

United States Senate
WASHINGTON, DC 20510

COMMITTEES:
APPROPRIATIONS
BUDGET
ENVIRONMENT AND
PUBLIC WORKS
FOREIGN RELATIONS
RULES AND
ADMINISTRATION

July 15, 2021

Secretary Pete Buttigieg
U.S. Department of Transportation
1200 New Jersey Ave SE
Washington, DC 20590

Dear Secretary Buttigieg,

Salmon are vital in the Pacific Northwest. They are essential to lives and livelihoods throughout the region, have major cultural significance for many of the Native American tribes that have long called the region home, and are ecologically irreplaceable. They are an integral species upon which other animals stretching from our inland waterways to our marine environments all depend. In addition to the threats of habitat loss and degradation from climate change that have already led many salmon species in the Pacific Northwest to an Endangered Species Act (ESA) listing of threatened or endangered, emerging research has identified an additional threat: chemicals from tire wear particles.

Tire and road wear particles are small microplastic particles generated by the friction between tires and the road surface. A recent study found that these particles are the largest contributor by mass to microplastic leakage into the ocean, contributing approximately 78% of the total microplastics flowing into the ocean.¹ Each year, over 1 million metric tons of microplastics enter the ocean from tire and road wear alone.¹ Microplastics impacts on human health are still not understood, but it is known the average person ingests nearly a credit cards worth of microplastics each week.²

Beyond polluting the environment as microplastics, these particles include a variety of chemicals that pose added threats. New research has linked one of these chemicals, 6PPD-quinone, to the widespread death of coho salmon across the Pacific Northwest. This chemical is derived from the antiozonant 6PPD,³ which is added to nearly all tires at the concentration of 1 – 2%.⁴ While this chemical serves an important role in protecting tires, it is acutely toxic to coho salmon. Most exposed fish die within hours. 6PPD-quinone is a major contributor to the “urban runoff mortality syndrome” that kills 40 – 90% of returning salmon before spawning.⁵ Coho salmon in the Pacific Northwest are listed as threatened under the ESA and researchers believe it is unlikely that coho are uniquely sensitive to this chemical. Other aquatic organisms, including closely related

¹ “Breaking the Plastic Wave: A Comprehensive Assessment of Pathways Towards Stopping Ocean Plastic Pollution.” Pew Charitable Trusts.

² Cox et al. “Human consumption of microplastics.” *Environmental Science & Technology*, 2019.

³ 1,4-Benzenediamine, N1-(1,3-dimethylbutyl)-N4-phenyl-, CAS: 793-24-8

⁴ CA Department of Toxic Substances Control

⁵ Tian et al. “A ubiquitous tire rubber-derived chemical induces acute mortality in coho salmon.” *Science*, 2020.

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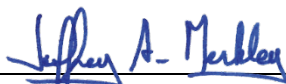
and ESA-listed species such as steelhead and chinook salmon, may be equally vulnerable to the impacts of tire wear microplastics and their associated chemicals. Of additional concern, the same tires that release this near-lethal chemical are often recycled into artificial turf for playgrounds and sports fields. The U.S. Environmental Protection Agency has initiated research on recycled tire crumb on play fields and identified the chemical 6PPD in the tire crumbs they analyzed.⁶ There is a clear need to better understand the toxicological impacts of 6PPD and the chemicals it can transform into and its transformation products to protect our communities and environment.

This chemical was found in every waterway researchers tested. This is a widespread environmental crisis that will require a coordinated Federal response. Environmental release of this chemical is particularly dangerous to waters along busy roadways, especially those in habitats known to contain threatened or endangered aquatic organisms. We need to significantly reduce tire wear microplastics, and their associated chemicals, from entering our environment. Mr. Secretary, I write to urge you to carefully review this issue and direct your agency to do the following to protect our sensitive ecosystems:

- Work collaboratively with U.S. Environmental Protection Agency (EPA) and U.S. Fish and Wildlife Services to assess the risk posed to aquatic species by existing and future roadways;
- Explore demonstrably non-toxic substitutions for 6PPD in tires and ways to minimize tire shedding in collaboration with the tire manufacturing industry and green chemistry experts, such as the EPA's Green Chemistry Program; and
- Build off the work of scientists to develop simple, inexpensive biofiltration systems that can be incorporated along roadways to prevent these lethal impacts on aquatic species.

Mr. Secretary you have spoken of infrastructure broadly as the foundation for Americans to thrive and I could not agree more. We in the Pacific Northwest cannot thrive without salmon. That is why I urge your agency to swiftly review this critical issue and develop a course of action to protect our salmon and our environment from existing and future infrastructure. I thank you for your continued leadership and look forward to working with you on this issue.

Sincerely,



Senator Jeffrey A. Merkley
Oregon

⁶ U.S. EPA. "Synthetic Turf Field Recycled Tire Crumb Rubber Research Under the Federal Research Action Plan." July 2019.