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

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TAMPA, FL

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ADVENTURERS AND SCIENTISTS FOR CONSERVATION
TOXINS AND PLASTICS

"Cocktail" of Toxicants

- PBDEs
- BPA
- PCBs
- phthalates
- DDTs
- PAHs
- styrenes

Plastic Marine Debris
RESEARCHER: ABIGAIL BARROWS

METHODOLOGY
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
Quality Assurance
working with volunteers

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

Table 1. Summary statistics

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>Sept. 2015</th>
<th>Dec. 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average microplastic pieces</td>
<td>1.7</td>
<td>1.5</td>
<td>2.0</td>
</tr>
<tr>
<td>Total Samples</td>
<td>227</td>
<td>130</td>
<td>97</td>
</tr>
<tr>
<td>Total Containing Plastics</td>
<td>162</td>
<td>88</td>
<td>74</td>
</tr>
<tr>
<td>Percentage Containing plastic</td>
<td>71%</td>
<td>68%</td>
<td>76%</td>
</tr>
</tbody>
</table>

Proportion of microplastics collected by color.

Fall MP Color Proportions

Winter MP Color Proportions

Proportion of microplastics collected by shape.

Fall MP Shape Proportions

Winter MP Shape Proportions

Total Round 0%
Total Other Shape 36%
Total Filament 64%

Total Round 1%
Total Other Shape 3%
Total Filament 96%
Solutions
Thank you!

www.adventurescience.org
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Sources


Sources


Images


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

Image of Albatros: From Colourbox

All others unless noted from Adventurers and Scientists for Conservation or Creative Commons