

Plastic microbeads are great for cosmetics, but bad for the environment



Kirk Havens, PhD,
Immediate past STAC Chair
& Virginia Institute of Marine
Science

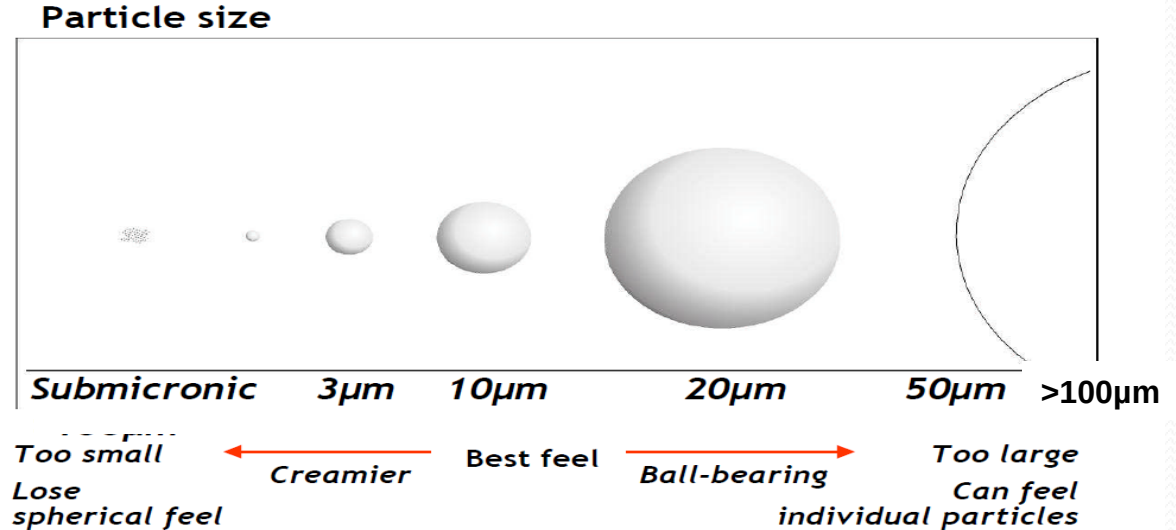


“All drains lead to the Ocean” (*Finding Nemo*, Walt Disney Pictures)

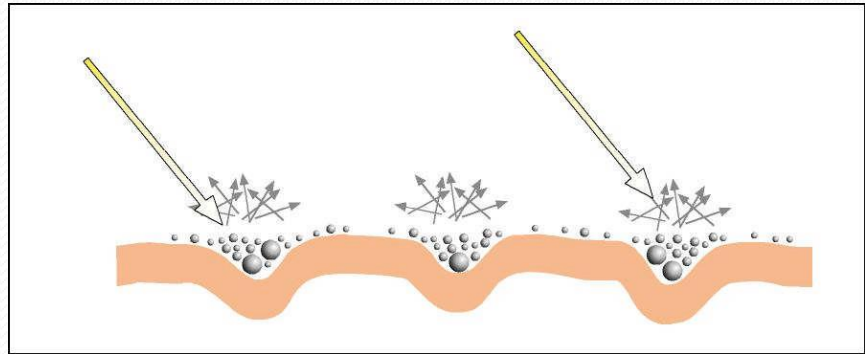


Why are there microbeads in cosmetics?

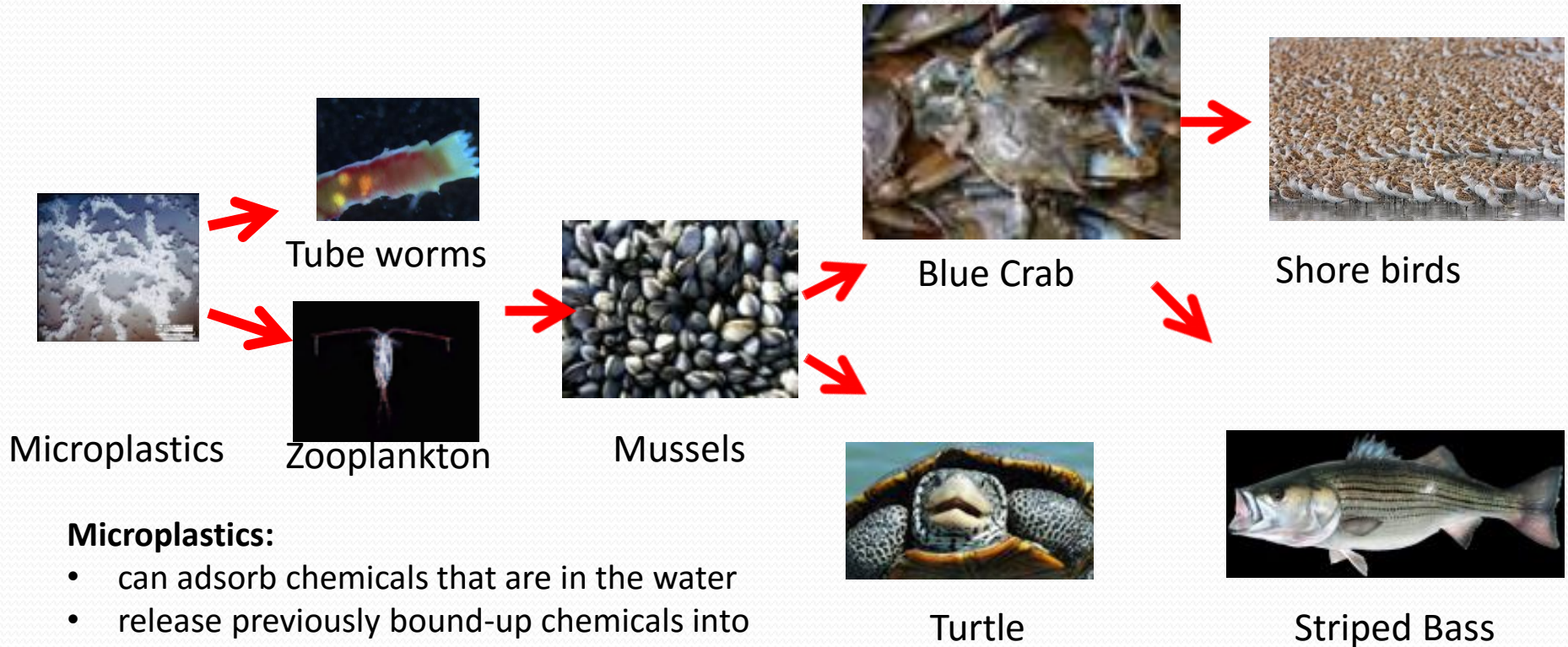
- Improved Feel



- Optical Blurring (Hide wrinkle lines)



This is a problem because....



Microplastics:

- can adsorb chemicals that are in the water
- release previously bound-up chemicals into the water as they breakdown
- readily take up PCBs and DDTs
- can introduces toxins into the food chain
- create obstructions that keep the organisms from taking in enough food, leading to malnutrition or starvation



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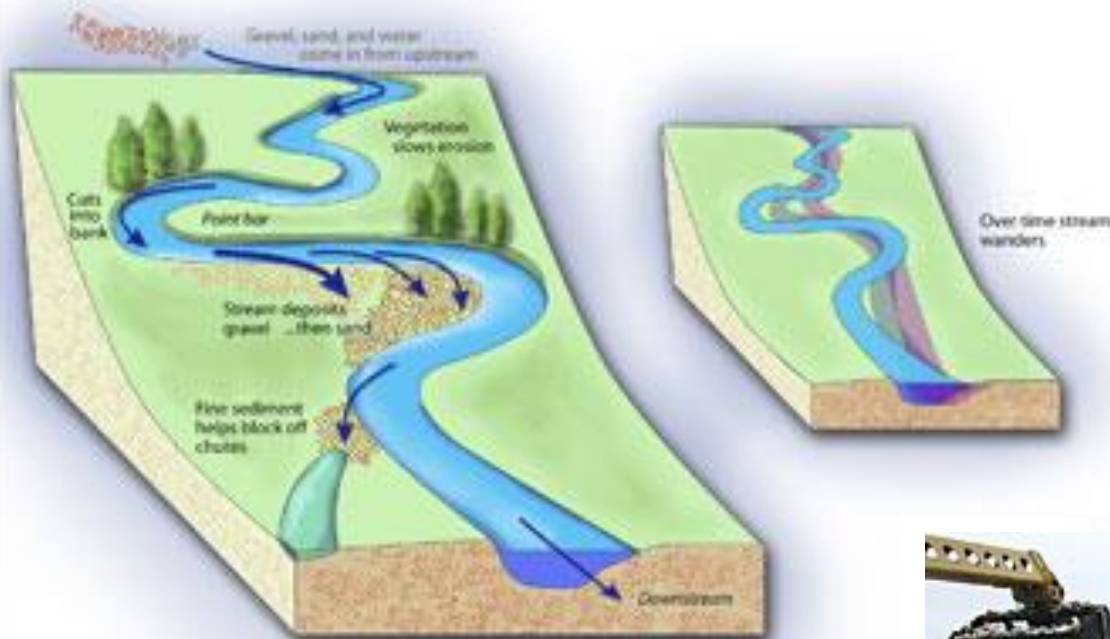
Microbead-Free Waters Act of 2015

- (1) The manufacture or the introduction or delivery for introduction into interstate commerce of a rinse-off cosmetic that contains intentionally-added plastic microbeads.
- (2) (A) the term 'plastic microbead' means any solid plastic particle that is less than five millimeters in size and is intended to be used to exfoliate or cleanse the human body or any part thereof; and
- (3) (B) the term 'rinse-off cosmetic' includes toothpaste."

-
- U.S. House approves bill to ban plastic microbeads (Unanimously – December 7th, 2015)
 - U.S. Senate passes ban on plastic microbeads (Unanimously – December 18th, 2015)
 - President Obama Signs Ban on Plastic Microbeads (December 28, 2015)
 - Wow.... Through the US Congress & signed by the President in 21 days...

Take home points from STAC Expert Panel Report.

- Federal legislation has raised awareness of the problem of microplastics in the form of microbeads
- Federal legislation doesn't address all microbeads (rinse off only) or microplastics (fragmented larger plastics, microfibers) – need proper definitions (i.e. biodegradation, plastic, polymer) – Scientific community can help define.
- Research need on sources of microplastics
- Research need on ecotoxicology – what happens to animals that ingest particles
- Preventative measures to keep plastic out of waterways and wastewater stream – removal shouldn't be placed solely on WWTPs.
- Promotion of truly biodegradable polymers – allow for industry and business innovation
- Tracking and monitoring of additives in plastics that can end up in marine environments
- *State or regional marine debris reduction plans – Mid Atlantic Marine Debris Reduction Plan – partnership with NOAA's Marine Debris Program



Around 70-80% of marine debris is land-based

And between 60-80% of that is plastic...







Raw Polymer:



TerraVerdae produces for the industrial materials, specialty chemicals, flavours, fragrances, nutraceuticals and agriculture markets. TerraVerdae's products are natural and produced through a sustainable process.

TerraVerdae's carbon-neutral bioprocess uses bacteria that produce a range of high-value products, including a biopolymer that the bacteria naturally produce as a carbon storage reserve, along with a range of other naturally-produced biochemical compounds. TerraVerdae is able to use waste feedstocks, such as green methanol that is produced from municipal and agricultural waste and

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Honeywell-Metabolix Alliance

Honeywell and Metabolix join together to deliver new marine biodegradable polymers for cosmetics and personal care.

CONTACT US

Honeywell and Metabolix have entered a global, exclusive commercial and technology alliance to deliver new technologies that are intended to meet increasing regulatory and other requirements around the world for personal care microbeads.

Polyhydroxyalkanoate (PHA) polymers will be available soon as part of Honeywell's Asensa® line of personal care additives as a biobased, marine biodegradable solution that is both gentle on the planet and on the skin.

Biodegradable PHA Microbeads Aiming to Replace Synthetics

Meghan Brown posted on August 25, 2015 | Comment | 2850 views

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TerraVerdae BioWorks recently announced the successful scale-up of their manufacturing process for biodegradable PHA (Polyhydroxyalkanoate) based microspheres, designed to replace environmentally hazardous non-degradable synthetic microbeads.



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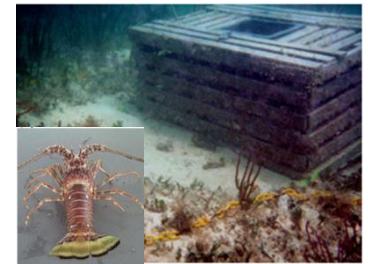
Dungeness Crab



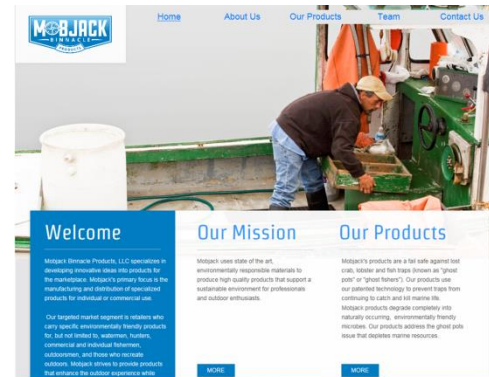
American Lobster

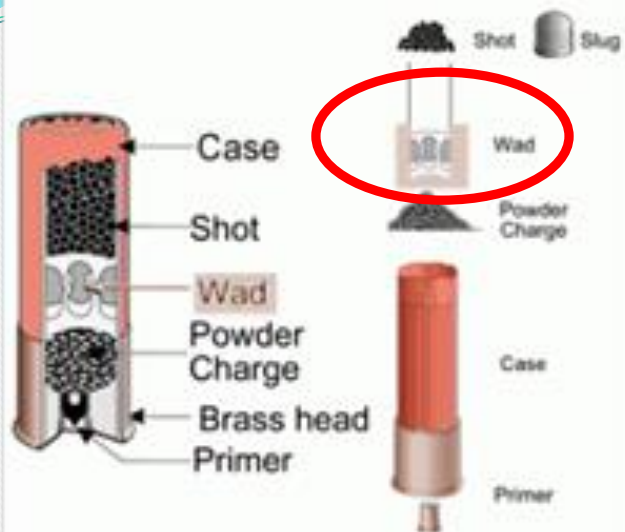


Stone Crab

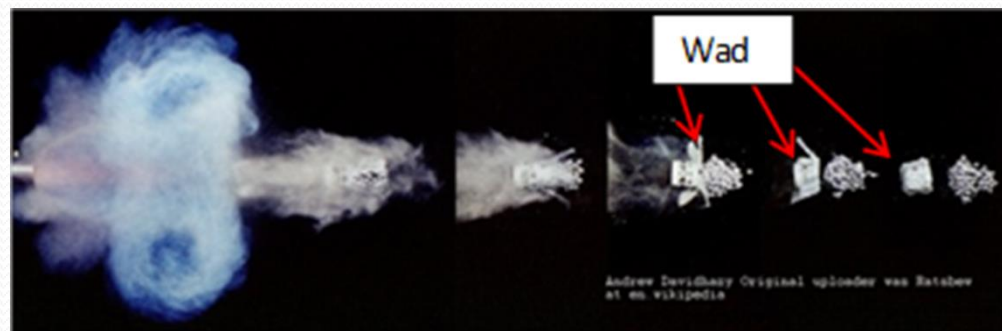


Spiny Lobster





Shotgun shell schematic.



High speed photograph of standard plastic wad.



. Plastic shotgun wads from a beach cleanups.





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Questions?

