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**The Clean Seas Program at the Seattle Aquarium:
Where we are and where we are going**

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Research Scientist

PLOS ONE

 OPEN ACCESS  PEER-REVIEWED

RESEARCH ARTICLE

A growing plastic smog, now estimated to be over 170 trillion plastic particles afloat in the world's oceans—Urgent solutions required

Marcus Eriksen , Win Cowger, Lisa M. Erdle , Scott Coffin, Patricia Villarrubia-Gómez, Charles J. Moore, Edward J. Carpenter, Robert H. Day, Martin Thiel, Chris Wilcox

Published: March 8, 2023 • <https://doi.org/10.1371/journal.pone.0281596>





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Inspiring Conservation of Our Marine Environment

climate resilience



sustainable seas



clean seas

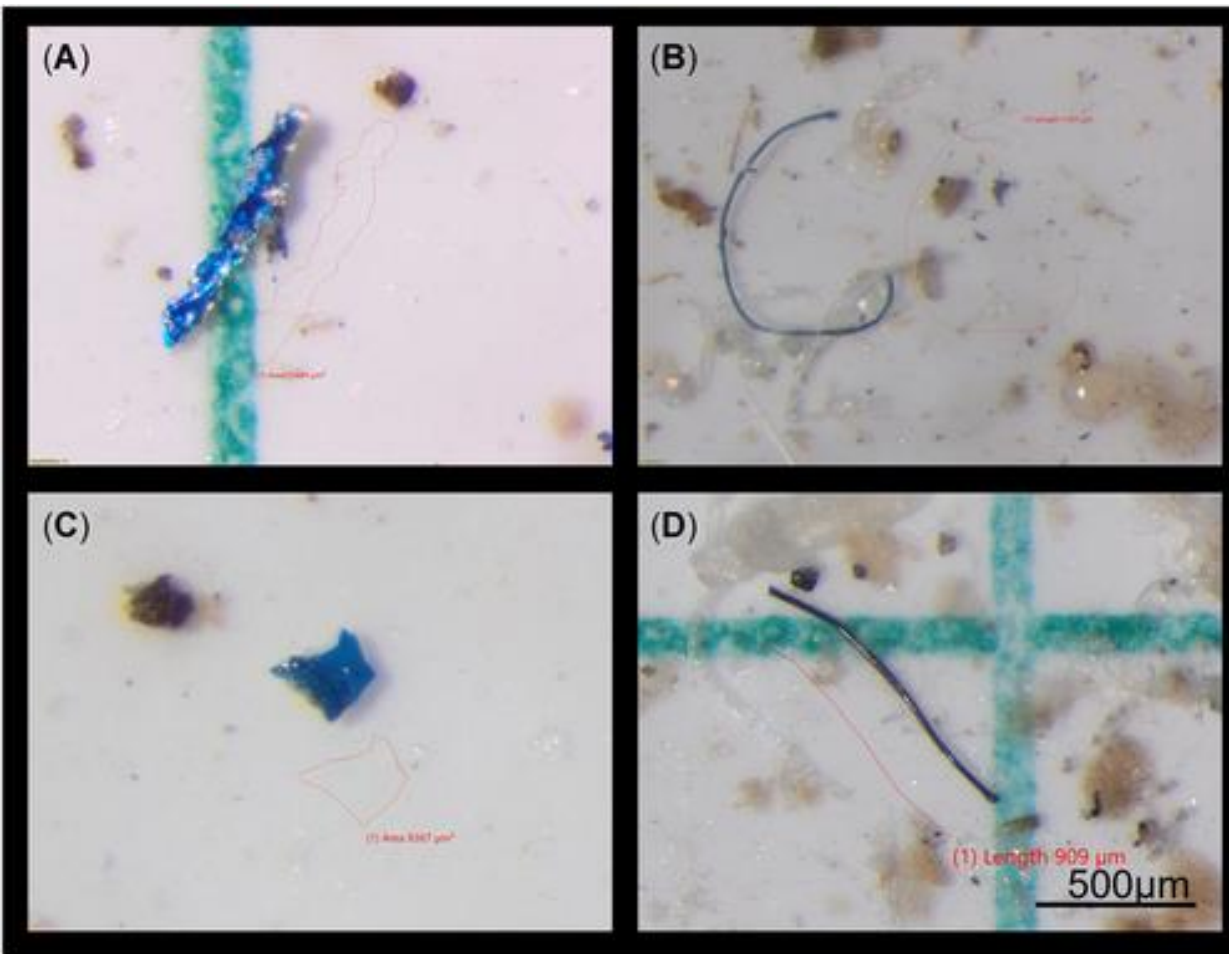




Where we are...



Microplastics Monitoring

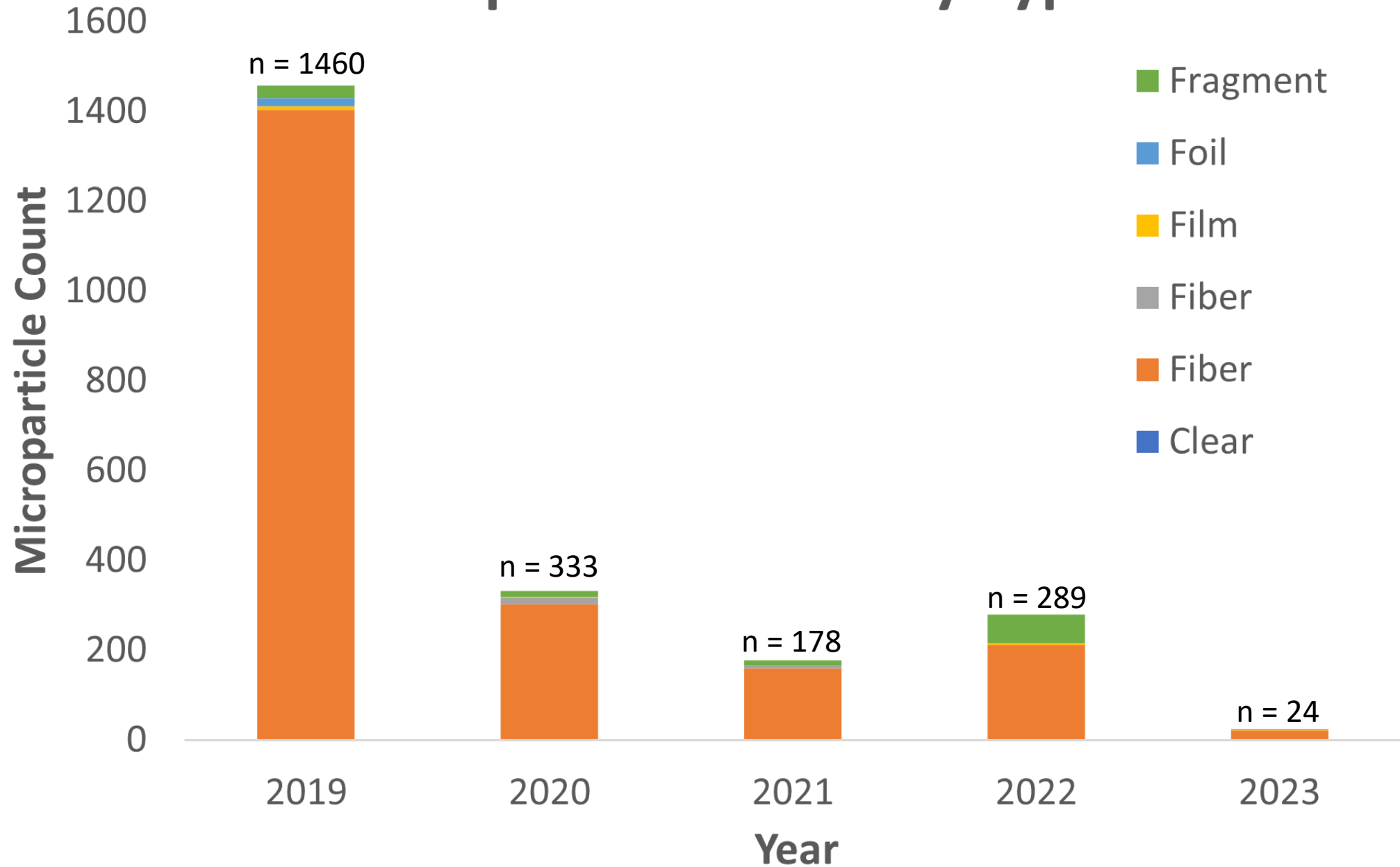


➤ [Environ Toxicol Chem.](#) 2022 Apr;41(4):917-930. doi: 10.1002/etc.5190. Epub 2021 Sep 22.

Temporal Variability of Microparticles Under the Seattle Aquarium, Washington State: Documenting the Global Covid-19 Pandemic

Lyda S T Harris ¹, Laura La Beur ¹, Amy Y Olsen ¹, Angela Smith ¹, Lindsey Eggers ¹, Emily Pedersen ², Jennifer Van Brocklin ², Susanne M Brander ², Shawn Larson ¹

Microparticle Count by Type



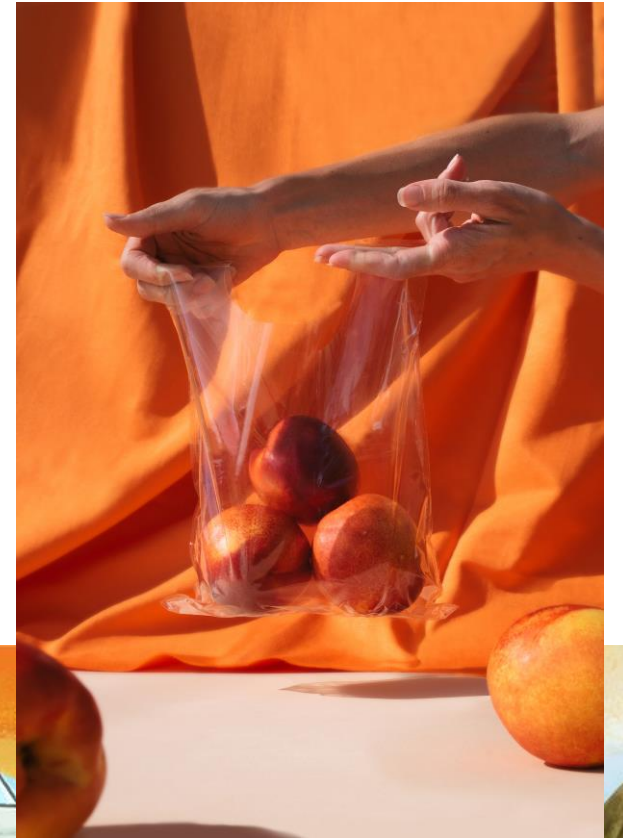
TOM FORD
PLASTIC INNOVATION PRIZE
POWERED BY LONELY WHALE

LONELY  WHALE



GEORGIA
New Materials
Institute

SWAY



Where we are going...



Plastics and Seabirds



'Plasticosis': Characterising macro- and microplastic-associated fibrosis in seabird tissues

Hayley S. Charlton-Howard^a, Alexander L. Bond^b, Jack Rivers-Auty^c, Jennifer L. Lavers^{b,d,e,*}

Environmental macroplastic

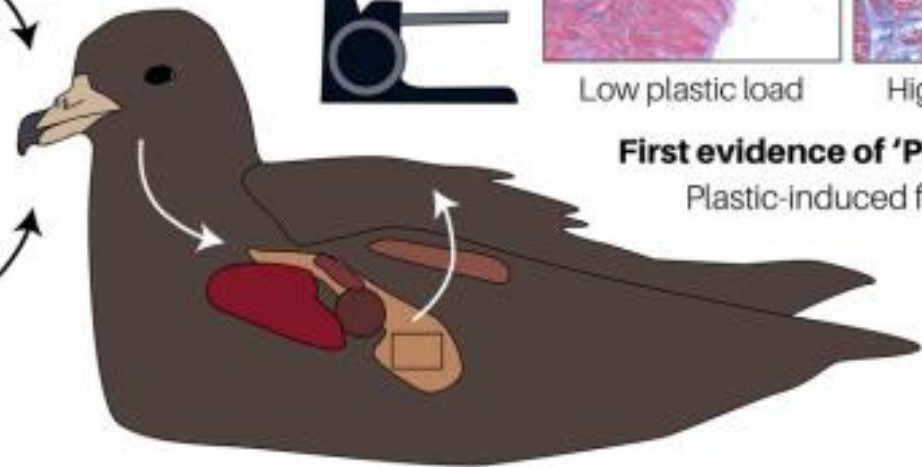


Ingestion associated with increased fibrosis

Pumice stones

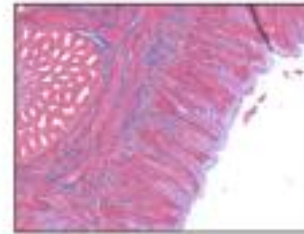


Ingestion not associated with fibrosis

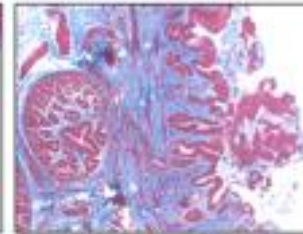


Scar tissue in proventriculus

(Masson's Trichrome, scar tissue in blue)



Low plastic load



High plastic load

First evidence of 'Plasticosis'

Plastic-induced fibrosis

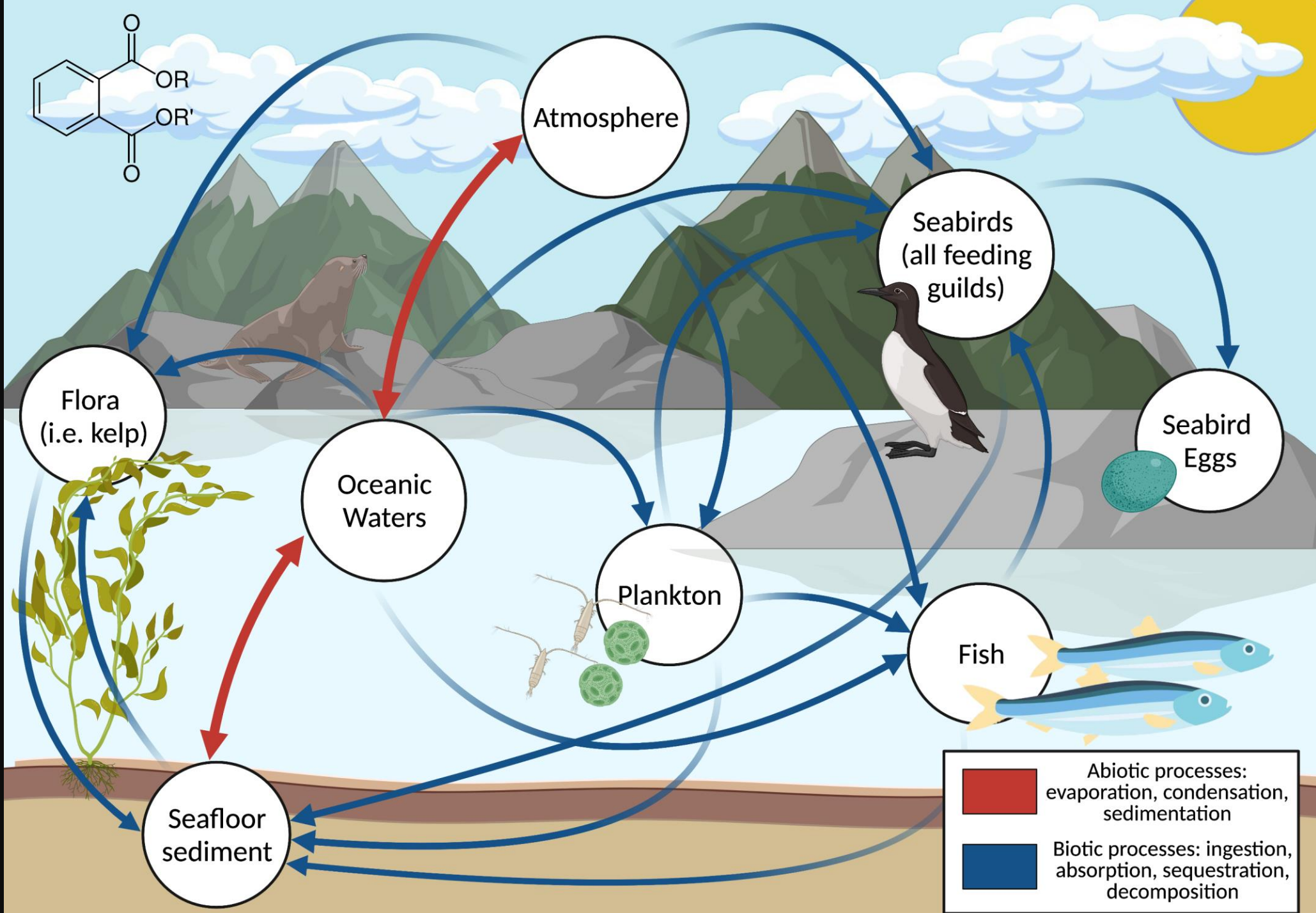
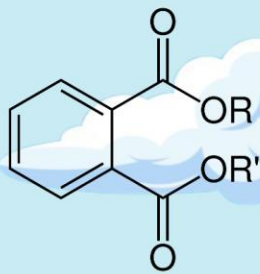




Plastics and Marine Mammals

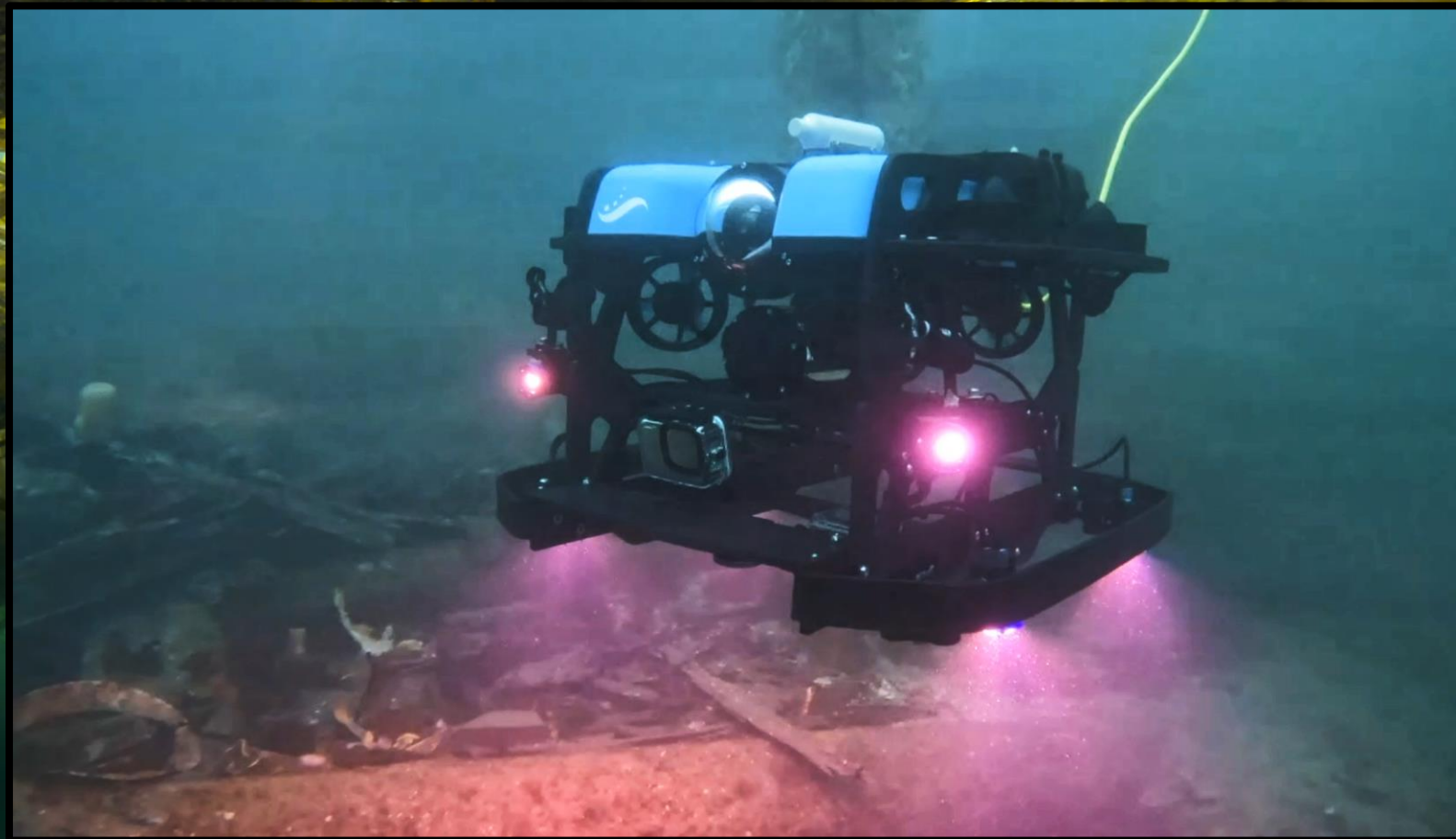


Plastics and Contaminants





Plastics and Communities

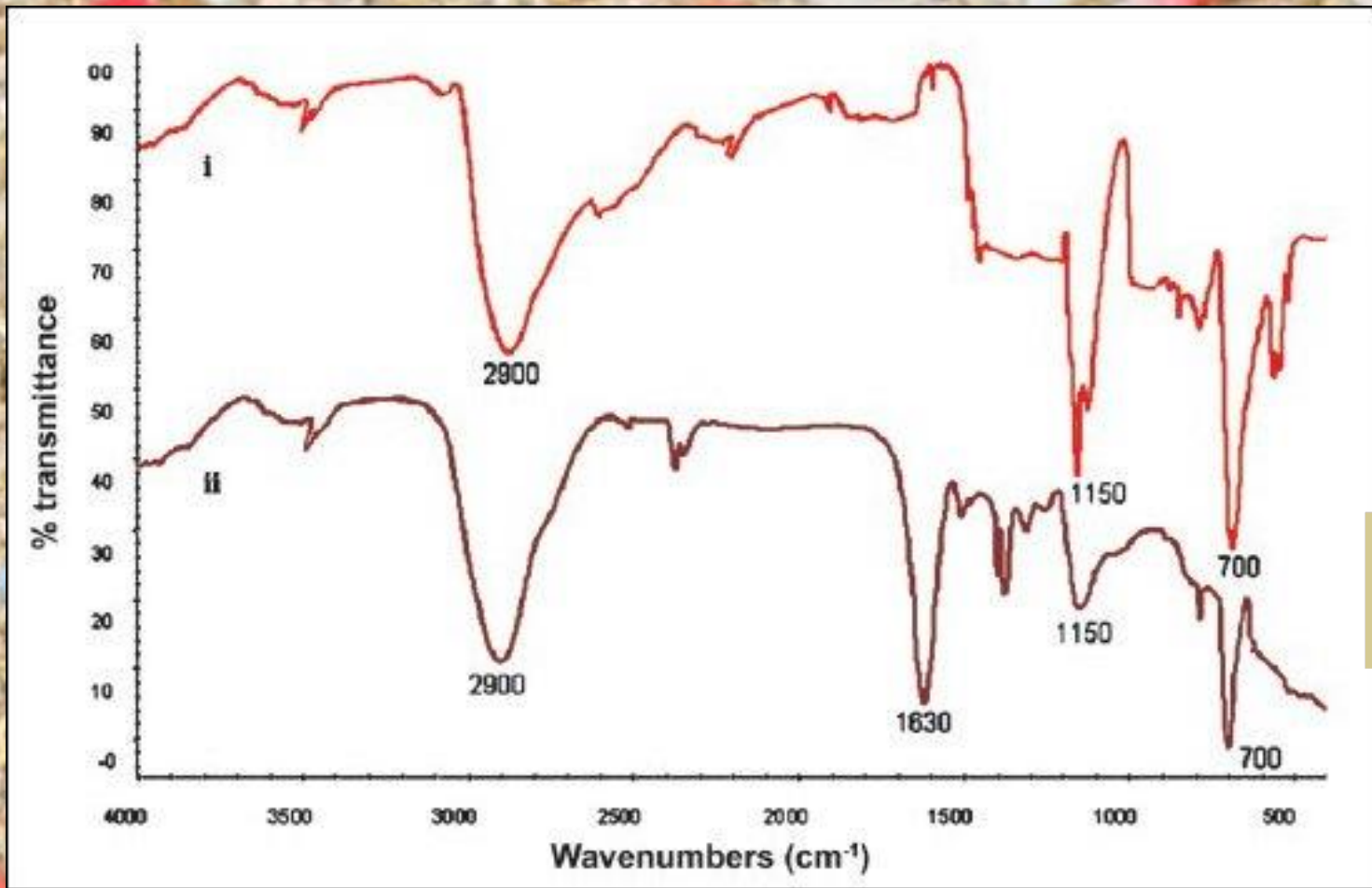


Growing Partnerships



Pacific Northwest Consortium on Plastics





FTIR spectra of (i) plasticized PVC and (ii) plasticized PVC sheet bound enzymes.





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COAST

Building Community



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Microplastics &
Marine Debris Workshop
Fall 2023

Was

(131)

**REDU
MODE**

Good News:

The Washington State Legislature passed House Bill 1085 (HB 1085)!

This bill will:

- ✓ Reduce single-use plastic water bottles.
- ✓ Phase out mini plastic toiletry bottles & wrappers at lodging establishments.
- ✓ Reduce plastic foam in the ocean.

JOBS

er paper and
ach year,
opportunity
chains and
ng system.



A large black tire is lying on a rocky beach. A person wearing a dark jacket, glasses, and a colorful headband is looking through the center of the tire. The tire has some text embossed on it, including "© D FIVE YEAR" at the top and "LEAD" at the bottom. A person's hand in a blue glove is holding a rope on the left side of the tire. In the background, there is a forest of evergreen trees and a person in a red jacket standing near some logs. The sky is overcast.

Thank you!

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