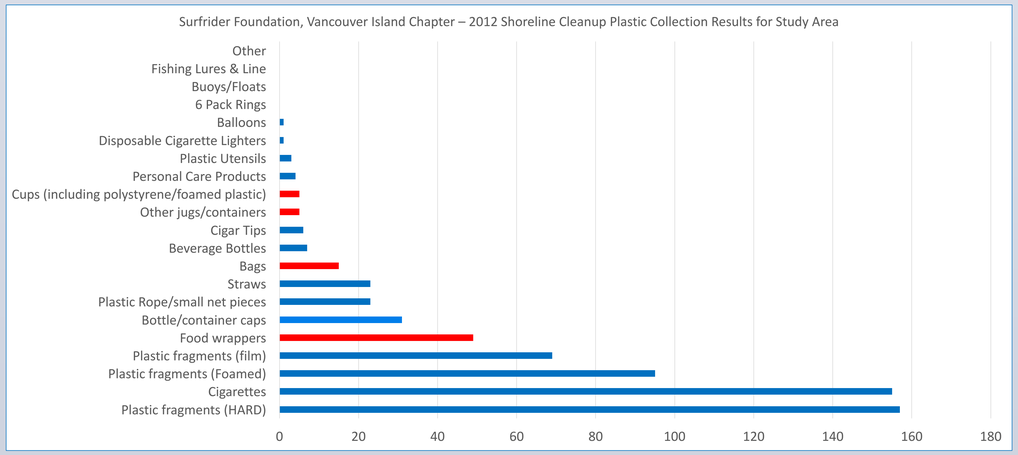
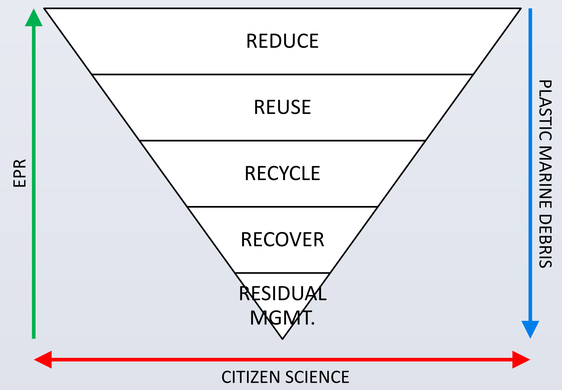


Table 1 – Annual Data Sample: Plastic category material types, in accordance with the NOAA Shoreline Survey Field Guide. Values reflect the combined total for annual cleanups at Colwood, Victoria, Oak Bay and Saanich collection sites in 2012, 1.5 years before the introduction of the packaging EPR Regulation in May 2014. Results in red indicate material types that are defined as packaging, as per the BC Recycling Regulation.

QUESTIONS

- What type of pollution trends are present in data generated by citizen science programs?
- What characteristics of citizen science data align with monitoring the effects of EPR?
- What are the challenges of using citizen science data to evaluate EPR?
- How do the outcomes of citizen science plastic marine debris monitoring programs challenge the expected outcomes of EPR policy intervention?

CONCEPTUAL FRAMEWORK



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