FIBERSHED

Local Fiber, Local Dye, Local Labor

August 14, 2023

Wade Crowfoot, Secretary for Natural Resources
California Ocean Protection Council
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Dear Secretary Crowfoot and Members of the Council:

The following comments are submitted on behalf of Fibershed, a California nonprofit organization dedicated to establishing regionally based fiber and textile systems that build ecosystem and community health.

We are grateful for OPC's ongoing investments in research and emerging actions to address microplastic pollution. As you advance your work on this issue, we urge you to use OPC's unique position to develop systemic approaches for true source reduction of microplastics, especially for microplastic microfibers released from synthetic textiles.

Textiles are an important source of microplastic pollution, driven by growing volumes of synthetic (plastic) fiber production and use.
Textiles are an essential and abundant part of the immediate environment surrounding our bodies, families and communities. As summarized in the California Statewide Microplastic Strategy, textiles are also one of the most important and significant sources of microplastics[1].

The volume of textile production and consumption has grown dramatically in the past two decades. This has been driven almost entirely by growth in the production of synthetic (plastic) fiber production. Apparel/textile production and use is the accurate source of microplastic fiber emissions, leading to pollution moving through both aquatic and terrestrial systems[2]. Global polyester production more than doubled between 2000 and 2015, with industry projections for polyester production in 2030 to be over quadruple the amount from 2000[3]. The proportion of synthetic (plastic) fibers within the total of global fiber production is now over 72%[4]. If we do not change the landscape of financial and regulatory incentives, use patterns, and market feedback and investment, these alarming trends of growth in synthetic textile production and use will continue unabated.

The entire lifespan is of concern for textile materials that are unhealthy and release microplastics.
Indoor and outdoor air quality studies[567] indicate that microplastic emissions from textiles come from continual emissions[8] across the span of production, use and disposal. There are environmental and human health concerns across this entire span, through all of the multiple pathways carrying microplastics into air, water and land. We see increasing concerns and awareness of microplastic microfiber pollution among colleagues and partners working across the textile lifecycle. At the beginning of a textile's lifespan this includes garment workers exposed to plastic fibers during garment construction (cut and sew.) At the end of life, devastating impacts of textile pollution result when textile waste from wealthier countries is dumped into overburdened international secondhand markets with limited infrastructure or directly into vulnerable communities and ecosystems where

these textiles create immediate environmental contamination and break down over time, releasing microplastics among other pollutants[9].

Source reduction must address material use, product design and product use patterns.
Laundry systems and stormwater runoff are not sources of microplastic pollution, but they are among the pathways for its dispersal into our ecosystems. Research and development of practices, like laundry filtration and low impact development best management practices, to interrupt the distribution of microplastics will be limited in effectiveness if not paired with systemic and innovative strategies to achieve true source reduction.

We cannot settle solely for solutions that aim to filter a portion of microplastic emissions, or that may simply concentrate some of the microplastics flowing through our communities before they reach the ocean. We must seek and uplift solutions to reduce the prevalence of materials that generate microplastic emissions. This will require systemic, complex approaches to incentivizing healthier materials, lower rates of consumption, new models for design and use of textile materials. Playing to the strength of OPC, it will require collaboration across government agencies, among multiple stakeholders and with innovators in industry who are developing truly better alternatives to the polluting materials and methods we see predominating currently.

OPC has already modeled innovative systemic recommendations for actions to address plastic pollution generally. Similarly systemic and innovative approaches are needed for the plastic textile materials that generate microplastic fibers.
In February of 2021, OPC endorsed a set of Recommended Actions to Address Plastic Pollution in California's Coastal and Marine Ecosystems[10]. This set of ten recommended actions encompassed policy guidance to address plastic pollution at its source: including partnerships with state and local agencies to engage procurement policies and local ordinances targeting material replacements and changes in habits of use (including shifts to reuse and refill systems, and incentives for reusable food servicewear); international collaboration on plastics; feasibility research on reuse and refill systems; EPR for plastic packaging and food servicewear; and support for material and design changes to reduce the use of plastic in fishing gear.

This set of recommendations reflects coordinated strategy and systemic approaches to changing predominant business models. This same level of ambition must be applied to systemic solutions to achieve true source reduction of microplastic emissions from synthetic textiles. New textile policies can shape market incentives and product design to reduce microplastic fiber pollution by prioritizing biodegradable, nontoxic natural fiber materials and textile treatments and finishings over synthetic ones. Curbing current consumption models is needed to reduce the production and use of synthetic textiles overall. A corollary to OPC's endorsed recommendation to 'encourage changes in fishing… materials and design to reduce the prevalence of plastics in fishing and aquaculture gear' would be to 'encourage changes in textile materials and design to reduce the prevalence of plastics in textiles'.

OPC can translate its established emphasis on reduced use of plastic materials into targeted strategies to directly address the source of microplastic fibers: synthetic textiles. OPC is uniquely positioned within California's government and leadership to bring a high level of innovative analysis for systemic and integrated actions to realize true source reduction of microplastics.

Thank you for your ongoing commitment to scientific research and expert policy guidance to reduce plastic pollution and microplastic pollution.

Sincerely,

Heather Podoll, Partnership and Advocacy Coordinator

---

[1] Statewide Microplastics Strategy. 2022. Ocean Protection Council. https://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20220223/Item_6_Exhibit_A_Statewide_Microplastics_Strategy.pdf

[2] Gavigan J, Kefela T, Macadam-Somer I, Suh S, Geyer R (2020) Synthetic microfiber emissions to land rival those to waterbodies and are growing. *PLoS ONE* 15(9): e0237839. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0237839

[3] Preferred Fiber and Materials Market Report 2022. Textile Exchange. www.textileexchange.org http://textileexchange.org/app/uploads/2022/10/Textile-Exchange_PFMR_2022.pdf

[4] Preferred Fiber and Materials Market Report 2022. Textile Exchange. www.textileexchange.org http://textileexchange.org/app/uploads/2022/10/Textile-Exchange_PFMR_2022.pdf

[5] Chunguang Liu, Jia Li, Yilei Zhang, Lei Wang, Jie Deng, Yuan Gao, Lu Yu, Junjie Zhang, Hongwen Sun. Widespread distribution of PET and PC microplastics in dust in urban China and their estimated human exposure. *Environment International* 128, 116-124 (2019) https://doi.org/10.1016/j.envint.2019.04.024.

[6] Qun Zhang, Elvis Genbo Xu, Jiana Li, Qiqing Chen, Liping Ma, Eddy Y. Zeng, and Huahong Shi. A Review of Microplastics in Table Salt, Drinking Water, and Air: Direct Human Exposure. *Environmental Science & Technology* 2020 *54* (7), 3740-3751 https://doi.org/10.1021/acs.est.9b04535

[7] Vianello, A., Jensen, R.L., Liu, L. *et al.* Simulating human exposure to indoor airborne microplastics using a Breathing Thermal Manikin. *Sci Rep* 9, 8670 (2019). https://doi.org/10.1038/s41598-019-45054-w

[8] Francesca De Falco, Mariacristina Cocca, Maurizio Avella, and Richard C. Thompson. Microfiber Release to Water, Via Laundering, and to Air, via Everyday Use: A Comparison between Polyester Clothing with Differing Textile Parameters. *Environmental Science & Technology* 2020 *54* (6), 3288-3296 DOI: 10.1021/acs.est.9b06892

[9] The OR Foundation (2023) Stop Waste Colonialism: Leveraging Extended Producer Responsibility to Catalyze a Justice-led Circular Textiles Economy. https://stopwastecolonialism.org/stopwastecolonialism.pdf

[10] Discussion and Possible Endorsement of Recommendations to Address Plastic Pollution in California's Coastal and Marine Ecosystems. Staff recommendation February 16, 2021. Ocean Protection Council. https://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20210216/Item_4_Plastic_Pollution_Recommendations_Staff_Rec_Revised_and_Endorsed_FINAL_20210323.pdf

State Water Resources Control Board

August 14, 2023

Secretary Wade Crowfoot
California Natural Resources Agency
715 P Street, 20th Floor
Sacramento, CA 95814

Subject: Item Number 7—Consideration and Approval to Disburse Funds to Address Microplastics Pollution

Dear Secretary Wade Crowfoot,

This letter is to convey my support for the two highest ranked project proposals (Projects 7.a.4 and 7.a.5) under “Research Call 2: Microplastic Removal Efficacy of Low Impact Development (LID): Structural Best Management Practices (BMPs)”. Both proposals address research questions critical to understanding the relationships between urban stormwater runoff and microplastics pollution, as well as the efficacy of stormwater BMPs to intercept large plastic and microplastic debris.

I currently serve as Unit Chief of the Strategy to Optimize Resource Management of Stormwater (STORMS) Unit for the California State Water Resources Control Board (State Water Board). STORMS is leading the evolution of stormwater management in California by advancing the perspective that stormwater is a valuable resource, supporting policies for collaborative watershed-level stormwater management and pollution prevention, removing obstacles to funding, developing resources, and integrating regulatory and non-regulatory interests.

STORMS is cognizant of the recent research that suggests urban stormwater runoff is a major pathway for introduction of microplastics in the ocean, including the San Francisco Bay. However, the current body of scientific literature on microplastics pollution in California is still limited. For example, it is unclear how prevalent microplastics are in urban stormwater runoff in California and what factors influence the concentration of microplastic particles in stormwater runoff. Furthermore, research is needed to document the efficacy of various stormwater BMPs in California for capturing microplastics and their best design, operation, and maintenance practices. Such lack of mechanistic understanding is a significant barrier for the State Water Board to coordinate effective regulatory approaches across local and state agencies to implement trash control strategies that include microplastics and inform the development of provisions to manage microplastics in relevant statewide and regional permits.

I strongly believe the two proposals recommended by the California Ocean Protection Council (OPC) staff would help address the current research needs to better understand microplastics pollution in urban stormwater runoff in California. In a tandem, these projects aim at addressing the following data gaps:

1) Effects of land use on the microplastics concentration in urban stormwater runoff. [Project 7.a.4]
2) Microplastics concentration in urban stormwater runoff in Southern California [Project 7.a.5]
3) Efficacy of field-scale, existing stormwater BMPs for removing microplastics from stormwater runoff [Project 7.a.5]
4) Role of environmental conditions and BMP design parameters in microplastics removal [Projects 7.a.4 & 7.a.5]
5) Strategies for effective stormwater BMP design, operations, and maintenance for microplastics removal [Project 7.a.5]

For these reasons, my program strongly supports the recommended projects and further offers staff time as an external unfunded advisor to guide the project execution and application of the future projects' findings.

Sincerely,

Amanda Magee

Amanda Magee
Senior Engineering Geologist
STORMS Unit Chief
Division of Water Quality

cc: Kaitlyn Kalua, Ocean Protection Council (Kaitlyn.Kalua@resources.ca.gov)