

WARNING
WET WEATHER
SEWERAGE DISCHARGE
MWRA OUTFALL

ENDING SEWAGE DISCHARGES

CSO BRIEFING 020

THURSDAY, OCTOBER 19TH | 10-11 AM | VIRTUAL

MASSACHUSETTS
Rivers Alliance




Charles River
Watershed Association

Mystic River
WATERSHED ASSOCIATION



Save the Alewife Brook
environmental health is community health



MASSACHUSETTS Rivers Alliance



Dedicated to protecting and restoring Massachusetts' rivers and streams through advocacy, technical assistance, and collaboration.

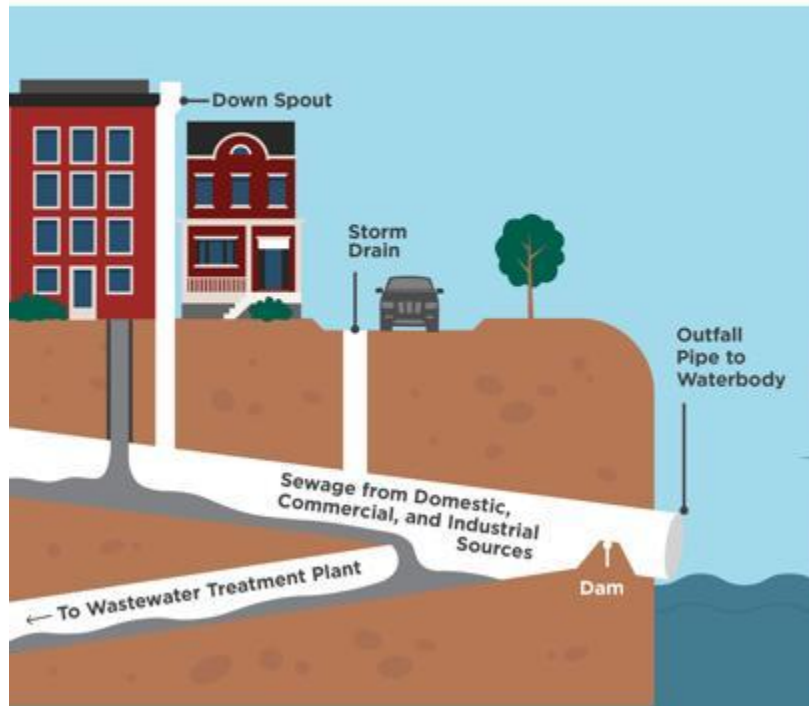
Charles River, Boston



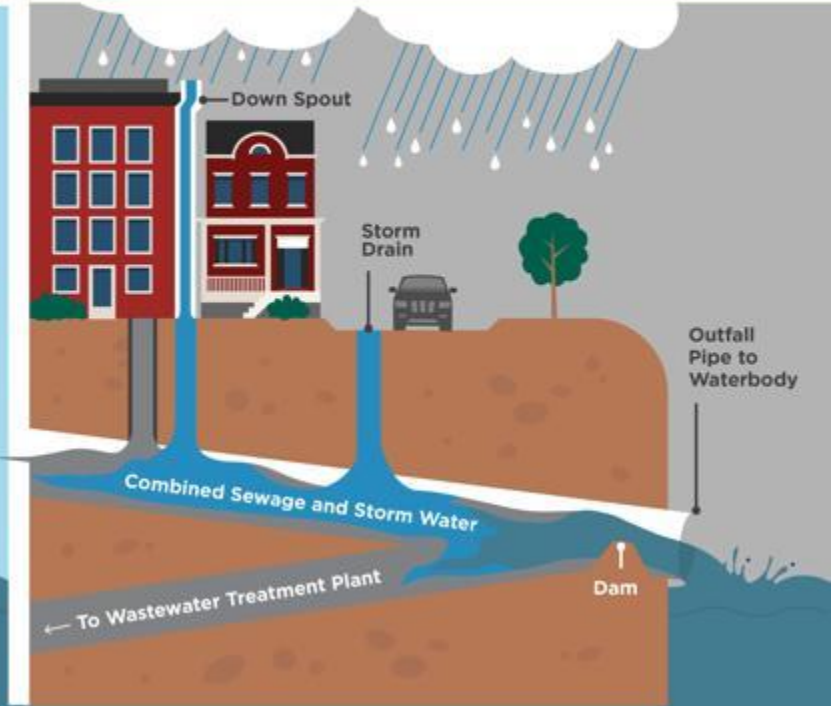


Combined Sewer Overflows

Dry Weather



Wet Weather

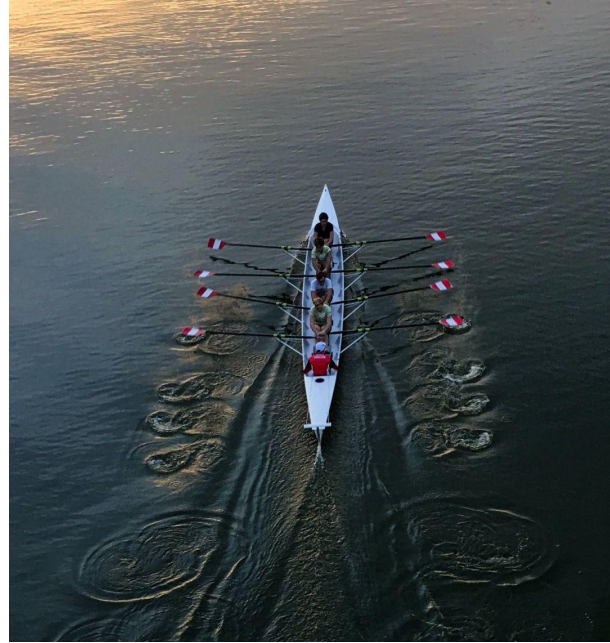


Combined Sewer Overflows are a problem for:

Environmental Justice



Public Health



Climate Change



The Sewage Notification Law

- Signed by Governor Baker in January, 2021 after years of advocacy
- Went into effect July 2022
- Now requires sewer operators to have an opt-in notification system for sewer overflows
 - Environmental justice requirements
 - physical signage requirements





Search for Sewage Notification Incidents Results

Search Criteria Event Type: CSO - UnTreated, Incident FromDate: 01/10/2023, Incident ToDate: 18/10/2023

Actions	Report Number	Incident Date	Incident Time	AM or PM	Permittee Name	Water Body
DETAILS	23006650	10/15/23	13:55		CITY OF NEW BEDFORD	CLARK COV
DETAILS	23006410	10/10/23	11:55		CITY OF NEW BEDFORD	ACUSHNET
DETAILS	23006406	10/10/23	09:10		CITY OF FALL RIVER	TAUNTON F
DETAILS	23006407	10/10/23	09:10		CITY OF FALL RIVER	TAUNTON F
DETAILS	23006411	10/10/23	11:45		CITY OF NEW BEDFORD	INNER NEW
DETAILS	23006409	10/10/23	11:55		CITY OF NEW BEDFORD	CLARK COV
DETAILS	23006405	10/10/23	09:05		CITY OF FALL RIVER	MOUNT HO
DETAILS	23006404	10/10/23	09:04		CITY OF FALL RIVER	MOUNT HO

Concerns arise as raw sewage overflows in CT River due to flooding



Issues related to flooding that has impacted different towns across western Massachusetts continue. This time, raw sewage made its way into the Connecticut River

By Daniel Santiago, Samantha O'Connor and Photojournalist: Kevin Culverhouse
Published: Jul. 17, 2023 at 3:47 PM EDT | Updated: Jul. 17, 2023 at 6:49 PM EDT



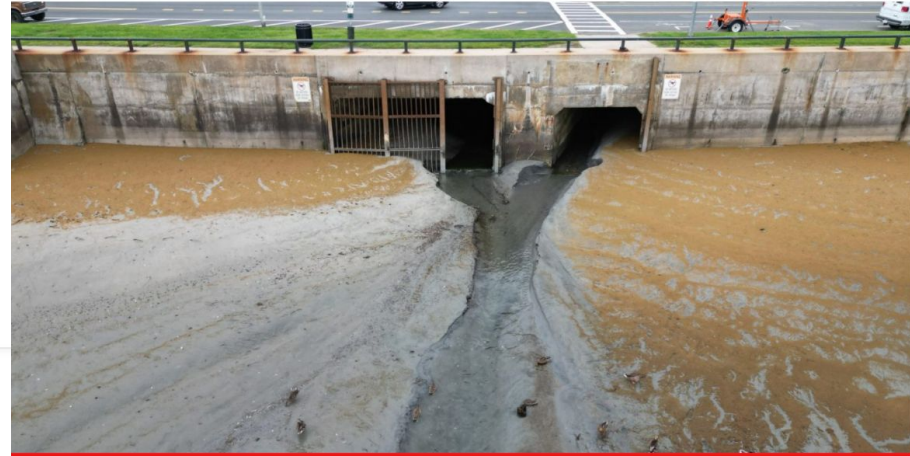
Amesbury suffered 2 sewage overflows Friday

By Matt Petry | mpetry@northofboston.com Aug 21, 2023 Updated Aug 22, 2023

SIX MILLION GALLONS OF SEWAGE DUMPED ON COAST

Lynn, Swampscott, and Nahant beaches polluted after Tuesday's storm.

BY ANTHONY CAMMALLERI | August 8, 2023



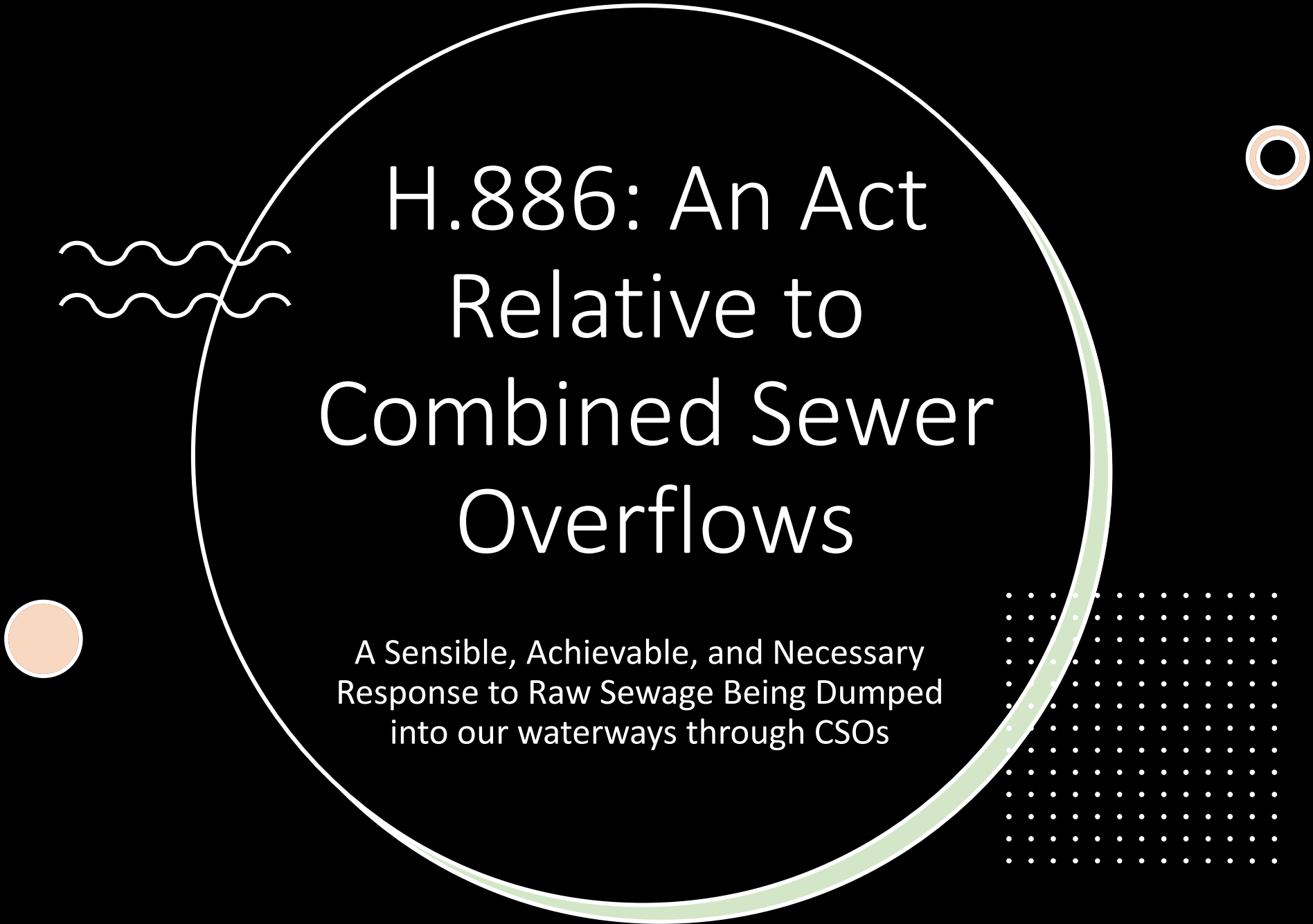
Lynn's combined sewer system dumped 5.87 million gallons of raw or partially-treated sewage into Lynn Harbor and King's Beach during Tuesday morning's rainstorm.

Sewage Pollution in Massachusetts

How do we fix this?

- Political will / public awareness
 - *Sewage notification law*
- Long term planning
 - *Long Term Control Plans*
- Funding for new infrastructure
 - *Clean Water Trust, federal grants*
- Requirements for sewer operators to shut down CSOs
 - *H.886*





H.886: An Act Relative to Combined Sewer Overflows

A Sensible, Achievable, and Necessary
Response to Raw Sewage Being Dumped
into our waterways through CSOs

Untreated Raw Sewage Dumped in Our Water

THIRTY-EIGHT YEARS after the legislature created the Massachusetts Water Resources Authority (MWRA) to end the dumping of sewage and sludge into Boston Harbor, and twenty-five years after the Deer Island Treatment Plant started treating the region's sewage to end Boston Harbor pollution:



DUMPING OF UNTREATED SEWAGE CONTINUES: Fifty CSOs discharge many hundreds of millions of gallons of sewage (human and industrial wastes) annually into Boston area rivers, streams, brooks, water channels, and Boston Harbor

Five of those fifty CSOs were engineered to dump untreated sewage only in greater than 25-year sized storms. The other 45 dump sewage into our waterways in smaller storms

Five of those fifty CSOs have minimal treatment to remove some solids and deactivate bacteria before the sewage is dumped into our waterways

Forty CSOs dump untreated human and industrial wastes into our waterways in larger and smaller storms without any treatment whatsoever

How much CSO sewage is dumped?

- CSO discharges vary by year, depending on storm amounts and storm intensities
 - Average year: 414 Million Gallons of Sewage dumped in waterways
 - 2021: More than ONE BILLION Gallons of Sewage dumped in waterways
 - Alewife Brook CSOs: 50.74 Million Gallons (MG) untreated
 - Upper Mystic River CSO: 67.57 MG treated
 - Mystic/Chelsea Confluence CSOs: 220.62 MG; of those 9.35 MG untreated
 - Upper Inner Harbor CSOs: 466.58 MG; of those 22.44 MG untreated
 - Lower Inner Harbor CSOs: 18.34 MG untreated
 - Fort Point Channel CSOs: 124.04 MG; of those 52.47 MG untreated
 - Reserved Channel CSOs: 1.12 MG untreated
 - Upper Charles CSOs: 11.12 MG untreated
 - Lower Charles CSOs: 108.30 MG; of those 20.2 MG untreated
 - Back Bay Fens CSO: 5.24 MG untreated



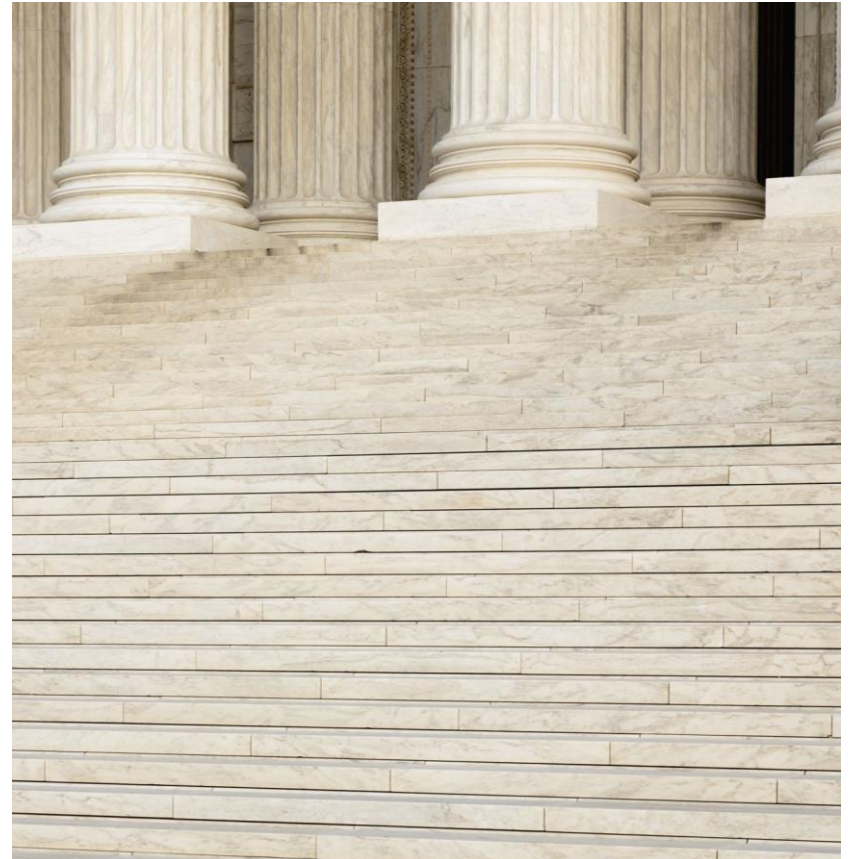
The Problem of Untreated Raw Sewage

- **PUBLIC HEALTH AT RISK & ENVIRONMENT DEGRADED**
 - Many CSOs are in Environmental Justice neighborhoods
 - Public health officials recommend avoiding contact with CSO receiving waters during rainstorms and for 48 hours afterwards due to increased public health risks of encountering CSO waters laden with bacteria and pollutants
 - Alewife Brook, laden with CSO sewage, has overflowed into people's homes
 - Alewife Brook, laden with CSO sewage, regularly overflows onto the Alewife Greenway, a well used public path in the DCR Alewife Reservation
 - CSOs harm wildlife, have noxious odors, degrade the environment, and reduce our ability to enjoy our parks, rivers, and streams



Will Federal Law Fix the CSO Problem? No.

- Federal standards allow CSOs to continue to dump raw untreated sewage
 - “Typical year” problem
 - Nine “minimum controls” problem
 - No treatment requirement or time limit mandate
- MWRA has told us it has no intention to go beyond what is minimally required by federal law. We have heard no different from the other CSO entities




H.886 Addresses the CSO Mess Head On

H.886 is realistic, outcome oriented, and consistent with current technologies and procedures

- Recognizing that some CSOs may need to be available in large storms to prevent sewer backups for some time, this legislation requires that in 10 years each of the CSOs then in the MWRA sewer service area must either:
 1. Have the treatment now provided at five CSOs; or
 2. Only activate during 25+year storms and not during smaller storms (as now is the case for five CSOs along Dorchester Bay)
- Ten years is an adequate amount of time to do more sewer separation, incorporate more green stormwater infrastructure such as rain gardens, close more CSOs, and plan, permit, and implement the necessary engineering fixes



The Time is Now for the Legislature to Act

- No Federal Pre-emption
 - States can be more protective of their environment and residents than required by the federal Clean Water Act
 - States can hold themselves and their entities (cities, authorities, etc.) to higher standards than federal requirements
 - We know more about the terrible impacts of CSOs on public health and on Environmental Justice populations
 - Together, we can address this unfinished business of the Boston Harbor clean-up
- 

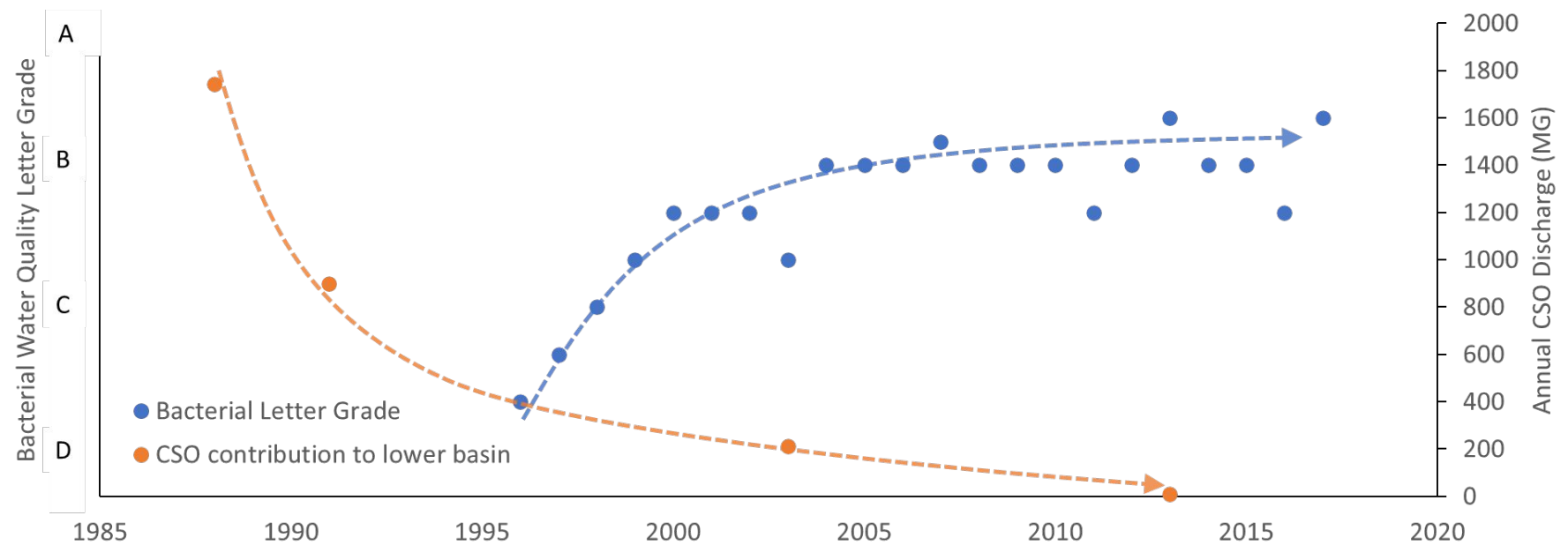
CSO Sewage Flooding into the Alewife Reservation Path and Nearby Homes and accumulating in Alewife Brook



EPA Sets Clean Up Goal for Charles River by Earth Day 2005

News Release - 10/22/1995: The U.S. Environmental Protection Agency set a goal of making the Lower Charles River swimmable and fishable by Earth Day 2005. Noting severe pollution problems in the

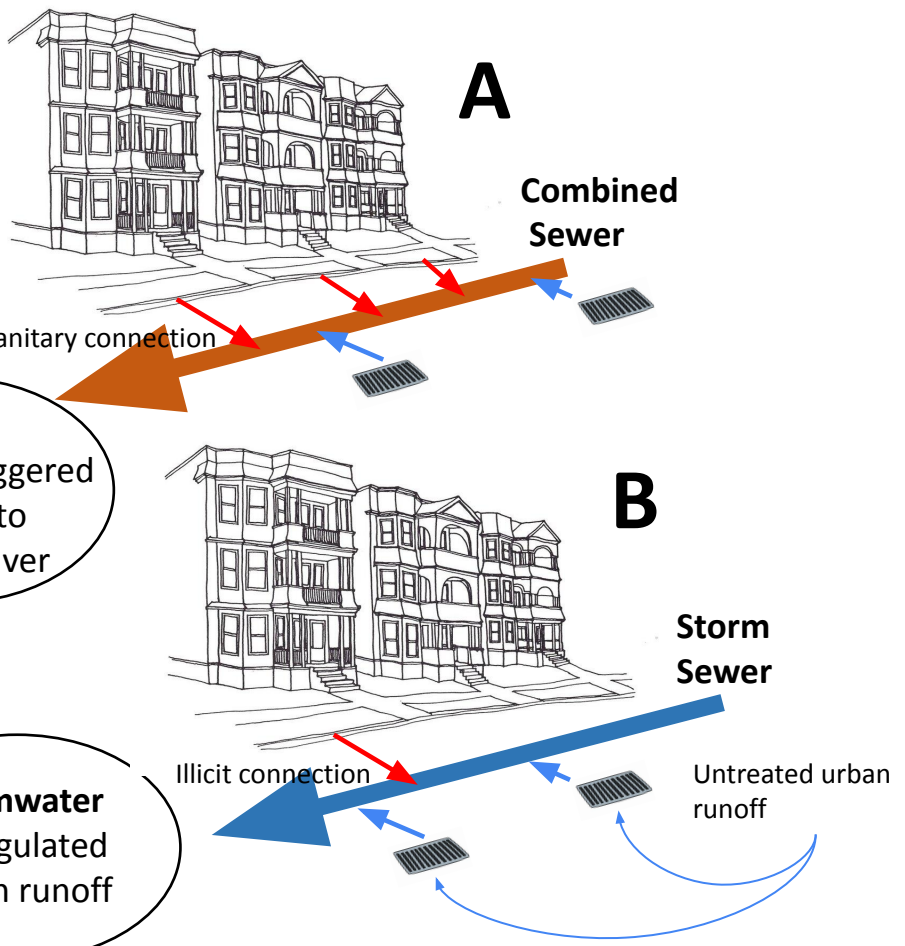
“Today rowers will hope not to get to get wet,” DeVillars added. “But if we work hard and invest wisely, a decade from now they’ll be able to go for a swim at Magazine Beach after the race.”



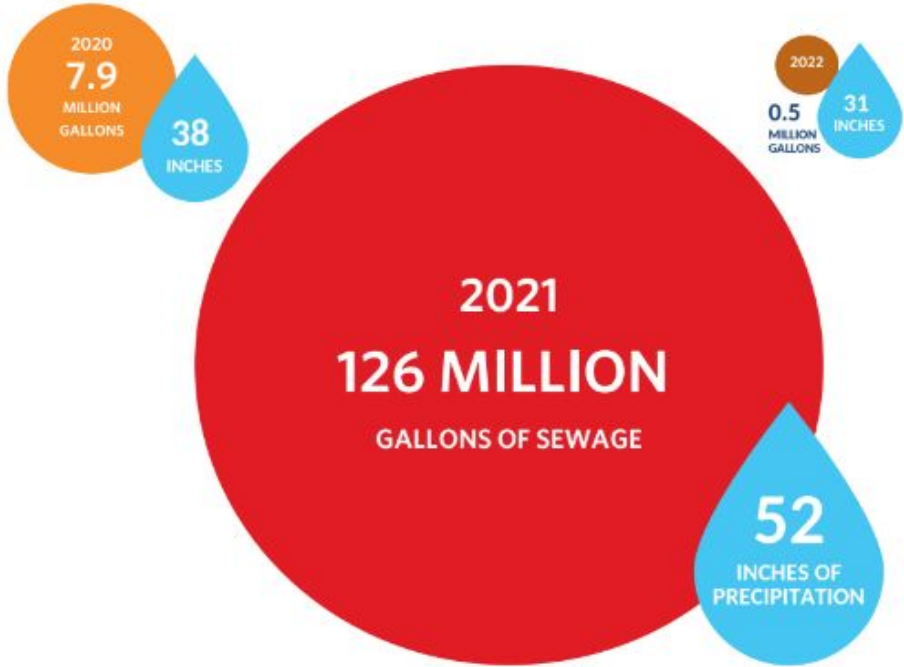


CSOs
Storm-triggered
overflow to
Charles River

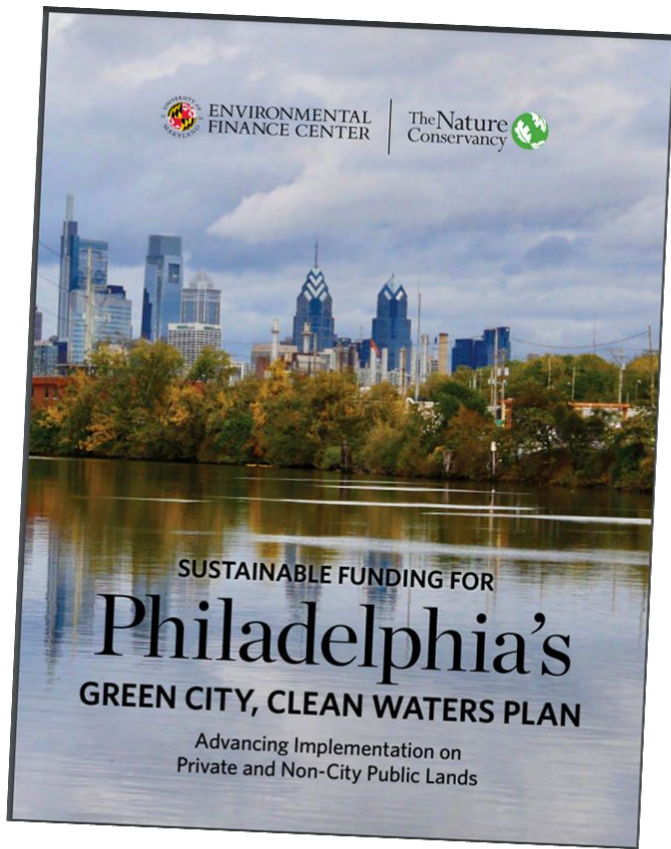
Stormwater
Unregulated
urban runoff



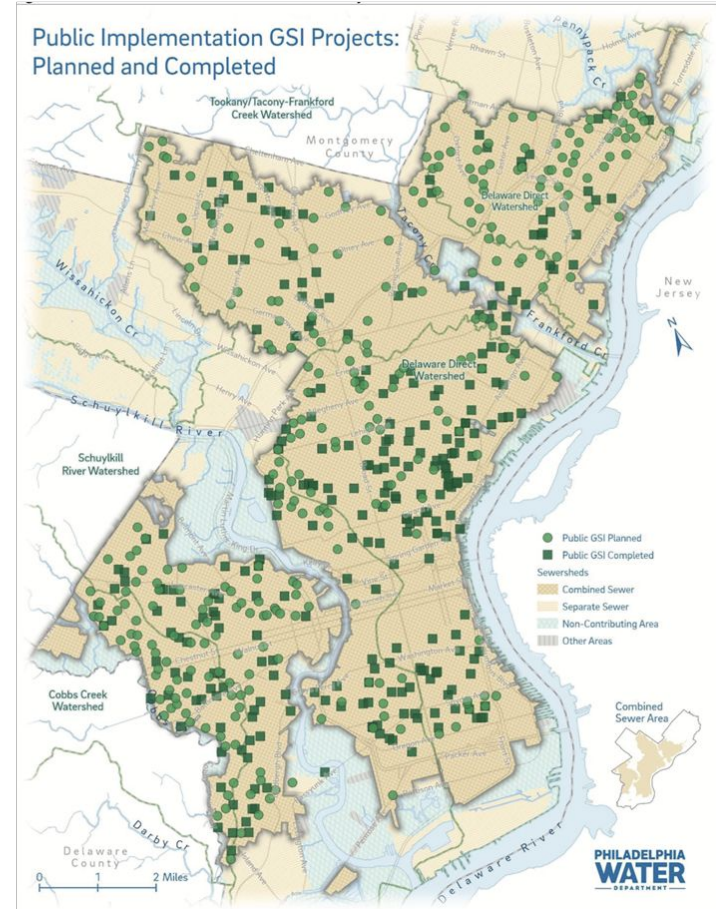
COMBINED-SEWER OVERFLOWS (CSOs) IN THE CHARLES RIVER



EXTREME PRECIPITATION & SEWER OVERFLOWS As our climate changes, we are seeing both drought, as in 2020 and 2022, and more intense, heavy rainfall events that cause combined-sewer overflows, as in 2021.



- 1st inch of precipitation on 9,546 acres treated with GSI.
- Capture 85% of baseline flow before it enters CSS.
- As of 2021 2,152 GA implemented
- >800 GA built by 2020 on private land
- Average cost \$151,000 per acre



NYC GREEN INFRASTRUCTURE

2021 Annual Report



“manage runoff from 10% of the impervious surfaces in combined sewer watersheds through detention and infiltration source controls.”



Explore & Discover

Kansas City

A new plan incorporating 480 acres of green infrastructure reduced cost of CSO compliance to achieve >\$2 Billion in savings.



Long Beach Municipal Urban Stormwater Treatment (LB-MUST)



- capacity to treat **2 million gallons per day**
- **Advanced Treatment:** ceramic ultrafiltration, media filtration, and photocatalytic advanced oxidation processes.
- Treated water sustains constructed wetlands adjacent to the facility which ultimately drain to the river.
- Future phases will connect to more pump stations, pilot reuse of treated water for irrigation, toilet flushing, and other permitted uses.



PUBLIC MEETING

Combined Sewer Overflow (CSO) Control Planning Update
for the Charles River and Alewife Brook/Mystic River

Did you know that heavy rainfall can cause our sewer systems to overflow and pollute our rivers? Did you know that there are multiple tools available to minimize these overflows?

6PM

**Wednesday
November 15,
2023**

Register online for
this Zoom meeting.



<https://tinyurl.com/CSOmeeting3>



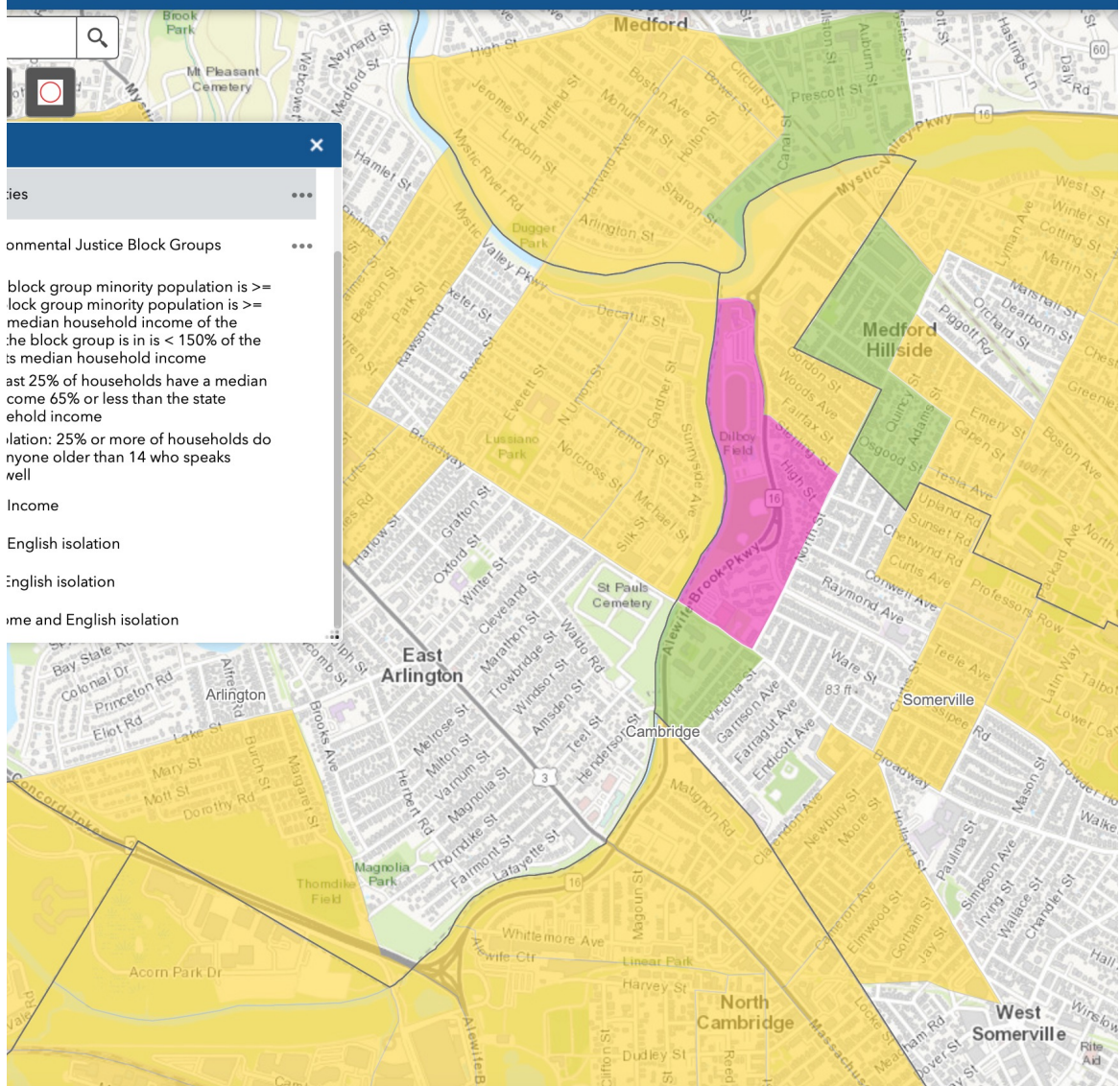
CSOs on the Mystic River and Alewife Brook

Legislative Briefing, October 19, 2023

Patrick Herron, Mystic River Watershed Association

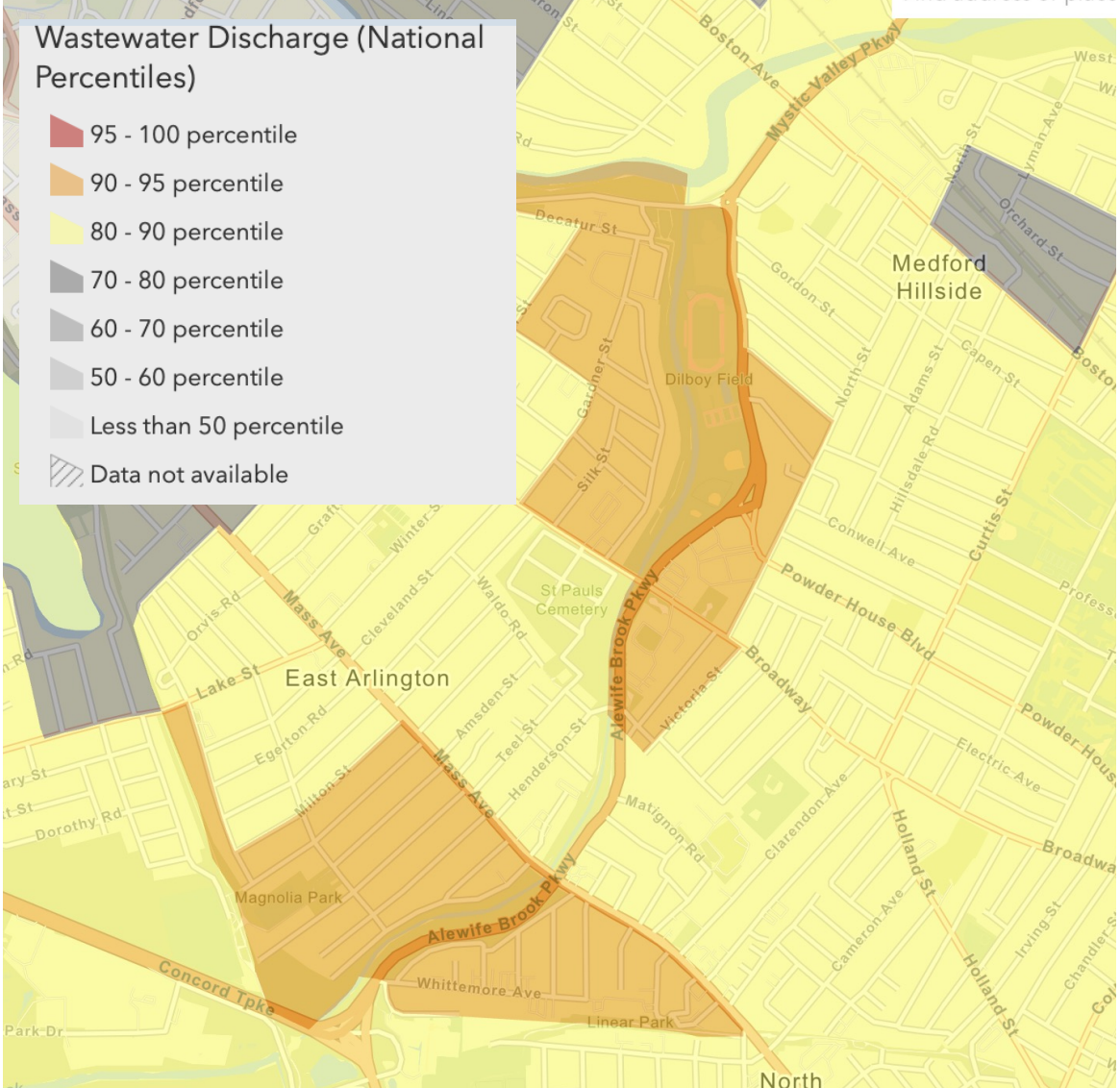
Lands of Massachusetts, Nipmuc and Pawtucket tribes

City of Cambridge 2020 Environmental Justice Populations [Click in any EJ community for details](#) [More information about EJ](#)



EPA Environmental Justice neighborhood near Alewife

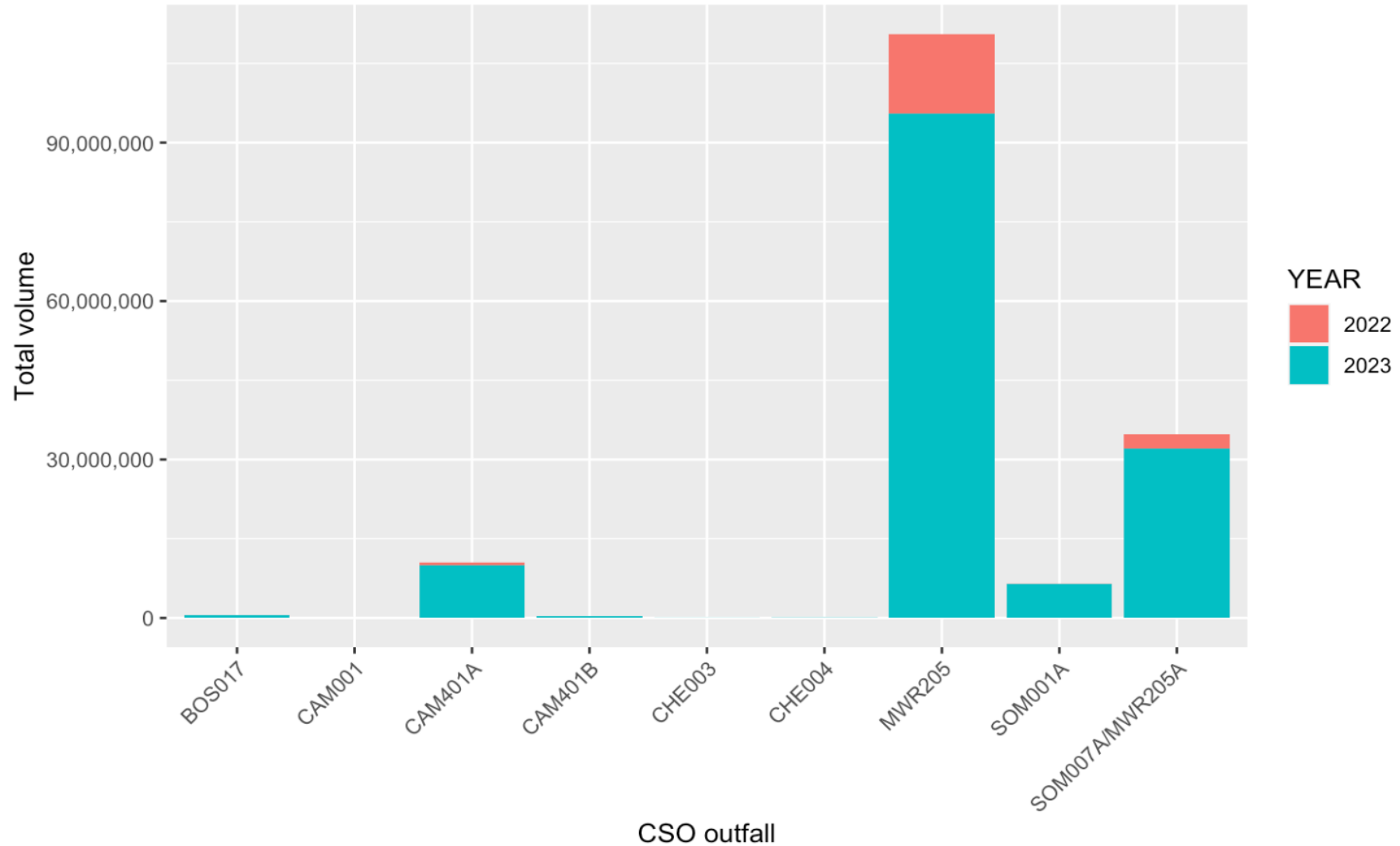
Find address or place



EPA EJ Screen Wastewater Toxics exposure index

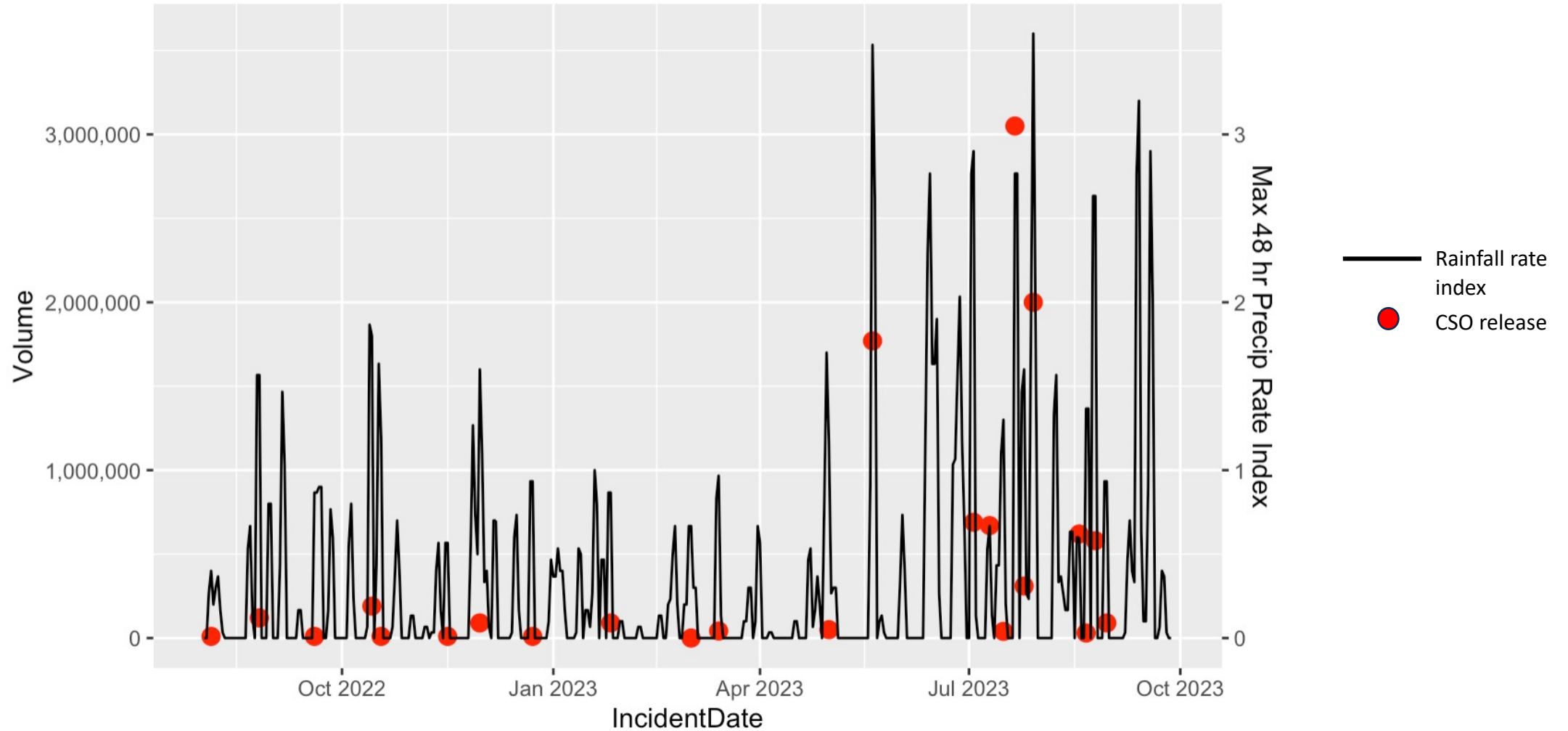
2023 rainfall patterns caused large CSOs in Mystic and Alewife Brook

Mystic River and Alewife CSO volumes Aug 2022- September 2023



High rainfall **rates** cause the biggest CSOs

CAM401 CSO volumes 2022-23 and Maximum Precipitation Rate



High-intensity storms will become more common with climate change



This is the moment for investment

Patrick.Herron@mysticriver.org



Combined Sewer Overflows: An Environmental Justice Tragedy

Dr. Nathan Sanders

Harvard University, Berkman Klein Center Affiliate

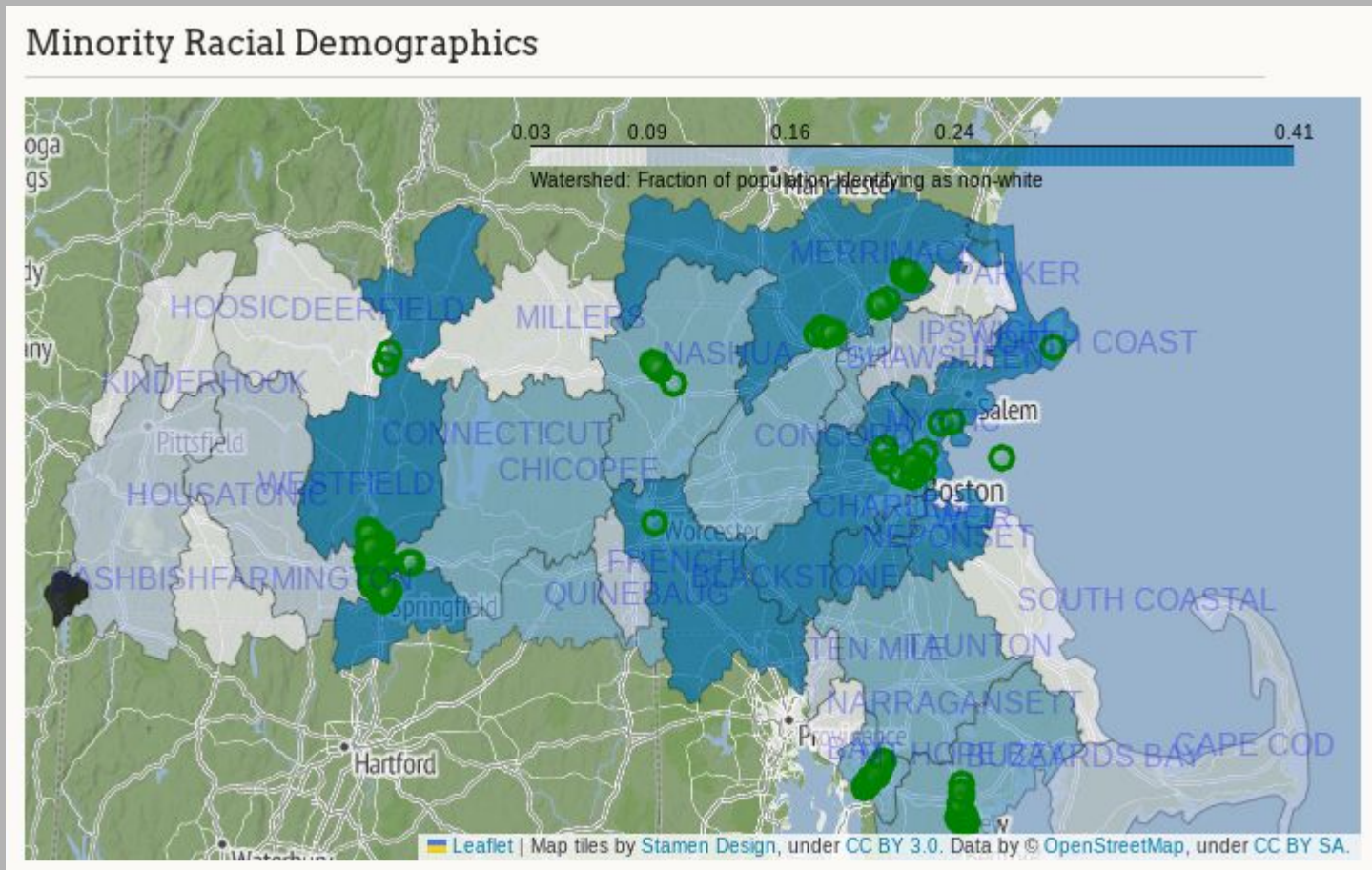
MA EEA Definition of Environmental Justice

“Environmental justice is the **equal protection and meaningful involvement of all people** and communities with respect to the development, implementation, and enforcement of energy, climate change, and environmental laws, regulations, and policies and the **equitable distribution of energy and environmental benefits and burdens.**”

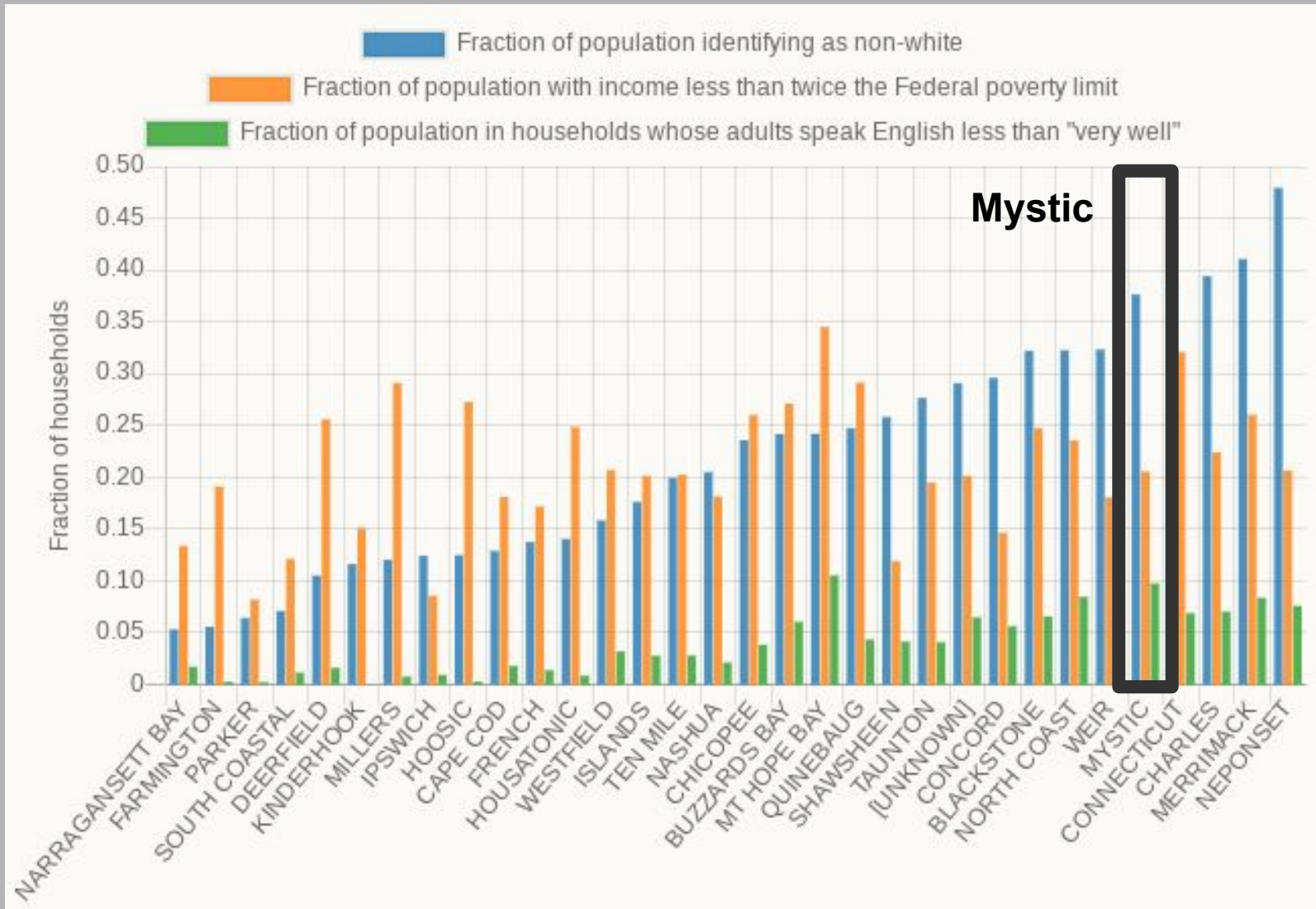
*In a just Commonwealth,
your ZIP code would not
determine your
sewage exposure...*

...but in Massachusetts today, it does

CSOs Are More Common in EJ Watersheds



Mystic Has EJ Populations & Sewage Burden



Since July 2022, the Mystic watershed has experienced...

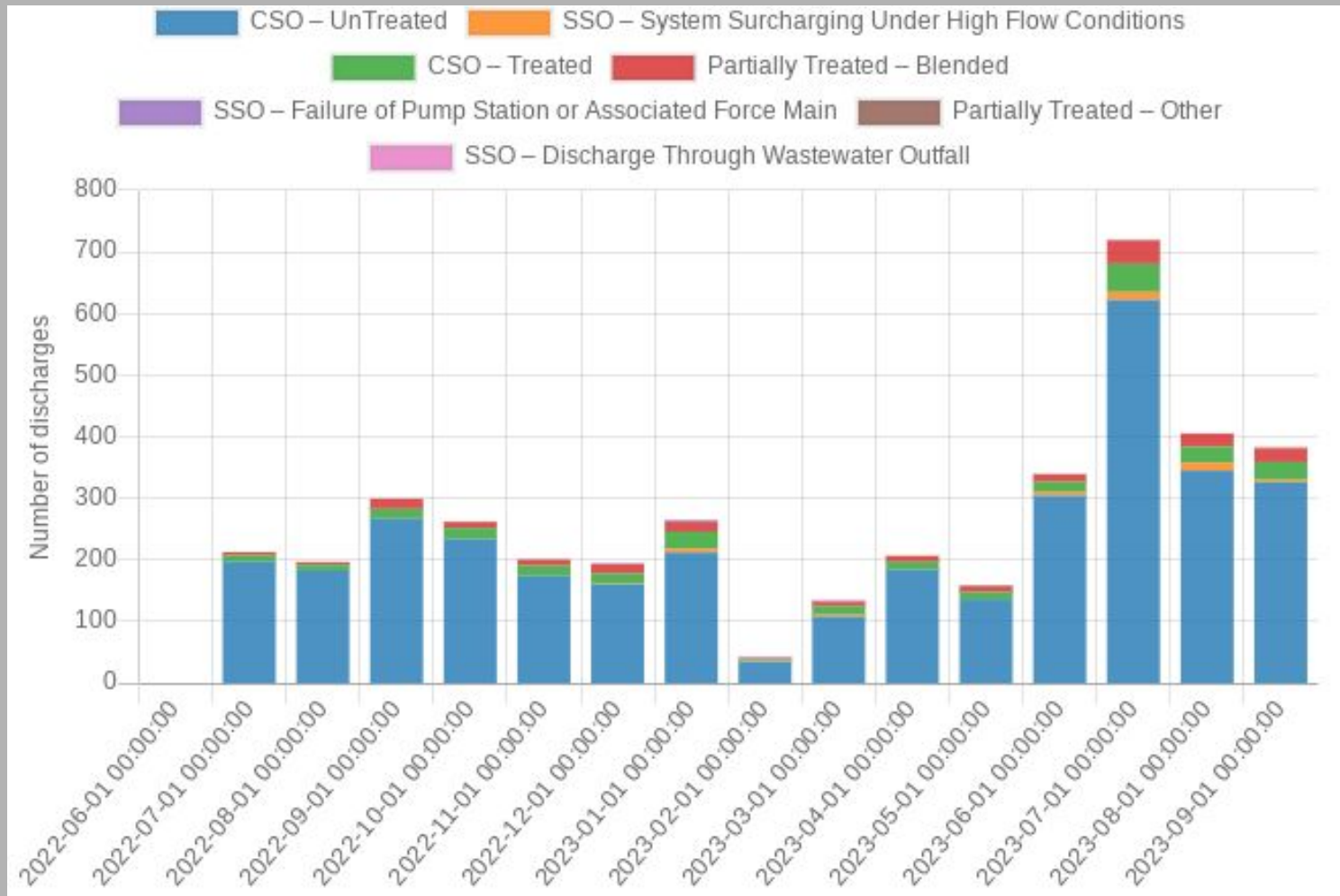
18.3 million gallons of discharge to the Alewife Brook

158 million gallons of discharge to the Mystic river

187 million total gallons of discharge

*The sewage notification system
gives us a new window on
the disparate impacts of
sewage pollution*

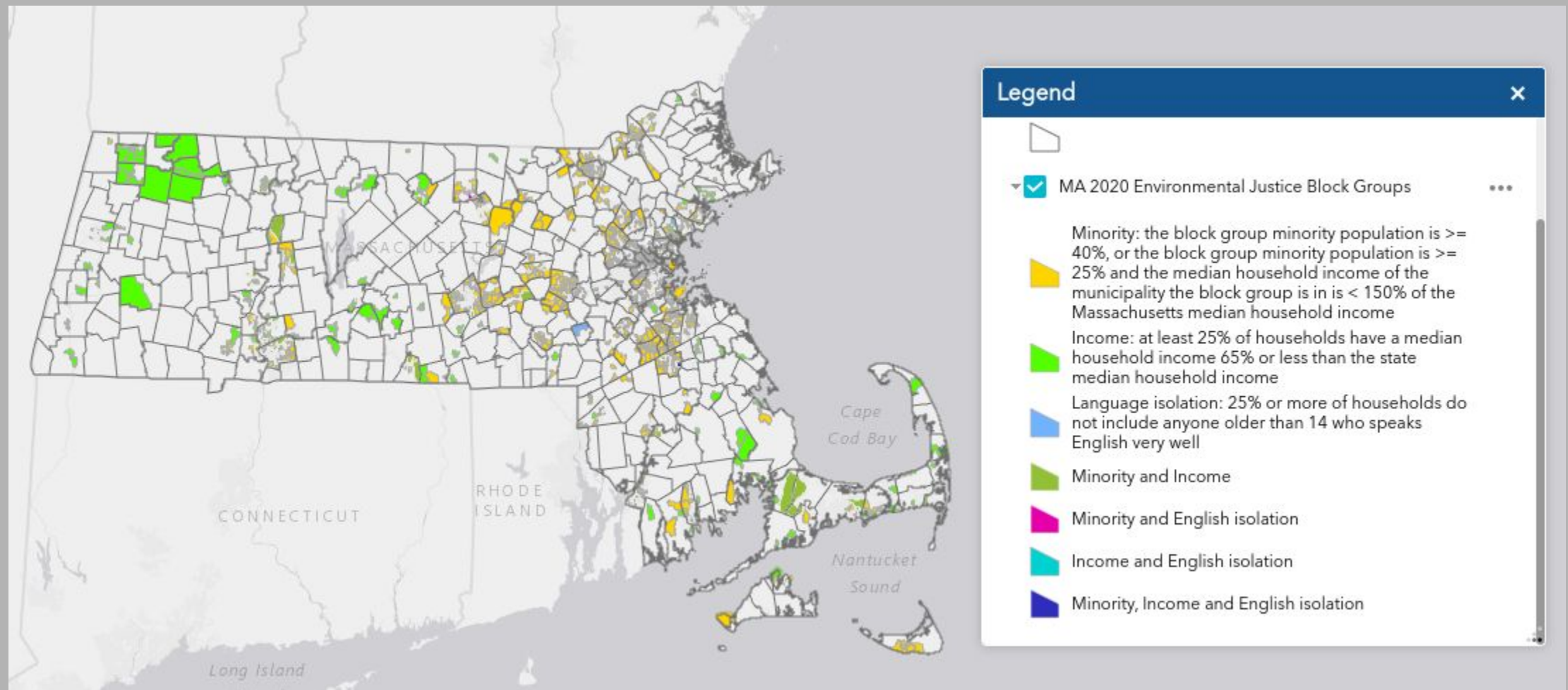
First 16mo of Data Under the Notification Law



Nearly
7 billion gallons of
verified discharge
reported in 16 months

Discharge reports are now available in near-real time

Map of MA EJ Communities



Census block data can be aggregated to watershed level

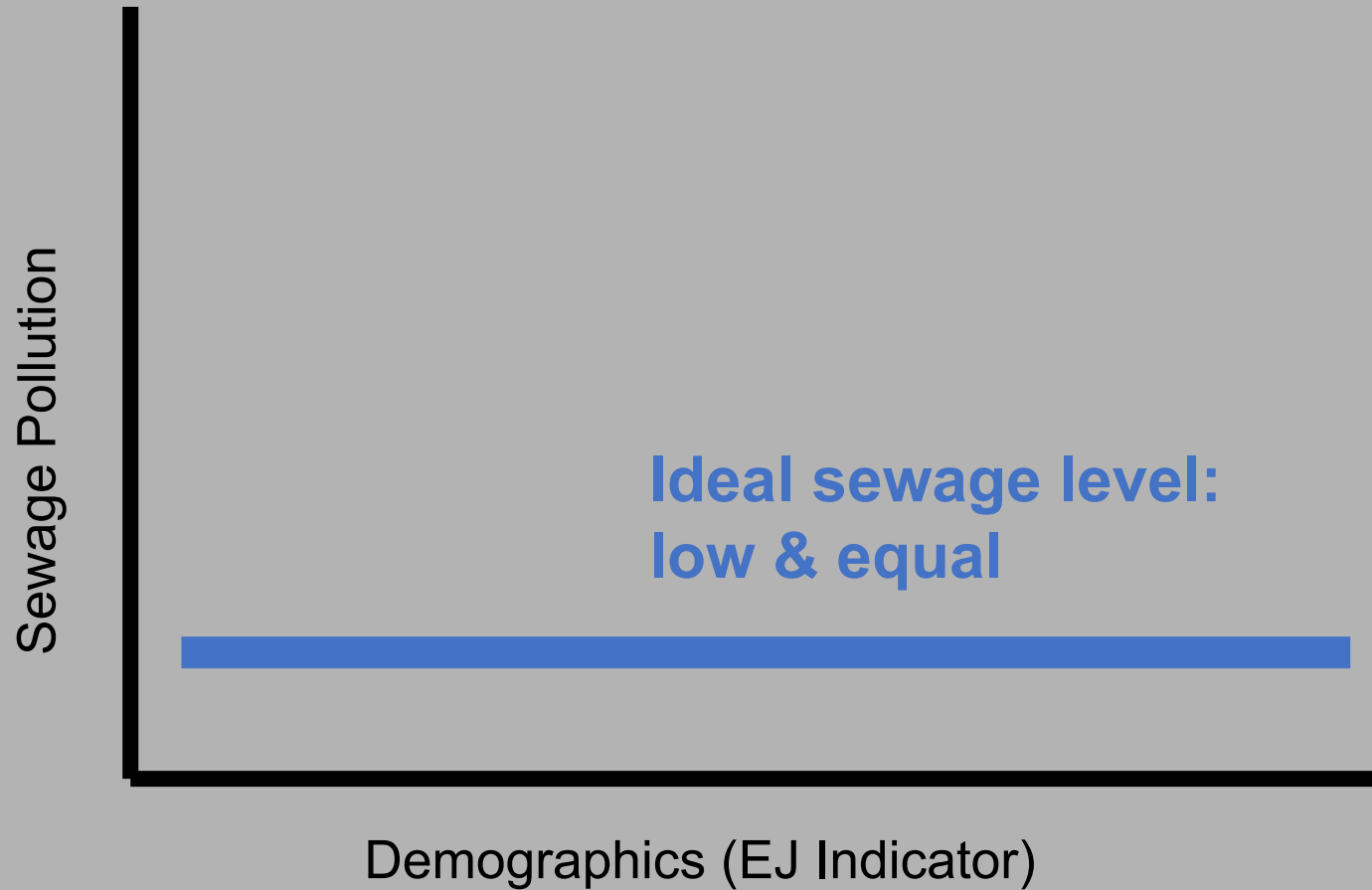
Pollution & Demographics Should Not Correlate

Testing for disparate impact:

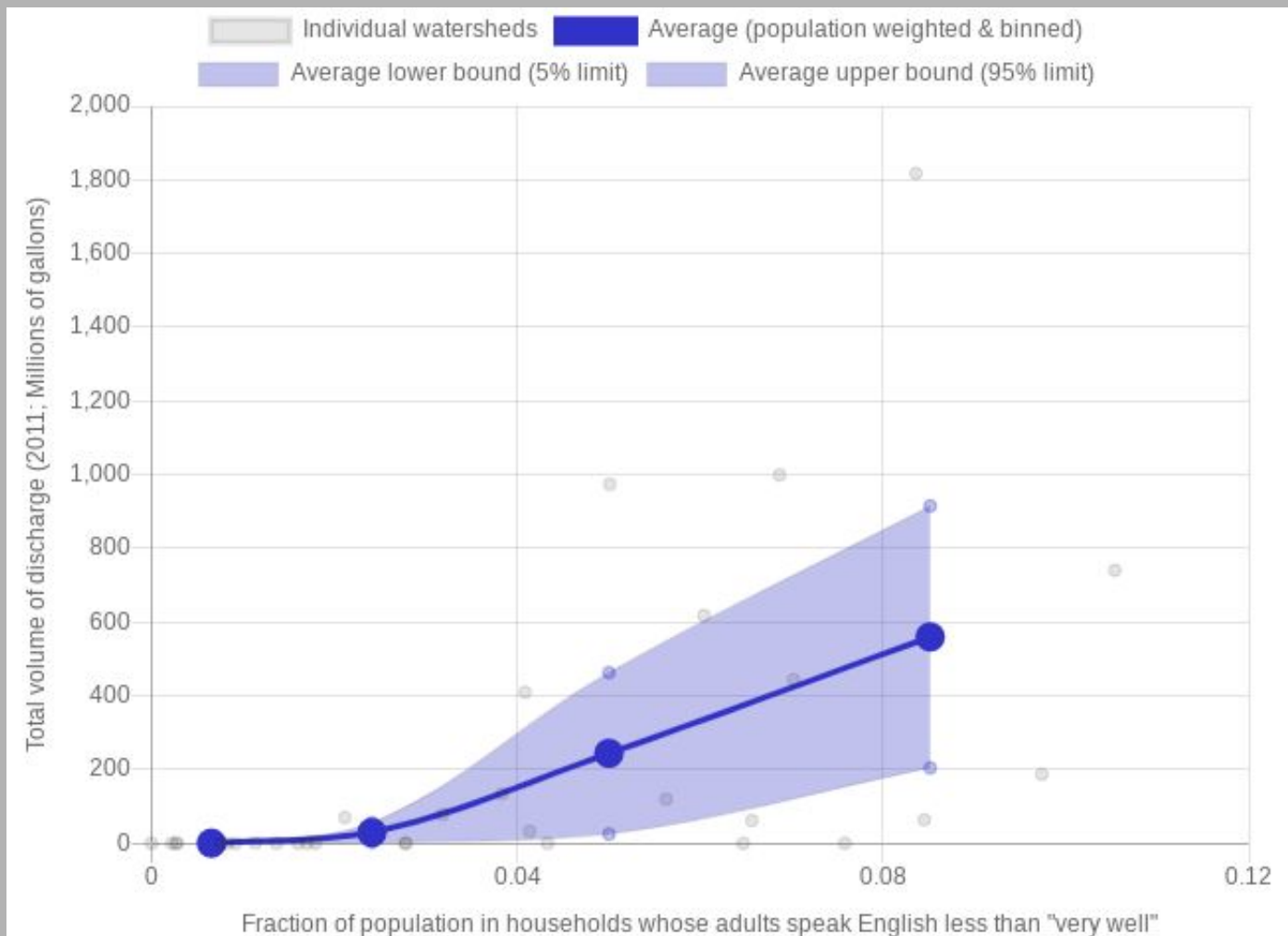


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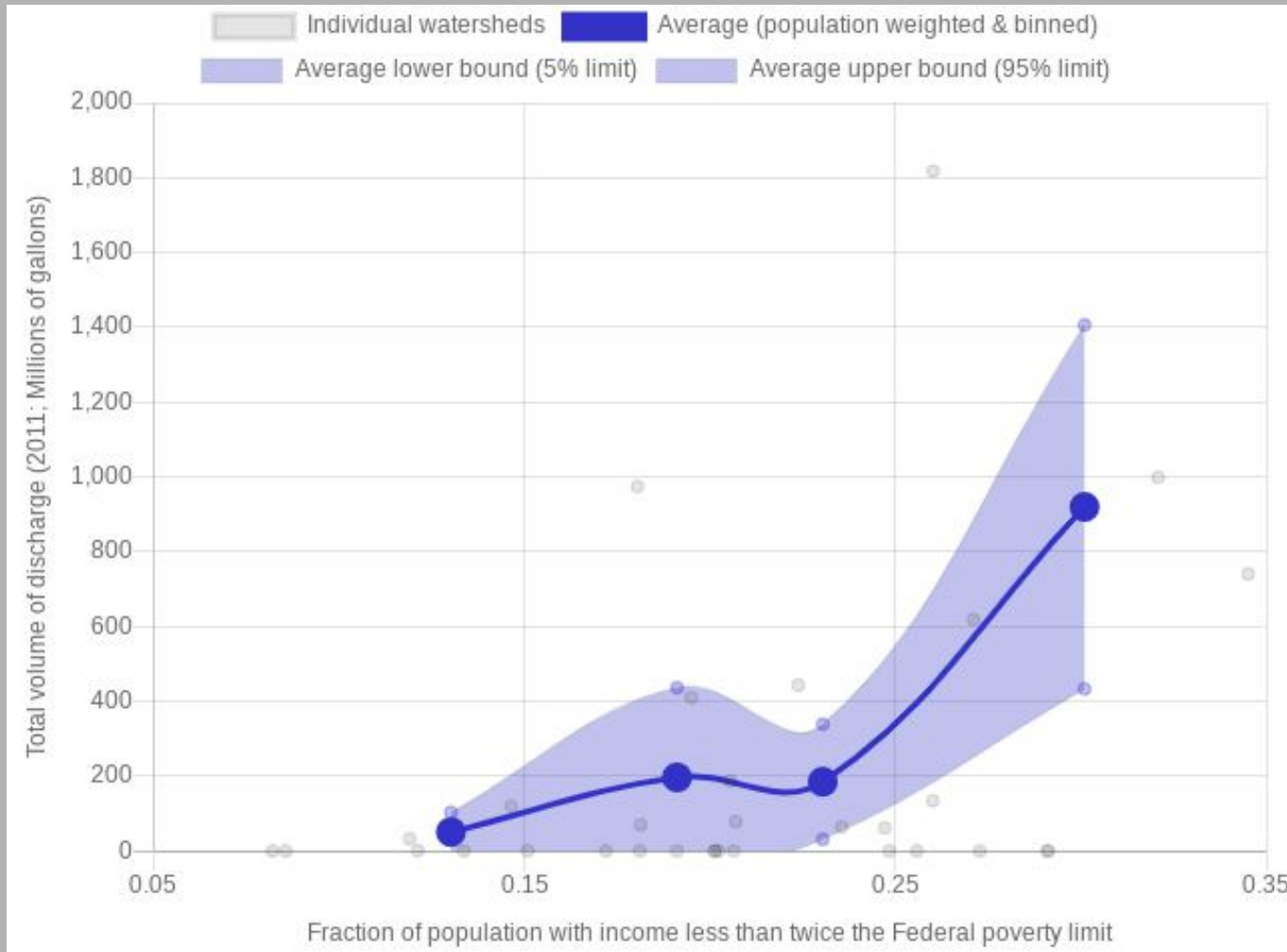
CSO Discharges Versus Language Isolation



On average,
if a watershed has
2x as much
linguistic isolation,
it will have
**1.8x as much
sewage discharge**

Relationship between CSO and linguistic isolation is
strong and statistically significant

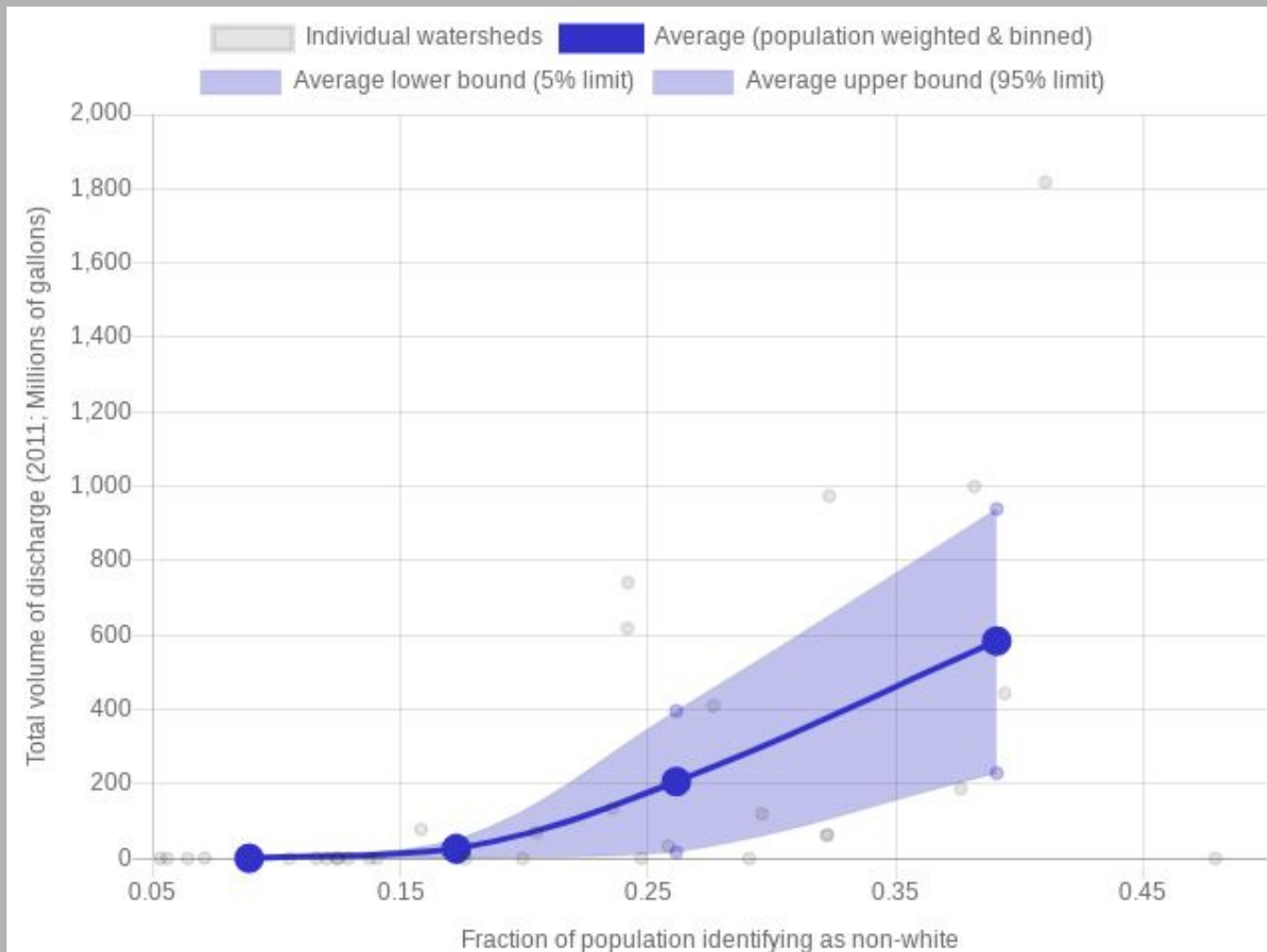
CSO Discharges Versus Poverty



On average,
if a watershed has
2x as many people in
poverty,
it will have
**3.4x as much
sewage discharge**

Relationship between CSO and **poverty** is
strong and statistically significant

CSO Discharges Versus Race



On average,
if a watershed has
2x as many
people of color,
it will have
4.4x as much
sewage discharge

Relationship between CSO and racial minority population is strong and statistically significant

*Environmental Justice
communities deserve action
to restore an equitable
distribution of sewage burdens*

