

MICROPLASTIC POLLUTION IN THE GALLATIN WATERSHED: UTILIZING VOLUNTEERS TO STUDY AN EMERGING POLLUTANT ACROSS A DIVERSE LANDSCAPE.



MAY 3, 2016
TAMPA, FL
A N D

J E N N A W A L E N G A
A D V E N T U R E R S
S C I E N T I S T S
F O R C O N S E R V A T I O N

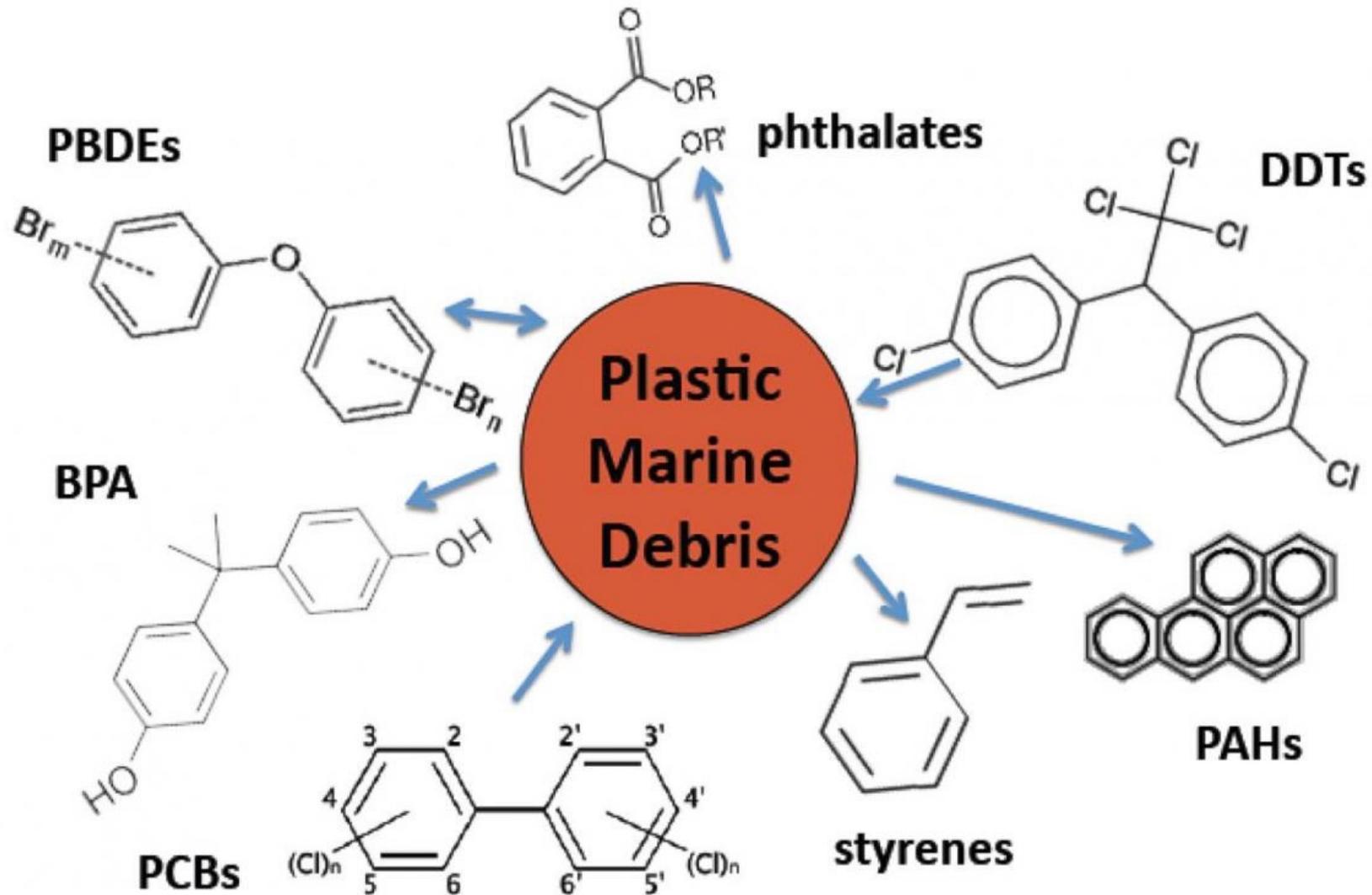






TOXINS AND PLASTICS

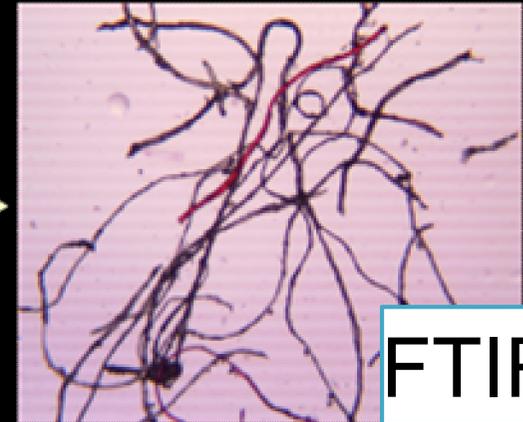
“Cocktail” of Toxicants





RESEARCHER: ABIGAIL BARROWS

METHODOLOGY

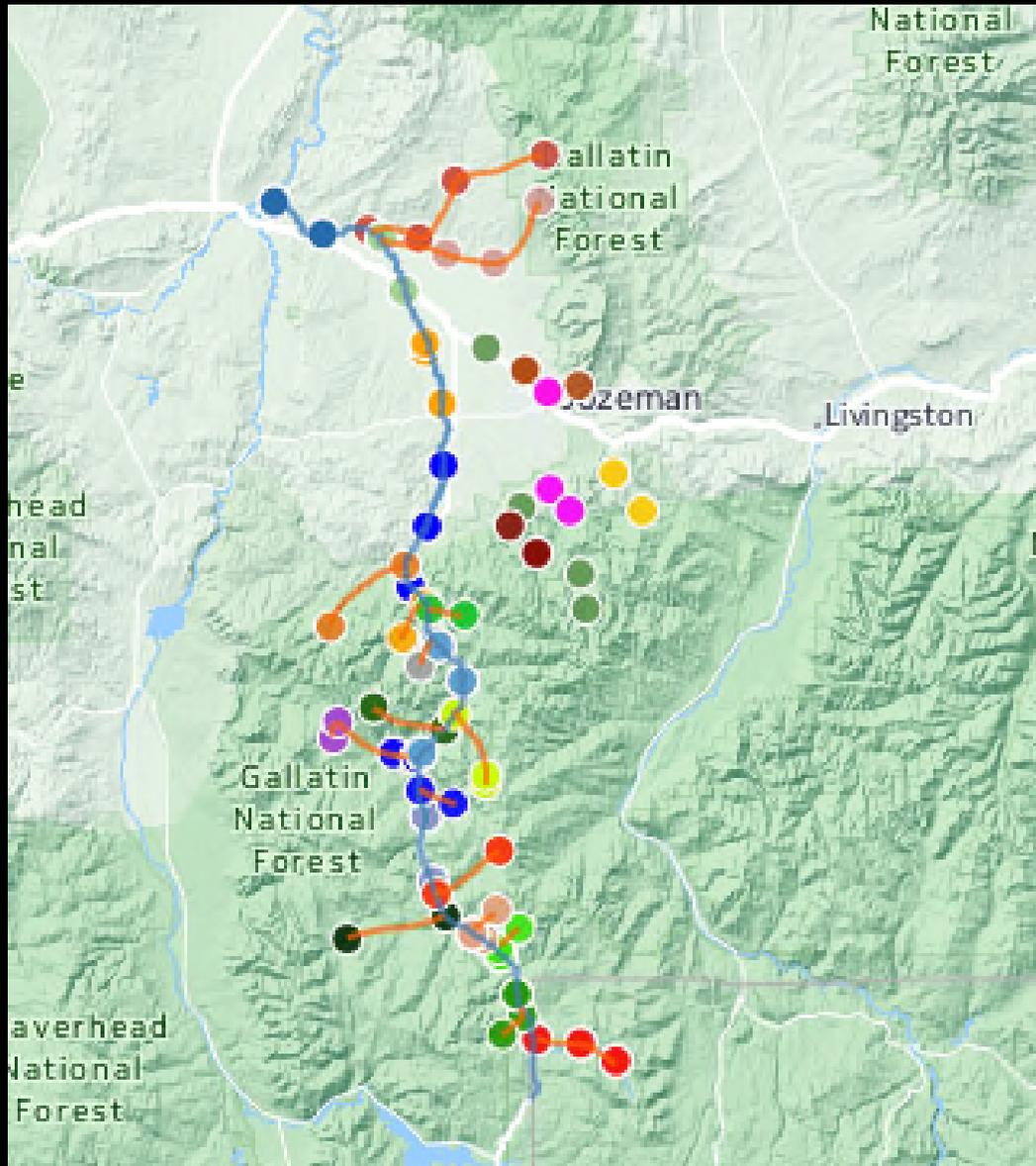


FTIR



Gallatin Microplastics Initiative

- 70 Sites, 125 Samples
- 10km intervals on the Gallatin River, 3 samples per site
- 21 Tributaries sampled at confluence and upstream
- Duplicates taken at random sites
- 4 Sample collections a year
- Data recorded on smart phones: Liquid





Sample collection



Quality Assurance working with volunteers

- Protocols
- Training
- Refresher
- Pre-test
- Self Assessment
- Audits: use technology

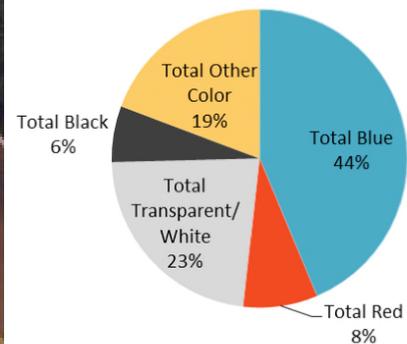


Early Findings

Table 1. Summary statistics

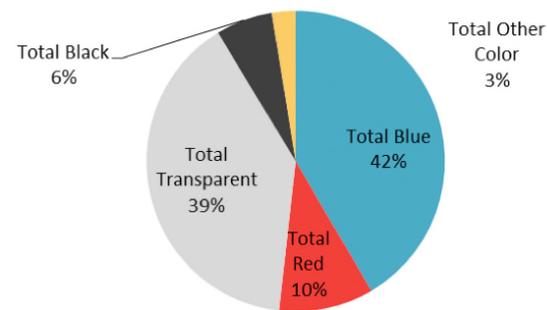
	Overall	Sept. 2015	Dec. 2015
Average microplastic pieces	1.7	1.5	2.0
Total Samples	227	130	97
Total Containing Plastics	162	88	74
Percentage Containing plastic	71%	68%	76%

Fall MP Color Proportions

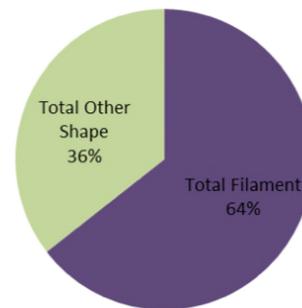


Proportion of microplastics collected by color.

Winter MP Color Proportions

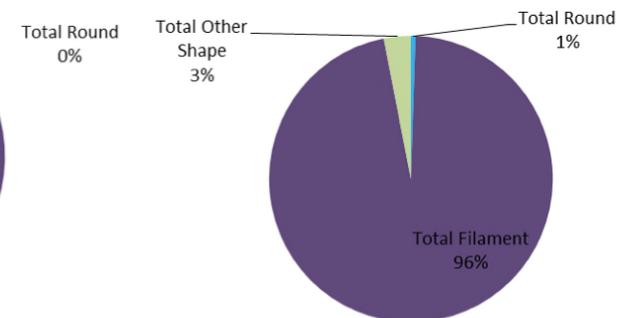


Fall MP Shape Proportions



Proportion of microplastics collected by shape.

Winter MP Shape Proportions



Solutions





Thank you!

www.adventurescience.org
jenna@adventurescience.org

Sources

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Images

Images of microplastic ingestion by plankton. From Cole, Matthew, et al. "Microplastic ingestion by zooplankton." *Environmental science & technology* (2013)

Images of Microbeads in Facewash, plastic in fish. From 5 Gyres Institute

Image of Albatros: From Colourbox

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