



# Landcover Change Analysis and Hazard Level of Dams in the Blackstone River Watershed

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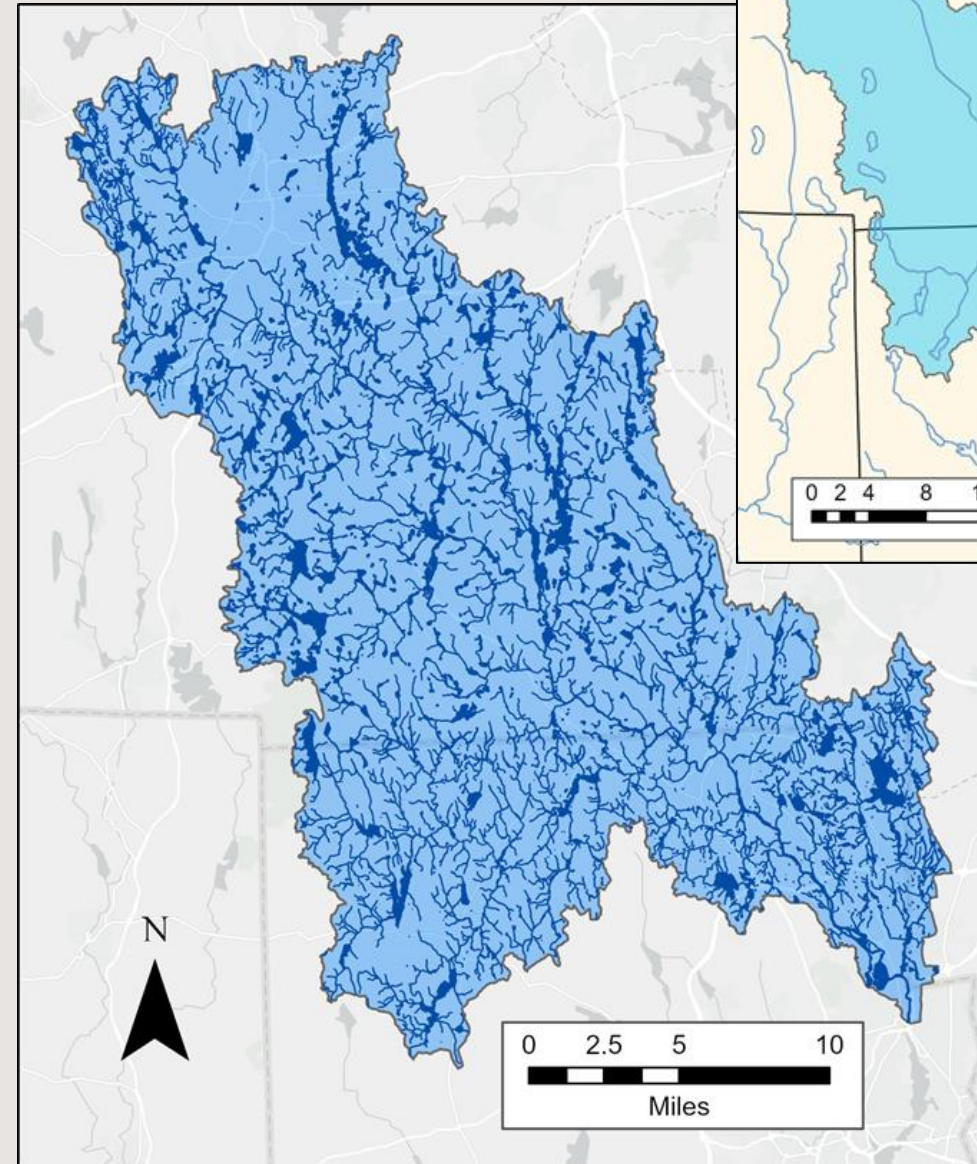


## Watershed Hydrology

# Study Area:

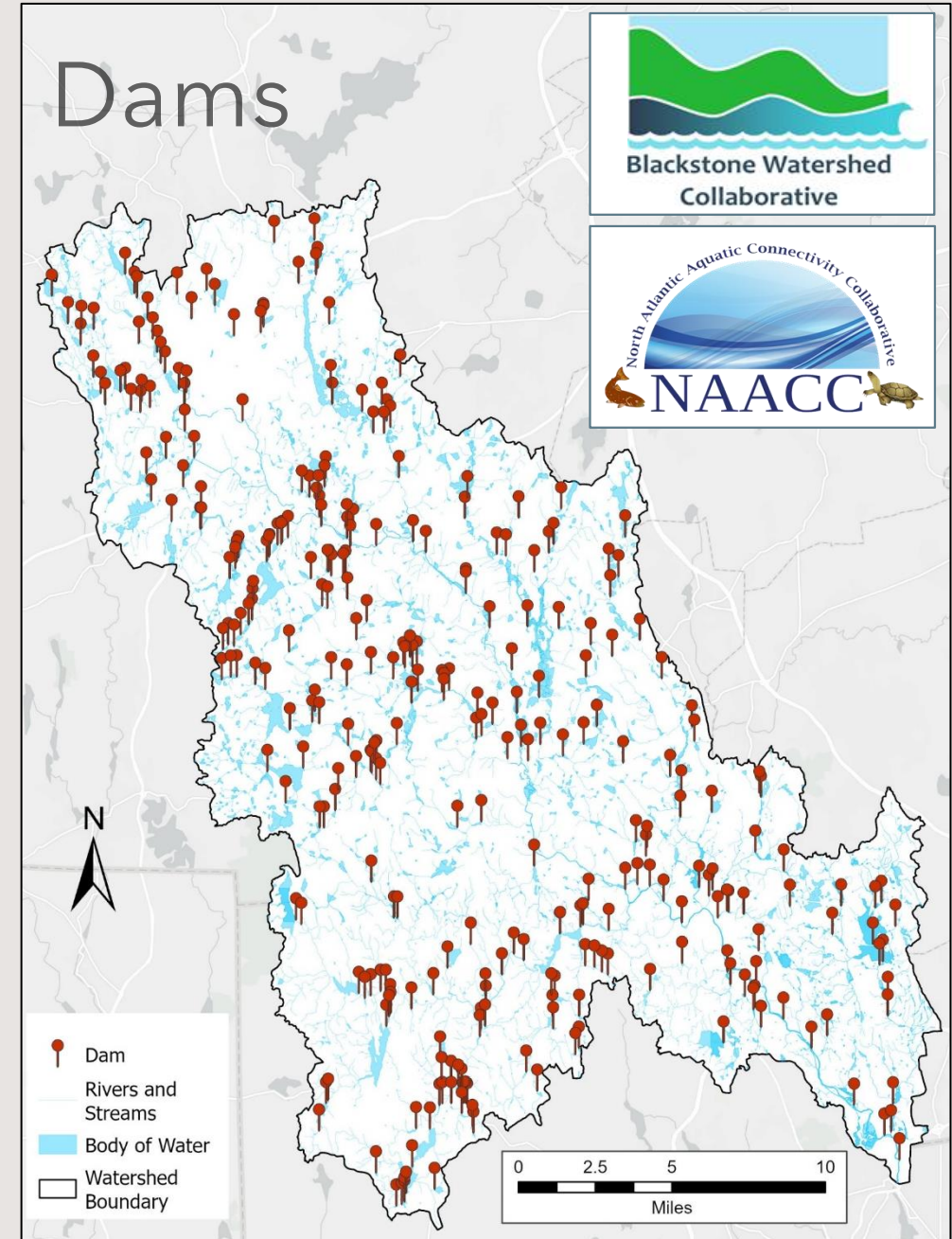
## Blackstone River Watershed

- Spans Massachusetts & Rhode Island
- Runs to Narragansett Bay



# Background

- Addressing connectivity concerns
  - Blackstone Watershed Collaborative (BWC)
  - NAACC
- Dams
  - out of commission
  - in need of repair
  - could be improved for wildlife



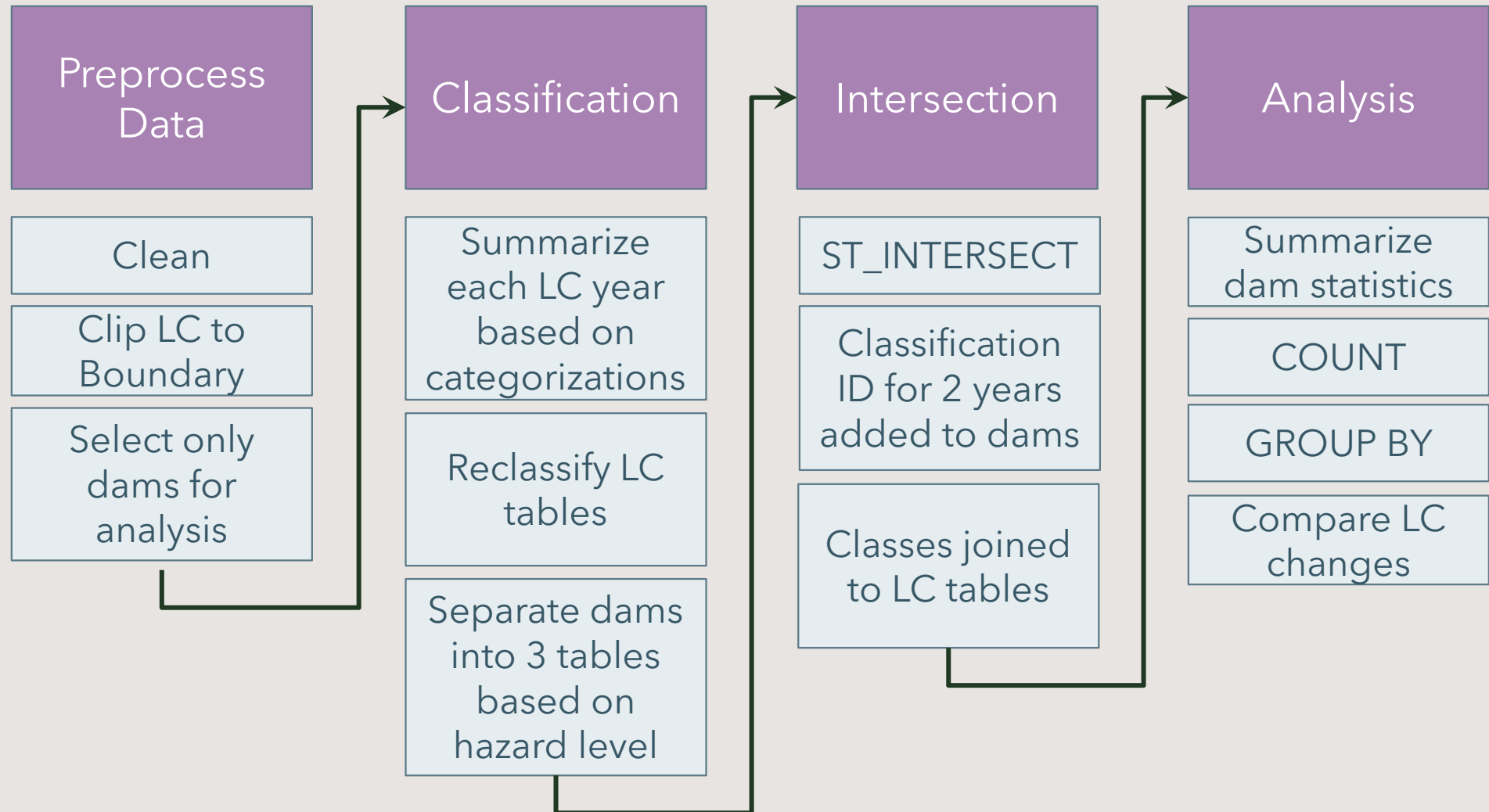
# Research Questions

- Has land cover around dams in the Blackstone Watershed changed over time?
  - Is development encroaching on dams, or is it the other way around?
- Is this related at all to hazard level?
  - Are dams of high or low risk more likely to be experiencing land cover change?

# Our Data

Name	Type	Year	Source	Description
Surveyed Dams and Culverts of the Blackstone Watershed	Point shapefile	2022	BWC, NAACC	Provided by Stefanie Covino, project manager at the Marsh Institute
Massachusetts and Rhode Island Land Cover	Polygon shapefile	2019, 2004	NLCD	Complete coverage of both states of polygon landcovers
Watershed Boundaries	Polygon shapefile	2019	MassGIS	Complete watershed boundaries

# Methodology



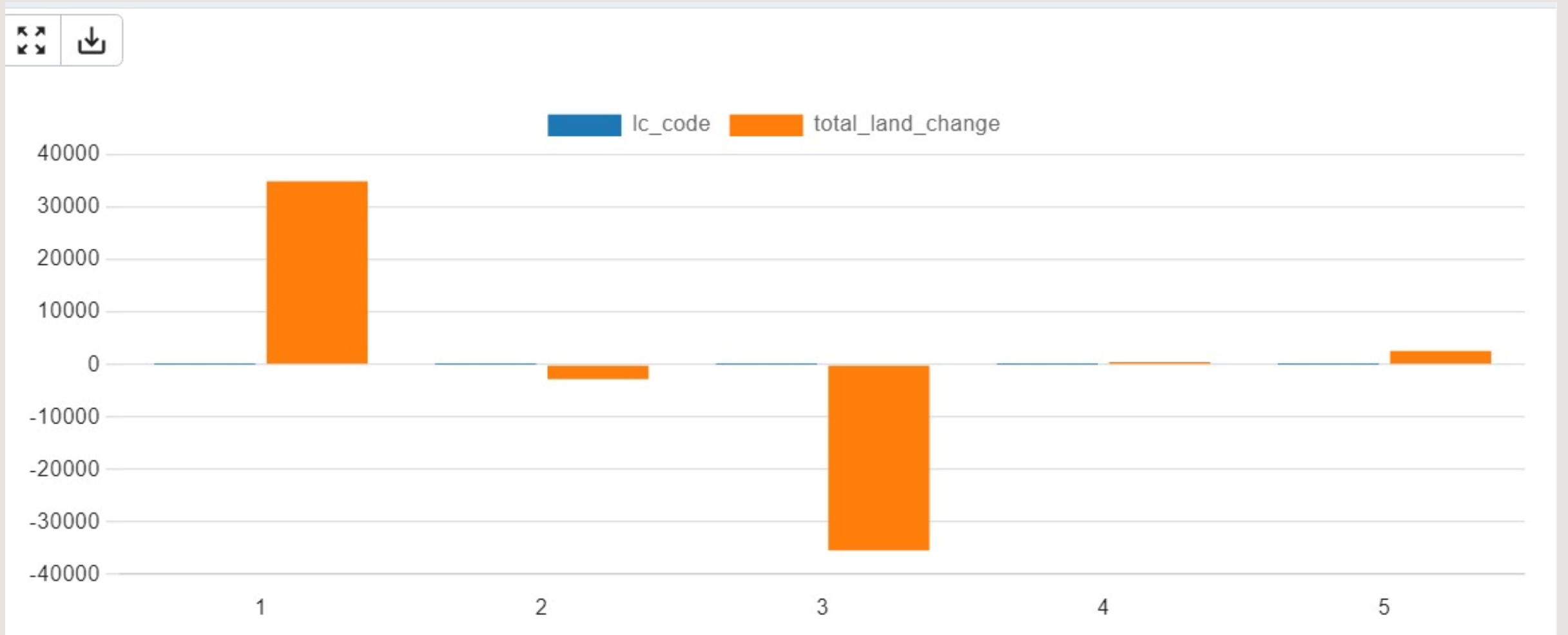
# Summary Stats

- 46 'High' Risk Dams
- 78 'Significant' (Moderate) Dams
- 33 'Low' Risk Dams
- 159 'Not Available' Risk Dams

Landcover Reclassification		Total km <sup>2</sup>	
Type	Value	2004	2019
Developed Land	1	350,081.80	385,010.51
Pasture/Crops	2	39,031.45	36,270.62
Forest	3	658,332.54	622,921.68
Open Water	4	36,398.68	36,913.20
Other	5	144,404.64	147,009.43

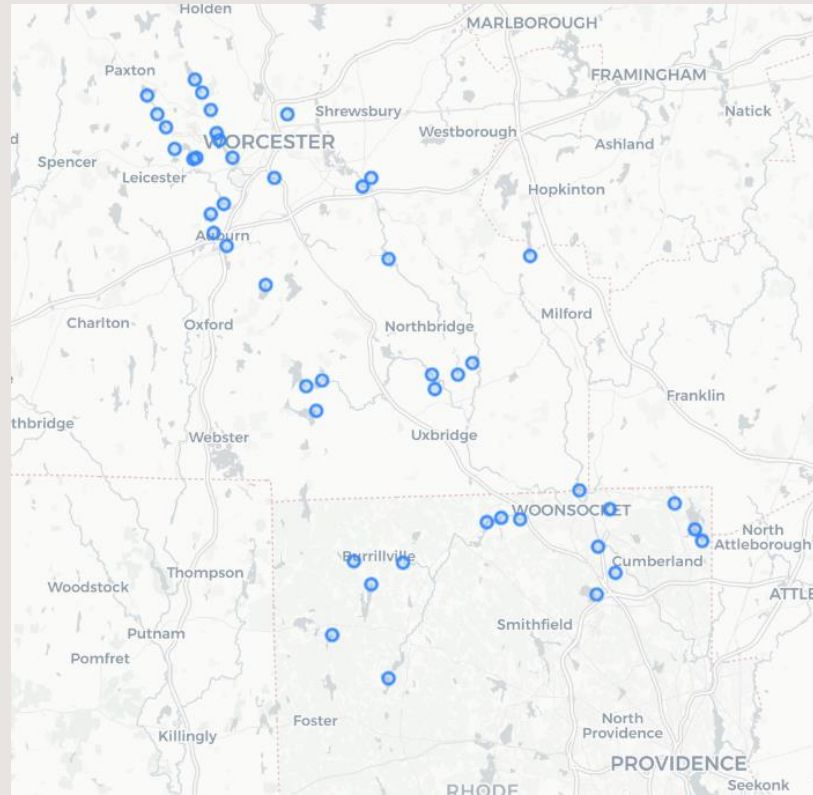
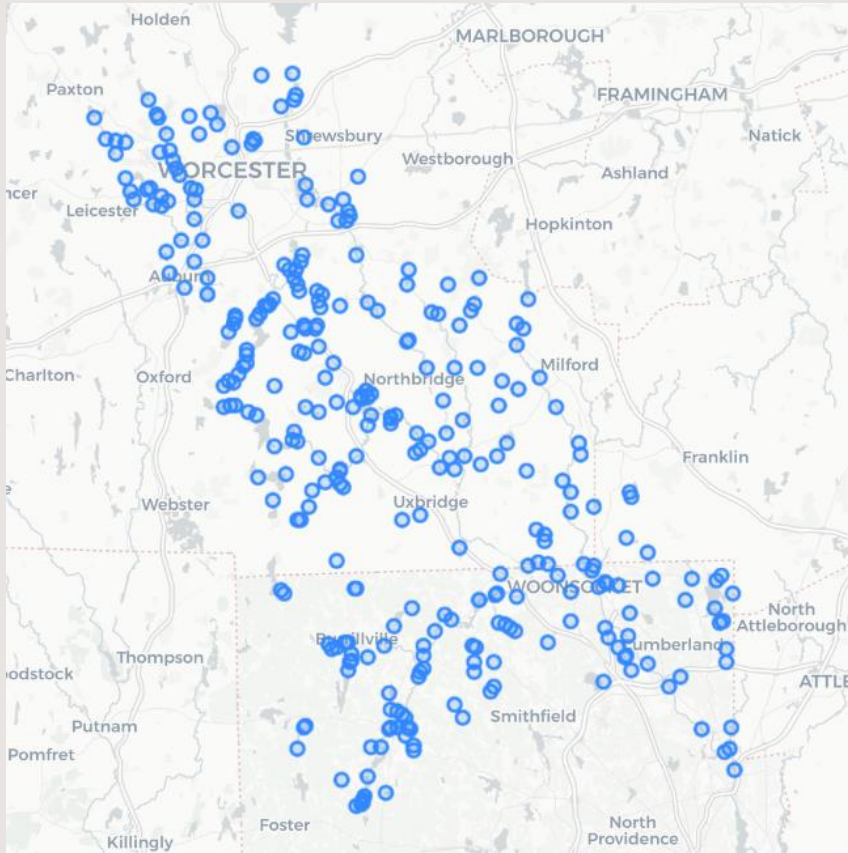


# 2004 to 2019 Landcover Change





# Summary Stats for High-Risk Dams



## 2004 landcover types of high risk dam intersection

Type	Count
Developed Land	17
Pasture/Crops	2
Forest	7
Open Water	9
Other	11

# Impacts and Next Steps

- Pull landcover codes based on where the dams are located
  - `ST_INTERSECTS()`
- Compare landcover change from 2004 to 2019
  - `COUNT()` number of dams with change
- Summarize results, visualize
  - Where are dams that have gone from forested to developed?
  - Where are dams that have gone from developed to forested?

Thank you!

Questions?

