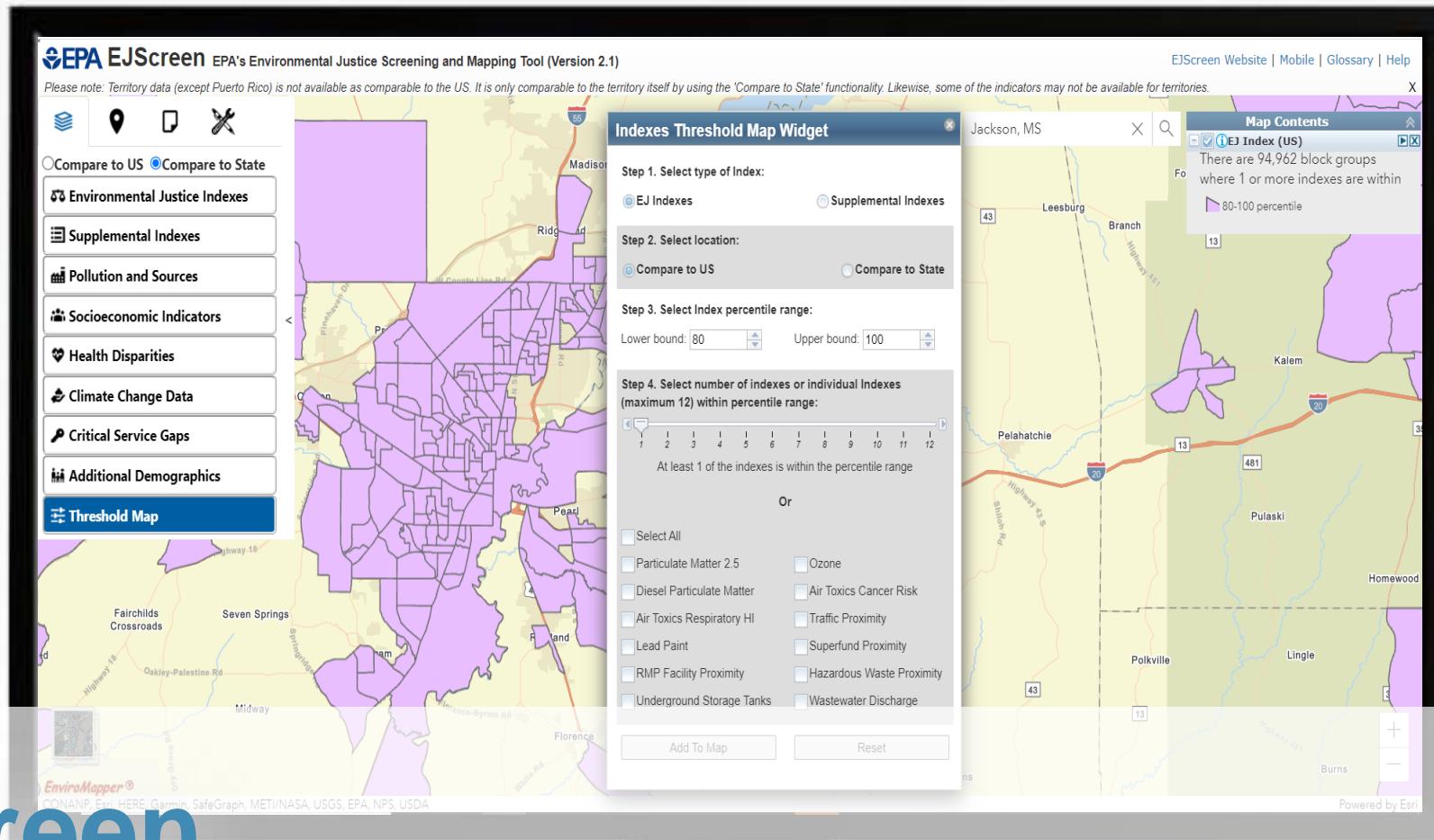
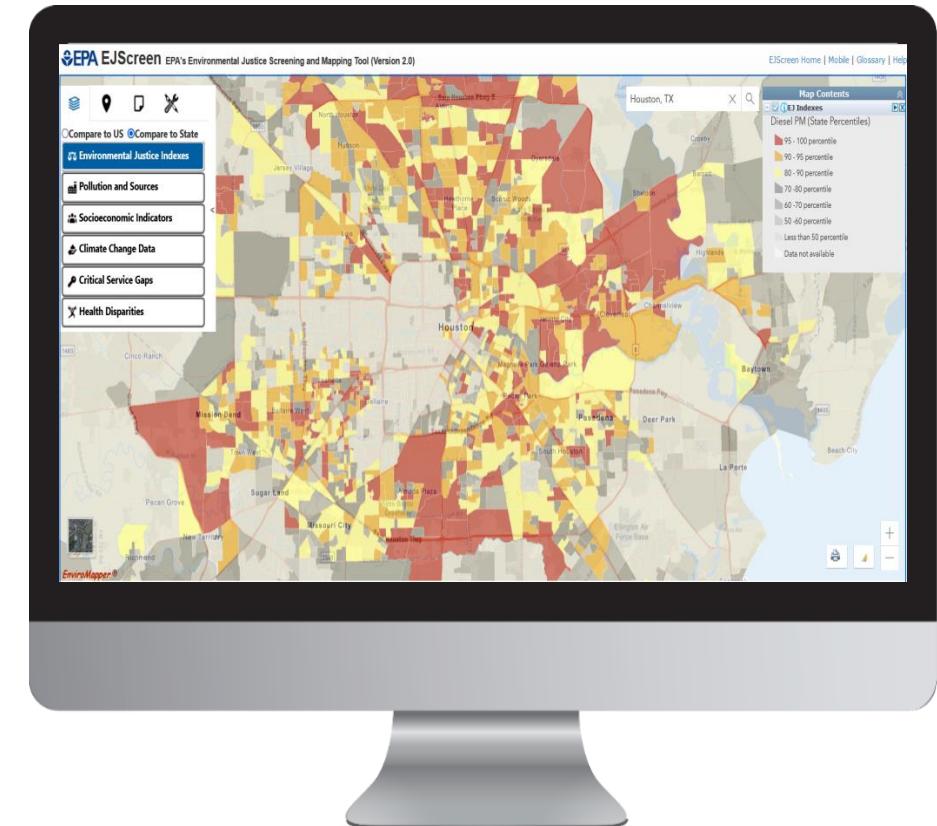


# EJScreen EPA's Environmental Justice Screening Tool



# What is EJSscreen?

- EPA's web-based GIS tool for nationally consistent EJ screening and mapping
- Combines environmental and socioeconomic data to highlight areas where vulnerable populations may be disproportionately impacted by pollution



# Caveats & Limitations

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EJScreen does not cover all environmental or EJ issues

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Environmental indicators are mostly screening-level proxies for actual exposure or risk

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Indicators vary in vintage

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Census data has limitations and can obscure small communities

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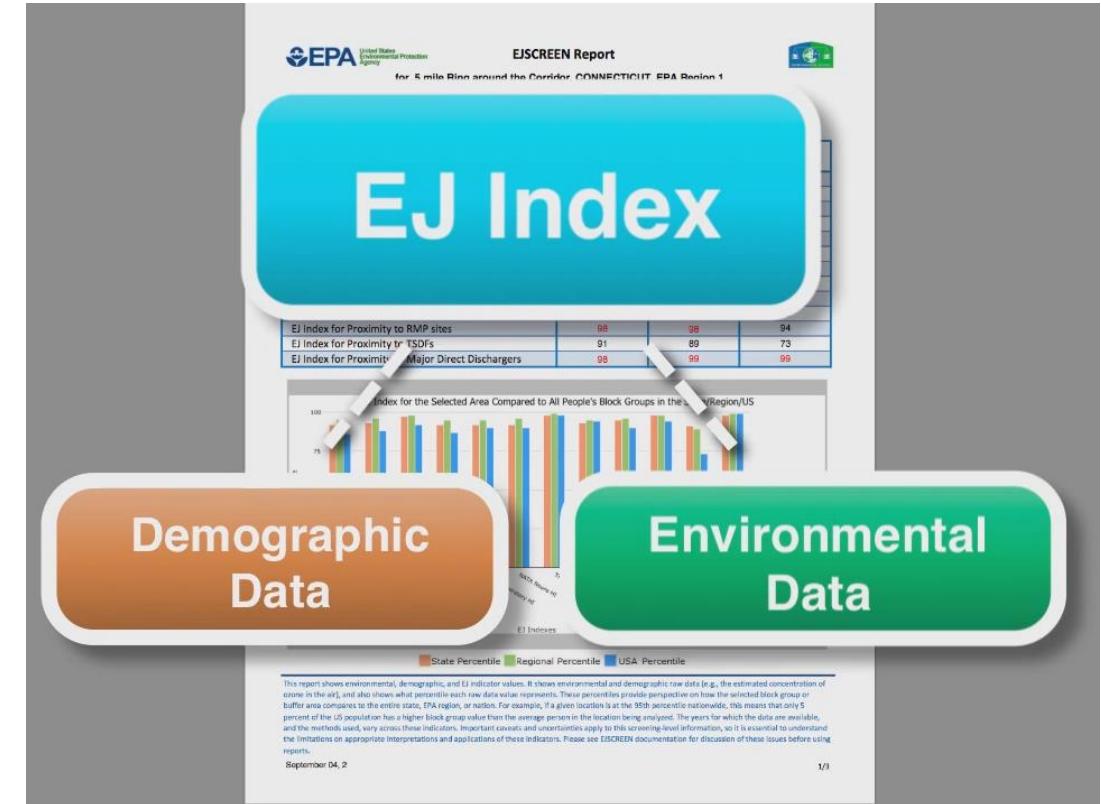
Results should be verified on the ground when possible

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**EJScreen is not a labeling tool; does not label “EJ communities”**

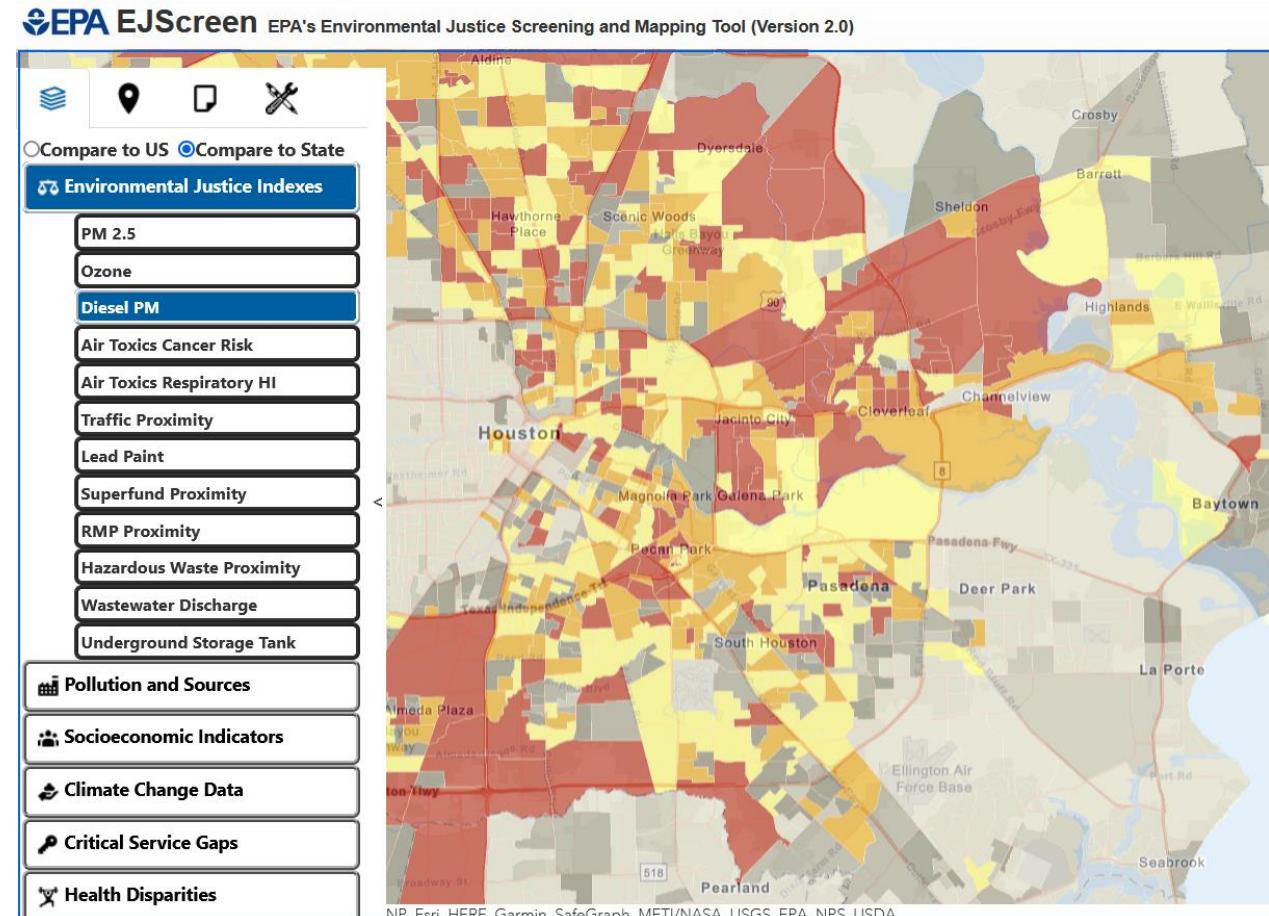
# Primary EJSscreen Datasets

- **EJ Indexes (12)**
- **Supplemental Indexes (12)**
- **Environmental (12 indicators)**
- **Socioeconomic (7 indicators)**
- **Health (3 indicators)**
- **Climate (6 indicators)**
- **Critical Service Gaps (3 indicators)**



# EJScreen Key Features

- Annually updated environmental data
- Annually updated demographics – from most recent U.S. Census Bureau American Community Survey (ACS)
- Highest resolution data available
- Ability to download data
- Accessibility / ease of use



# New EJSCREEN 2.1 Features

Released 10/11/22



New Territory Data



Supplemental Indexes



Revised Calculations

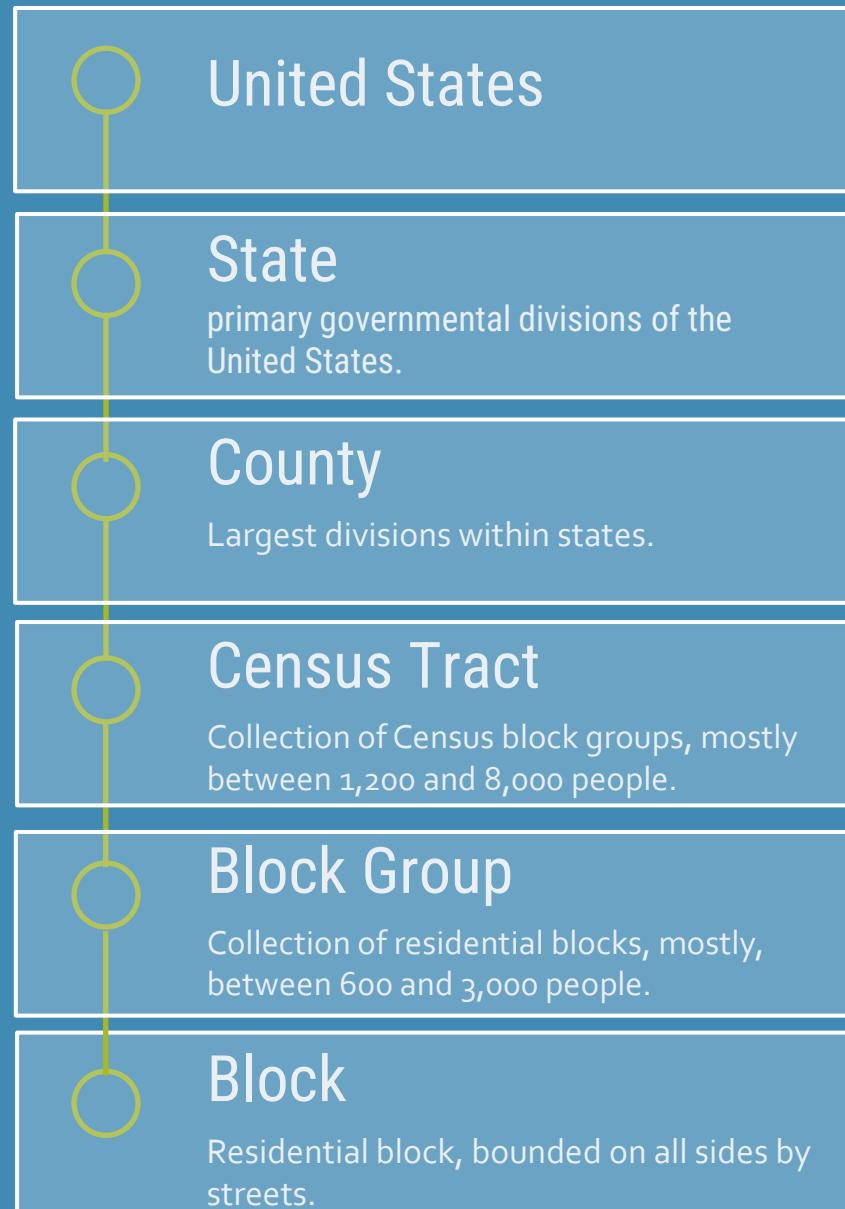


Threshold Maps



Updated Demographic and Environmental Data

# UNITS OF ANALYSIS



# Environmental Indicators

Indicator	Description	Year
Particulate matter 2.5	Annual average of PM 2.5 levels in the air	2018
Ozone	Ozone summer seasonal avg. of daily maximum	2018
Diesel particulate matter	Diesel particulate matter level in air	2017
Air toxics cancer risk	Lifetime cancer risk from inhalation of air toxics	2017
Air toxics respiratory hazard index	Air toxics respiratory hazard index (ratio of exposure concentration to health-based reference concentration)	2017
Traffic proximity and volume	Count of vehicles on major roads, divided by distance in meters	2019

# Environmental Indicators (cont'd)

Indicator	Description	Year
Lead paint	Percent of housing units built pre-1960, as indicator of potential lead paint exposure	2016 - 2020
Superfund proximity	Count of proposed or listed NPL - also known as Superfund - sites within 5 km, each divided by distance in kilometers	2022
Risk management plan facility proximity	Count of RMP (potential chemical accident management plan) facilities within 5 km, each divided by distance in kilometers	2022
Hazardous waste proximity	Count of hazardous waste facilities (TSDFs and LQGs) within 5 km, each divided by distance in kilometers	2022
Underground storage tanks (UST) and leaking UST (LUST)	Count of LUSTs (multiplied by a factor of 7.7) and the number of USTs within a 1,500-foot buffered block group	2021
Wastewater Discharge Indicator	RSEI modeled Toxic Concentrations at stream segments within 500 meters, divided by distance in kilometers	2019

# Socioeconomic Indicators

Indicator	Definition
People of color	Individuals who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino
Low-Income	Households income is less than or equal to twice the federal "poverty level"
Unemployment	All those who did not have a job at all during the reporting period, made at least one specific active effort to find a job during the prior 4 weeks, and were available for work (unless temporarily ill).
Limited English Speaking	Households in which all members age 14 years speak English less than "very well" (have difficulty with English)
Less than high school education	People age 25 or older whose education is short of a high school diploma
Under age 5	People in a block group under the age of 5
Over age 64	People in a block group over the age of 64

All Socioeconomic Data comes from the **2016-2020 ACS**

# Demographic Indexes

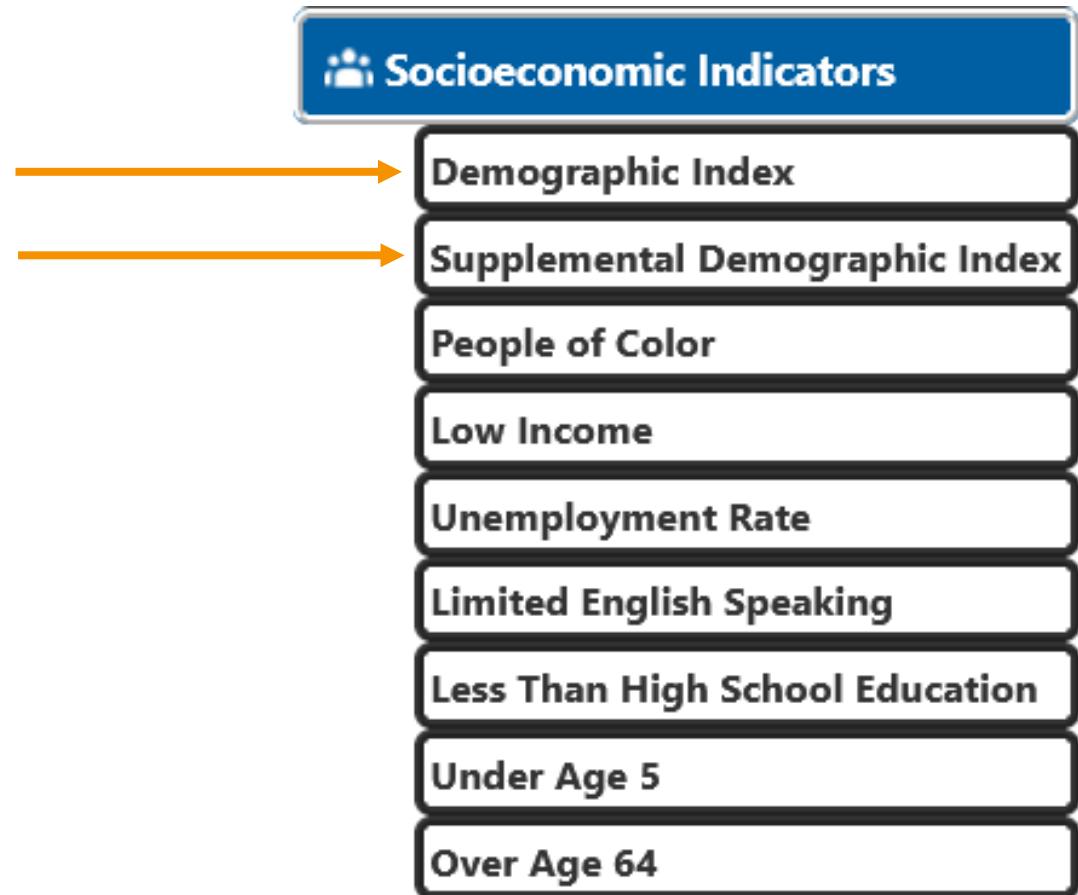
- EJScreen now features two different indexes based on socioeconomic data

- **Demographic Index**

- % Low Income
    - % People of Color

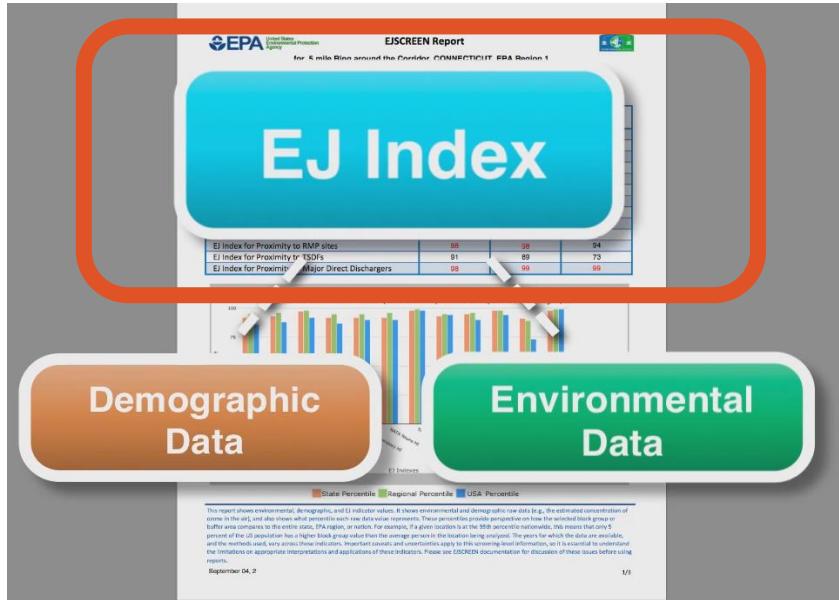
- **Supplemental Demographic Index**

- % Low Income
    - % Unemployed
    - % Limited English Proficiency
    - % Less than High School Education
    - Low Life Expectancy



- Indexes offer different perspectives on vulnerable communities

# What do the indexes help identify?



Indexes helps identify areas that may have **higher pollution burdens** and **vulnerable populations** present

New  
Calculation:

$$\text{EJ Index} = \frac{\text{Environmental Indicator Percentile}}{\text{Demographic Index}}$$

Applies to both EJ Indexes and Supplemental Indexes

# Results are Ranked as Percentiles

- Percentiles put indicators into common units of 0 – 100.
- A place at the 80th percentile nationwide means 20% of the US population has a higher value.
- Ranking values as percentiles allows comparison of indicators measured with different units. It does not mean the risks are equal or comparable.



# Health Indicators

Indicator	Definition
Low Life Expectancy	Average life expectancy
Heart Disease	Heart disease prevalence among adults aged 18 years or older
Asthma	Asthma prevalence among adults aged 18 or older

All Health indicators come from the CDC and are at the Census tract level

# Climate Indicators

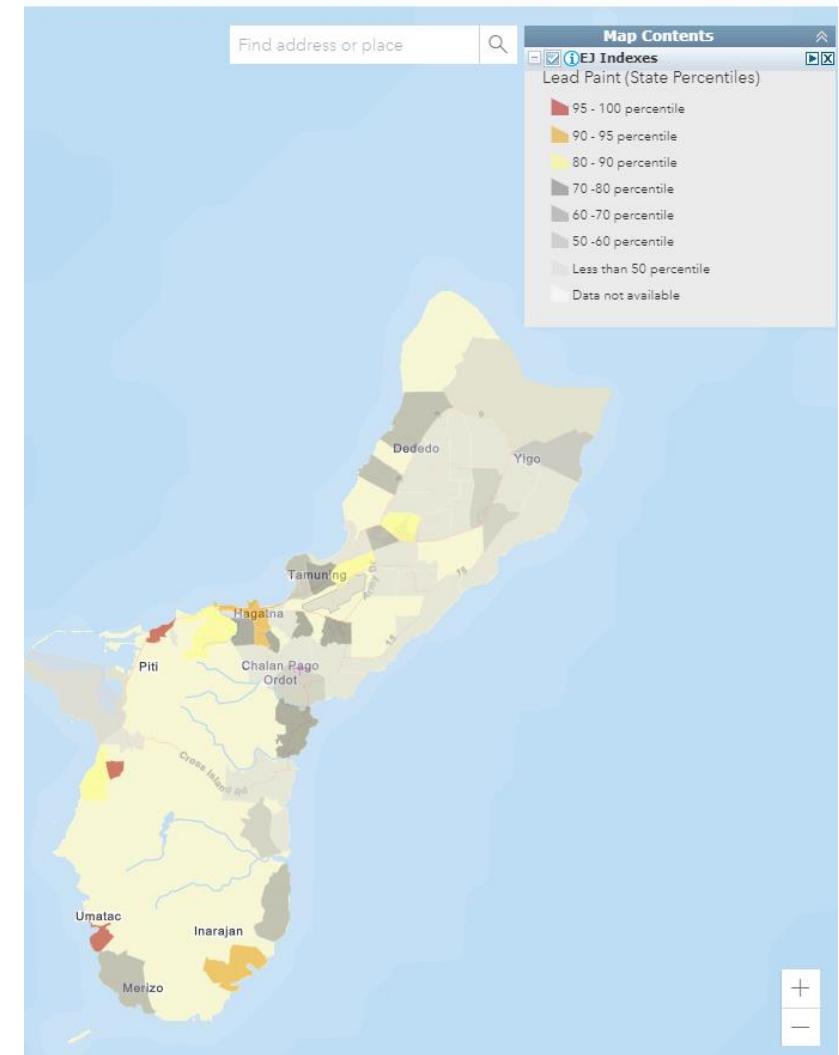
Indicator	Definition
<b>Wildfire Risk</b>	Model representing the wildfire exposure for any specific location in the contiguous US, today and with the future climate change.
<b>Flood Risk</b>	Flood model that shows the risk of flooding at any location in all 50 states and Puerto Rico due to rainfall (pluvial), riverine flooding (fluvial), and coastal surge flooding.
<b>Drought</b>	Change in drought conditions across the contiguous 48 states from 1900 to 2020
<b>Coastal Flood Hazard</b>	Areas in coastal counties that are most prone to coastal flood hazards
<b>100-year Flood Estimates</b>	Estimated 100-year floodplains for the Conterminous US for 2016
<b>Sea Level Rise</b>	Land at risk of permanent flooding when sea level rises.

# Critical Service Gaps Indicators

Indicator	Definition
<b>Food Desert</b>	Low income and low access to food from USDA
<b>Medically Underserved</b>	Areas having too few primary care providers, high infant mortality, high poverty or a high elderly population.
<b>Broadband Internet</b>	Areas where less than 50% of population has broadband

# Territory Data

- For first time ever, EJScreen features data on **US Virgin Islands, Guam, American Samoa, and Northern Mariana Islands**
- Includes select environmental indicators, demographics, & associated indexes
- Important addition for the consideration of EJ in **all** places within the U.S.
- Data will only be compared at “state” level due to different censuses and available datasets



# Territory Data

Available environmental dataset will include:

US Virgin Islands	Guam	American Samoa	Mariana Islands
Lead paint	Lead paint	Lead paint	Lead paint
Superfund proximity	Superfund proximity		
RMP proximity	RMP proximity	RMP proximity	
TSDF proximity	TSDF proximity		
Underground Tanks	Underground Tanks	Underground Tanks	Underground Tanks

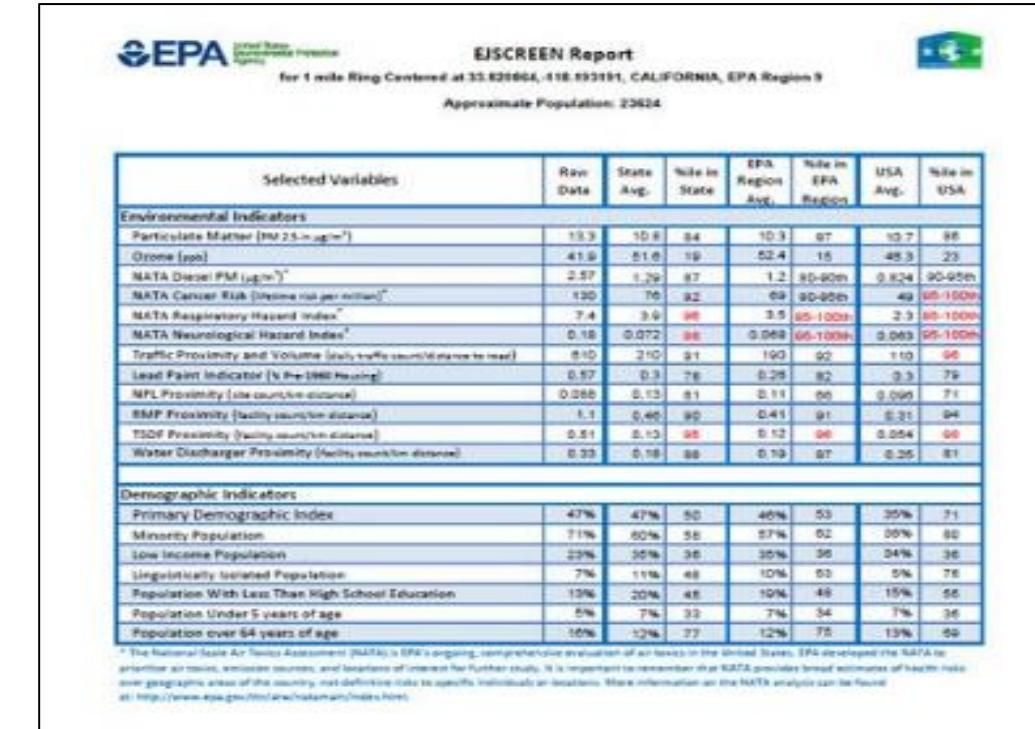
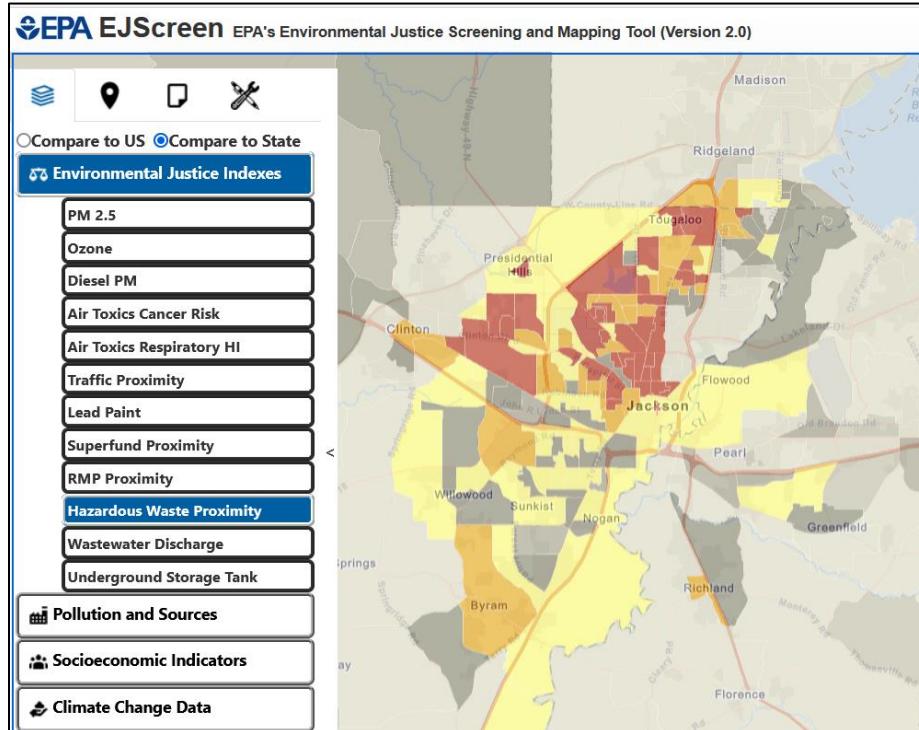
*New data will be added as it is made available*

# Maps, Reports & Tools

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# Viewing EJScreen Data

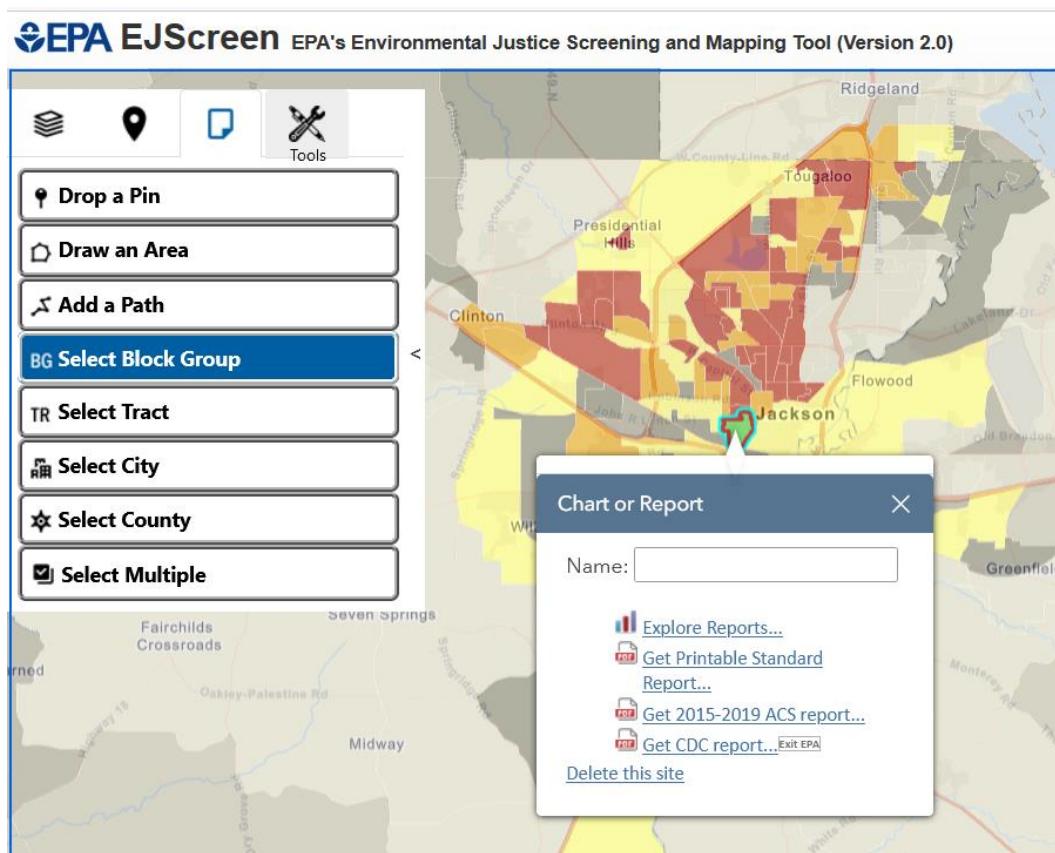
You can view the data within reports or on maps.



A map gives you one indicator at a time, for each of the block groups within a wider area (e.g. across several miles)

A standard report gives you all the indicators at once for a single specified location

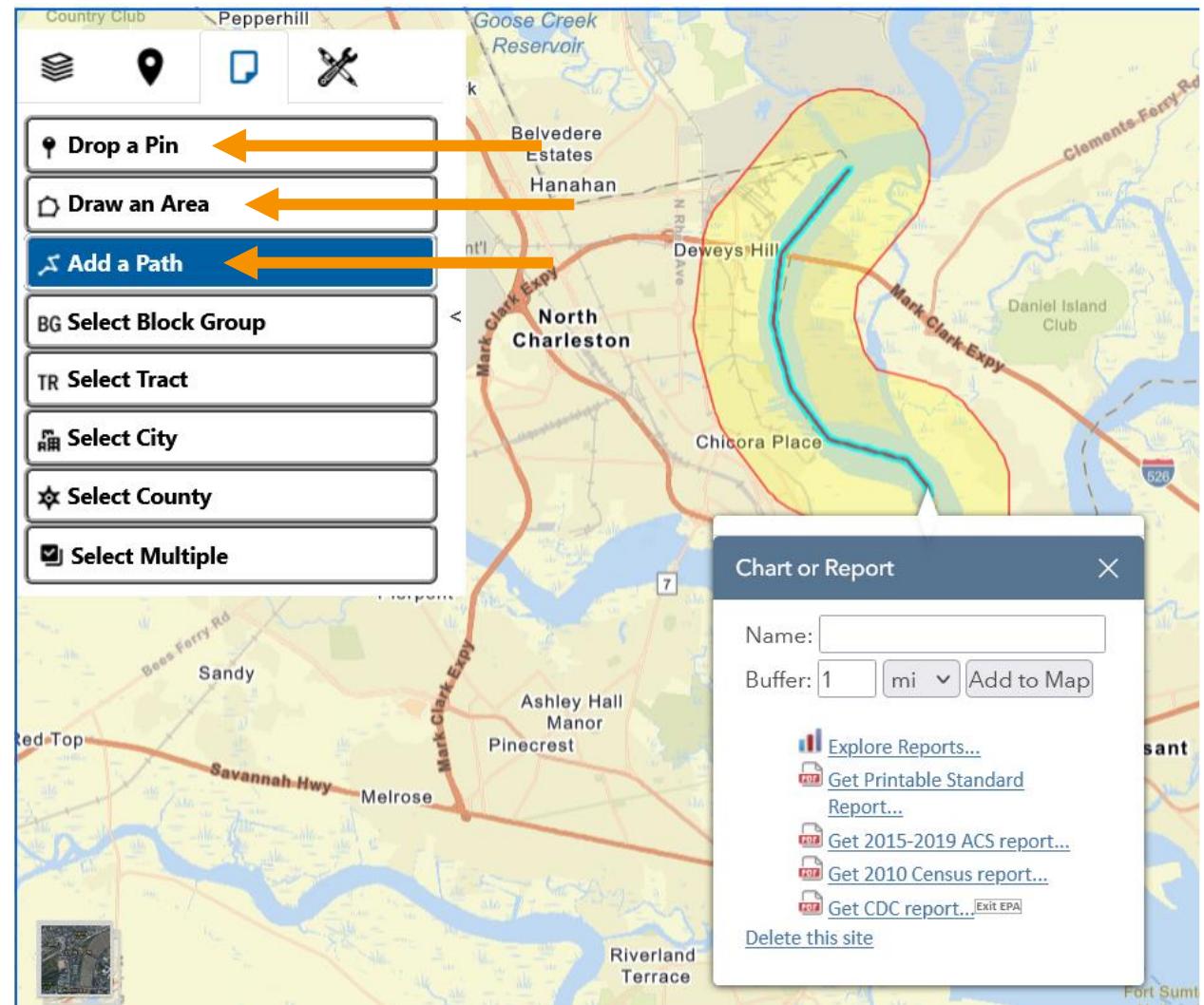
# EJScreen Reports



- Multiple reports available in EJScreen
- Printable Standard Report
  - Sharable analysis of the selected location
  - Complete with maps, graphs, EJ indices, and raw values
- American Community Survey Report
  - Detailed Breakdown of Race/Ethnicity, Linguistic Isolation, Language Spoken, etc.
- CDC Health Report
  - County Level CDC report

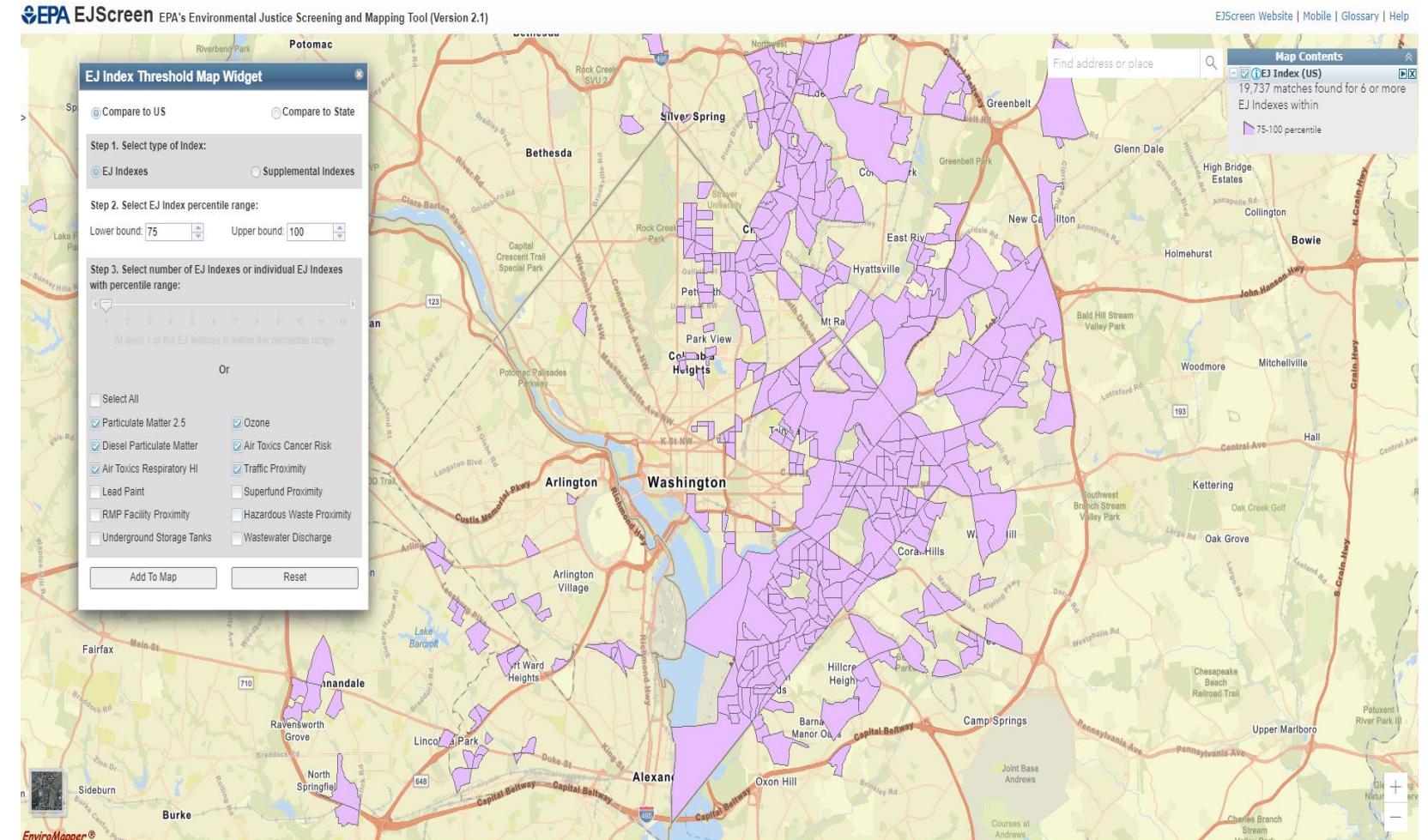
# EJScreen Reports (cont'd)

- Ability for user to define area of assessment
  - Buffer around a pin
  - User-drawn areas/polygons
    - Plumes of pollution, routes of exposure
  - User-drawn paths
    - Impaired waters, highway segments



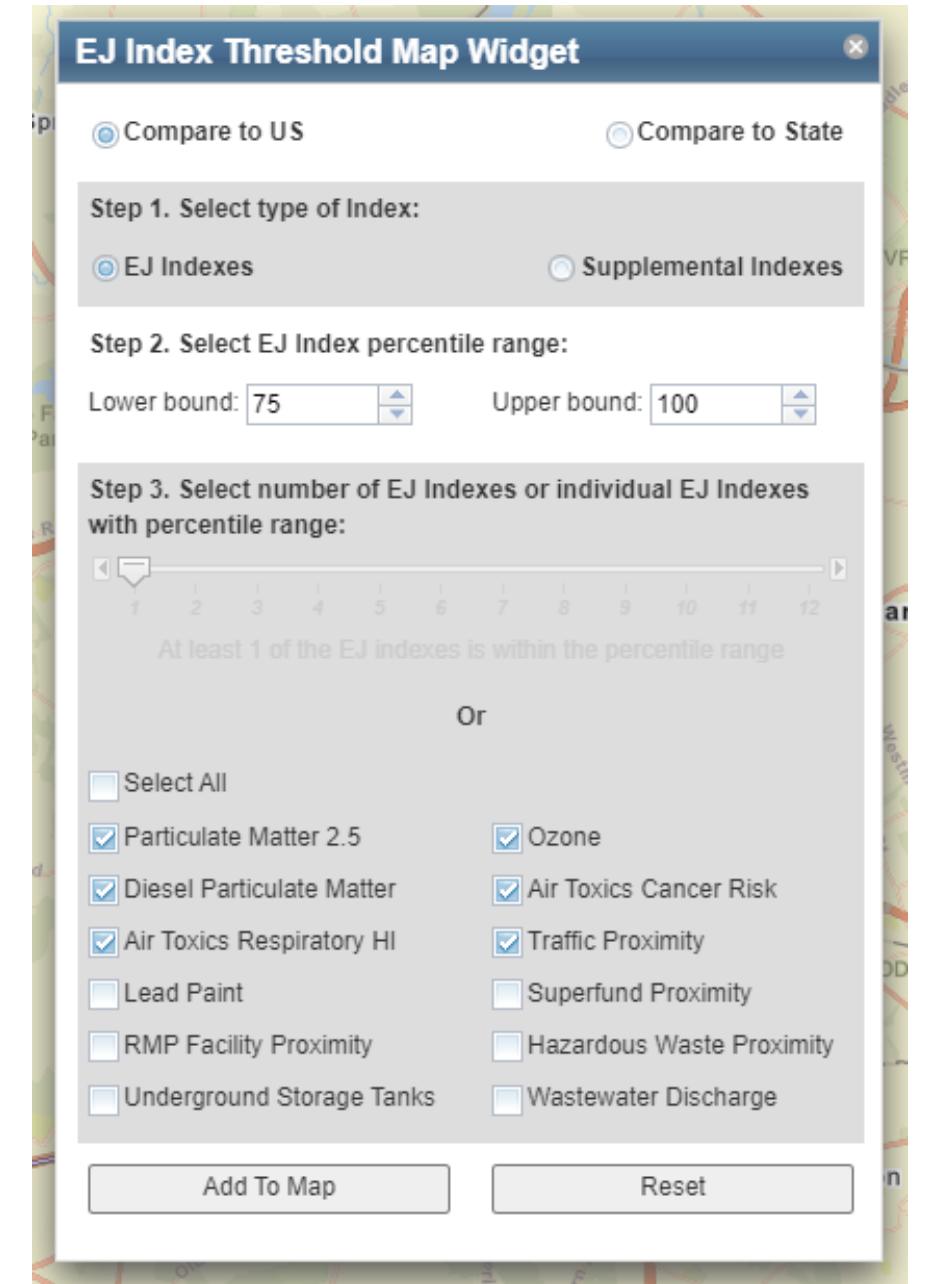
# Threshold Maps

- Allows for user defined thresholds to customize how the results are displayed
- Initial step towards examining cumulative impacts



# Threshold Maps Widget

- Comparable to US or State
- Viewable for EJ indexes and supplemental indexes
- User selected upper and lower bounds
- Ability to choose number of indexes or the individual indexes



# EJScreen in Action at EPA

## EPA uses of EJScreen:

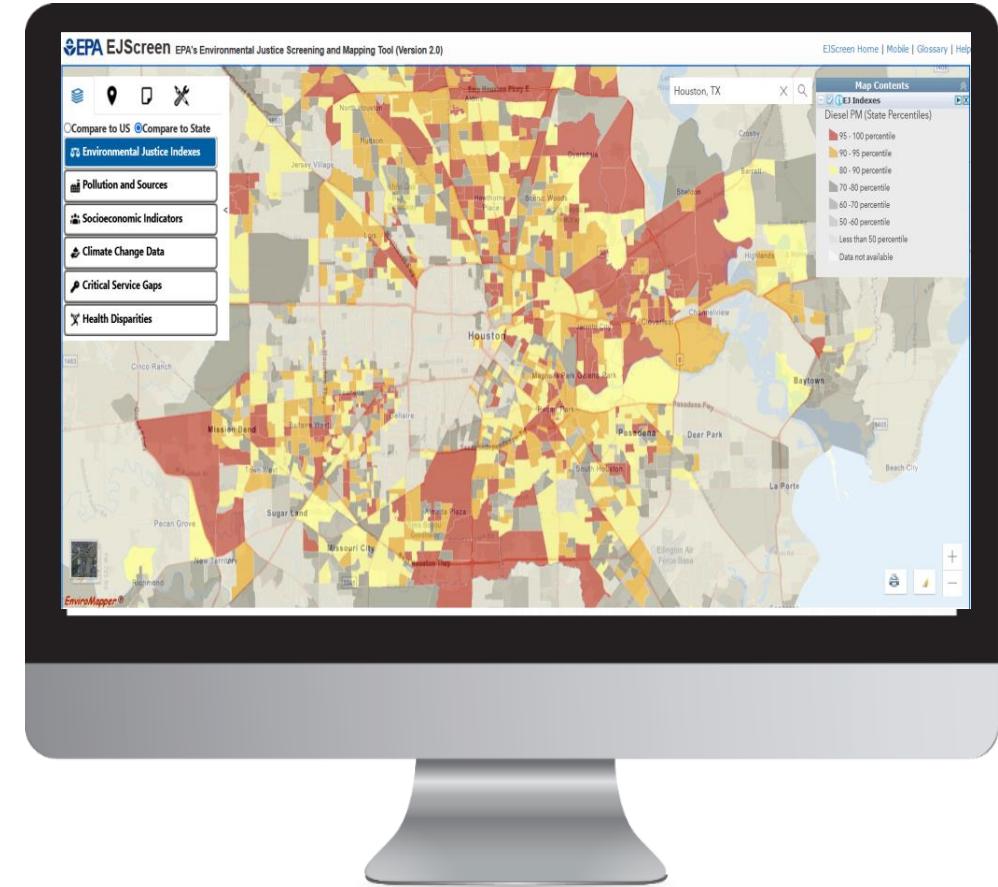
- for public outreach and engagement
- enforcement targeting
- permitting and NEPA reviews
- reviews of grant projects
- other place-based initiatives
- retrospective reporting

## Various EJScreen “platforms” for Integration:

- Web-based platform  
(<https://ejscreen.epa.gov/mapper/>)
- ArcGIS platform  
(<https://www.epa.gov/ejscreen/download-ejscreen-data> )
- ECHO platform  
(<https://echo.epa.gov/>)
- Other EPA mapping tools & databases also incorporate EJScreen data

# EJScreen Resources

- [EJScreen website](#)
- [Trainings and Office Hours](#)
- **Office Hours**
  - December 21 at 12 p.m. E.T. (Public)



[Click to access EJScreen Tool](#)

# Questions?

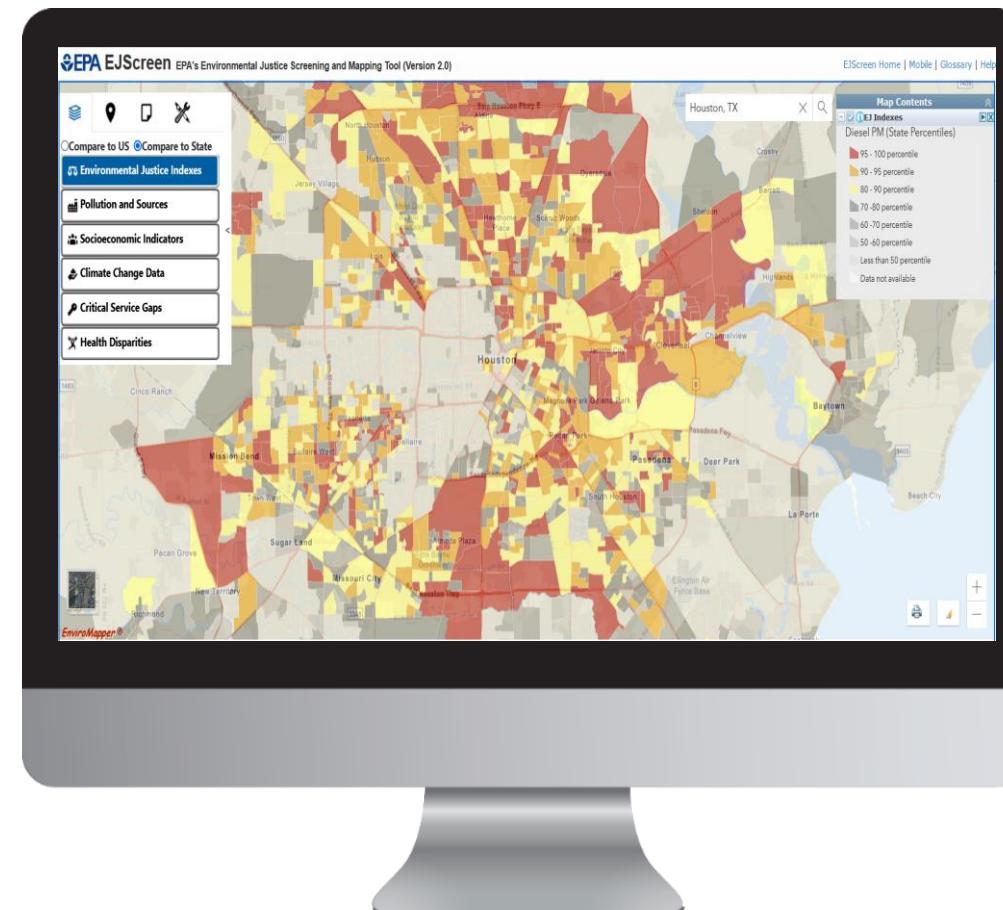
## Contact Information

Matthew T. Lee

Office of Environmental Justice and External Civil Rights

[Lee.Matthew@epa.gov](mailto:Lee.Matthew@epa.gov)

# LIVE DEMO



*Click to access EJScreen Tool*