

EJ Screen Chesapeake

Using GIS to prioritize environmental justice

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Background

- Modified version of the national EJ Screen tool that integrates **Chesapeake Bay Watershed** data
- Originally designed as pilot to provide information on **demographics** and **environmental conditions** and their relationship to the Chesapeake Bay Watershed Agreement
- Initial focus:
 - Public access
 - Toxic contaminants
 - Climate resiliency

Uses

- Increase your **impact** and promote **Diversity, Equity, and Inclusion** (DEI) and **Environmental Justice** (EJ)
- Use the tool in conjunction with other tools and resources to **make informed decisions**
- Target areas and communities that are traditionally **underrepresented** and **underserved**

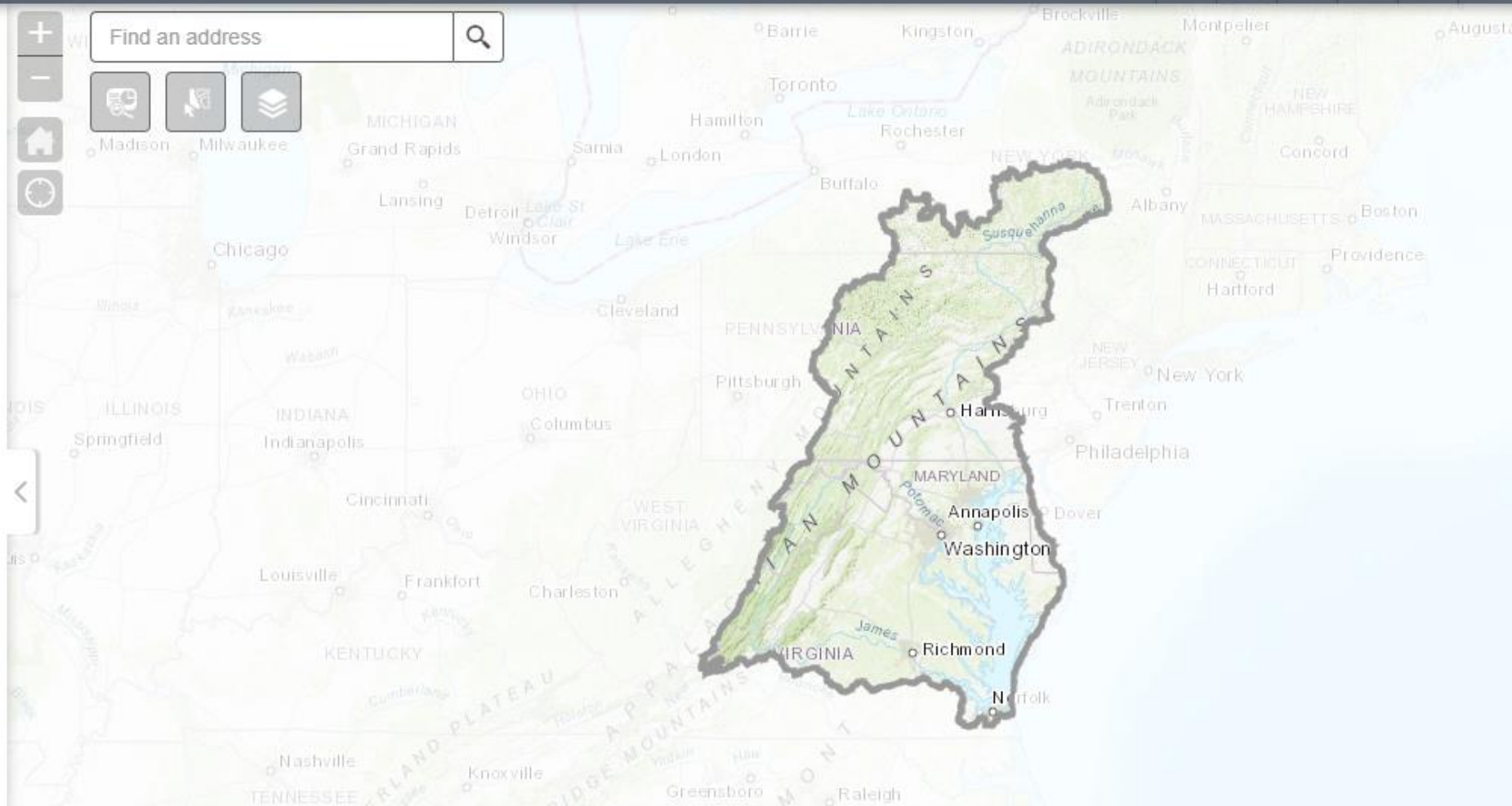


Operational layers

- ☐ Colleges and Universities
- ☐ Children age (5-18)
- ☐ Women of child bearing age (15-44)
- ☐ Demographic Indicators - EJScreen (US EPA)
- ☐ Environmental Indicators - EJScreen (US EPA)
- ☐ EJ Indexes - EJScreen (US EPA)

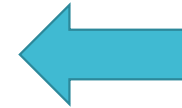


Find an address

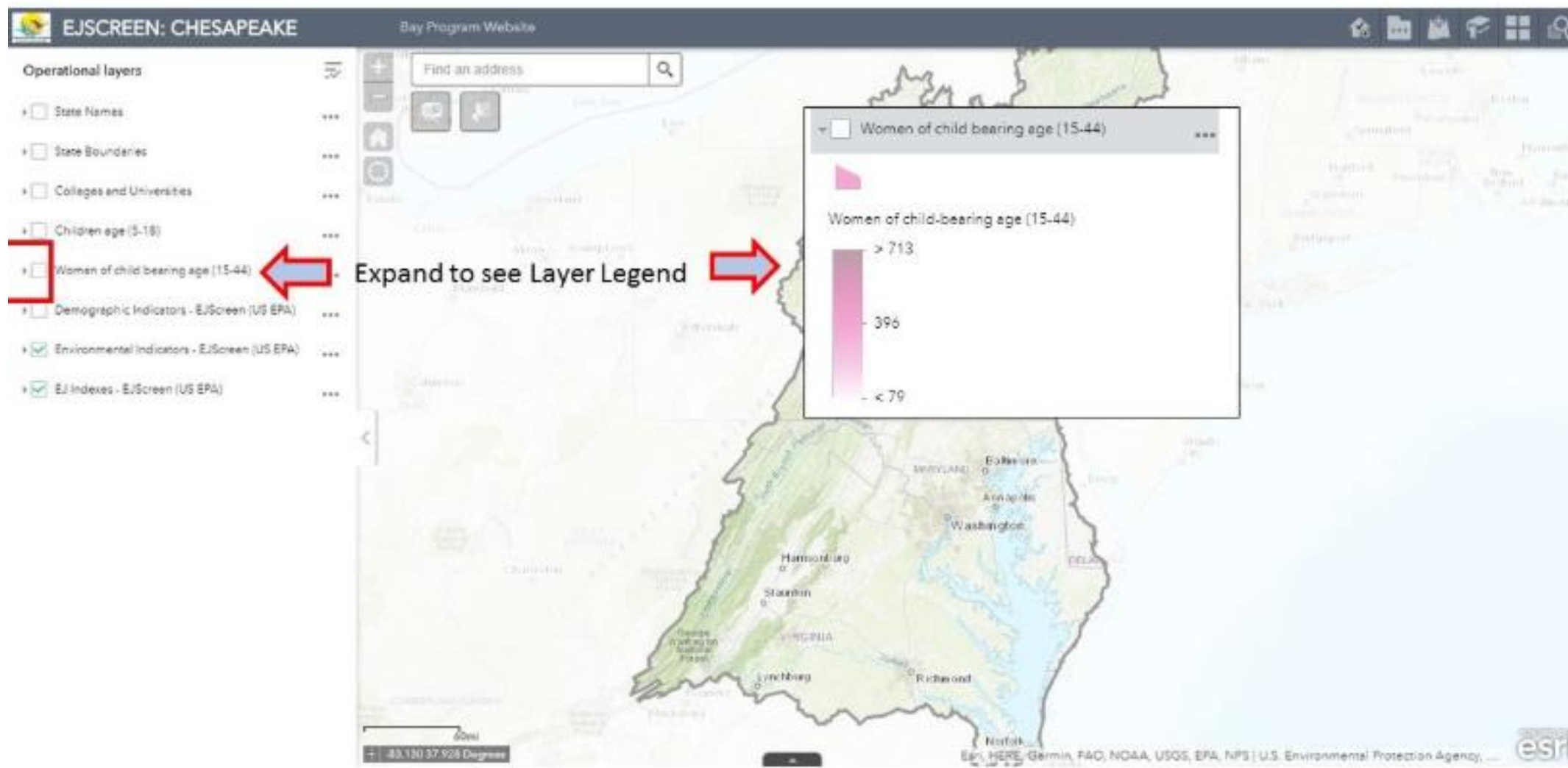


Navigation

EJ Screen Chesapeake is a "map-centric" application where the user can interact directly with the map or enable additional functionality by selecting widgets on the top banner.

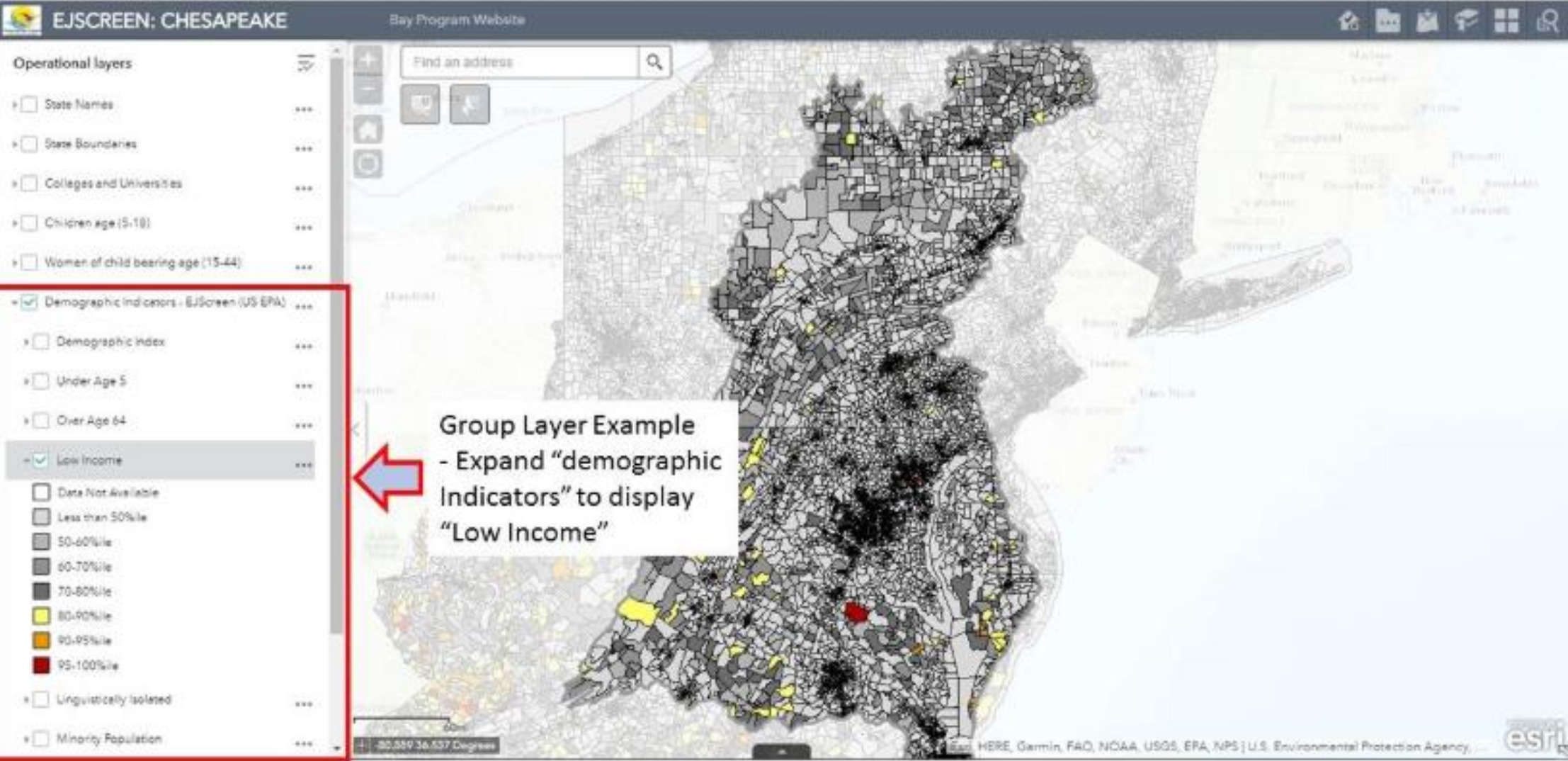


Operational Layers



Navigation

Legends & Group Layers



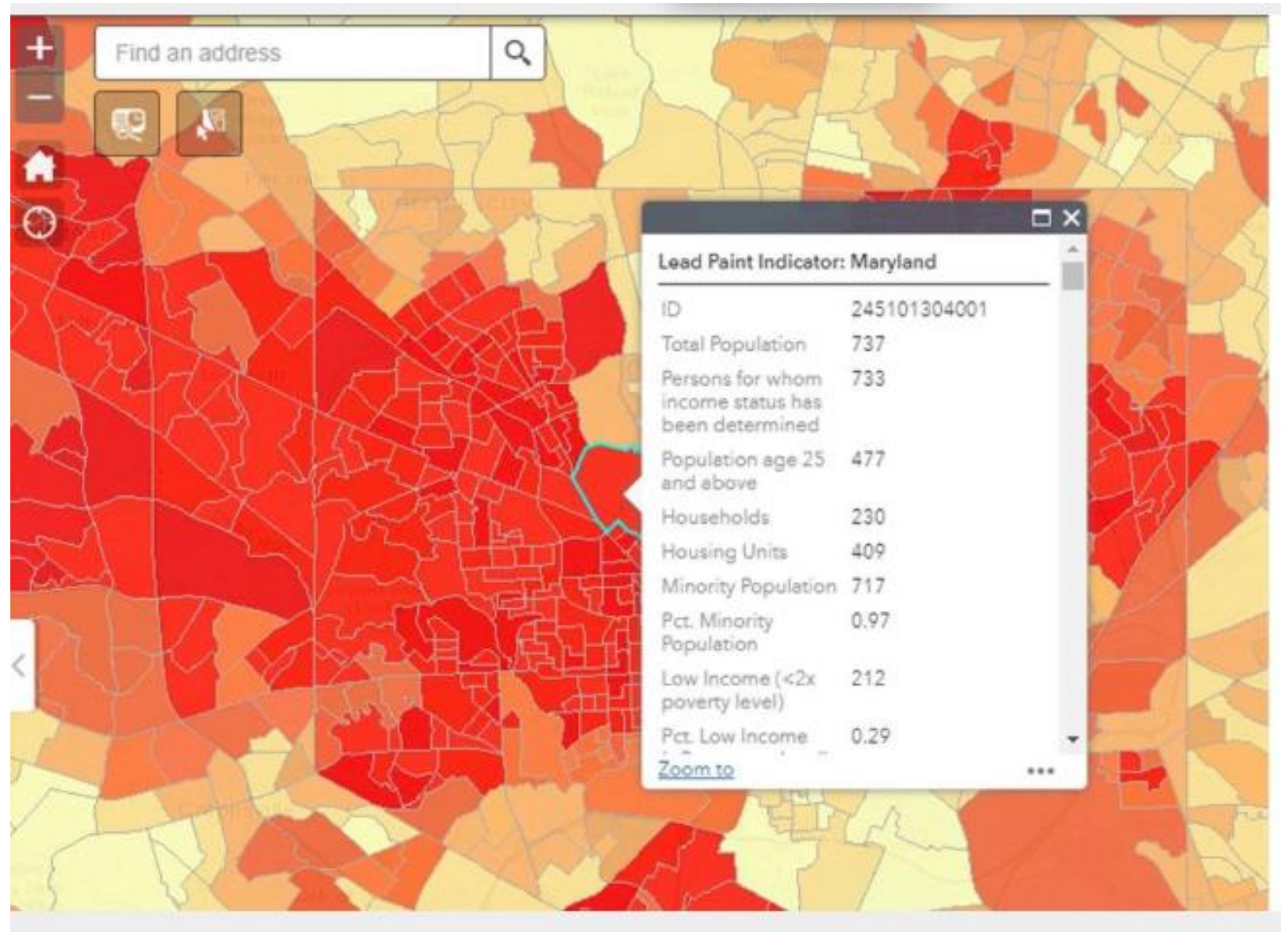
Group Layer Example
- Expand "demographic
Indicators" to display
"Low Income"

Navigation

Popups

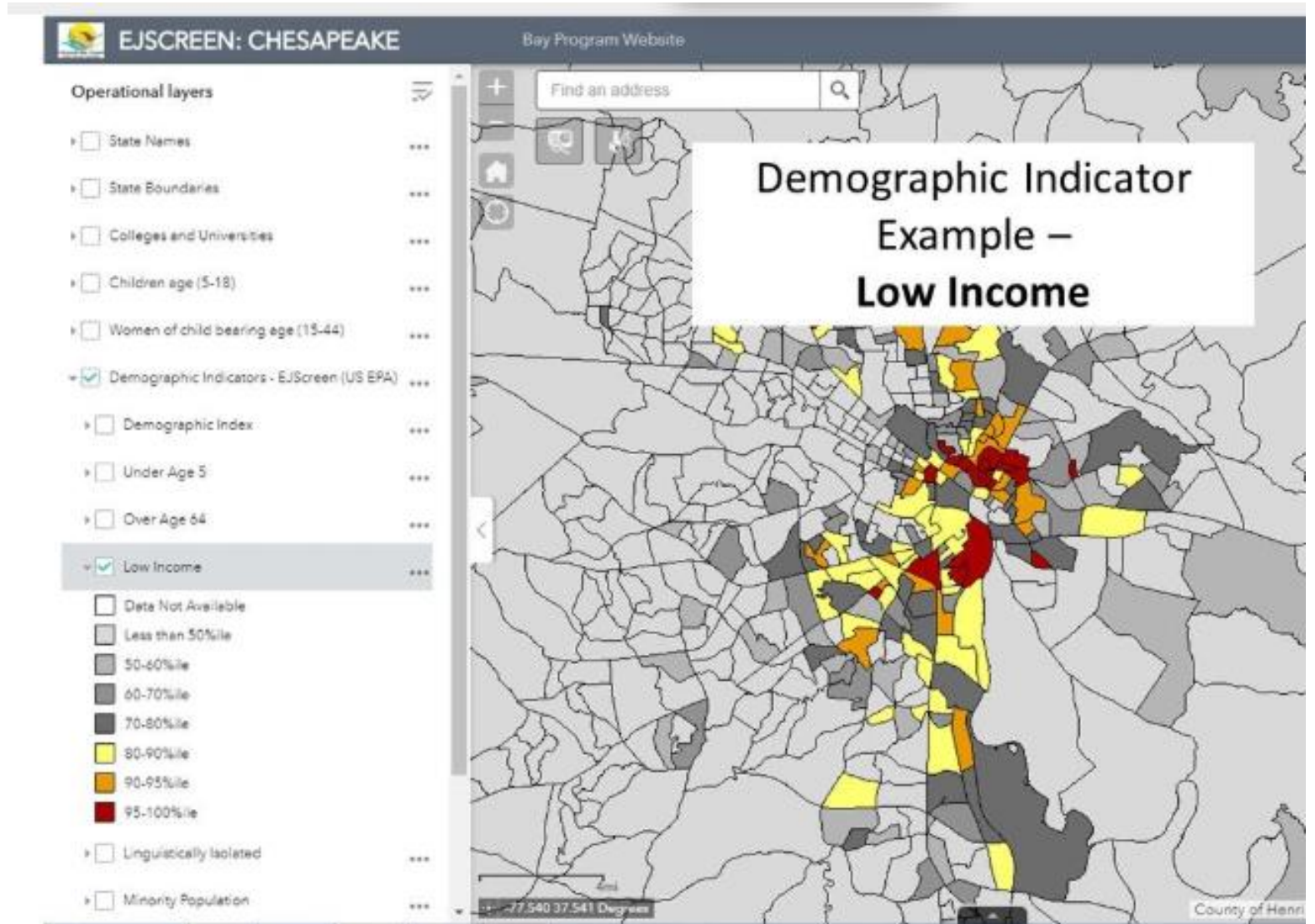
Many of the map layers contain popups that appear when the user [clicks a particular feature](#) on the map.

The popups provide additional detail on the feature of interest.



Demographic Indicators

- Demographic Index
- Individuals under age 5
- over age 64
- Percent Individuals Low-Income
- Linguistic isolation
- Percent Minority
- Less than high school education



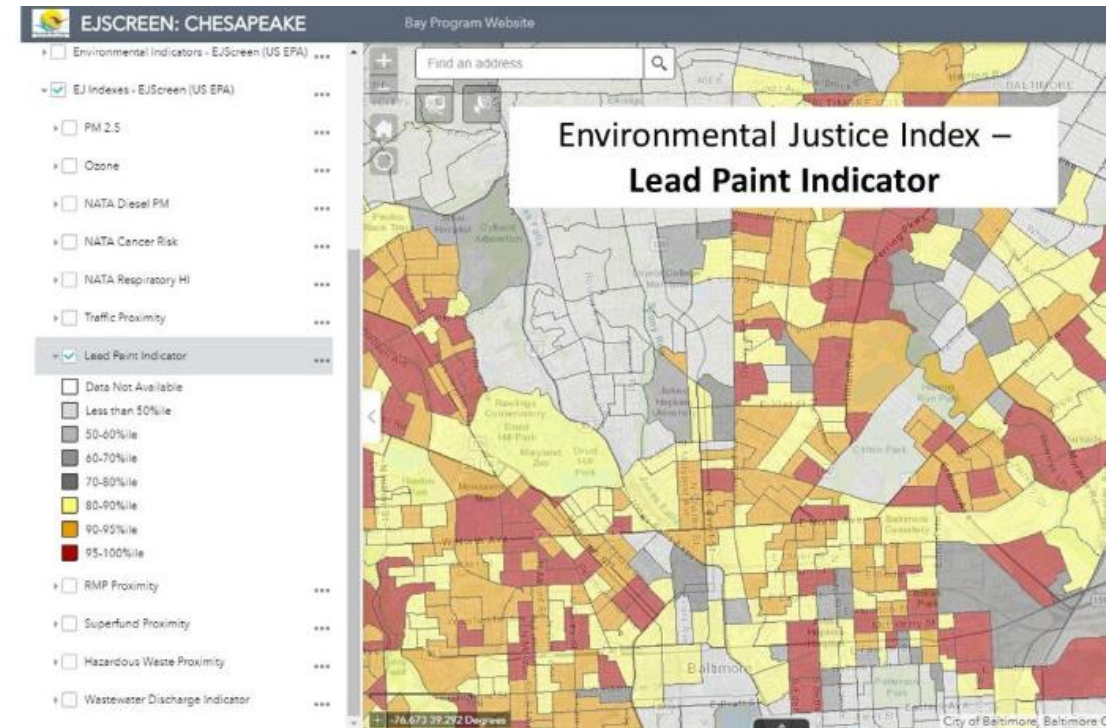
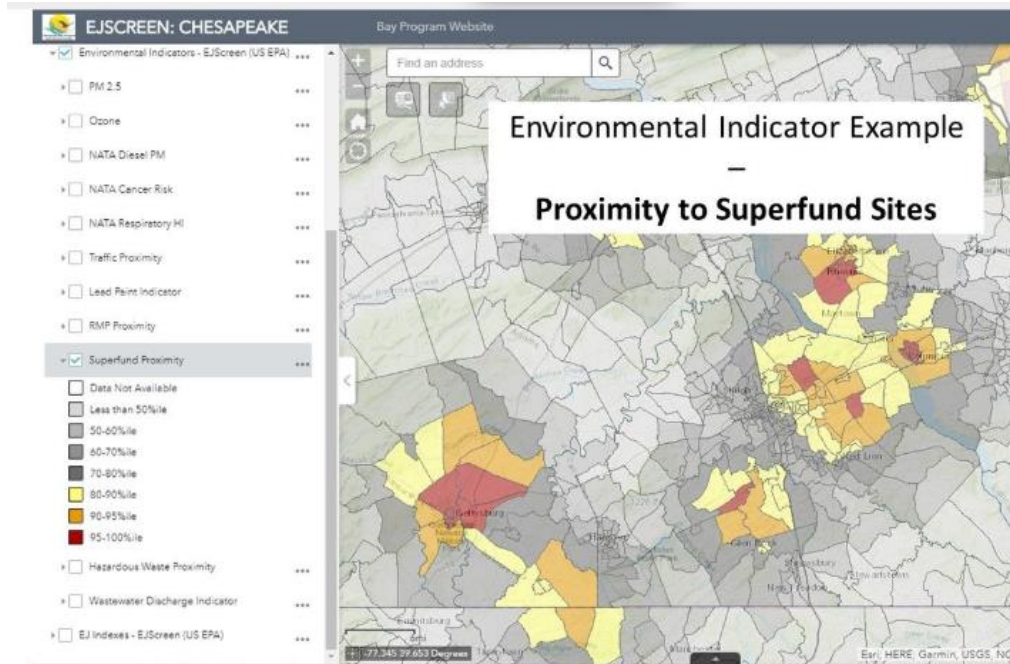
Environmental Indicators

- Particulate Matter (PM_{2.5})
- Ozone
- Diesel PM (DPM)
- Air Toxics Cancer Risk
- Respiratory Hazard Index
- Traffic Proximity and Volume
- Lead Paint Indicator
- Proximity to Risk Management Plan Sites
- Proximity to Superfund Sites
- Proximity to Hazardous Waste Facilities
- Wastewater Discharge Indicator

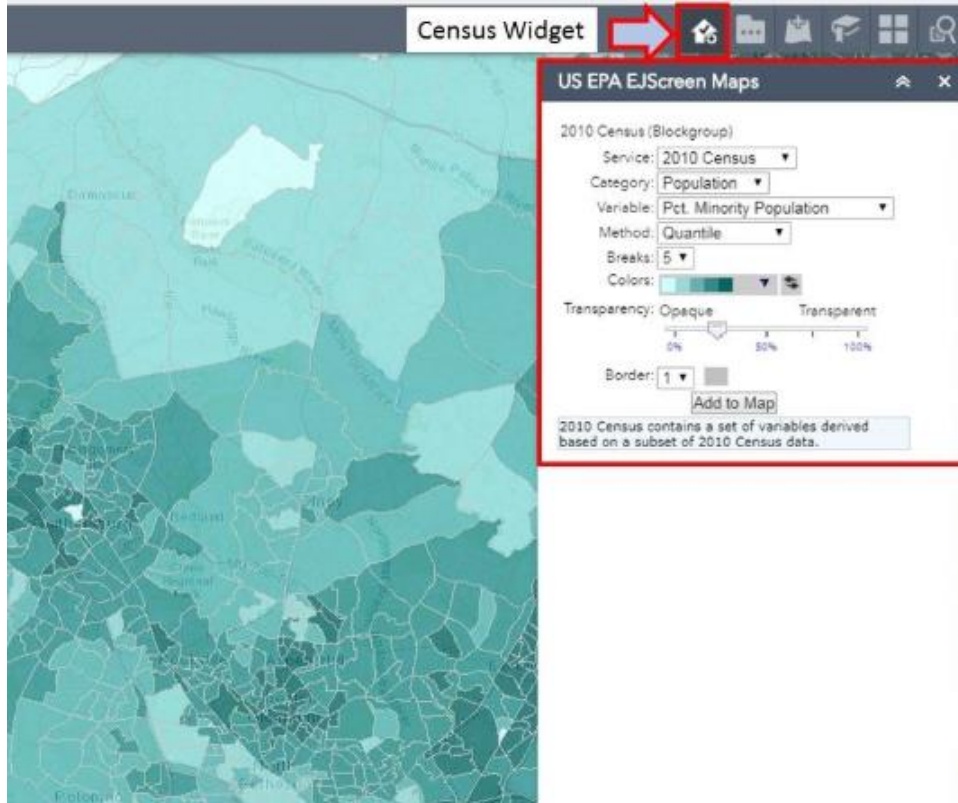


EJ Indexes

- Correspond to each of the environmental indicators
- A **high** EJ index means:
 - large numbers of mainly low income and/or minority residents
 - in an area with a higher environmental indicator



Census Layers



Chesapeake Bay Program Focus Layers

Toxic Contaminants

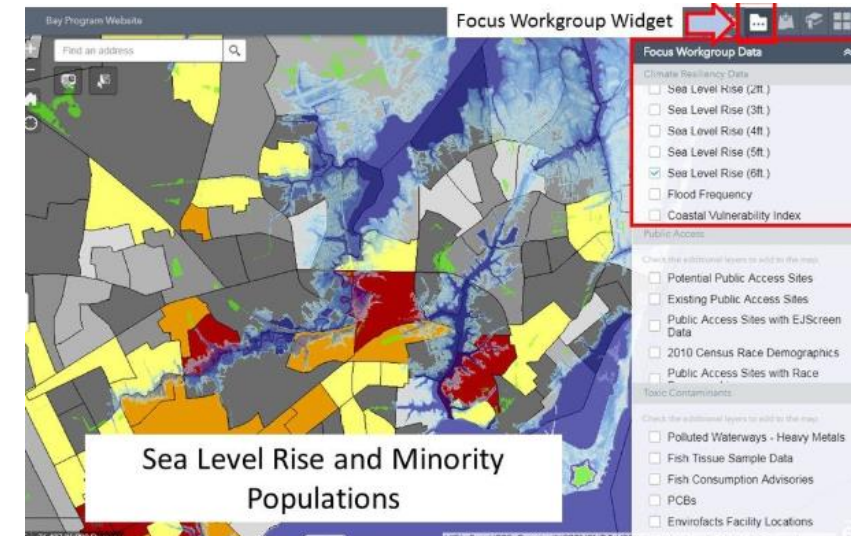
- PCBs
- Heavy metals
- Fish tissue sample data
- Fish consumption advisories
- and more..

Public Access

- Existing public access sites
- Potential public access sites

Climate Resiliency

- Sea level rise
- Flood frequency
- Coastal vulnerability index
- Global urban heat island
- Tree canopy over imperviousness



Adding Layers

External Sources

- Search internet sources
- URL of a map or feature service
- Upload data via shapefile or CSV

The screenshot displays the EJSCREEN: CHESAPEAKE web application interface. The main map shows a city area with several pink-shaded regions representing empowerment zones. The interface includes a search bar at the top, a list of operational layers on the left, and an 'Add Data' panel on the right. Red arrows and text boxes highlight the workflow for adding data:

- Added to View:** A red arrow points from the 'Operational layers' list to the map, indicating that a layer has been successfully added.
- Search For Data:** A red arrow points from the 'Add Data' panel to the map, indicating the search process.
- Search for Maryland Empowerment Zones (from Maryland Data Catalog):** A text box at the bottom of the map area provides context for the search.

The 'Operational layers' list on the left includes:

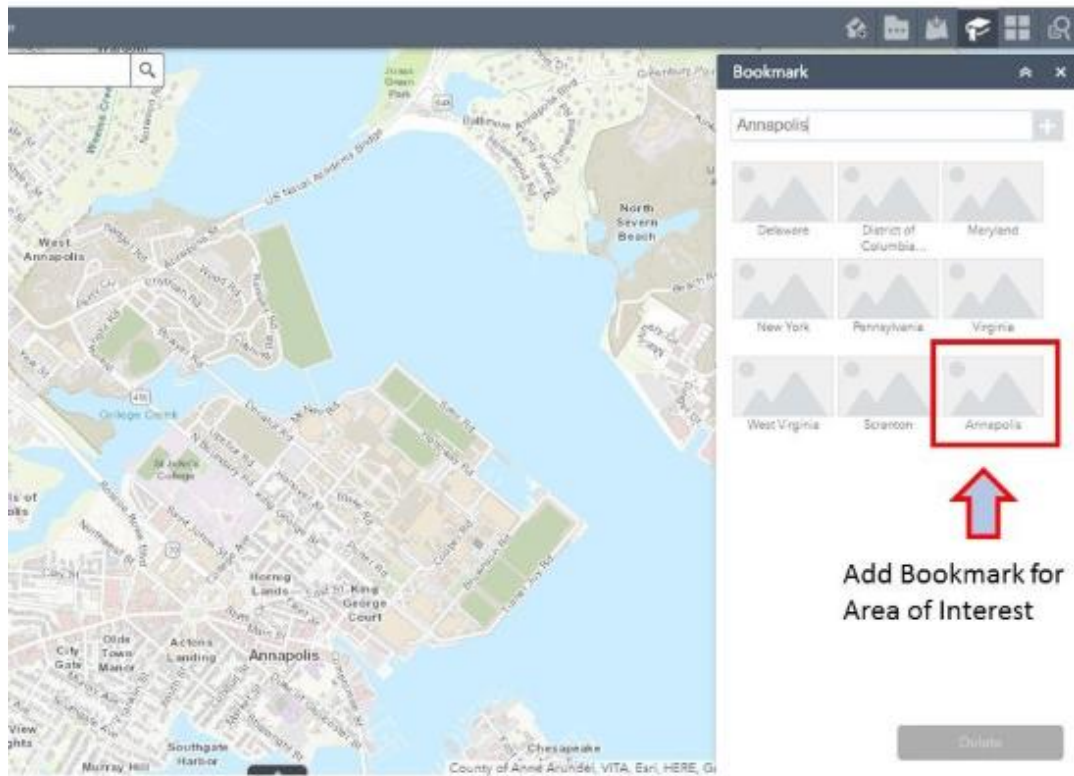
- ☒ Maryland Incentive Zones - Empowerment Zones - Empowerment Zones
- ☐ State Names
- ☐ State Boundaries
- ☐ Colleges and Universities
- ☐ Children age (5-18)
- ☐ Women of child bearing age (15-44)
- ☐ Demographic Indicators - EJScreen (US EPA)
- ☐ Environmental Indicators - EJScreen (US EPA)
- ☐ EJ Indexes - EJScreen (US EPA)

The 'Add Data' panel on the right shows a search for 'maryland empowerment' in the 'ArcGIS Online' tab. The search results list several 'Maryland Incentive Zones' with various themes, each with an 'ADD' button.

Adding Layers

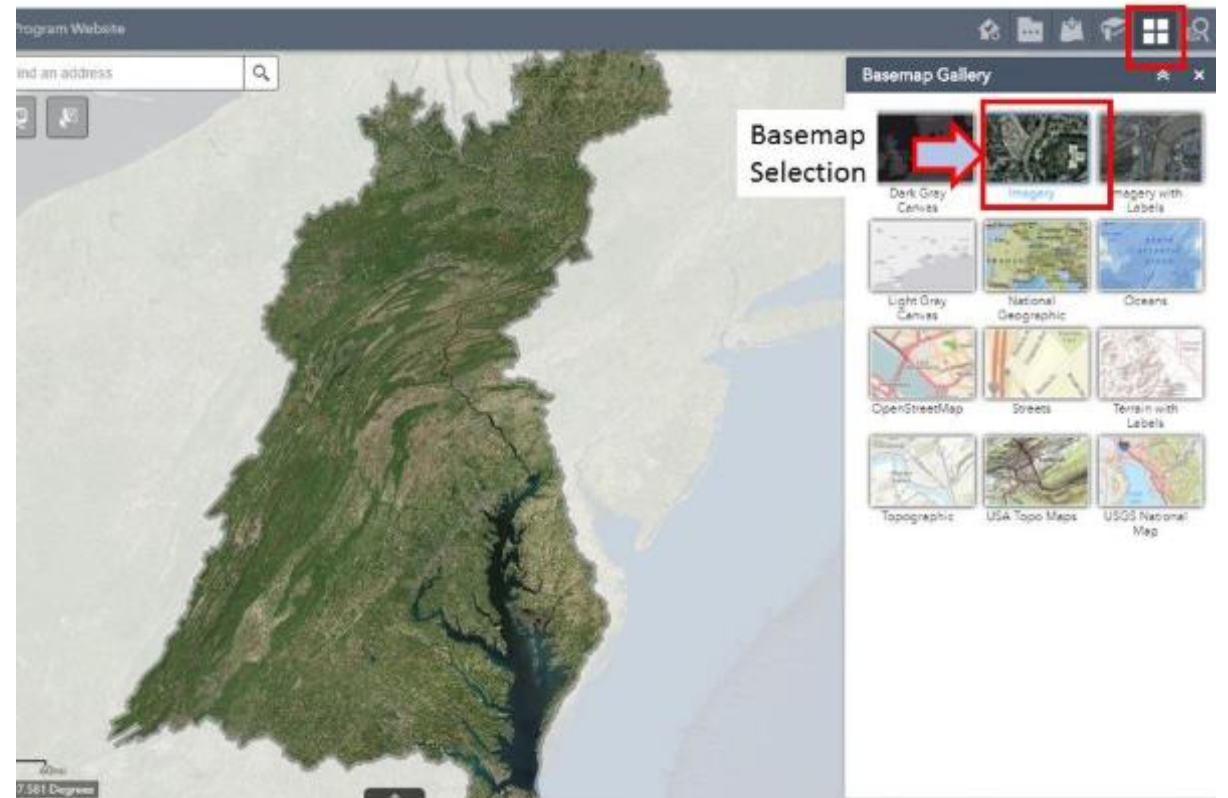
Bookmarks

- Built in bookmarks for each of the Chesapeake Bay Watershed jurisdictions
- User can add bookmarks by zooming to a location and saving it.



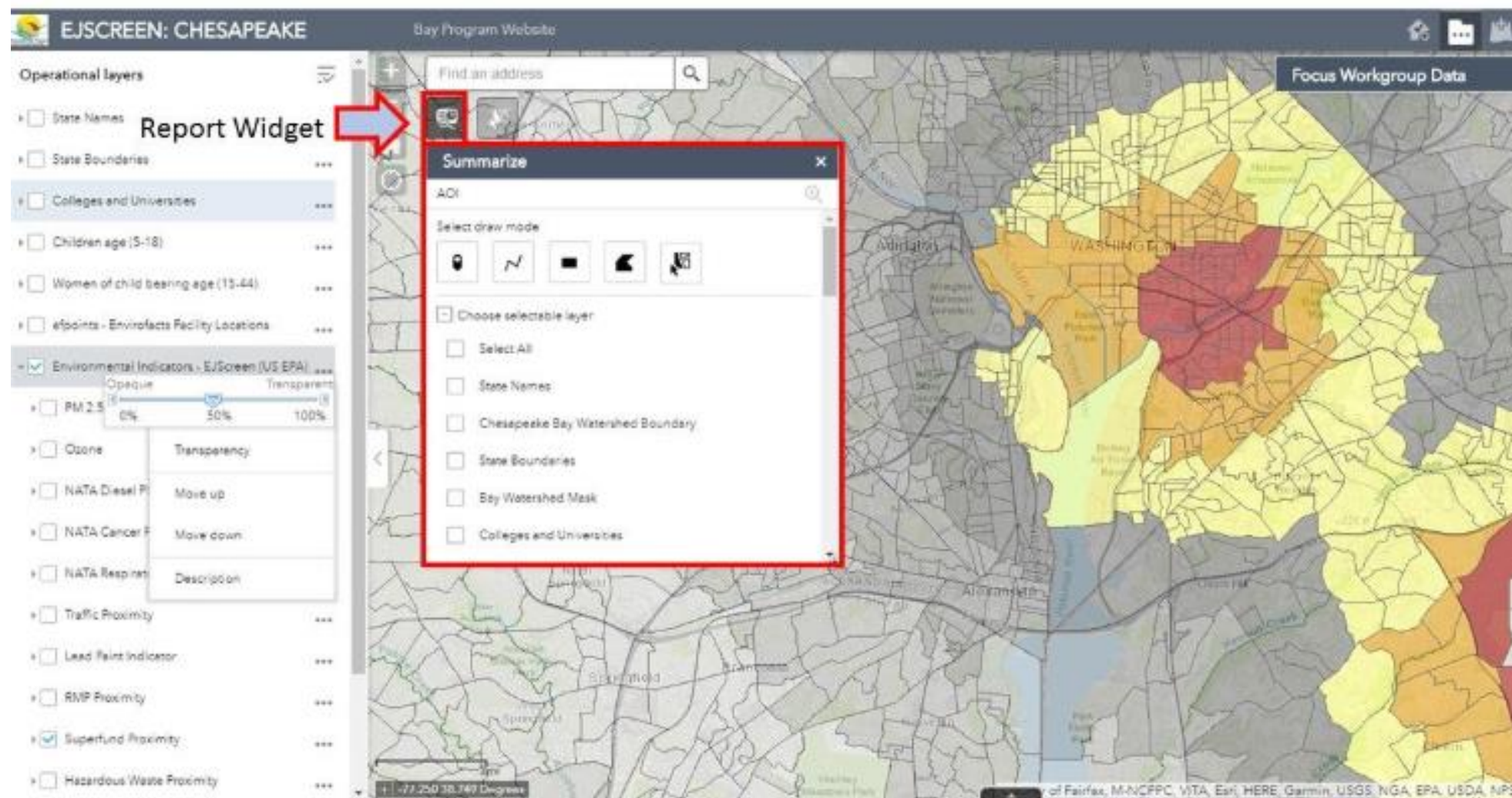
Basemaps

- Ability to choose from a selection of basemap options at multiple scales.



Summary Reports

- Select a geographic area and the tool will summarize the number of features of interest within that geographic area.



How to Access

- Chesapeake EJ Screen Story Map Tutorial
<https://gis.chesapeakebay.net/cbpejscreen/tutorial>
- EJ Screen Chesapeake
<https://gis.chesapeakebay.net/cbpejscreen/>
- National EJ Screen - <https://www.epa.gov/ejscreen>

EJ Screen Chesapeake is a collaborative project of the CBP Diversity Workgroup and other Workgroups and staff of the Chesapeake Bay Program Office.

Diversity Workgroup

James Edward, Chair, Diversity Workgroup, USEPA
Darius Stanton, Chesapeake Research Consortium (through June 2018)
Reggie Parrish, USEPA (retired) (through August 2017)

Michael Blair, Innovate, Inc.
John Wolf, US Geological Survey
Aera Hoffman, UMCES
Kim Ballasiano, USEPA

Public Access Planning Team

Amy Handen, US National Park Service
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Climate Resiliency Workgroup

Zoe Johnson, (NOAA) (through February 2018)
Melissa Merritt, Chesapeake Research Consortium

Toxic Contaminants Workgroup

Greg Allen, USEPA
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Questions?

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