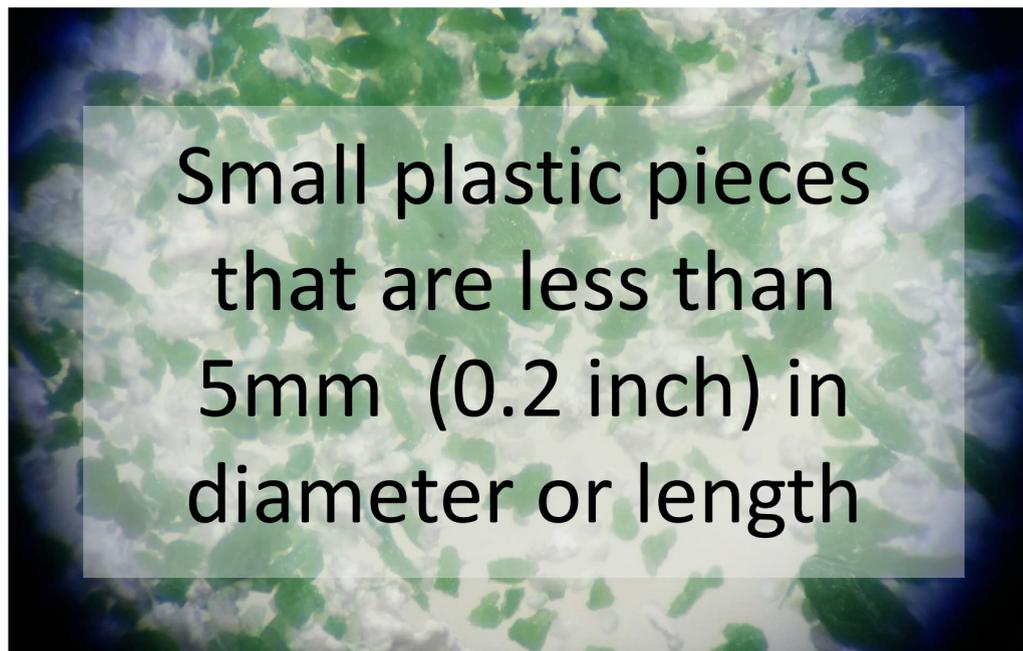


# What are microplastics?



Microplastics extracted from toothpaste

## Where do microplastics come from?

**Primary microplastics** are small plastics that are made as fillers, for “sandblasting,” or as a way of transporting pre-consumer plastics. These include “microbeads” which are found in many personal care products.

**Secondary microplastics** come from the breaking down of larger plastic items.

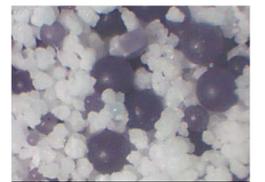
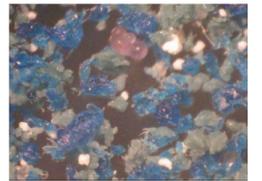


Plastic “nurdles” (left) and secondary microplastics (right) found on the beach

# MICROPLASTICS

## *What's the "big" deal?*

- Petroleum-based plastics (including polyethylene, nylon and polypropylene) never biodegrade. Over time, they just break down into smaller and smaller pieces.
- In the ocean, toxins (like polycyclic aromatic hydrocarbons, DDT pesticides, PCBs) stick to the surface of plastics. They may be a million times more concentrated on the plastic than in the water.
- Plastics can contain toxic chemicals themselves (e.g. Bisphenyl A, phthalates).
- Aquatic animals can eat plastic thinking that it is food. The smaller the plastic, the smaller the type of animal that can eat it. The plastic can clog an animal's digestive system, leading to starvation. The toxins on/in the plastic can get into the animal's body.



Microscope photos of plastics from personal care products and plastics found in ocean water.

# How do microplastics get into the environment?

The ocean is full of improperly-discarded plastic items that break down as a result of UV, chemical or microbial processes.

Microplastics that are in personal care products (toothpastes, facial and body washes, deodorants, makeup etc.) get washed into the sewer system. Because the plastics are so small and because they float, they are not completely removed by wastewater treatment systems. They end up being dumped into waterways as treated effluent

# Are there human health risks?

Scientists are not really sure what risks there are for people. “At this point, there are more questions than answers...at the moment, I think there’s cause for concern rather than cause for alarm<sup>1</sup>.” More research is needed.

<sup>1</sup> Dr. Richard Thompson, Plymouth University. Dr. Thompson coined the term “microplastics” in 2004.