

FOUNDATIONAL MODULE

Mapping Environmental Justice



What's in this module?

Contents

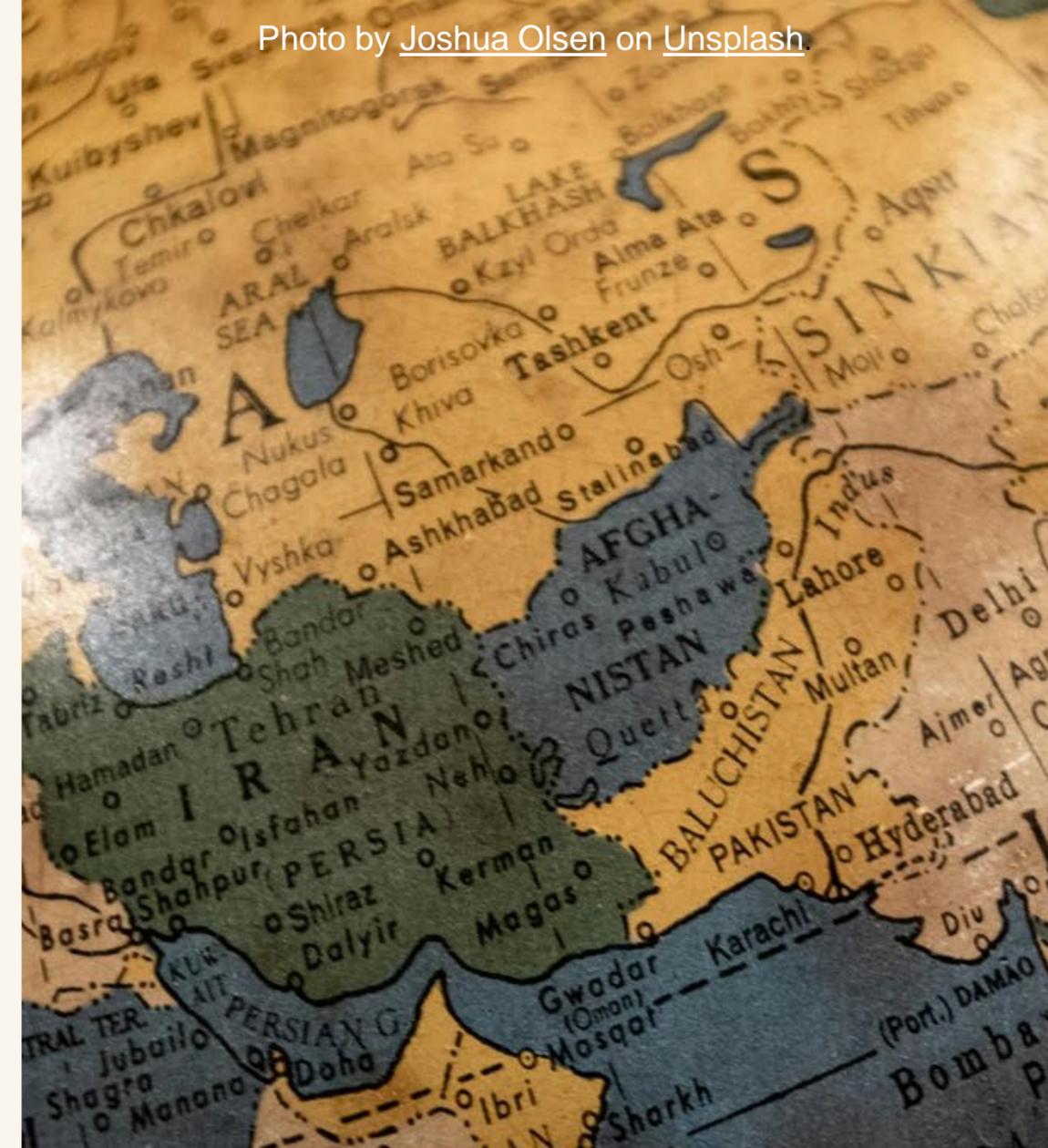
This module uses mapping to demonstrate and explore issues of environmental justice. It is divided into three parts. Part 1 and 2 focus on introducing and exploring features from the EJAtlas and EJScreen tools. Part 3 provides assignments and projects for applying concepts from this module in future study.

Activities

- 3 parts
- 5 readings
- 9 activities
- 2 project options

Key Resources

- [EJAtlas](#)
- [EJScreen](#)



*Disclaimer: As you may know, recently, some climate-related websites have been taken down. We have done our best to find archived links or alternate sites. Please email us at cjrabe@mit.edu if you find a broken link.

Learning Objectives

01

Learn basic mapping practices using different tools

02

Identify how environmental justice can be explored through mapping

03

Consider EJ case studies from around the world, and more locally

04

Develop a working understanding of EJ Atlas and/or EJ Screen

Introduction

Mapping geospatial data centering on environmental justice plays a huge part of understanding how to mitigate climate injustices.

Mapping geospatial data can:

- Track, and then ultimately manage and measure, the effects of climate change (Ordnance Survey).
- Track things like environmental risk, air pollution, landscape change, and more.
- Provide a better understanding of the social issues that occur in different areas as well.
- Allow us to understand not only environmental concerns, but issues of environmental injustice—we learn what groups are most affected, and how we might mitigate these consequences.

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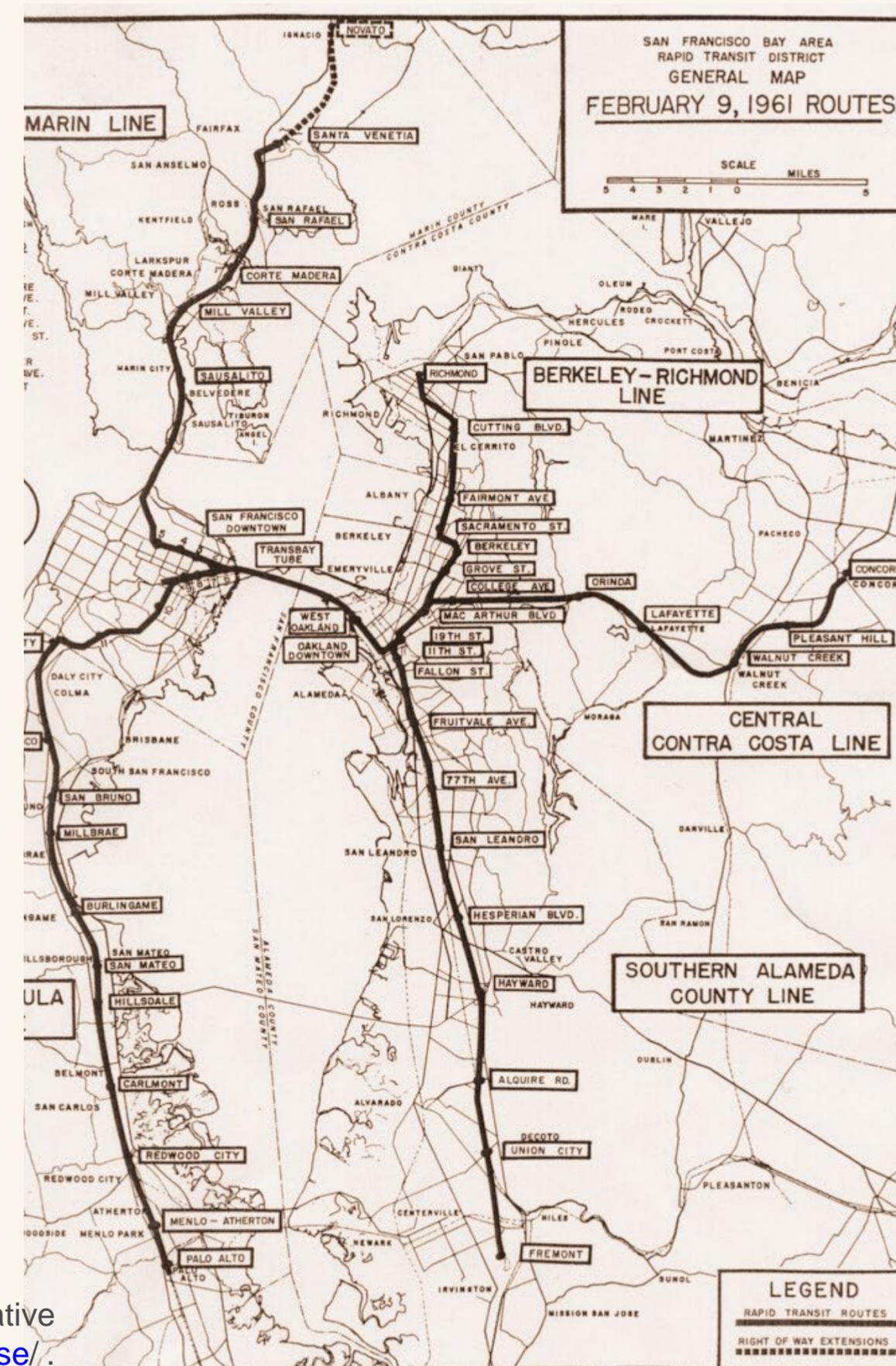


Introduction

The two landmark studies that started the field of EJ:

- Siting of Hazardous Waste Landfills and Their Correlation with Racial and Economic Status of Surrounding Communities (General Accounting Office, 1983)
- Toxic Waste in the United States (United Church of Christ, 1987) - this report coined the term "environmental racism"

Both of these studies examined the inequitable placement of environmental harms on communities of color.



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ACTIVITY #1

LEARNING ABOUT AN IMPLICATION OF EJATLAS

Group and assign

Split into 5 or 10 small groups. Assign either 1 or 2 sections (from sections 2 through 11) to each group. If there are 5 groups, each group get 2 sections. If there are 10 groups, each group gets 1 section.

Read

Read the introduction and your group's assigned section(s) from *Mapping ecological distribution conflicts: The EJAtlas*.

Present

Give a 2 minute mini-presentation to the class summarizing the section(s) that your group read.

Joan Martinez-Alier, "Mapping ecological distribution conflicts: The EJAtlas," *The Extractive Industries and Society* 8(4), 2021, Courtesy of Elsevier, Inc., <https://www.sciencedirect.com>. Used with permission.



ACTIVITY #2

ACTIVIST PERSPECTIVES ON MAPPING

Read

*Charles Lee: Environmental Justice
Leader Uses Maps to Reveal
Injustices*

Discuss with a partner

- How are EJ and CJ leaders using maps?
- How do maps highlight critical areas for environmental justice?
- How is this perspective different than the previous academic article?

Charles Lee: Environmental Justice Leader Uses Maps to Reveal Injustices

By Margot Bordne and Clinton Johnson



EJAtlas

PART 1



Overview of EJAtlas

What is the EJAtlas?

The EJAtlas is an online platform and tool developed to make visible and systematize contemporary struggles against environmental injustice worldwide—with and for affected groups. EJAtlas documents social, often invisible, conflicts around environmental issues worldwide. Users can explore the page by kinds of issues, country maps, and more.

Learn more about the EJAtlas

Take a few minutes as a class to read about the EJAtlas [here](#).



ACTIVITY #3

EXPLORING EJATLAS



Map courtesy of EJ Atlas.

Explore

Take 15 minutes to look through the [EJAtlas](#) to familiarize yourself with the platform.

Initial guiding questions

- What kinds of case studies does the platform show in the legend?
- Are there any important ones you can think of that aren't on EJAtlas already?
- What trends and patterns do you notice? One trend might be that certain countries see a certain kind of problem more prominently.
- What qualifies as an EJ conflict or not?

Case Study Research

Identify two case studies that involve similar types of conflict—one from a location near your hometown and one from a distant or international setting. Compare and contrast the contexts, causes, and outcomes.

ACTIVITY #4

LEARNING ABOUT AN IMPLICATION OF EJ ATLAS

Group and select a country

Split up into groups of 3, and pick a country to explore more deeply. To filter by country, click on 'Browse Maps' and then 'Country'.

Explore

Take 20-30 minutes to take more detailed look at the case studies that pop up for your country, and see what trends you find across the country.

Present

To the rest of the class, present:

- Your findings
- At least one case study
- Any trends that you discovered



United States Of America

236 cases have been reported so far



Trans-Pecos pipeline, Texas, USA

The Big Bend region represents 'one of the last frontiers' untouched by the oil and gas industry in Texas. Landowners, indigenous peoples, and other local residents resist against the Trans-Pecos pipeline, but without success. The...



Norlite Plant burning PFOA's for Department of Defense, Cohoes, NY, USA

Tradebe-owned Norlite Plant burning chemical foam for US Department of Defense in Cohoes, New York, producing PFAS and affecting residents of a nearby neighborhood. EJ mobilization managed to stop the plant, for now,...



Occidental Petroleum's Direct Air Capture facility, Texas, United States

Occidental Petroleum (Oxy) plans to build a Direct Air Capture (DAC) facility amidst fracking rigs in the Permian Basin, Ector County. Climate organisations and citizens question the fossil fuel industry's deep ties to carbon removal...



Razing of Seneca Village, New York

Seneca Village was a community of over 250 black residents who lived in what is now Central Park during the 1800s. The community was destroyed to begin the construction of Central Park, becoming one of the first examples of...

ACTIVITY #5

CASE STUDY RESEARCH AND DYAD

Choose a case study

Choose a case study that interests you from around the world. Spend 10 minutes looking through it, looking at news stories from it (under 'Sources and Materials').

Consider

- Why did you choose this case?
- What environmental injustice struggle is happening? Why? What role does power at play in this case?
- What are the potential solutions to this case, what tools from your current course/major of study would be helpful in addressing the problems? Why?
- What aspect of environmental or climate justice did you learn while investigating this case?

Engage in a dyad

Participate in a 2 minute dyad, where in pairs you will each have 2 minutes to talk about your thoughts about these questions. Listeners should not interject, and instead focus on being an active listener.

ACTIVITY #6

CLASS DISCUSSION

Discussion Questions

- Why is (or why not) is the EJ Atlas an important tool to address global and environmental issues?
- What suggestions might you have for improving a tool like EJ Atlas?



EJScreen

PART 2



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Overview of EJScreen

What is the EJScreen?

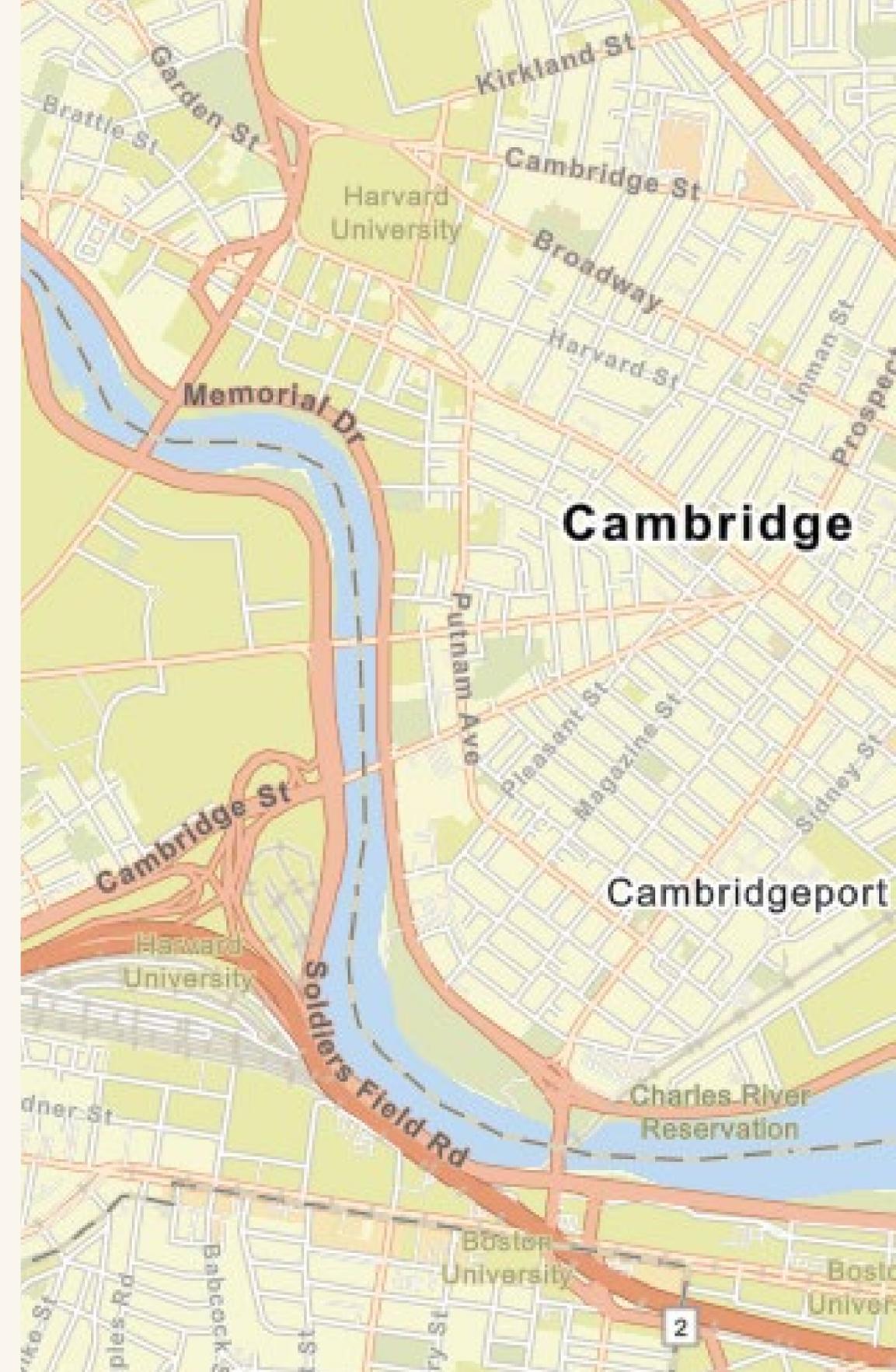
EJScreen is an EPA's environmental justice mapping and screening tool that provides EPA with a nationally consistent dataset and approach for combining environmental and demographic socioeconomic indicators.

All of the EJScreen indicators are publicly-available data. EJScreen simply provides a way to display this information and includes a method for combining environmental and demographic indicators into EJ indexes.

How to use EJ Screen

Choose a geographic area and the tool will provide demographic, socioeconomic, and environmental information for that area.

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ACTIVITY #7

EJSCREEN MAPPING IN ACTION

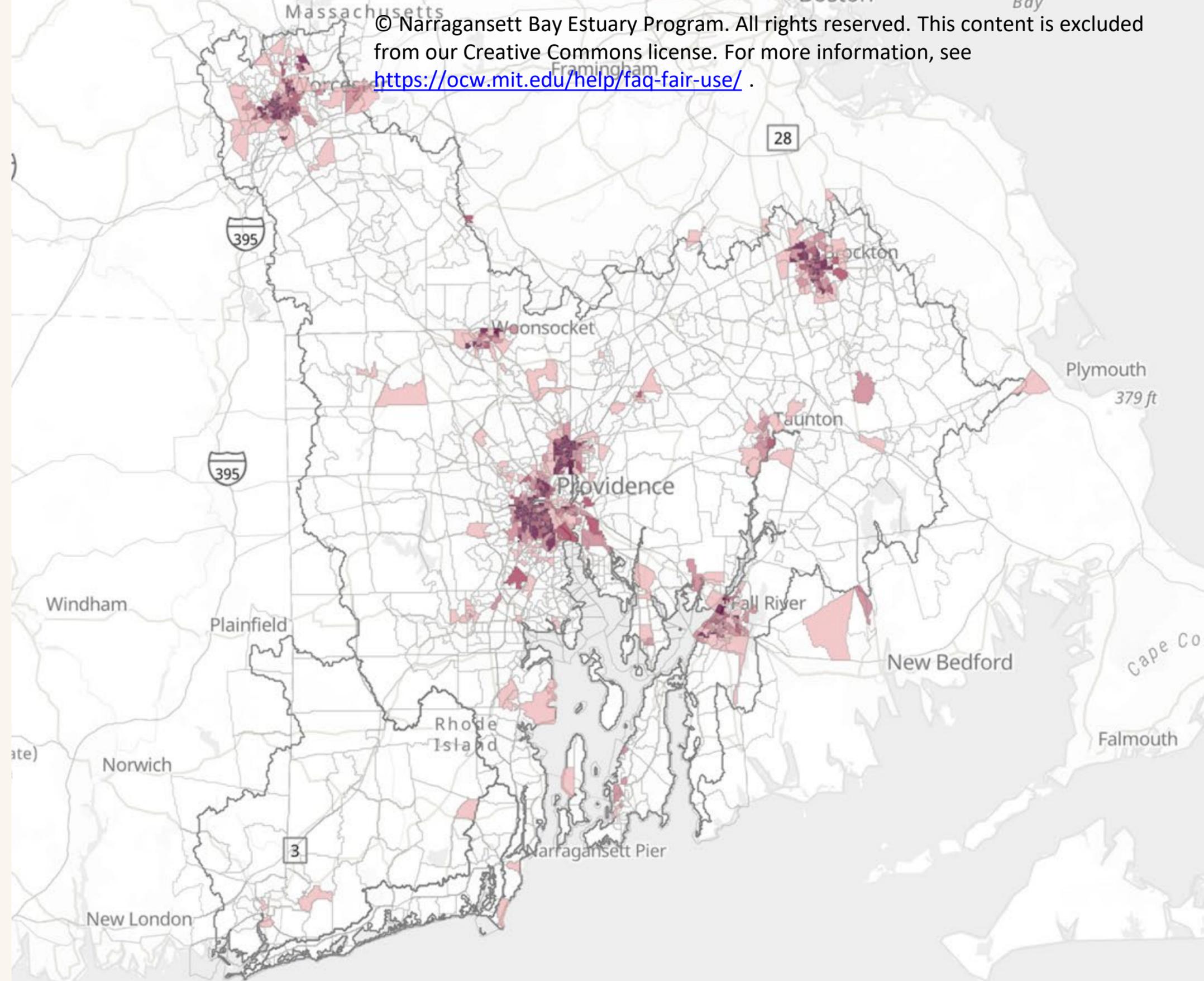
Read

Environmental Justice in the Narragansett Bay Region

Pay attention to the Methods section, which describes how the authors of this article sourced data from EJScreen.

Learn how to use EJScreen

Skim through this EPA website that teaches you how to use EJScreen.



ACTIVITY #8

EXPLORE EJSCREEN TOOLS

 **Environmental Justice Indexes**

 **Supplemental Indexes**

 **Pollution and Sources**

 **Socioeconomic Indicators**

 **Health Disparities**

 **Climate Change Data**

 **Critical Service Gaps**

 **Additional Demographics**

Explore EJScreen

Spend 10-15 minutes exploring EJScreen. Try to use as many tools as you can.

Guiding Questions

- What kinds of indexes and subsections does the platform show in the legend?
- Are there any important climate-related ones you can think of that aren't on EJScreen already?
- What are some benefits of using certain types of indexes for certain types of research?

ACTIVITY #9

CASE STUDIES AND CLASS PRESENTATION

Choose a case study

Split up into 3 groups and pick a case to take a deep dive into.

1. Superfund Sites in Woburn, Massachusetts
2. Air Toxics Cancer Risk in Suffolk County, Massachusetts
3. Hazardous Waste in Middlesex County, Massachusetts

Questions to consider for your presentation

- How is this a problem of environmental justice? What resources are being utilised? Who is most affected?
- Trace the problem back—where did the case study you chose originate? Who/what were factors/perpetrators?
- Use other indexes to help! Take a look at schools, prisons, hospitals, in areas around where your study is located, etc, and see what you find (Click on the location icon entitled 'places'). Whatever can help inform your research is great!

ACTIVITY #10

A CRITIQUE OF EJSCREEN

Read

Indigenous Peoples and the Justice40 Screening Tool: Lessons from EJSCREEN

Discuss

- What were the problems highlighted in the article?
- What are the implications of the article?
- What are other ways the EJ Screen may be flawed?

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Reflection questions

- What personal reflections do you have about your research with one of these EJ Mapping Tools?
- Do you feel that you have a better understanding on how EJ mapping works?
- What additional features might EJScreen add that would be beneficial for your research/ future users?

Indigenous Peoples and the Justice40 Screening Tool: Lessons from EJSCREEN

Haley Mullen , Kyle Whyte  , and Ryan Holifield 

Published Online: 6 Mar 2023 | <https://doi.org/10.1089/env.2022.0045>

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Abstract

The Biden-Harris administration has focused considerably on environmental justice (EJ), including the Justice40 Initiative

Beyond the Module

PART 3

EJAtlas Case Study

Prompt suggestion

On EJAtlas, create your own case study, using resources from MIT—this might include D-lab, research done by MIT professors in the area, or even research you have done in a previous class.

Consider how MIT (or your institution) can do better to mitigate the problem you are researching.

Use EJScreen to Examine Local Issues and Impact

Prompt suggestion

Look at some issues in near MIT (or near your institution). Learn about your institution's impact on the issue. Make a recommendation for how your institution can advance climate solutions to this issue.

Prepare a short presentation of your findings and share it with the class or write an open letter presenting your ideas for solutions.



Taking Action

Questions for further thought and/or discussion

- What are the different ways in which EJAtlas and/or EJScreen can help us with understanding problems of Environmental Justice?
- How could these mapping tools relate to/assist your work in your major/ academic discipline?
- How could these mapping tools help us take action at an individual, social or political level?

Personal research

Use EJAtlas and/or EJScreen to explore a research question close to your research interests. It could be a question related to your home, a class that you're in—anything that is relevant and important to you!

Additional Resources

- [ArcGIS](#): User friendly interactive mapping site
- [StoryMaps](#): Use mapping technology to guide your readers to your favorite places, illustrate trends or even take them on an interactive tour

For more resources on climate and environmental justice: **Please explore other modules in the Climate Justice Instructional Toolkit.**



Module References

- Bordne, Margot, Clinton, Johnson. "[Charles Lee: Environmental Justice Leader Uses Maps to Reveal Injustices](#)". Esri blog. 2021.
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