Surveying Microplastics Along the Farmington River

Issue

- **Plastic production has skyrocketed over the past few decades, with over 6,300 million metric tonnes of plastic produced. While some of it goes to landfills, much of it ends up in the environment.[1]**
- **Some freshwater systems have nearly 1,500 instances of plastic per square meter.[2]**
- **Few microplastic (Fig. 1) studies have been conducted on the Farmington River, inspiring our group to perform one.**

WORKS CITED:

1. https://theconversation.com/beyond-our-oceans-microplastics-pollute-rivers-and-lakes-too-94559
2. http://www.bbc.com/future/story/20180426-why-plastics-are-not-just-an-ocean-problem

Objectives

- **Collect soil samples in 4 different locations along the Farmington River and determine microplastic content.**
- **Create an interactive map displaying the areas with and without microplastics.**

Fig. 1: Researcher holding microplastics found at a coastal sample site.

Methods

In the field:

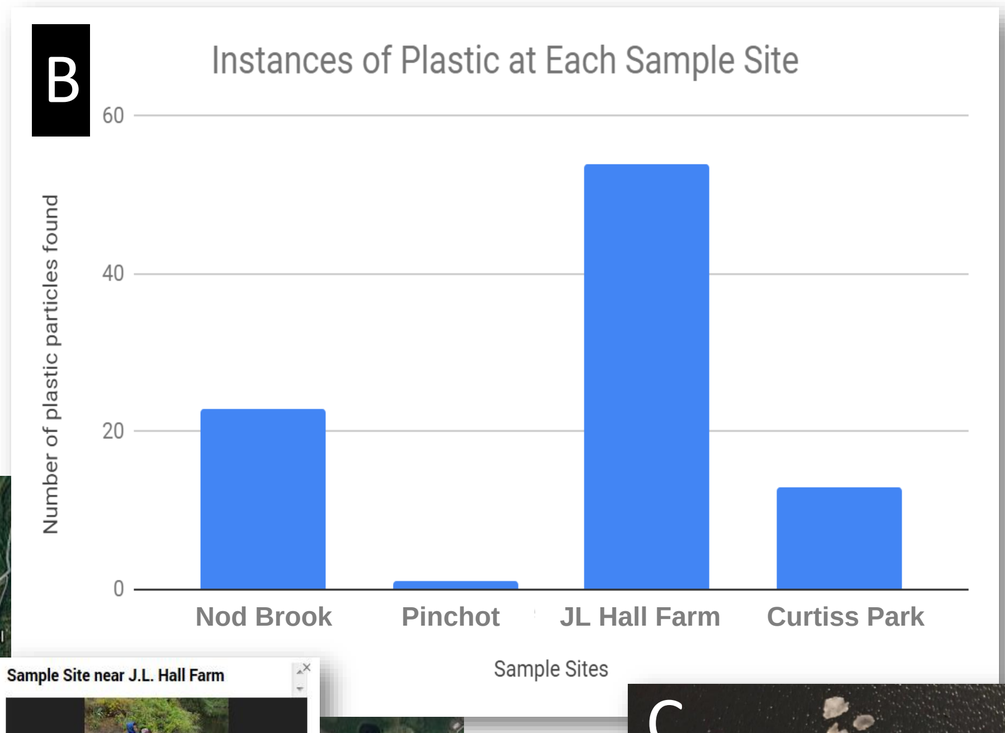
- **Canoed along the Farmington River from Alsop Meadows, Avon to Curtis Park, Simsbury (Fig. 2a).**
- **Chose sites that had sandy banks (Fig. 2a).**
- **Collected a 0.25 ft.^{3} sample of soil per site.**
- **Mapped survey sites using Track Kit and created an interactive Google Map (Fig. 2a).**

In the Lab:

1) **Poured the soil into a bucket of hot water and stirred.**
3) **Let soil settle in the water for a minute so that the microplastics rise to the surface.**
4) **Sieved water and counted number of pieces per site.**

Results

- **We found many shiny clear microplastics pieces.**
- **Most of the microplastics were found at Site near JL Hall Farm with 58 pieces per 0.25 ft.^{3} sample of soil (Fig. 2b).**



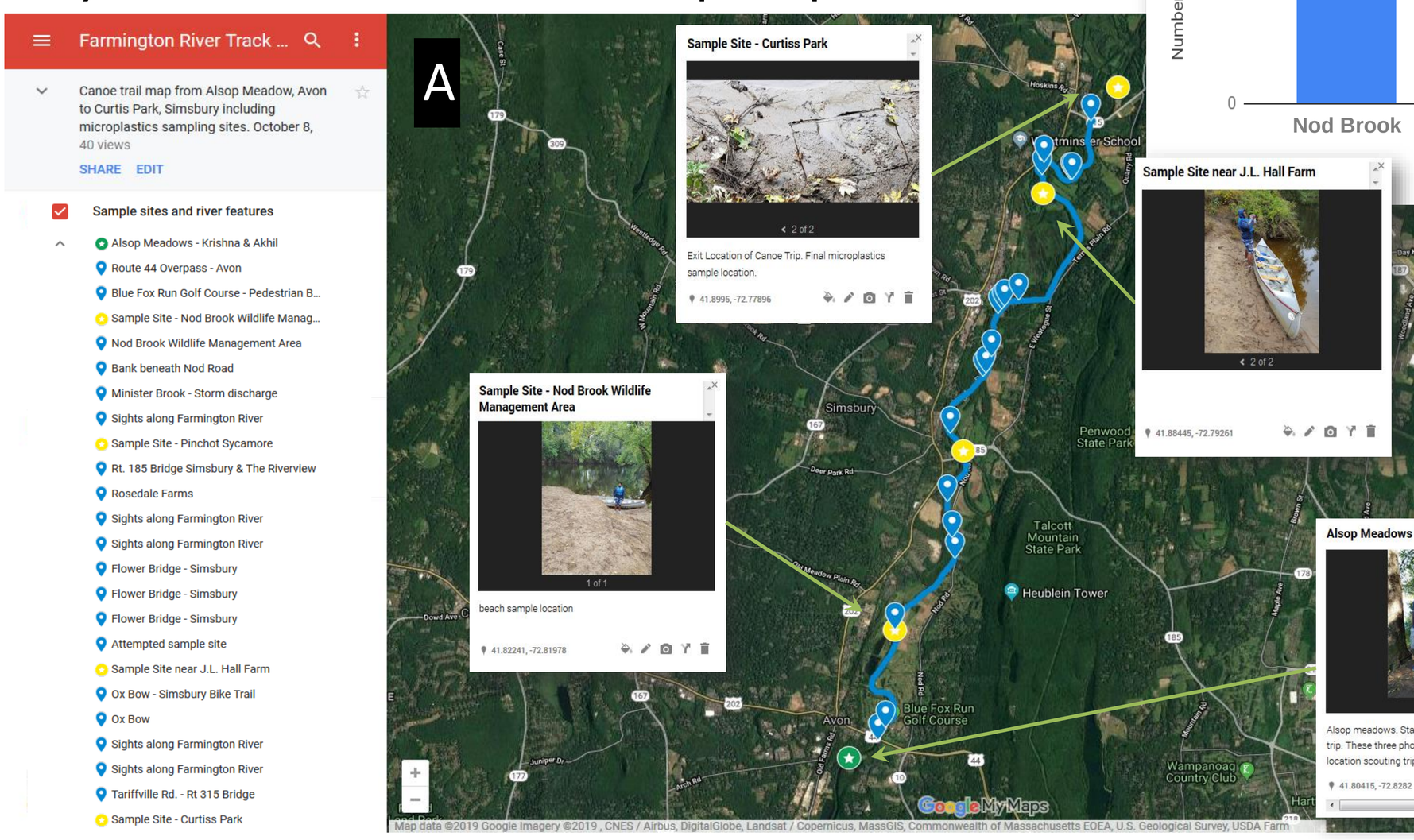


Fig. 2 (A) Interactive Google map (use QR code on the right to visit map online) showing survey route with pop-up boxes with info and pictures of sites and other points of interest. (B) Bar graph of the number of plastics particles found at each site. (C) Potential microplastics at one site.

Implications & Next Steps

We found surprisingly few microplastic pieces given within each sample, however:

- **Further research is needed to compare our findings along the Farmington River with the results of microplastic studies in other freshwater systems. This can allow us to measure the validity of our study.**
- **Future studies may also involve collecting samples over various time frames, inclusion of both water and soil samples, better filtration devices, and tools or machines to determine substance composition.**

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