

“Microsynthetic Plastic Emerging Contaminants in the Great Lakes

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Abstract

Microplastics are considered a new emerging pollutant, the manners that the plastics are discarded is not sustainable and it is causing serious environmental issues. The North Pacific Ocean, “the garbage patch,” is one area that is affected by this massive and disproportional waste of plastics and the Great Lakes are not the exception. Large amounts of plastic debris has been documented on the Pacific Gyre as causing damage to sea organisms by entanglement and ingestion. The pollution caused by the microscopic plastics is a potential hazard to aquatic life because of the known potential to adsorb persistent organic pollutants, POPs, most of these compounds are endocrine disruptors. Lake Superior has visible plastic debris on remote and otherwise pristine beaches and shorelines. Little information is currently available on the composition, distribution, or fate of plastic materials in freshwater ecosystems. An alarm has emerged with the discovery of plastic not visible by the naked eye on the Great Lakes waters. The research on Great Lakes about plastic pollution needs to be addresses before the impacts and consequences are disastrous on aquatic organisms. This research is designed to progress knowledge of quantification of microscopic plastic particles suspended in water, in air, accumulation of POPs onto these particles, and ingestion by fish in the Great Lakes.

Biography

Dr. Lorena Rios Mendoza is an Associate Professor in the Department of Natural Sciences, UW-Superior. She graduated in Mexico with distinction in Doctorate of Chemistry Oceanology and her BS is in Chemistry. Dr. Rios expertise is in environmental chemistry pollution. She has been researching plastic pollution since 2003 on marine plastic debris analyzing persistent organic pollutants in CA beaches and Pacific Ocean. She moved from CA to WI and she started to study plastic debris contamination on the Great Lakes. Dr. Rios participated in the first-time collection of plastic debris samples in the Great Lakes in 2012 and second time in 2013. Last summer, 2014, she went to the North

Pacific Gyre to collect samples for 7 weeks in the “Eastern Garbage Patch.” She has been presenting her research results at ACS National Conferences (2012-2015). Based on her research results on microplastic from 2012 in the Great Lakes presented at ACS National Conference, plastic pollution has been noticed by the public and the lawmakers in WI and MN and many other states. Dr. Rios participated in the bill to prohibit the use of microbeads (PE-polyethylene) in cosmetic products. She was invited in National and International research projects in plastic pollution as Pellet Watch in Tokyo, Japan and with University of Michigan. She has been involved UW-Superior students with different research topics in environmental issues including microplastic pollution from sediments, air, fish, and surface water. She is an advisor board member for the UW system-wide Women in Science Program since 2011. And she is a former Elected Chair and Chair president of ACS (2012-2013).