

**Review of Microplastics Definition, Analytical Method, Handbook, and Health Effects Guidance Language document, January 2022**

**External scientific peer review completed by:**

Tony R. Walker, PhD  
Associate Professor  
School for Resource and Environmental Studies  
6100 University Avenue  
Dalhousie University  
Halifax  
Nova Scotia  
B3H 4R2  
Canada  
Tel: +1 (782) 640-0087  
Email: trwalker@dal.ca

**Date external scientific peer review completed:**

February 4<sup>th</sup>, 2022

**Document reviewed:**

Review of Microplastics Definition, Analytical Method, Handbook, and Health Effects Guidance Language document, January 2022

## **External scientific peer review of the Scientific Basis of Microplastics Definition, Analytical Method, Monitoring & Reporting Order, and Health Effects Guidance Language document, January 2022**

Based on my expertise and experience, I reviewed the findings, assumptions, or conclusions I agreed I could review with confidence in the following document:

Review of Microplastics Definition, Analytical Method, Handbook, and Health Effects Guidance Language document, January 2022

I have reviewed with confidence, based on my experience/area of expertise in microplastics and nanoplastic pollution monitoring, including microplastics fate, transport and ecological effects, the following conclusions and/or assumptions: Conclusions 1 and 4 and Assumption 1 in the Scientific Basis of Microplastics Definition, Analytical Method, Monitoring & Reporting Order, and Health Effects Guidance Language document.

### **Overall opinion following my external scientific peer review**

Overall, based on my external scientific peer review, I can confirm that the scientific portion of the proposed technical report is based upon sound scientific knowledge, methods, and practices.

Following my review, my specific comments below are relatively minor and constructive in nature. Incorporating or addressing my specific comments below may help strengthen the final version or subsequent iterations of this technical document.

### **Specific, albeit minor comments:**

I agree with Assumption #1 on P1:

#### **“Assumption #1 Significant uncertainties in the occurrence and toxicity of microplastics preclude the development of a narrowly prescriptive definition**

Few studies are available regarding human exposure and health hazards of plastic particles, and significant data gaps remain. Plastic particles are a

diverse contaminant suite and may be differentiated by a variety of criteria such as substance, state at a given temperature and pressure (e.g., solid at room temperature and standard pressure), dimensions, shape and structure (morphology), and color (Rochman 2019). The influence of these parameters in the environmental fate, transport, and human health impacts of microplastics are not fully understood. Due to these uncertainties, reliable assessments of risks to humans are not possible (Noventa et al 2021; Coffin et al. *submitted*).”

However, when available the final version of the report below and cited in Assumption #1 and elsewhere in the document (e.g., Coffin et al. *submitted*) should include a citation and doi link to the accepted article which is currently under peer review at *Microplastics and Nanoplastics*.

Coffin, Scott, Hans Bouwmeester, Susanne Brander, Pauliina Damdimopoulou, Todd Gouin, Ludovic Hermabessiere, Elaine Khan, et al. Submitted. “Development and Application of a Health-Based Framework for Informing Regulatory Action in Relation to Exposure of Microplastic Particles in California Drinking Water.” *Microplastics and Nanoplastics*. Pages: 64 (194 including supplementary information)

I note that “Coffin et al. *submitted*” appears sometimes as “Coffin et al. *Submitted*” and “Coffin *et al. Submitted*”. Be consistent throughout the document.

I also agree with Conclusion #1 on P2:

**“Conclusion #1 Adopted Definition is Sufficiently Health-Protective and Appropriate with Respect to Scientific Uncertainties”**

However, I note that in this conclusion and elsewhere in the document there are inconsistencies in the in-text citations. For example:

“Coffin et. al 2021” should be “Coffin et al. 2021” with the period moved from “et” and moved to “al.”. Also, there are interchangeable use of “et al.” with and without italics.

Finally, I also agree with Conclusion #4 on P9 to P10:

**Conclusion #4 The Health-Based guidance Language is appropriate with Respect to Occurrence and Hazard Knowledge and Gaps**

Similar to the editorial issues identified in Conclusion #1 above, I note that in this conclusion and elsewhere in the document there are inconsistencies in the in text citations. For example, there are interchangeable use of “et al.” with and without italics.

“(Coffin et al. *Submitted*).” vs. “(Coffin *et al. Submitted*)”