Assessing the Ecology of the Flint River in Flint, Michigan Above and Below a Century-Old Dam

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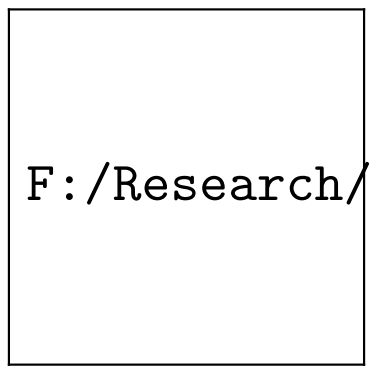
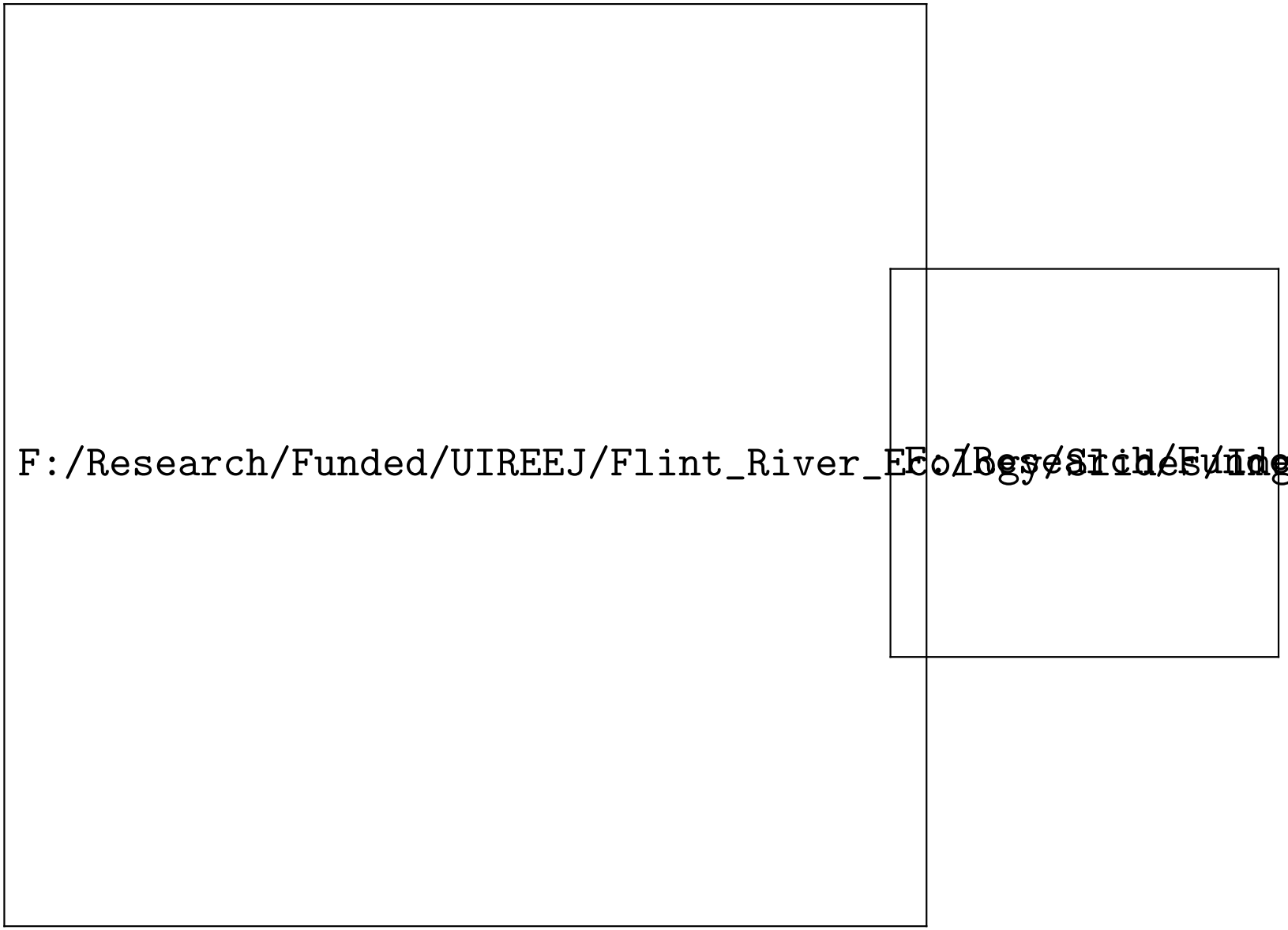


Where is Flint?



- Flint is the home to 81,252 unique residents.

Objectives

- **Investigate the ecology and health of the Flint River above and below the Hamilton Dam before the dam is removed.**

- **Collect data now and in the future to gain an understanding of the baseline ecosystem now and the restored ecosystem in the future to measure restoration success.**

Background

- The Hamilton Dam, constructed in 1920, resides in the urban city of Flint, Michigan and was utilized for logging and the automobile industry.
- The Dam no longer serves this purpose and is in the process of removal to revert the stream to its natural ecology.
- Upstream reaches of the Hamilton dam consist of a wide riparian zone, whereas downstream is composed of cemented structures with trapped debris.
- The Great Lakes have been polluted through agriculture, urbanization, and industrialization that introduced chemicals such as PFAS, PCBs, and heavy metals, including; Hg, As, Cr, Pb, and Cd. These have been found in higher concentrations in reservoirs above dams [**1**].

Introduction

- Ecology study on the Flint River before the weir is removed in 2023 through a $40 million project to restore habitat and recreational utility.
- This data will later be compared to data collected once the weir is removed to assess the impact of habitat fragmentation and relay how restoration efforts can affect riverine ecosystems.
- Multiple fishing methods were necessary to assess the varying habitats upstream and downstream as a result of the dam.

Site Map

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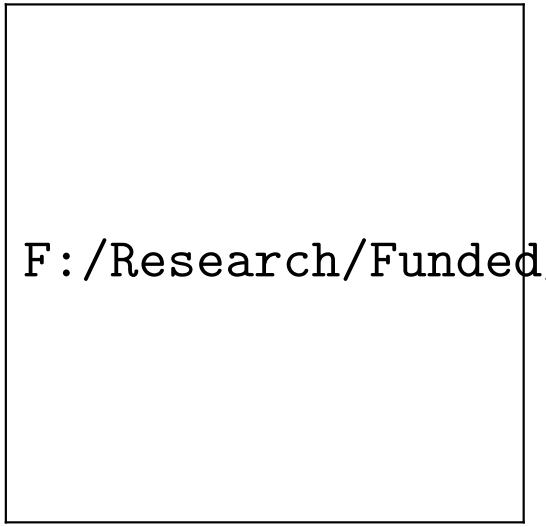
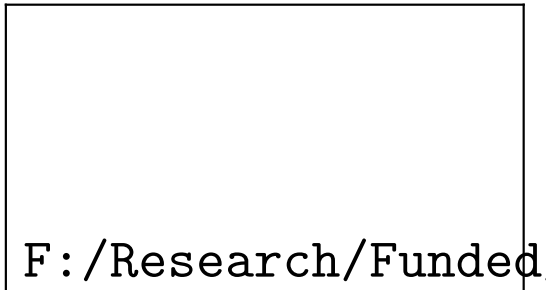
Methods





Methods

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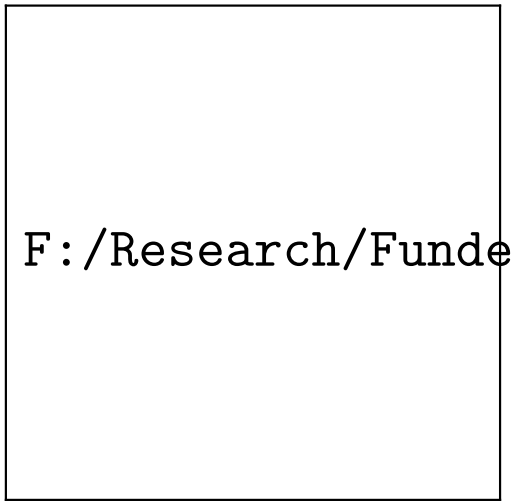
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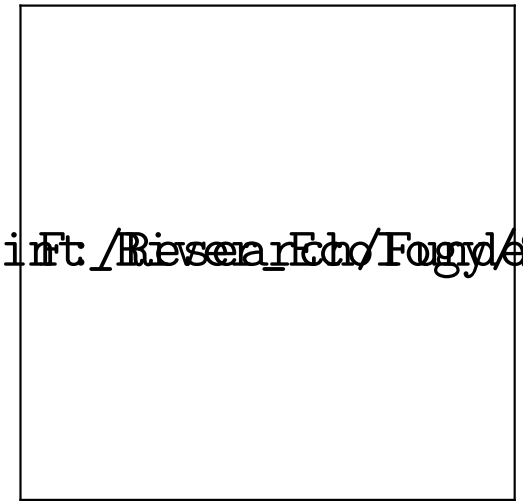
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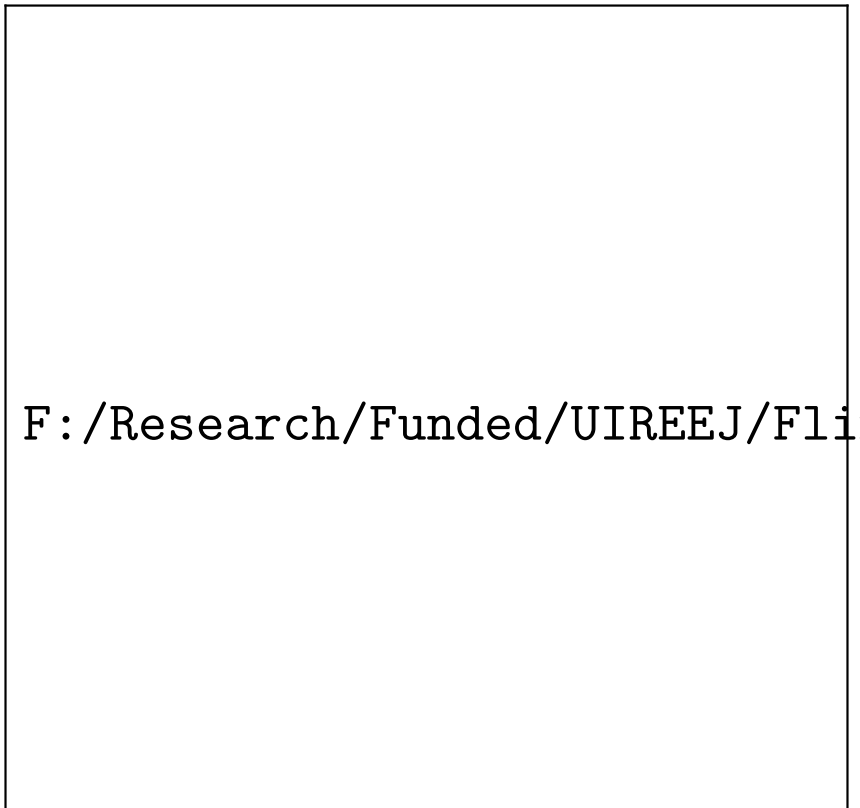
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Diversity

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Toxins

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Conclusion

The ecology study of the Flint River has been conducted for 2 years. Study will be continued through the removal of the Hamilton Dam and restoration of the Flint River. This pre-assessment will be used to compare data once restoration is complete to understand how dam removal impacts riverine ecosystems.

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[**1**]: Bankston, N. (2014). Automobile Industry Growth from 1916 to 1989: The Effect on Flint, Michigan Climate.

[**2**]: Bernier, J., Brousseau, P., Krzystyniak, K., Tryphonas, H., & Fournier, M. (1995). Immunotoxicity of heavy metals in relation to Great Lakes. Environmental health perspectives, 103 Suppl 9, 23-34. doi:10.1289/ehp.95103s923

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[**4**]: Hunter, J. D. (2007). Matplotlib: A 2D graphics environment. Computing in Science & Engineering, vol. 9, no. 3, pp. 90-95. doi:https://doi.org/10.5281/zenodo.3633844