



## Outdoor Industry Association Priority Issues Brief: **Microfibers** June 2016

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### **1. Overview**

Plastics of various sizes are being discovered in waterways and marine life, at levels and in places not previously realized. The presence of plastic debris poses dramatic changes and risk to the marine ecosystems; for example, small plastic particles and fibers can be ingested by aquatic life, not only harming the animals themselves, but passing the plastic through the food chain.

A relatively new and emerging sub-category of marine plastic study is microfibers – tiny fibers (comprised of both synthetic and natural materials) thought to be released into waterways when apparel products are washed by consumers. The outdoor industry is being looked to as a potential source of microfibers due in large part to the fleece garments that are made by many outdoor companies.

### **2. History**

In June 2010, a workshop was held by the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in Paris to discuss 'new and emerging issues' in relation to the state of the marine environment.

Research conducted by scientist Mark Browne, released in 2011, indicated that microfibers are prevalent contaminants at coastline sites on six continents, from the poles to the equator.

In 2014 and 2015, several news articles from prominent sources called attention to the issue of microfibers and the outdoor industry as a potential contributor, including The Guardian and Outside Magazine.

In December 2015, the Microbead-Free Waters Act of 2015 was passed into U.S. Federal law, banning rinse-off cosmetics that contain intentionally-added plastic microbeads beginning on January 1, 2018, and banning manufacturing of these cosmetics beginning on July 1, 2017.

### 3. Key Facts and Context

Marine debris, including **ocean plastics**, is litter that ends up in oceans, seas, and other waterways.

**Microplastics**, a subset of ocean plastics, are small plastic particles that often can't be seen by the naked eye, with a size generally between 1 and 5 millimeters. Microplastics come from two principal sources:

- i) Plastic resin pellets either used in the plastics manufacturing process or purposefully fabricated as abrasives for shot blasting or in cosmetic facial scrubs; and
- ii) Plastic fragments arising from the structural deterioration and disintegration of plastic objects, mainly litter, which can include: packaging, household items such as toothbrushes and razors, building materials, lost or discarded fishing and aquaculture gear, and other items.

The "Great Pacific Garbage Patch" is a well-known example of a concentrated area of marine debris. Scientists have collected up to 750,000 bits of microplastics in a single square kilometer of the Great Pacific Garbage Patch—that's about 1.9 million bits per square mile. Most of this debris comes from plastic bags, bottle caps, plastic water bottles, and Styrofoam cups.

**Microfibers** (also called microplastic fibers) are a subset of microplastics – they are typically fractions of a millimeter in diameter and are less than 5 millimeters long. A source of microfibers is suspected to be textile based products - articles of clothing and household textiles that require regular laundering. Present data suggests that microfibers can readily enter waterways when textiles are washed as both home laundering machines and existing municipal waste water treatment systems typically do not currently have means to filter out this very small size of particle.

### 4. What OIA and its members are doing

Concerns of OIA and its members:

Data clearly shows that microfibers exist as a source of contamination in waterways and marine life. However, there is a significant lack of data currently to indicate the exact sources and mechanisms of microfiber pollution. The outdoor industry needs this data in order to have a clear understanding of the role it plays, to drive thoughtful investments and partnerships to most effectively and efficiently address the issue; to pull the most impactful levers; and understand where this sits in the broader landscape of supply chain priorities that need resources and support from the industry.

Open questions for the industry, which we are actively seeking to address, include (but are not limited to):

- Is there a difference in shedding rates between higher quality and lower quality garments?
  - What are the standardized test protocols that should be used?
- Is there a difference in shedding rates based on the material type or material construction used within a garment?
  - What are the standardized test protocols that should be used?
- What is the potential contribution of the industrial textile sector to this issue?
- What is the potential contribution of the appliance/washing machine industry to this issue?

- What are the relative effects of appliance constructions and laundry cycles?
- Is the appliance industry looking into potential solutions on their end?
- What is the potential role of water municipalities in this issue?
  - Is there a realistic technical and economic potential to remove fibers in wastewater treatment plants globally, and what would be the collateral effects?

Since 2007, the OIA Sustainability Working Group has worked proactively and collaboratively to implement best practices in the supply chain. The topic of Microfibers and Ocean Plastics is addressed via the Microfibers Task Force, an initiative created in 2015 within the OIA Sustainability Working Group. The Microfibers Task Force is committed to building outdoor industry knowledge and understanding of the issue and supporting creation and adoption of best practices.

The OIA Microfibers Task Force has been in contact with a number of organizations working in this space, to understand the landscape of what is currently being done to address this issue and explore the most effective partnership opportunities to drive efficient and effective next steps. These organizations include (but are not limited to):

- The Ocean Conservancy
- Adventurers and Scientists for Conservation
- 5 Gyres
- Clean Ocean Action
- U.S. Environmental Protection Agency Trash Free Waters Program, Region 2
- San Francisco Estuary Institute
- Project Aware
- Researchers at University of California Davis and University of Toronto

*List is current as of June 2016*

The OIA Sustainability Working Group and Microfibers Task Force are actively seeking to help the outdoor industry achieve the following:

- Gain a clear, data-driven understanding of the sources of microfiber pollution, including the outdoor industry's contribution as well as the contribution of other industries and sectors.
- Using that data, make informed decisions about the industry's next steps, resources, and partnerships.

OIA and its members are committed to pursuing these objectives in partnership with the diverse group of stakeholders who share our desire to adopt global environmental and social best practices to benefit the operations and communities in which we conduct our business.

## **5. Key Resources:**

Nick Mallos presentation from ORWM 2015:

<http://oia.outdoorindustry.org/OIA-meeting-microplastics>

OIA blog post: Microplastics, Microfibers, Pollution and.... the Outdoor Industry, July 2, 2015:

<https://outdoorindustry.org/article/microplastics-microfibers-pollution-and-the-outdoor-industry/#articles,supply-chain,sustainability>

Proceedings of the GESAMP International Workshop on micro-plastic particles as a vector in transporting persistent, bio-accumulating and toxic substances in the oceans, June 2010:

<http://unesdoc.unesco.org/images/0019/001922/192205e.pdf>

Accumulation of Microplastic on Shorelines Worldwide: Sources and Sinks, Environmental Science and Technology, September 2011: <http://pubs.acs.org/doi/abs/10.1021/es201811s>

Microplastics in the Seas, *Science*, July 11, 2014, pp. 144-145:  
<http://www.ncbi.nlm.nih.gov/pubmed/25013051>

The Great Pacific Garbage Patch, National Geographic Encyclopedic Entry:  
<http://education.nationalgeographic.org/encyclopedia/great-pacific-garbage-patch/>

EU funded research project on the microfiber generation from laundry, with the participation of Plastic Soup Foundation  
<http://life-mermaids.eu/en/>

## **6. Contacts:**

For more information about Outdoor Industry Association's efforts or with questions about any of the above, please contact:

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