Microplastics Across the Columbia River Basin to the Ocean - Socio-Ecological-Technological Systems (MACRO-SETS)

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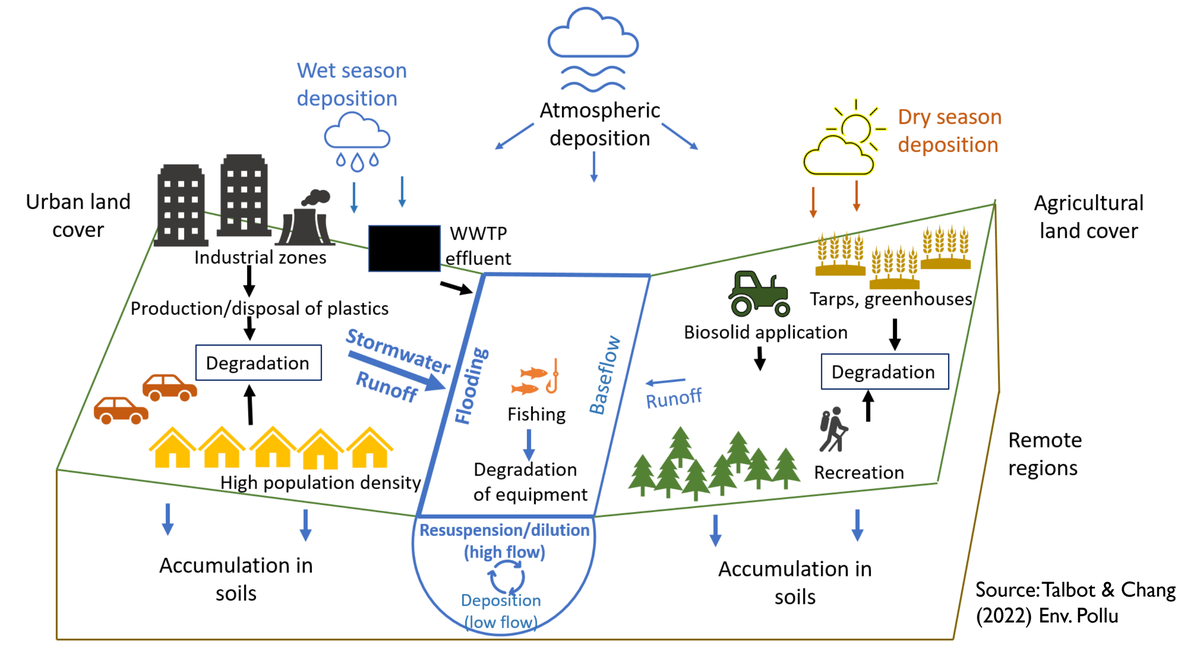
Introduction

This two-year planning grant has three objectives.
- Understand major sources of microplastics (MP)
- Engage with stakeholders to co-design and co-produce knowledge
- Develop educational materials for K-12 teachers
- Identify research/policy needs for addressing MPs



Source: Talbot & Chang (2022) Env. Pollu

Key workshops

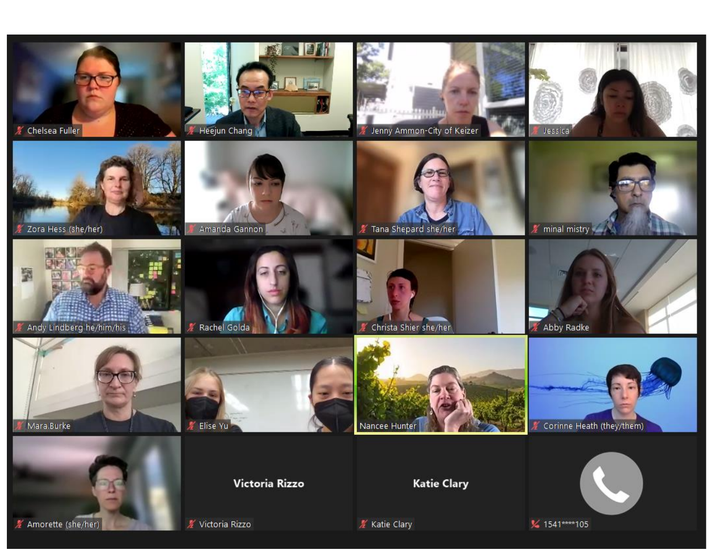
- 1st workshop: Information gathering, completely zoom
- 2nd workshop: Information sharing, hybrid
- 3rd workshop: Write a targeted proposal, in person (Sep 2023)

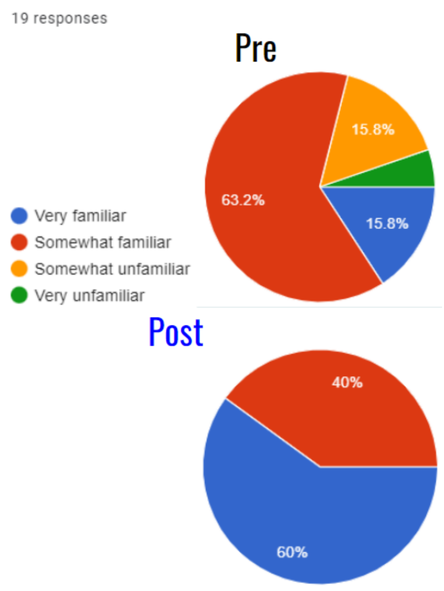
K-12 teacher education

C-GEO Center for Geography Education in Oregon

Course topics:

- Week 1: Production and Lifecycle
- Week 2: Earth Systems/Air & Land
- Week 3: Coastal & Marine Environments
- Week 4: Policy and Practice
- Last day: Field Day



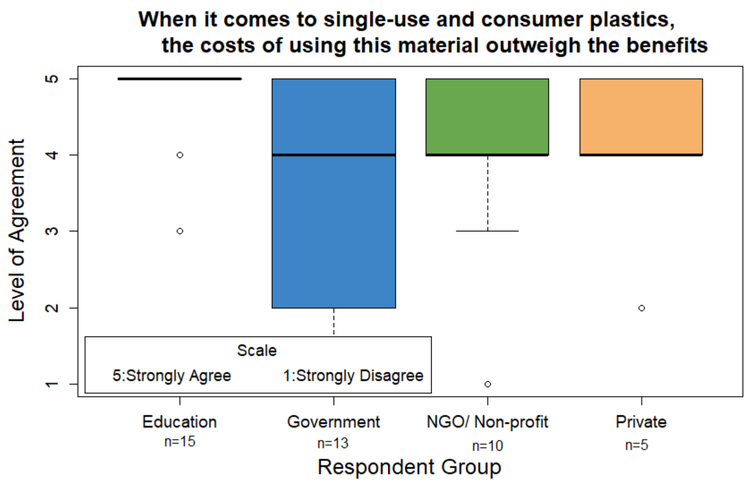


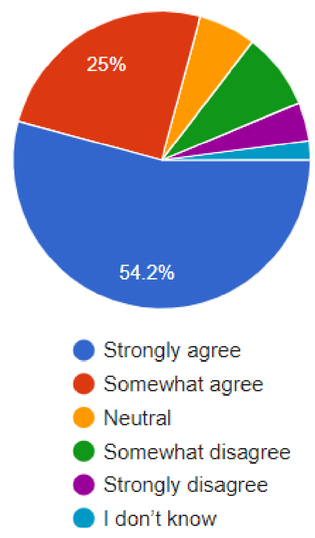
- Free 4-week online course was developed for K-12 teachers
- Teachers' perception and knowledge on MP increased substantially
- Teachers incorporated some content into their own curricular

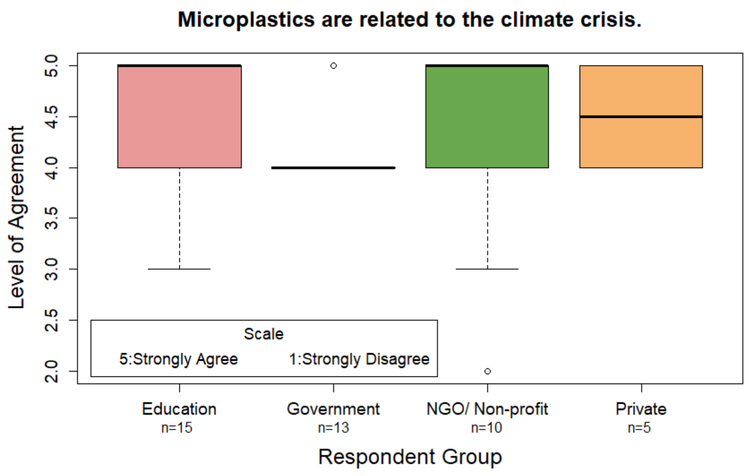
Stakeholder survey

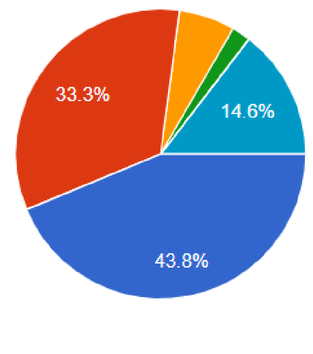
Purpose of the online survey
- To ask diverse stakeholders' knowledge and perceptions of MP
- To gather information about the topic of interest for subsequent workshop

Survey respondents
- Participants were chosen by snowball sampling
- Represented education, government, NGOs, and private sectors
- Emailed to 61 people with 48 responses (78% response rate)

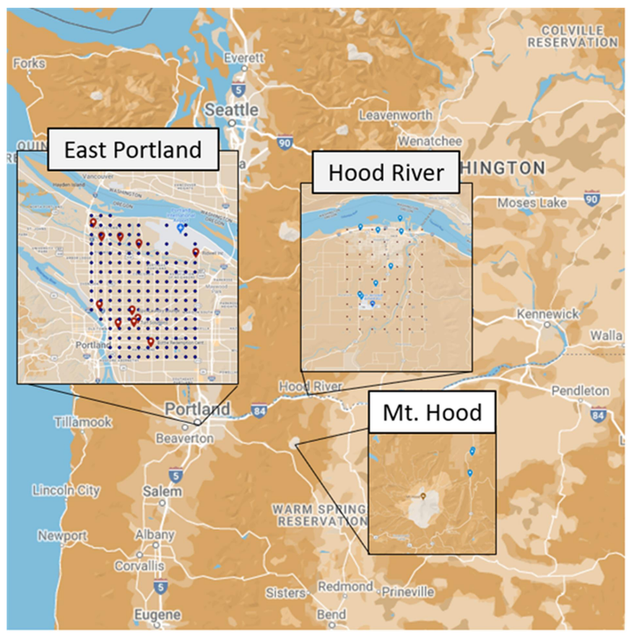




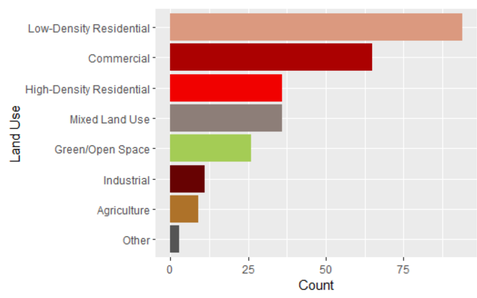


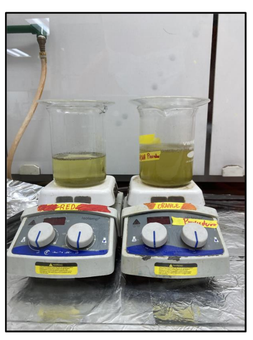


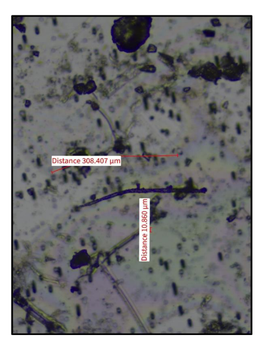
Moss sampling



- Using moss as a passive sampler of environmental pollutants
- Gridded Portland and Hood River to target multiple potential sources (urban and 'rural')
- Identified and sampled suspected hotspots
- Collected 1-1.5 g moss, digested, filtered, scoped
- Lab analysis still in progress







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