ALLIANCE FOR THE GREAT LAKES

ENSURING A LIVING RESOURCE FOR ALL GENERATIONS

June 1, 2015

Chairman Joseph R. Pitts
Subcommittee on Health
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Pitts:

Thank you for the opportunity to testify before the Subcommittee on Health on May 1, 2015 at the hearing entitled, "Examining Microbeads in Cosmetic Products."

Attached please find answers to the questions submitted to me by Representative Brooks.

The Alliance for the Great Lakes looks forward to working with you and members of the committee on this issue.

Sincerely,

Molly M. Flanagan
Vice President, Policy

The Honorable Representative Brooks:

Question 1: Are microbeads having different impacts on different parts of the country or are microbeads having a blanket impact on all U.S. waterways? Are there certain states where this is more problematic than others?

Because this is a relatively new area of inquiry among the scientific community, there have only been a few investigations documenting the prevalence of microbeads in aquatic environments. These include surface waters of the Great Lakes and San Francisco Bay, sediments in the St. Lawrence River and Lake Ontario, and effluent discharged by wastewater treatment facilities in the state of New York. Currently there are studies underway looking at 29 of the rivers that feed the Great Lakes.

The studies in the Great Lakes[1–3] included open water surveys in Lakes Superior, Huron, Michigan, Erie and Ontario. Sampling of water near the shore also occurred in Lakes Superior, Huron, Erie, and St. Clair. All samples contained high counts of microplastic particles including microbeads. The data identified microbeads in all five lakes with abundance up to 450,000 particles/km^2. In January 2015, scientists sampled nine different locations in the San Francisco Bay. Preliminary results suggest that some sampling sites had as many as 440,000 particles/km^2.[4] Researchers also detected microbeads in the sediments of the St. Lawrence River in 8 out of 10 sampling sites along a 320 km stretch of the river. The highest reported density was $1.4X10^{11}$ microbeads/km^2.[5] For the river systems, so far samples from only 7 sites have been analyzed, and report maximum abundance of 502,000 particles/km^2.[6]

In the state of New York, in addition to sampling conducted in Lakes Erie and Ontario, a study evaluated whether waste water treatment systems were able to remove microbeads from the wastewater stream. Among 610 facilities in the state, 403 do not have advanced filtration or tertiary screens installed suggesting that these facilities are not able to capture microbeads and prevent them from entering the receiving waters.[7] Yet, even facilities with advanced treatment allow microbeads to pass through. Samples from 34 facilities across the state were tested for microbeads and microbeads were found in samples from 25 of them, some with advanced treatment technologies.[8] These facilities discharge to waterbodies that include the Lake Erie and Ontario, the Finger Lakes, Lake Champlain, Hudson River, Mohawk River, Delaware River, Long Island Sound, and the Atlantic Ocean.
Even though data has not been collected in other waterways aside from the ones mentioned above, existing evidence suggests that microbeads enter the environment through wastewater and therefore are likely ubiquitous in waterways across the U.S.

1. Hare, M., Edwards, W. & Mason, S. Plastic Microdebris in the Lower Great Lakes. in

2. Eriksen, M. *et al.* Microplastic pollution in the surface waters of the Laurentian Great Lakes. *Mar. Pollut. Bull.* **77,** 177–182 (2013).

3. BOEHM, G.D., VIAL, B.S., HALPERIN, S.E., CABLE, R. & DUHAIME, M.B. Great Lakes' Microplastics: Developing novel methods of microplastic extraction and quantification. in

4. Paul Rogers. Plastic pollution: California lawmakers to vote on banning 'microbeads' from personal care products. *San Jose Mercury News* (2015). at <http://www.mercurynews.com/science/ci_28136071/plastic-pollution-california-lawmakers-vote-banning-microbeads-from>

5. Castañeda, R. A., Avlijas, S., Simard, M. A. & Ricciardi, A. Microplastic pollution in St. Lawrence River sediments. *Can. J. Fish. Aquat. Sci.* 1–5 (2014). doi:10.1139/cjfas-2014-0281

6. BALDWIN, A.K., CORSI, S.R., MASON, S.A. & LENAKER, P.L. Microplastics in Great Lakes Tributaries. in

7. *Unseen Threat: How Microbeads Harm New York Waters, Wildlife, Health And Environment*. (Office of New York State Attorney General, 2014). at <http://ag.ny.gov/pdfs/Microbeads_Report_5_14_14.pdf>

8. *Discharging Microbeads to Our Waters: An Examination of Wastewater Treatment Plants in New York*. (Office of New York State Attorney General, 2015). at <http://www.ag.ny.gov/pdfs/2015_Microbeads_Report_FINAL.pdf>

Question 2: States are very active on this issue; can you all please provide insight on state legislation currently pending? Are there a lot of different standards being put in place? If so, what are the primary differences in the legislation?

In 2014, New York became the first state to introduce legislation to ban the production and sale of personal care products containing plastic microbeads. Since then, twenty-two states have taken some level of legislative action. At this time, six states (Colorado, Illinois, Indiana, Maine, Maryland, and New Jersey) have passed legislation in both chambers of their state legislatures that has been signed into law by their governors. Sixteen additional states (Arizona, California, Connecticut, Hawaii, Massachusetts, Michigan, Minnesota, New York, Oregon, North Carolina, Iowa, Rhode Island, Texas, Utah, Vermont, Washington, and Wisconsin) currently have legislation that has been introduced, has been passed by one chamber of the state legislature, or has multiple bills under consideration. This leaves over half (28 states) that do not currently have active legislative to address the ecological impact of plastic microbeads in personal care products. Four states (Mississippi, Ohio, Virginia, and Wyoming) introduced bills last session that did not make it out of committee and do not currently have bills pending.

For the twenty-eight states that have passed or are considering legislation, there are differences in how 'plastic microbeads' are defined and the timelines that are put in place to phase out plastic microbeads in the products. To develop their definitions, states have considered three elements of a microbead: size, composition, and use. All of the states that have passed or are considering legislation have defined the size of plastic microbeads as 5 mm or less. Size, however, is the only area of the definition that is consistent across the states. When considering the composition of a plastic microbead, there is more variation.

One main difference in legislation is the concept of biodegradability. Six states (IL, MD, ME, IN, CO, NJ) which have passed legislation and seven states (AZ, TX, RI, VT, NC, WI, WA) which are considering legislation have defined plastic microbeads as 'nonbiodegradable' plastic microbeads. Five states (CA, CT, IA, MI, OR) that are considering legislation have not differentiated between biodegradable and nonbiodegradable, however, and have defined plastic microbeads as any form of plastic less than 5 mm in a personal care product. Finally, four states (HI, MA, MN, NY) have different definitions in their house and senate, with one specifying biodegradability and the other house not.

For the states that have defined plastic microbeads as nonbiodegradable, there is variation in the definition of biodegradability. Of the six states that have passed legislation, Maryland is the only state to clearly define biodegradability as something "that is capable of decomposing back into natural elements: 1) in a natural environment, including a marine environment or 2) in wastewater treatment plan processes, in accordance with relevant established guidelines of ASTM International, Organization for Economic Co-Operation and Development, or comparable

organizations or authority recognized by this department."[i] The other five states did not define biodegradability in their bills. Of the seven states that are considering legislation, three states (NC, RI, VT) have defined biodegradability as "the capability of a substance to break down completely in the natural environment that the substance is likely to encounter within 24 months of its disposal, through a biological process of decomposition into elements or compounds commonly found in that environment."[ii] Finally, as stated above, a number of states (CA, CT, IA, MI, OR) have legislation that would ban all forms of plastic microbeads, both nonbiodegradable and biodegradable, so there is no need to define biodegradability in their bills. If terms like biodegradable or nonbiodegradable are included in state or federal legislation, the Alliance for the Great Lakes supports defining these terms to ensure that any substitutions for plastic microbeads break down in natural marine and freshwater environments in a reasonable timeframe. We do not want to replace plastic microbeads with something that we discover has the same problems as plastic microbeads a few years from now.

Another area of variation in the definition of a microbead concerns the use of the plastic microbead. All of the legislation, either enacted or proposed, aim to address plastic microbeads that are added intentionally but several bills specify microbeads that are "used to exfoliate or cleanse in a rinse-off product". While a seemingly small variation, this clause in the definition does not address plastic microbeads used in products that are not designed to exfoliate or be rinsed off such as toothpaste.

In contrast to the variations in definitions, the timelines for phasing out products that continue plastic microbeads are more consistent across most states. The majority of legislation proposes an end to the manufacture of these products (except for over the counter drugs) by December 21, 2017 or January 1, 2018, an end to the sale of these products (except for over the counter drugs) and an end to the manufacture of over the drugs by December 21, 2018 or January 1, 2019, and an end to the sale of personal care products, including over the counter drugs, by December 21, 2019 or January 1, 2020. New York, however, has proposed legislation in their assembly and senate that would ban all forms of plastic microbeads in personal care and over the counter products by January 1, 2016.[iii]

In conclusion, the variety of definitions for biodegradility and for the use of personal care products as well as the potential for different phase timelines could create a confusing patchwork of standards across the country. Additionally, the twenty-eight states that do not have active legislation or have yet to take action could allow plastic microbeads to still harm the water, ecosystems, and communities of state's that have enacted legislation to ban these products.

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[i] http://mgaleg.maryland.gov/webmga/frmMain.aspx?pid=billpage&tab=subject3&id=hb0216&stab=01&ys=2015RS

[ii] http://www.ncleg.net/gascripts/BillLookUp/BillLookUp.pl?BillID=H629&Session=2015

[iii] http://open.nysenate.gov/legislation/bill/A5896-2015