



## Outdoor Industry Association Priority Issues Brief: **Microfibers** January 2017

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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 in 2011 indicated that microfibers are prevalent contaminants at coastline sites on six continents, from the poles to the equator.<sup>1</sup>

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.

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<sup>1</sup> Browne, M. A., Crump, P., Niven, S. J., Teuten, E., Tonkin, A., Galloway, T. & Thompson, R. 2011 Accumulation of Microplastic on Shorelines Worldwide: Sources and Sinks. *Environmental Science & Technology* **45**, 9175-9179.

### 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 less than 5 millimeters. Microplastics come from three principal sources:

- i) Direct release of small particles. For example, release of microbeads from personal care products, or plastics used for shot blasting.
- 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. Such disintegration occurs in the environment.
- iii) Small particles that are released from apparel and textiles during their use.

The “Great Pacific Garbage Patch” is a well-known example of a concentrated area of marine debris. Scientists have estimated concentrations 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. It contains large items of debris from plastic bags, bottle caps, plastic water bottles, and Styrofoam cups, as well as microplastic fragments.

**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, particularly those that require regular laundering. Present data suggests that microfibers can readily enter waterways when textiles are washed, as both home laundering machines as well as existing municipal wastewater treatment systems currently have limitations in filtering out this very small size of particle.

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

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 might play, 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 among garments and fabrics?
  - 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 broader apparel industry - beyond the outdoor sector - to this issue?
- 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 municipal water treatment facilities 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 (SFEI)
- Project Aware
- And others

*Please view the OIA Microfiber Pollution Resource Library for the full/current list of organizations involved in this issue (link below.)*

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, as quickly as possible, 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:**

OIA Microfiber Pollution Resource Library

Current list of research, presentations, media, current projects, and other resources around this topic, as well as organizations involved

<https://outdoorindustry.box.com/s/ppci1zr6x2l7wx5cqh107uicsscsnwl>

Map of Potential Microfiber Pollution Points and Research Opportunities  
<https://outdoorindustry.box.com/s/9o0nnzgoxn1eyjn03virn2my2rtq1dic>

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>

OIA blog post: Microfibers and the Outdoor Industry – Issue Update (February 1, 2017)  
<https://outdoorindustry.org/article/microfibers-and-the-outdoor-industry-issue-update/#articles,sustainability>

## **6. Contacts:**

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