

Environmental Justice Research in Coastal Waters

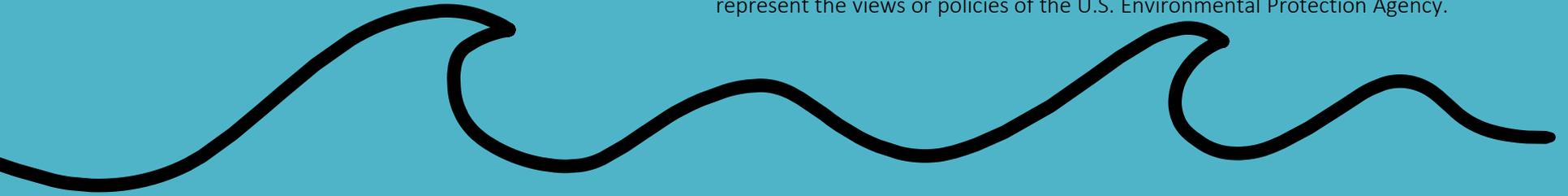
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The views expressed in this presentation are those of the authors and do not necessarily represent the views or policies of the U.S. Environmental Protection Agency.

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Today

- Overview on EJ & research
 - EJ definitions and quick history
 - EJ & water
 - Research examples
 - Moving forward
- Open conversation



Table 3.1 – Racial and Socioeconomic Characteristics of People Living Near Hazardous Waste Facilities

	Within 1 km.	Between 1 km. and 3 km.	Between 3 km. and 5 km.	Beyond 5 km.
Population				
Total Population (1000s)	845	7,828	14,101	225,936
Population Density (persons per square kilometer)	690	840	810	24
Race/Ethnicity				
Percent People of Color	47.7%	46.1%	35.7%	22.2%
Percent African American	20.6%	20.4%	20.6%	11.2%
Percent Hispanic	23.1%	20.4%	18.1%	7.8%
Percent Asian/Pacific Islander	4.4%	5.4%	5.3%	2.7%
Percent Native American	0.6%	0.6%	0.5%	0.8%
Socioeconomic Characteristics				
Poverty Rate	20.1%	18.3%	16.9%	12.7%
Mean Household Income	\$31,192	\$33,318	\$36,920	\$38,745
Mean Housing Value	\$93,985	\$102,594	\$111,915	\$111,956

Quick History on EJ

Long history of environmental injustice, more recent (Civil Rights Era) focus on environmental justice

1960s start of larger protests

1979-1982 Warren County, NC

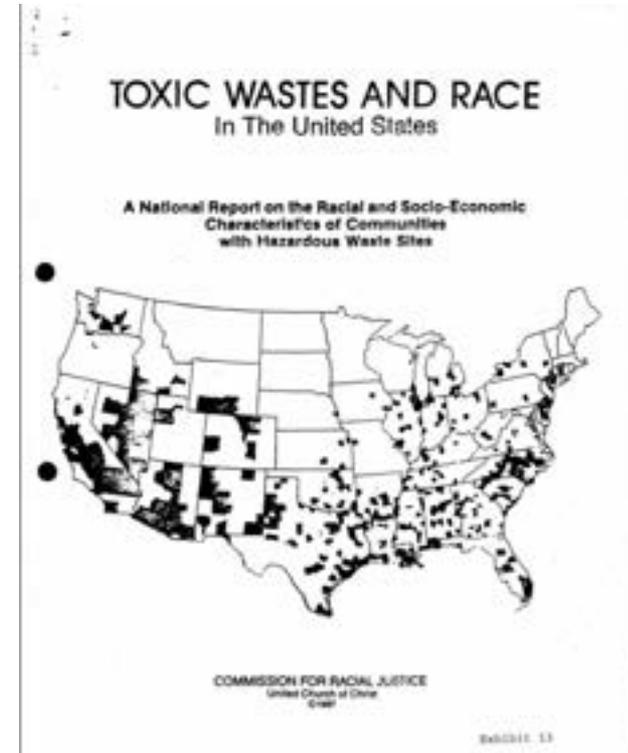
PCBs disposal in a landfill of one of the only majority-Black counties in NC, advocates lost
landfill failed,

landfill soil was remediated starting in 2001

Spurred statistical studies by [GAO](#) and [UCC](#)

Coastal waters research initially limited

For more, see the EPA [interactive EJ timeline](#)



What is Environmental Justice?

The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

U.S. EPA, 1998

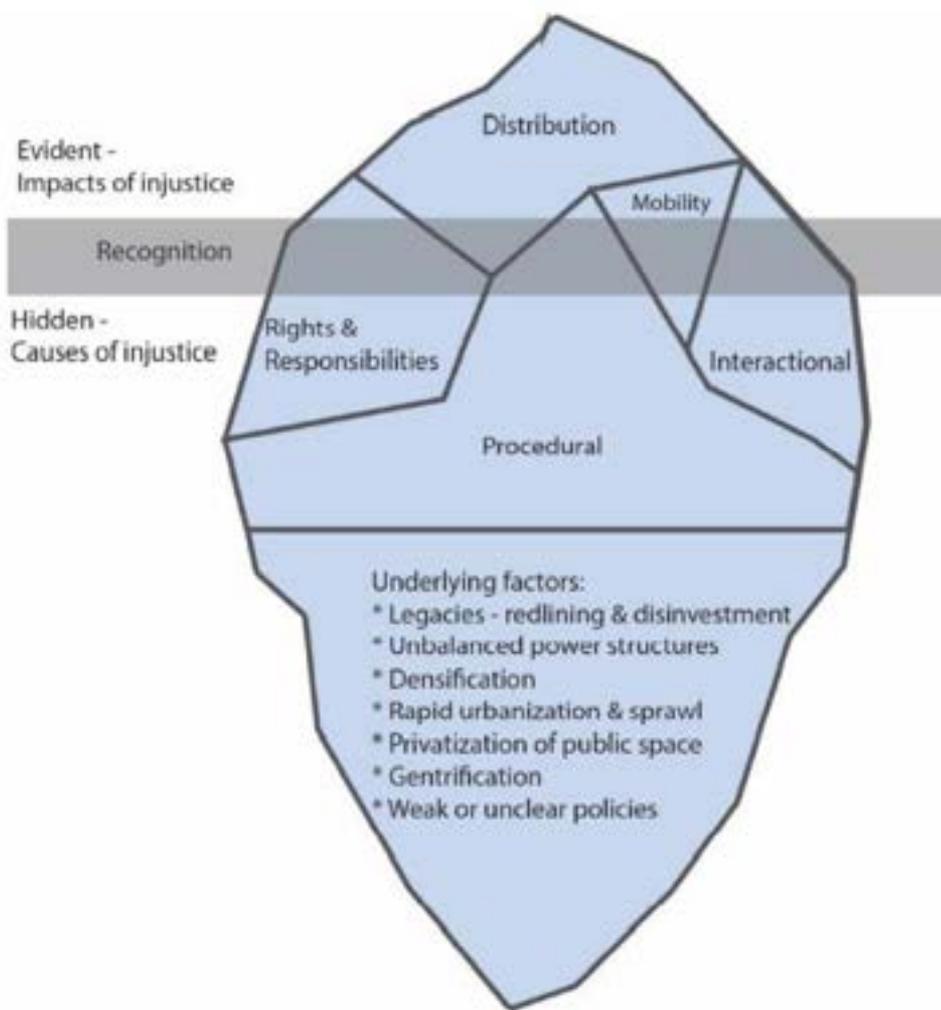


Fig. 4. Conceptualization of urban GI justice as an iceberg.

How is
Environmental
Justice defined
in the literature?

- Distributive justice
- Capabilities justice
- Recognitional justice
- Procedural justice

Distributive Justice

-disproportionate exposures to disamenities (e.g., landfills, factory emissions, contaminated waters)

-reduced access to amenities (e.g., green space, swimmable waters, restoration projects, environmental educational programs)

Capabilities Justice

attention to the contexts in which people live, and the opportunities that allow people to participate and realize their full potential (Eisenhauer et al., 2021)

Recognitional Justice

acknowledgement of lifeways,
culture, and values (Schlosberg,
2007)

Procedural Justice

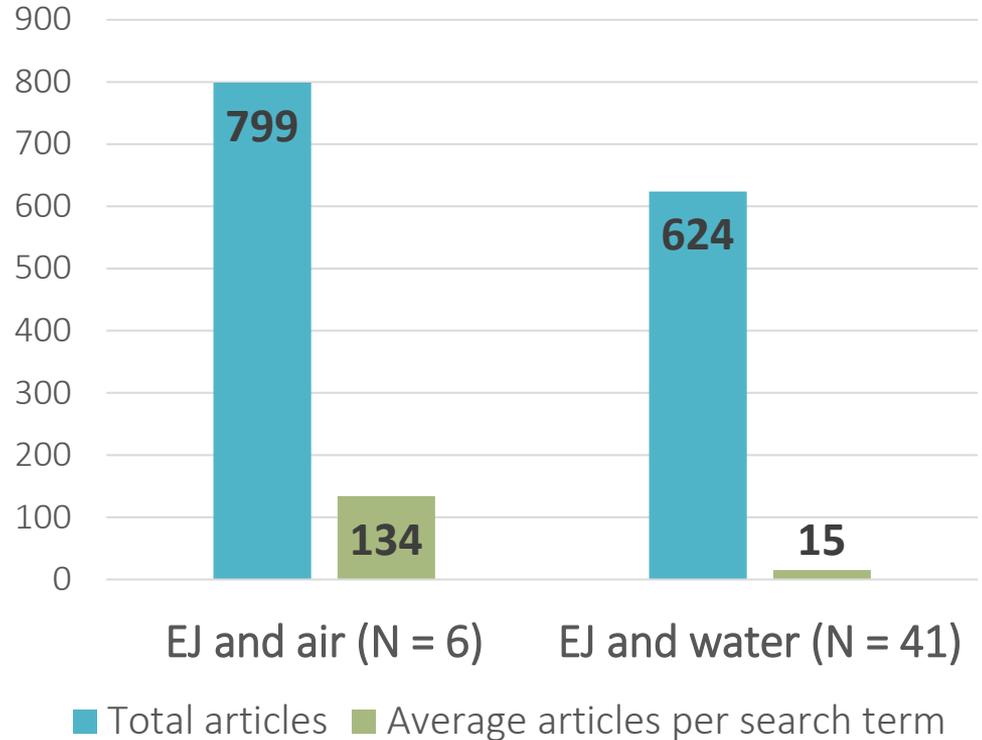
Access to a fair process

Research on Environmental Justice in Coastal and Marine Waters

Project Motivation

- Modern environmental justice (EJ) movement building in the U.S. since the Civil Rights Movement
- Primary focus has been on injustices related to air and drinking water pollution
- Continued growth of interest in environmental justice and applying an EJ lens to research (especially since 2020)
- N = number of searches where at least 1 article was returned

Web of Science Keyword Results



Positionality & Limitations

- Academic literature only
 - Limited to scientific approaches to environmental justice that address water used beyond drinking
 - Keyword search excludes research using an EJ lens but using terminology outside of our selected terms
 - *Aimed to be as inclusive as possible in search terms, but they are based on a US-based movement*
 - English-language articles only
- Team expertise: grassroots EJ expertise, experience working with Tribes, government and academia-based researchers across the fields of anthropology, water resources, and interdisciplinary social science, all born and raised in the United States



Locations of focus in reviewed relevant articles

Methods

What is the state of the research and the methods used related to nondrinking water environmental justice research?

- Collection of peer-reviewed articles through Web of Science
- Deductive coding sheet
- Initial intercoder reliability
- Additional rounds of coding to identify key themes
- Continued team discussion to ensure shared thinking and approach



Methods

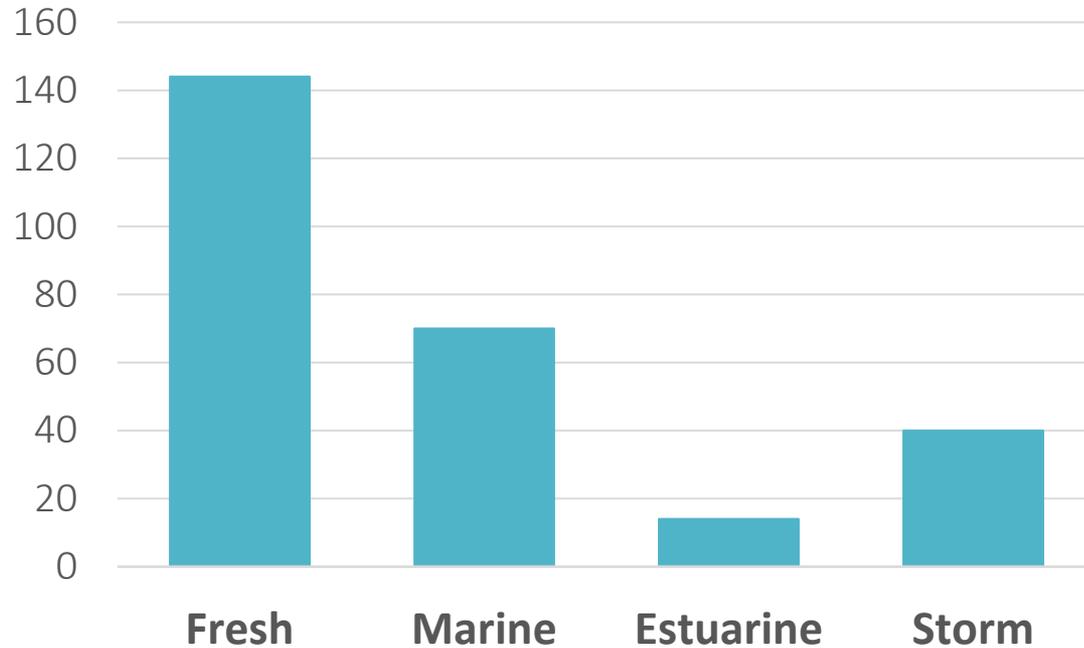
Collection of peer-reviewed articles through Web of Science

- 84 total Boolean searches (Topic + environment)
- 624 total results
- 350 included in review
- 222 articles deemed relevant

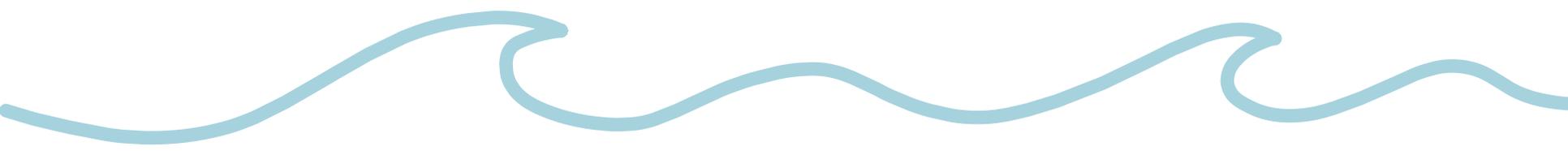
Topics	Environments	
<i>Environmental justice</i>	Ocean	"Surface waters"
<i>Environmental injustice</i>	Marine	Water NOT drinking
<i>Environmental racism</i>	Sea	"Deep sea" + drilling
<i>Climate justice</i>	Estuary	River
<i>Climate injustice</i>	Bay	Lake
<i>Disamenities</i>	Beach	Coast
	Port	Waterfront



Water Environment Coding



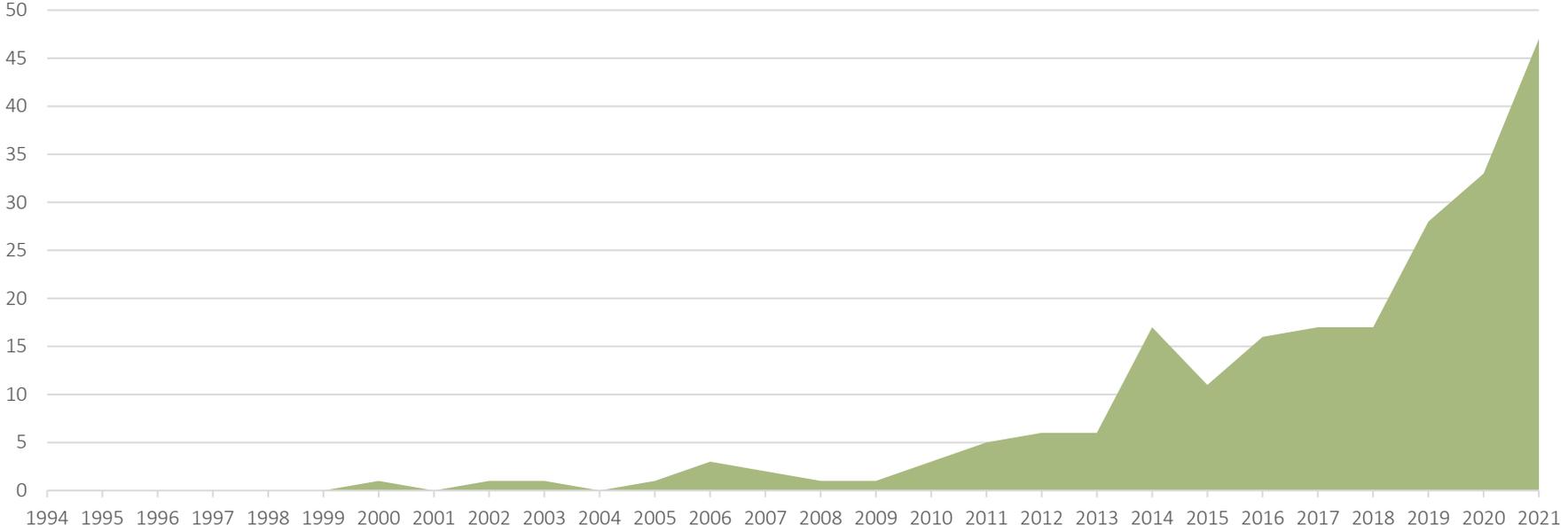
- 84 total mentions of marine (70) or estuarine (14) environments
- 76 distinct articles address marine and/or estuarine environments
- Further narrowed categories for freshwater



Role of Water Coding

Primary Codes	Themes
	Law/Policy/Governance
	Agriculture
	Infrastructure
	Natural Disasters Impacts
	Anthropogenic Induced Change
	Public Health
	Ecosystem Services
	Fishing
	Recreation
	Subsistence

Publication Dates & Pivotal Definitions



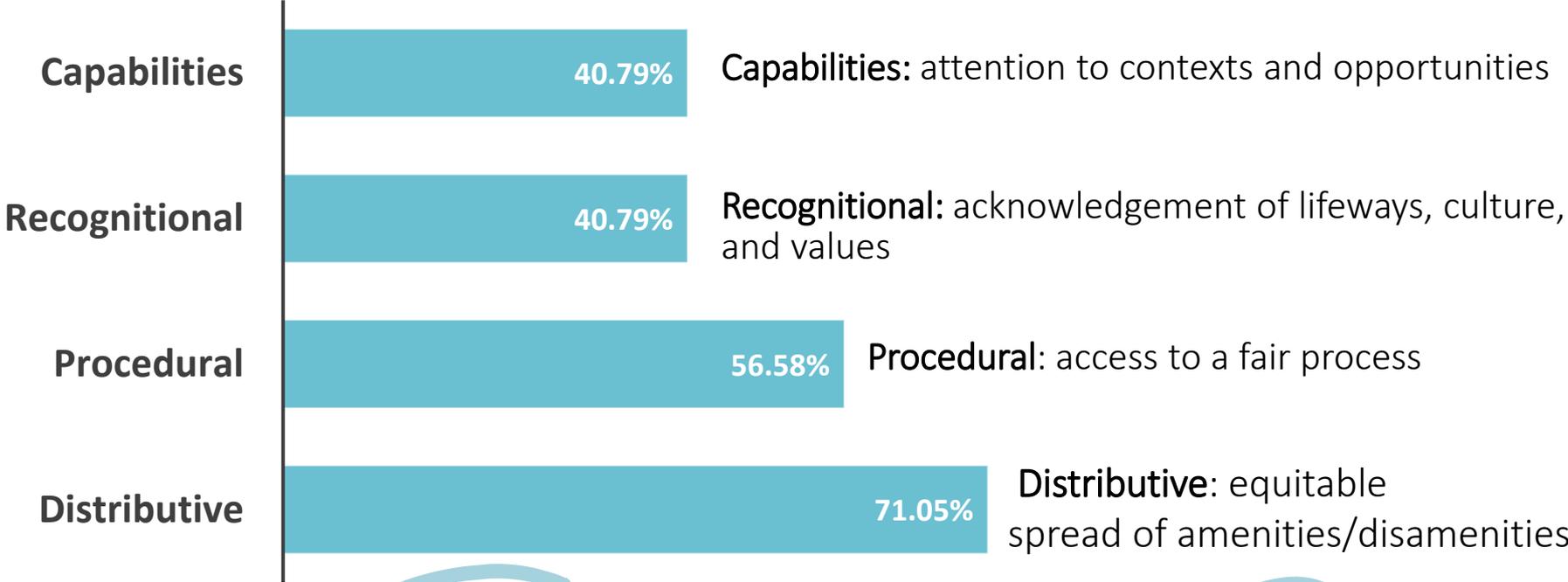
Defining Environmental Justice

- Minimal interrogation of theories of justice (e.g., Rawls, Fraser)
- 39 articles (17% of those deemed relevant) used the EPA definition of EJ:

“Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”

- Other definitions mentioned pivotal EJ theory and studies:
 - Bullard (6), Schlosberg (16), Agyeman (3), Pellow (1)
 - Expansion of justice in EJ lens (e.g., (de)colonization: 4 articles)
- 

Kinds of Justice in Saline Waters Research



Article Results Coding

- Focus evolves over time from calling for EJ in many aspects of research and governance to an increasing call for climate justice (Schlosberg & Collins, 2014)
- Model and analyze differences across ecological, economic, and social/justice outcomes
- Recommendations for addressing injustice: better engagement and collaboration practices, better acknowledging power and system dynamics, formalizing EJ in policies, and using TEK, and other analytical tools
- Research on justice beyond disparities in communities that are lower-income or higher % POC, especially in literature on Indigenous rights and justice and gender-based justice
- Highlights disparities in both amenities and disamenities (next slide)

Disparities

Amenities

- Fisheries
- Nature-based solutions
- Public toilet facilities
- Restoration efforts
- Water access

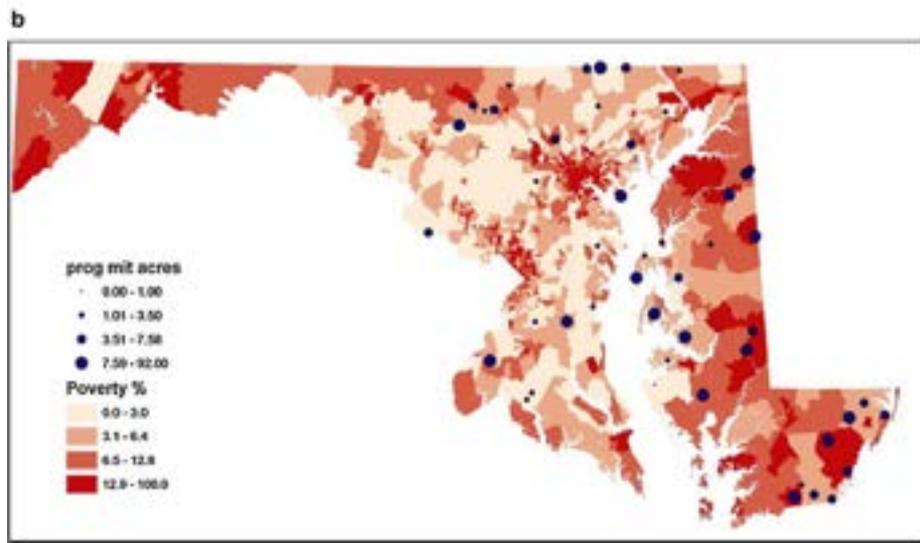
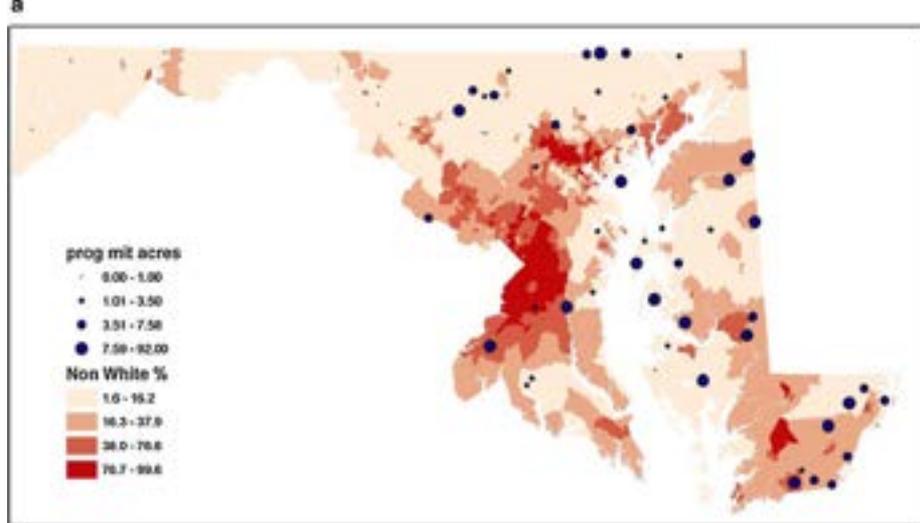
Disamenities

- Access to clean water
- Flooding
- Industrial pollution
- Land abandonment
- Loss of land & population
- Plastics pollution
- Proximity to mining
- Proximity to ports
- Sea level rise
- Solid waste
- Toxic releases
- Water facility violations
- West Nile virus

Marine & Coastal Research Examples

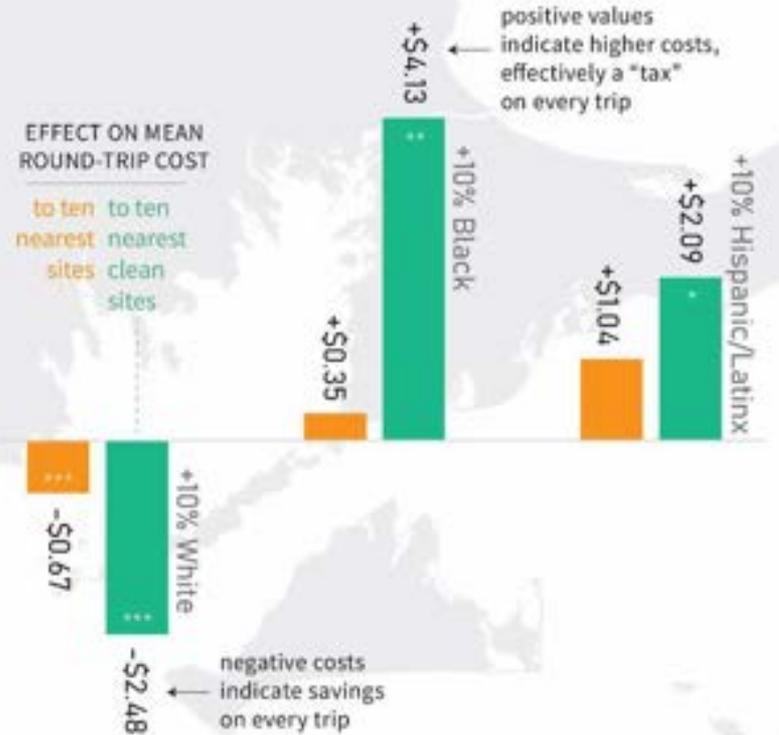
Distributional Justice-equitable spread of amenities and disamenities

Restoration projects in Maryland's Chesapeake Bay Watershed ([Dernoga et al. 2015](#))





Mean Round-Trip Travel Costs To Saltwater Public Coastal Access Vary By Race and Ethnicity In Rhode Island



Coastal Access ([Twichell et al. 2022](#))

Effects on round-trip costs are tabulated from travel distance coefficients based on a 10% increase in White, Black, or Hispanic/Latinx populations for a given block group
*p < 0.05; ** p < 0.01; ***p < 0.001

Marine & Coastal Research Examples

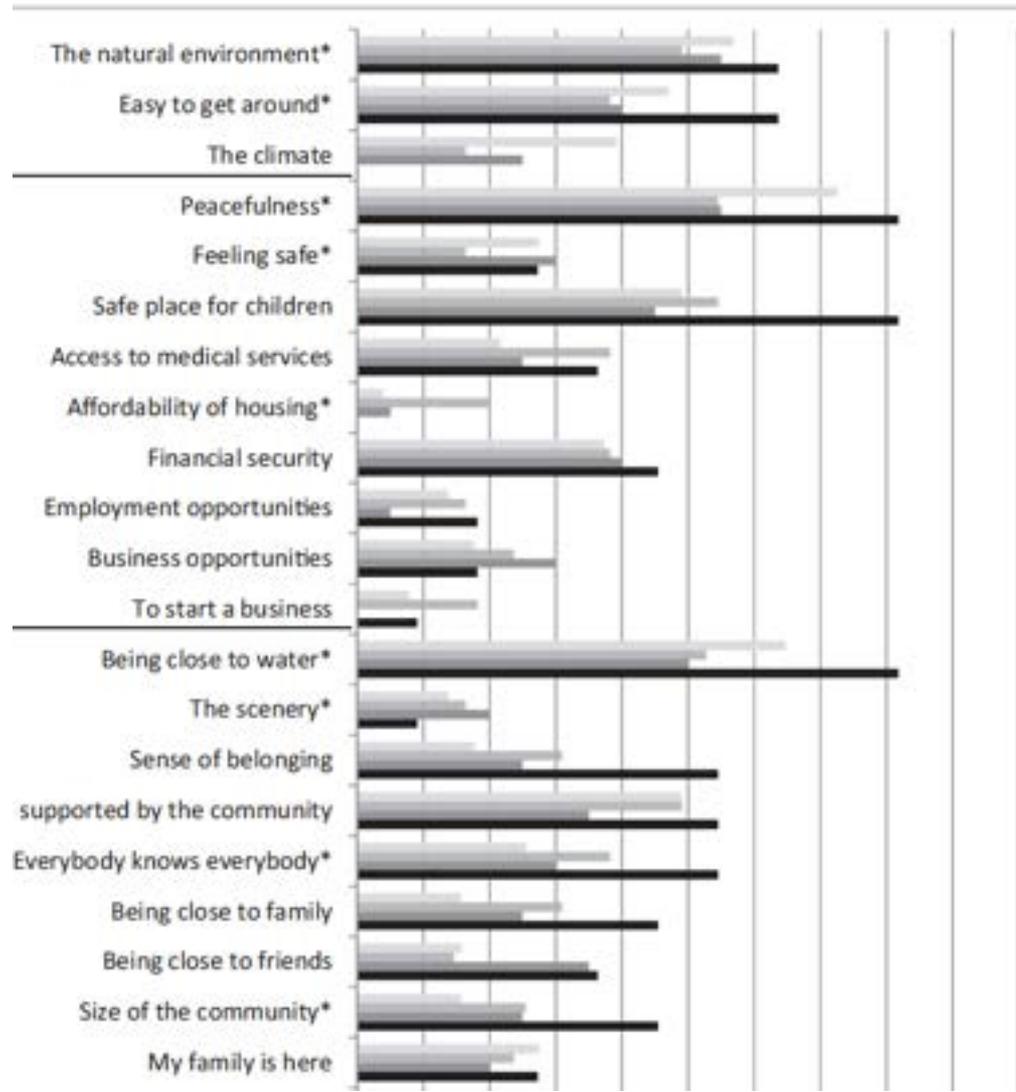
Capabilities Justice- attention to contexts and opportunities

Capabilities

Graham et al. 2018-
differences in impacts from
sea-level rise on communities

Richmond 2013

Incorporating Indigenous
rights & EJ into fisheries
management



Marine & Coastal Research Examples

Recognitional Justice- acknowledgement of lifeways, culture, and values

Recognitional Justice

Fish Consumption
New Bedford Harbor

[Basra et al. 2018](#)

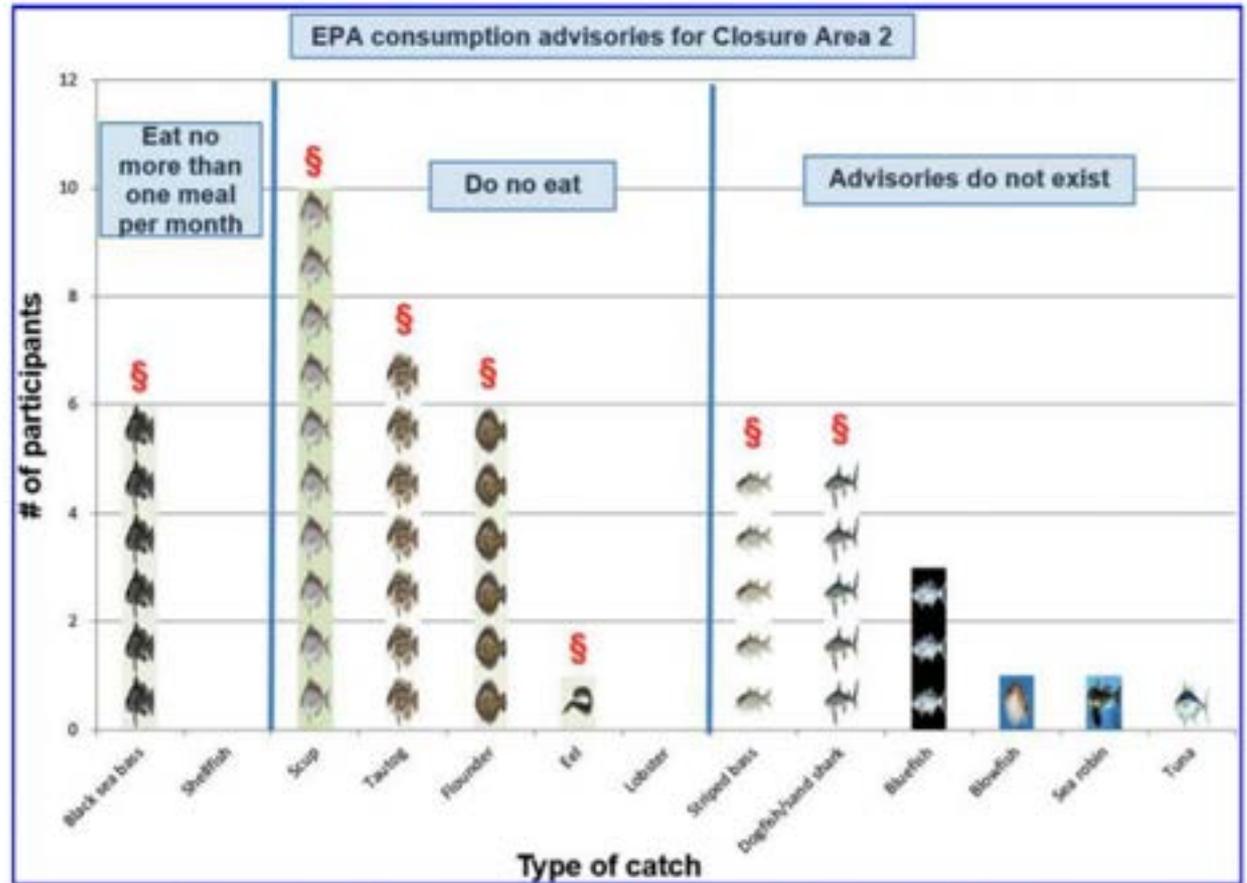


FIG. 3. Types of fish/shellfish reportedly caught in NBH Closure Area 2 by interviewed participants, classified by EPA consumption advisory categories EPA consumption advisory for Closure Area 2 only. Other advisories were in place for Closure Areas 1 and 3. Red symbol indicates the types of fish caught by people who reported consuming their catch.

Recognitional Justice

Alaska and Indigenous
fish consumption

[Loring and Duffy 2011](#)



Figure 1: Wild fish and game are especially important components of food security in rural Alaska. This sign is posted at the boat launch at Minto, Alaska. Many locals fish for Northern Pike, a fish notoriously high in methylmercury.

Marine & Coastal Research Examples

Procedural Justice- access to a fair process

Procedural Justice

Democratizing science on
the BC coast

[Saloman et al. 2018](#)

[Rambaree 2020](#)

Role of Indigenous
Chagossian Community in
British MPA designation of
Chagos

Fig. 2. Facilitating resilience thinking and practice along British Columbia's Central Coast through novel research and teaching partnerships involved: (A) community dialogues, (B) field trips to local conservation education initiatives, (C) classroom sessions, (D) field training, (E) field research, and (F) sharing of knowledge by local experts such as Heiltsuk Archaeologist Gitla Elroy White. (Photos by A. K. Salomon)



Moving Forward- Integrating EJ Into Research

1994 Environmental Justice Executive Order

Where research fits in...

identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law.

develop a strategy for implementing environmental justice.

promote nondiscrimination in federal programs that affect human health and the environment, as well as provide minority and low-income communities access to public information and public participation.

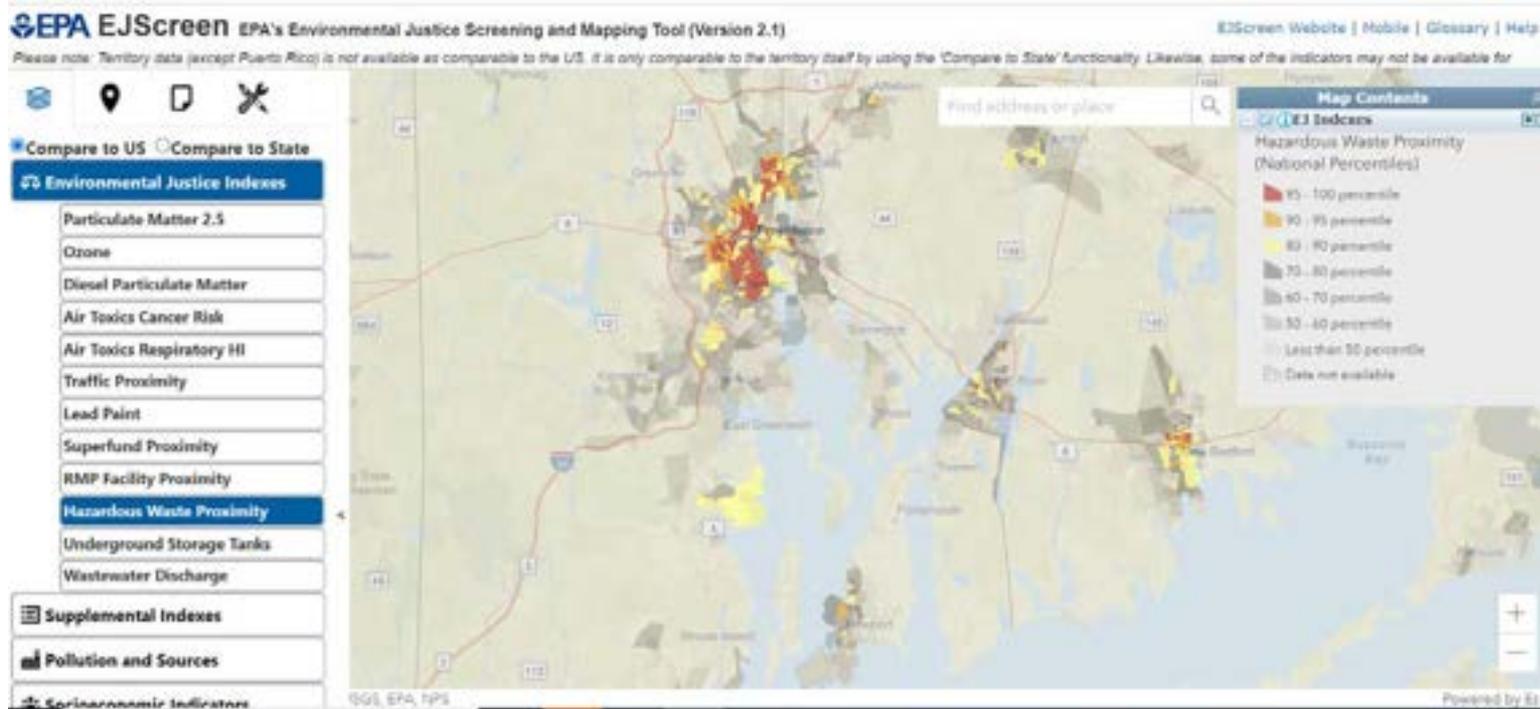
Conducting EJ Research

- Provide technical assistance when needed, but minimize burden for communities
- Create spaces for resource sharing, networking, and research development
- Critically evaluate who benefits from research findings
- Solicit guidance, input, and feedback from frontline communities & EJ advocates
- More equitably allocate research, resources
- Use and develop tools, platforms to promote EJ research
- Some communities will not want you to do research there

Ideas modified from: Geller et al. 2016, <https://www.weact.org/2016/11/863/>, set of Indigenous Research methods literature [here](#)

Resources for EJ & Water Research

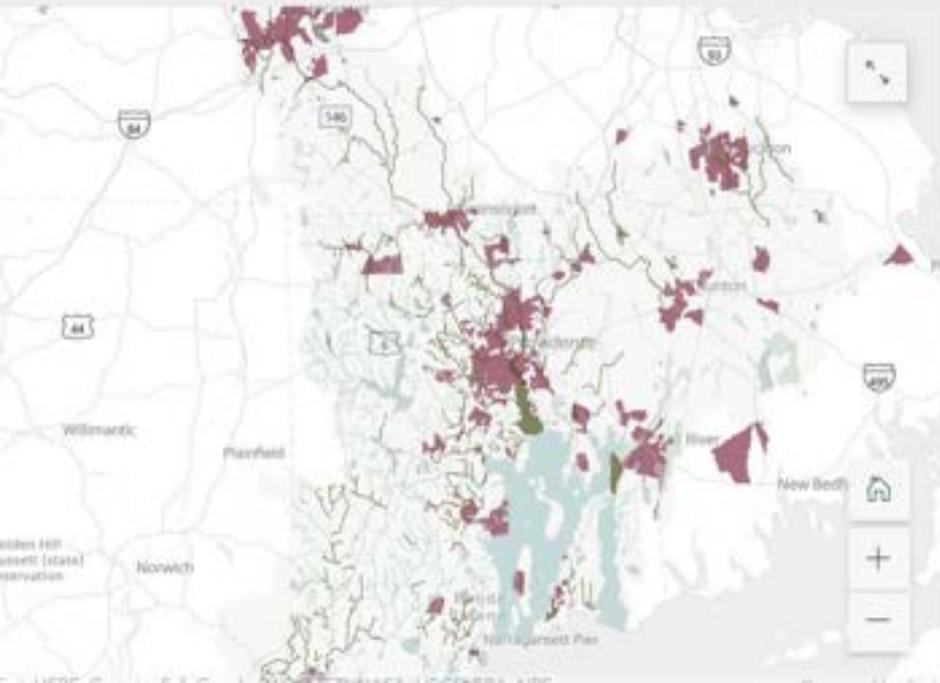
- EJ Screen: <https://ejscreen.epa.gov/mapper/>
- Environmental Justice Research Roadmap (U.S. EPA, Geller et al. 2016)



Narragansett Bay Estuary Program EJ StoryMap

- StoryMap [here](#)

Introduction Landscape Water Quality of Life A Shared Legacy Taking Steps Methods & Recommendations Resources



assessments based on testing for bacteria and other factors. 78% of priority communities are within a half mile of an impacted water body (dark green). There are more impacted waters compared to acceptable waters (blue) in priority areas, while the reverse is true for surrounding areas.

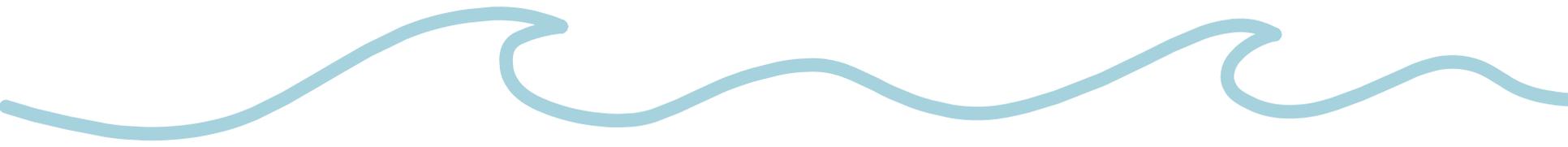
VIEW PRIORITY AREAS ON MAP (on/off)

Impacted Acceptable Unassessed

Ratio of Impacted to Acceptable Waters for Recreational Use

Summary

- Important, existing research connecting EJ and marine and coastal waters
- A lot of room to go and important research areas to build
- Tread carefully and engage as appropriate





Thank you! Questions?

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