Testimony: Oregon SB526
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Chair Sollman, Vice Chair Brock-Smith, and Members of the Committee, for the record my name is Dr. Elise Granek and I'm a professor of Environmental Science and a marine ecologist at Portland State University. Though time ran out for me to have the opportunity to present to you today about the current state of knowledge about microplastics generally, and specifically microfibers from our laundry, below I provide written testimony in lieu.

A little over two years ago, I had the privilege to speak with many of you about microfibers in our bodies - in our lungs and blood; and in human placentas and breast milk. More recent research has found microplastics are **also** in our heart tissue, colons, liver, kidneys. and brain tissue, as well as in male testes. We now know that higher rates of microplastics in damaged cardiac tissue surgically removed from patients with cardiovascular disease is correlated with higher incidents of a recurring stroke or heart attack. A recent study found that the placentas of **premature** babies have higher concentrations of microplastics than the placentas of full-term babies. Last week, researchers reported that the brains of patients with dementia had higher micro- and nanoplastic concentrations than similar age patients without dementia. Researchers are continuing to find connections between microplastics in human bodies and poor health outcomes.

As I have shared previously, most of us wear a mix of natural and synthetic fibers. When we wash our clothes, sheets, and towels, small fibers shed into our laundry water at a rate of about 750,000- 1.5 million fibers per laundry load. Even if our wastewater treatment plants were 99% effective – they are closer to 95%, with a state population of 4.2 million people, if each person does a load of laundry every other week, that 1% of microfibers not trapped by the treatment plant equates to over **800 billion** of the microfibers released annually from laundry to wastewater entering into Oregon's waterways. And the majority of the 90+% of fibers entering the wastewater system that **are** trapped by the wastewater treatment plant (~73 trillion microfibers) end up in the biosolids at the treatment plants; those biosolids are frequently reapplied to agricultural fields, returning the microplastics back to the environment in which we grow and catch our food.

When these fibers and other microplastics are released from our wastewater systems or applied to our agricultural fields, *where do they end up?* In December, we published a paper detailing the microplastics we found in Oregon-caught pink shrimp, Pacific herring, Pacific lamprey, black rockfish, lingcod, and Chinook salmon; this recent dataset builds on previous research in which we found microplastics in oysters and razor clams collected from Oregon beaches and estuaries. Microfibers –released from laundered clothing, bedding, and towels - are the overwhelming majority of microplastics we find in the animals collected in Oregon, and this finding is consistent with research globally. Additionally, when fish and shellfish ingest these microplastics, their growth, reproduction, and health can be compromised. As seafood is commercially and culturally important to Oregon, keeping these products and their populations in the ocean healthy for Oregonians and for export is critical.

We also find microplastics in Oregon river water - from the Deschutes to the Rogue to the Willamette – the very waters from which many Oregon communities get their drinking water and in which many Oregonians recreate.

Innovations, such as the internal and external washing machine filters you are considering, are an intervention that **is currently in use abroad** and **can** decrease the number of fibers going into our wastewater system and then our waterways, oceans, food, and bodies. Though a multi-pronged approach is needed to reduce microplastics in our food, water, wildlife, and bodies, washing machine filters offer one important step. Though not the first in the world to mandate washing machine filters, SB 526 would make Oregon a national leader on this issue.

Thank you for your time and I'm happy to answer any questions you may have.