Equity for Washington's Air Quality & Climate Commitments

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Our group's guiding questions

1. Which states achieved the best air quality and climate justice results?

2. What and where were WA's biggest gaps?

3. Which policies helped those state leaders achieve EJ progress?

Grades based on reductions from [EasyRSEI](#) in 1990s, 2,000s, and 2010s

Analysis inspired by 2011 book *Coming Clean* and a 2006 GAO report on *Air Toxics Programs*.

Washington got a D, Oregon an F.

State Air Toxic Emission Reduction Grades

- A
- B
- C
- D
- E

Created with mapchart.net
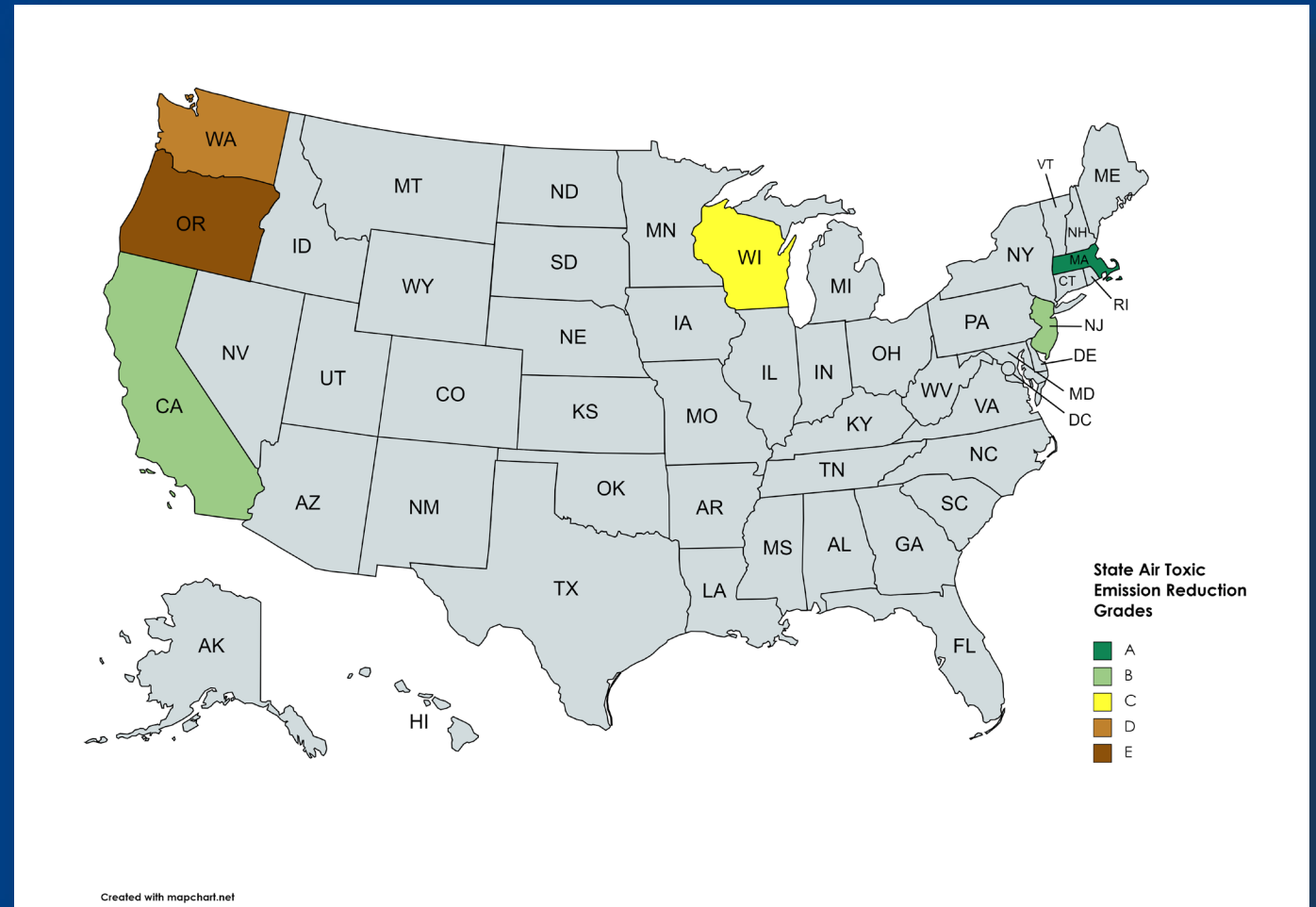
# State Air Toxic Emission Trends 1990 – 2000, 2000 – 2010, 2010 - 2020
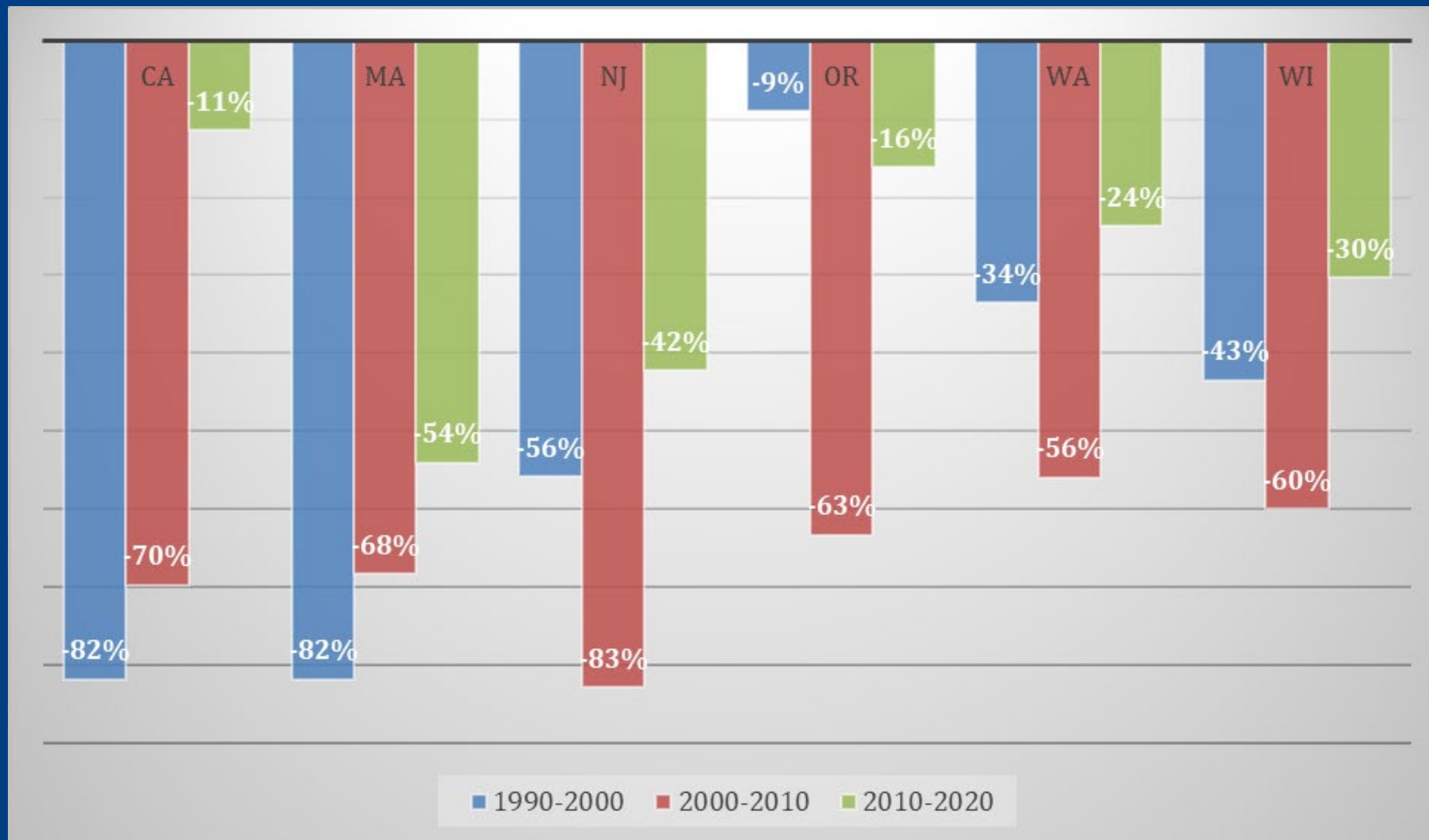
EasyRSEI data

WA's Major Air Quality Policy Gaps

1. **Voluntary Instead of Required Toxic Pollution Prevention Program**
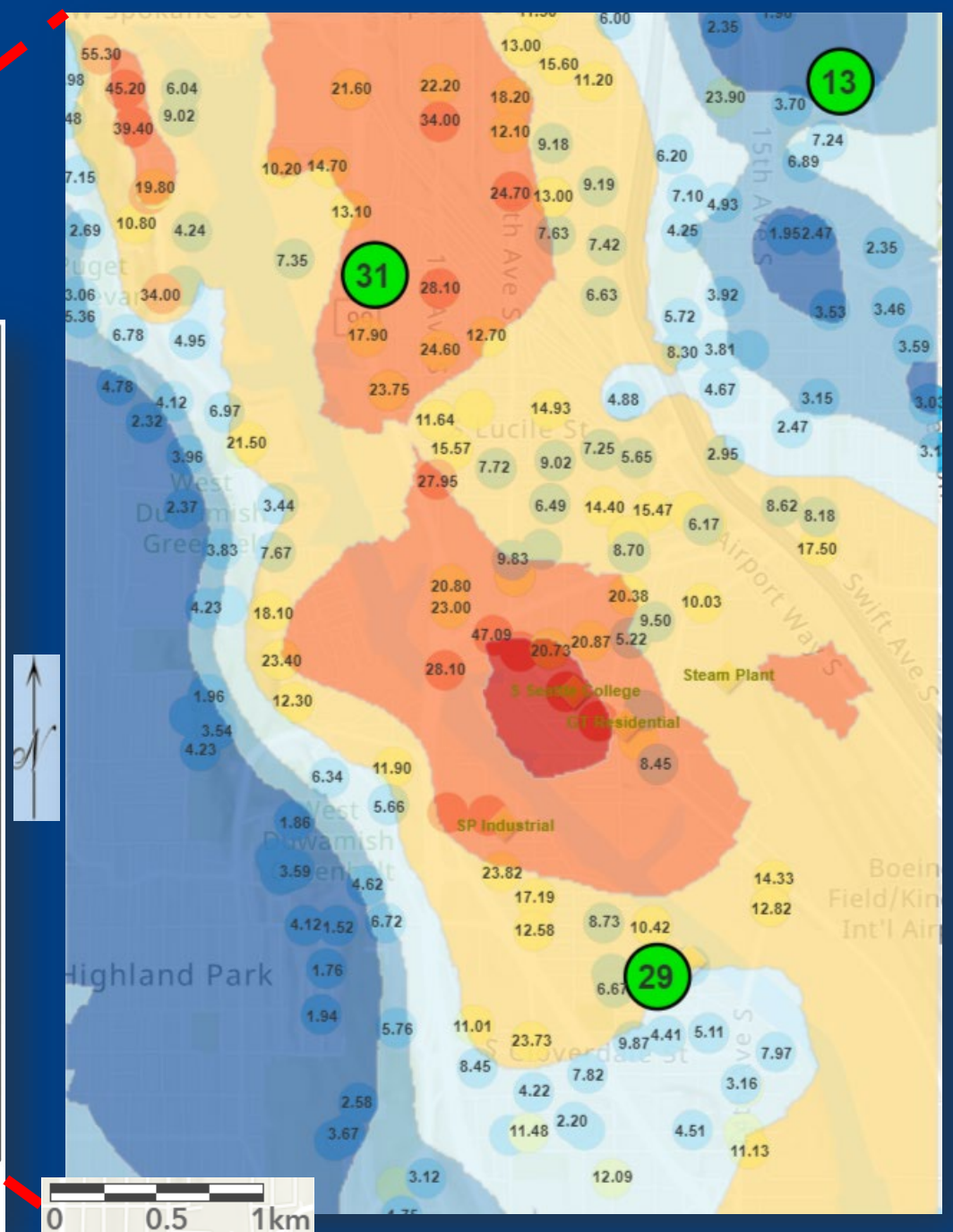
2. **Antiquated, Inflexible, and Unjust Air Quality Management System**

3. **One Monitor in the National Air Toxics Trend System (NATTS)**

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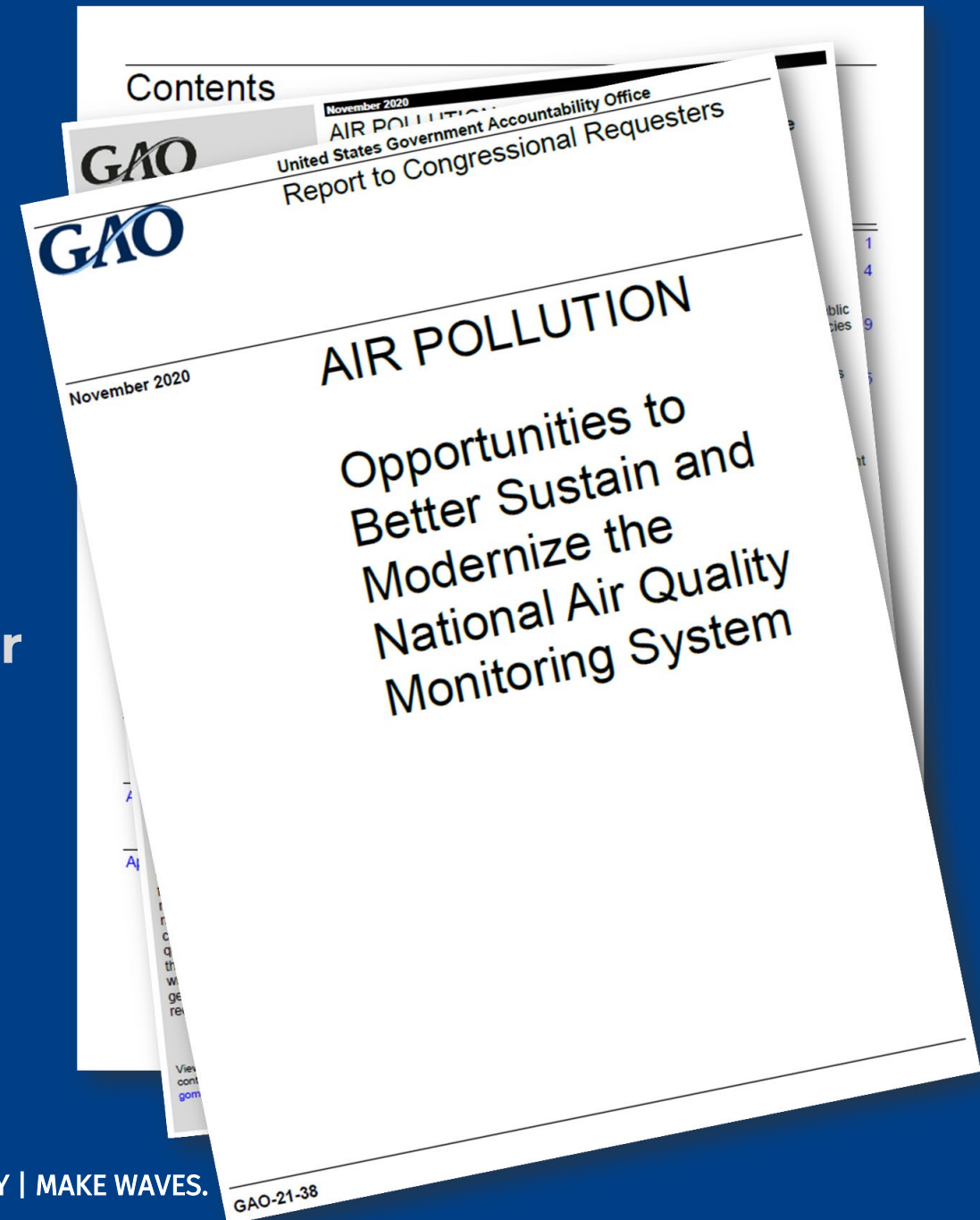
Three toxic pollution hotspots revealed by metals in moss

Seattle
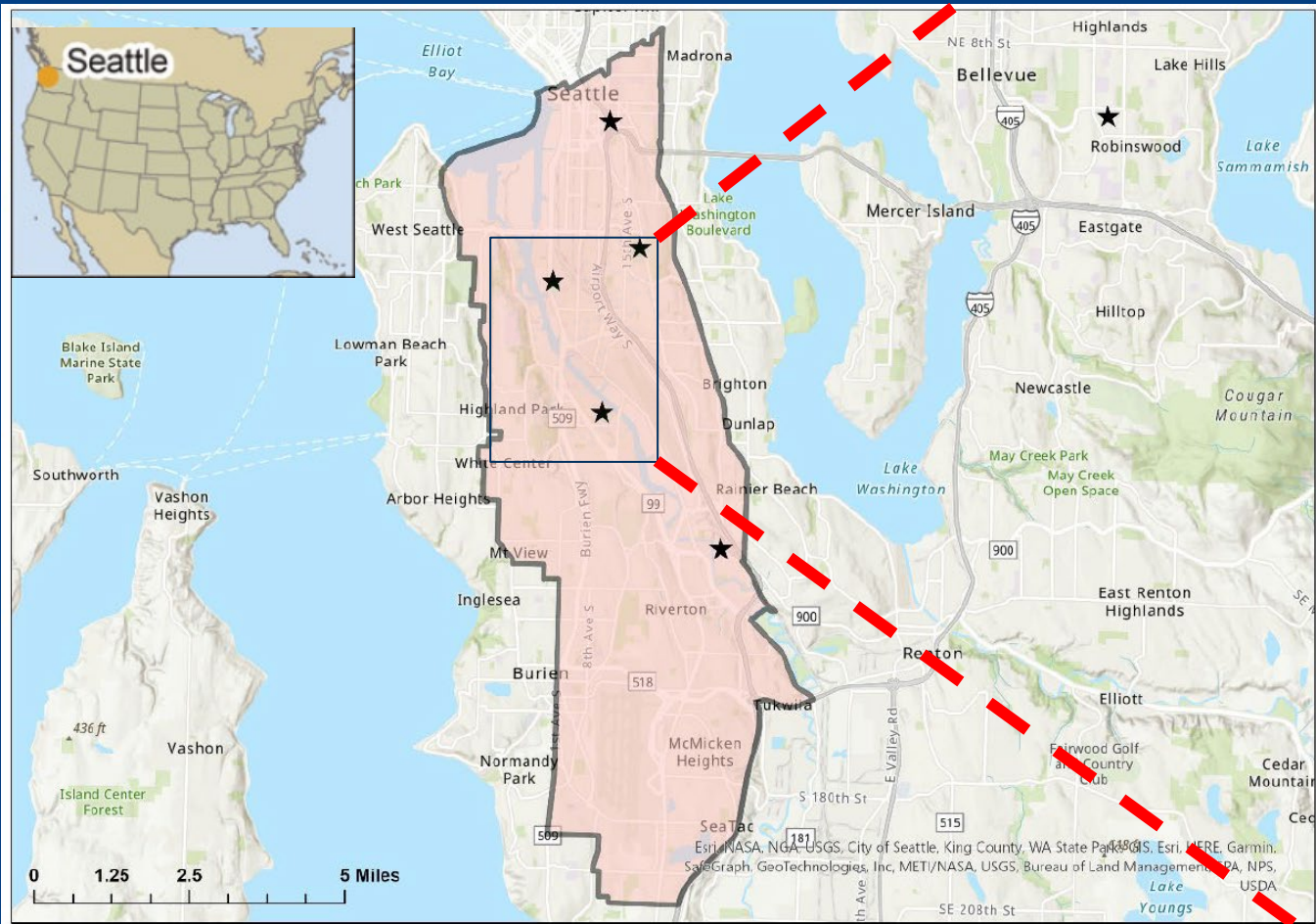
Community Boundary

★ Ecology Air Quality Monitoring Site

0   1.25   2.5   5 Miles

0   0.5   1km

Data Quality and Spatial Resolution in the Context of Air Regulations

Confidence in analysis (darker = higher confidence)

Coarser scale data

Finer scale data
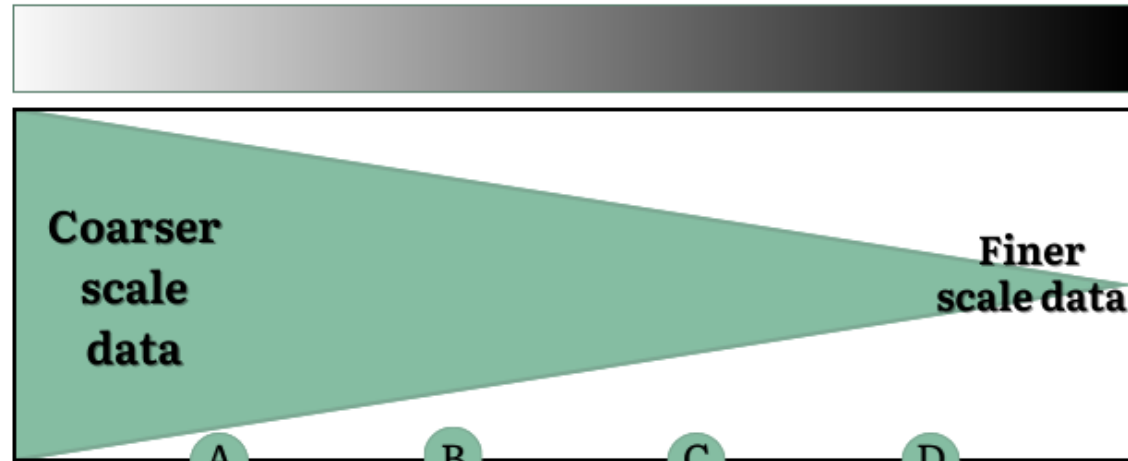
A B C D

Examples of data used:

A Emission changes by source type; basic demographic data

B Source-level dispersion modeling; income by tract; state- of county-level baseline health data

C Regional photochemical air quality modeling; county-level health data; PM2.5 & O3 effect coefficients stratified by education/race

D Local-scale air quality modeling; ZIP or tract-level health data; city-level effect coefficients; projected incidence rates

Adapted from EPA's Technical Guidance for Assessing Environmental Justice in Regulatory Analysis (2016)

226 moss samples provided a microscale resolution.

WA's one stationary NATTS monitor inadequate.

26 NATTS monitors nationwide also inadequate.

Lead (Pb) Concentration Predictions with Kriging Interpolation

Highest Lead Levels Around Three Metal Recycling Facilities

Lowest Around WA's Only NATTS Monitor

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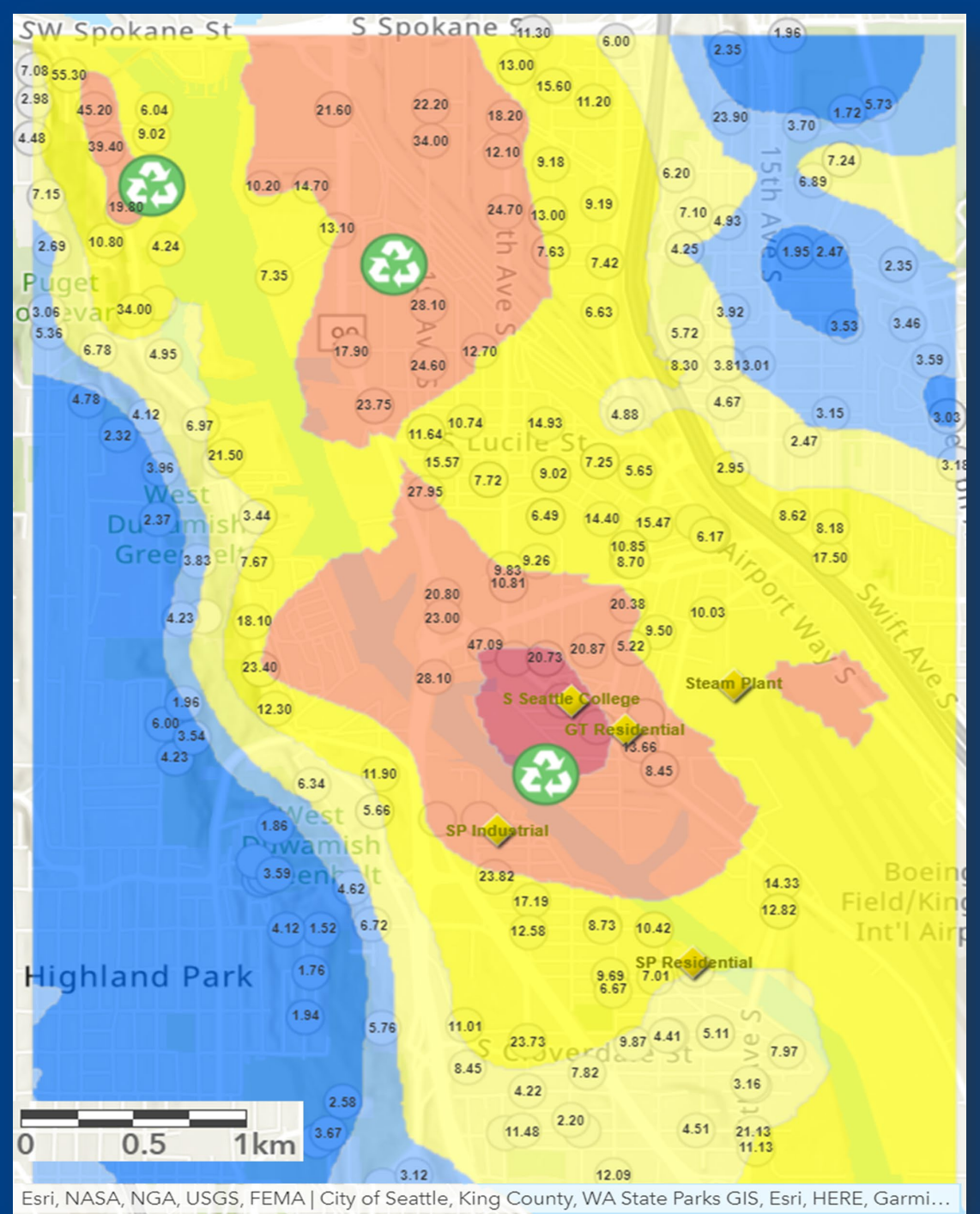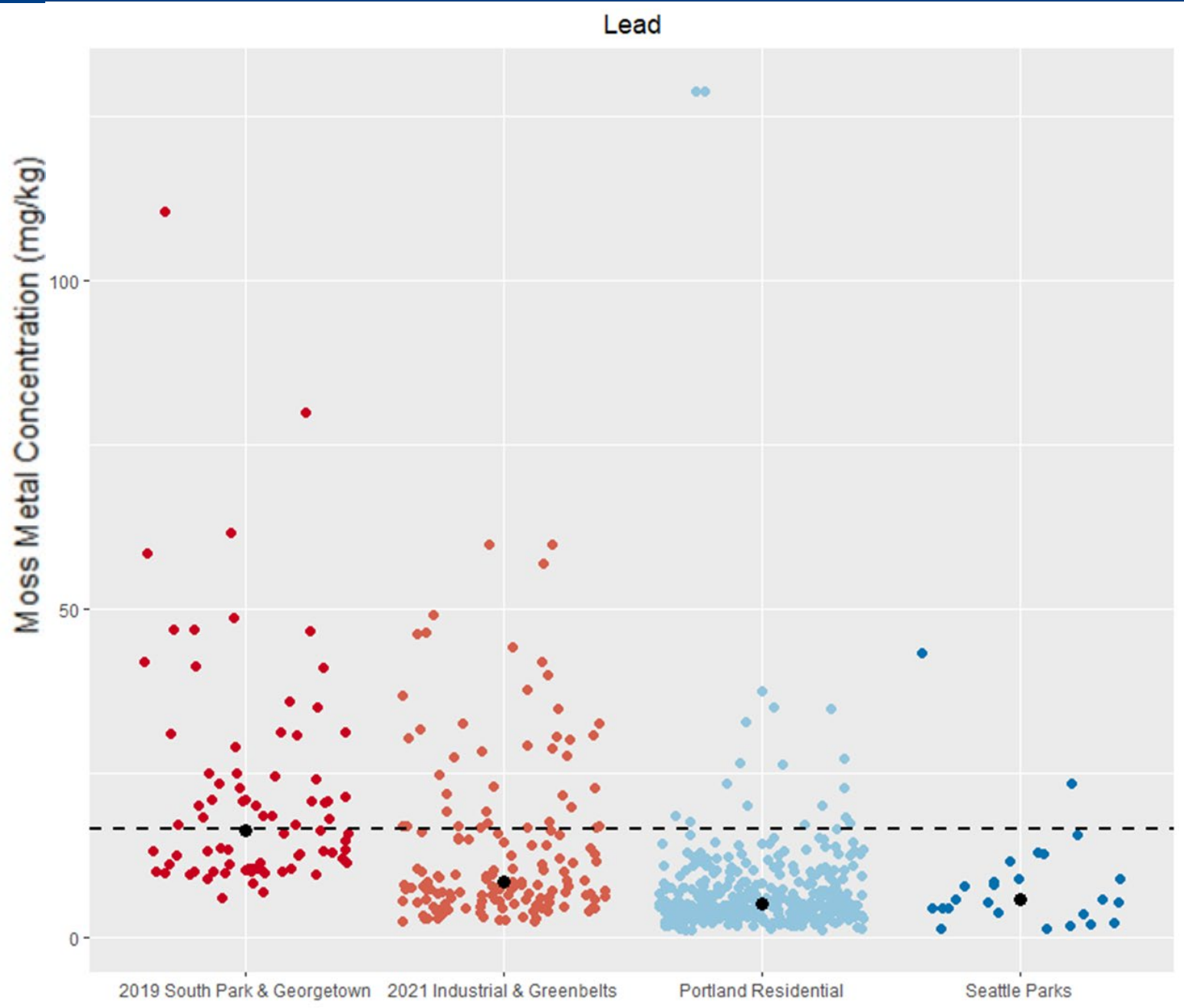
Average toxic metal concentrations for South Seattle greater than 95% of PDX samples.

Turns out, moss may be a cost-effective screening approach for air toxics.

Unlike money, moss does grow on PNW trees!

In 2023, temporary monitors detected elevated cancer risks near moss hotspots

Potential Cancer Risk from Metals

Seattle Duwamish Valley

- ■ Estimated Chromium VI
- ■ Arsenic

Y-axis: Potential Cancer Risk per Million People (0–60)

Categories: S Seattle College, South Park Industrial, South Park Residential, Georgetown Residential, Georgetown Steam Plant
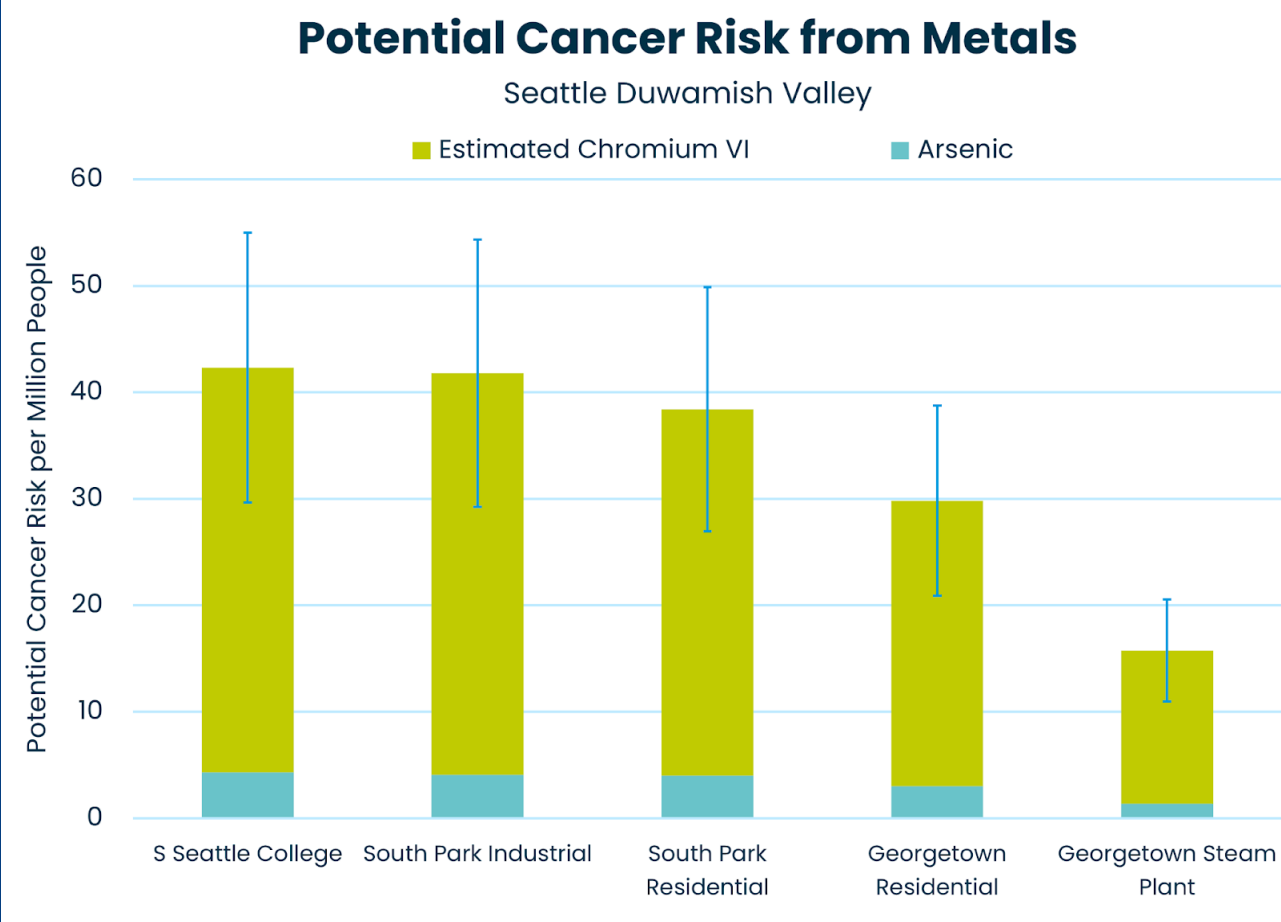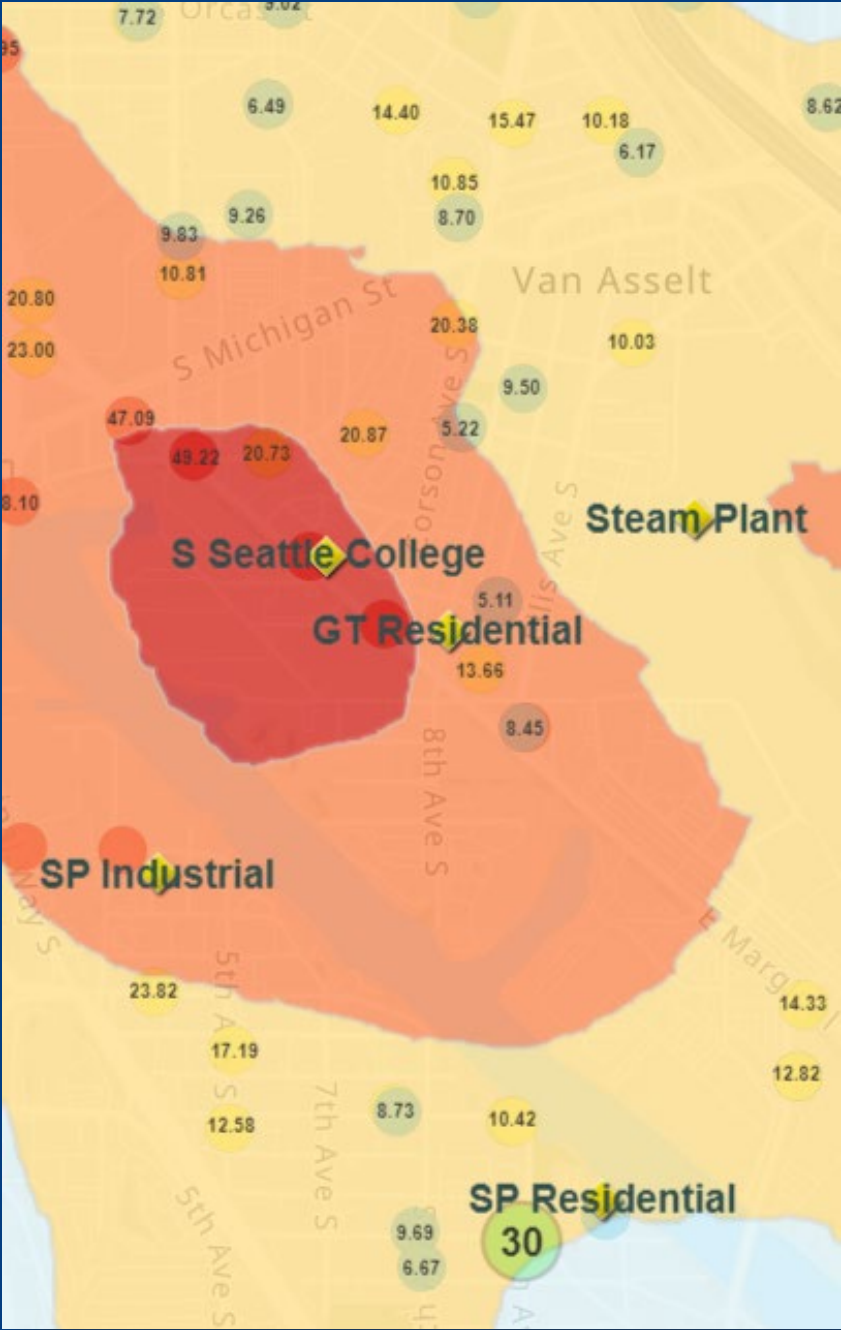
CA and MA required toxic pollution reductions, WA only encouraged, and OR just passed every state.

How Risk Action Levels Work

For Cleaner Air Oregon, facilities would be required to assess potential health risks of emissions to their neighbors. **Risk Action Levels (RALs)** determine the specific actions required of facilities that pose different levels of health risk. Facilities with higher health risks would be required to take more actions to reduce risk and keep their neighbors informed. Risk Action Levels are different for new and existing facilities. The state legislature set statutory benchmark RALs through 2029. After 2029, RALs for existing facilities will be reevaluated.

New Facility Risk Action Levels*

Cancer Risk	Noncancer Risk	
25	1	No new facilities will receive permits above 25/1.
		New facilities will not be eligible for a risk reduction permit. They are expected to operate with the best controls from the start.
		New facilities must install TBACT without consideration of cost (Toxics Lowest Achievable Emissions Rate or TLAER) to be eligible for a permit above 10/1.
10	1	All new facilities above 5/1 will have community engagement requirements.
5	1	No additional actions required for permit.
0.5	0.5	

INCREASING HEALTH RISK

Additional actions required as health risk increases

Immediate Curtailment

Mandatory Risk Reduction

Risk Reduction Level

Mandatory Risk Reduction OR Demonstration of TBACT

TBACT/TLAER Level

Voluntary Risk Reduction OR Community Engagement

Community Engagement Level

Permit Required

Source Permit Level

Emissions Reporting AND Screening & Risk Assessment

Existing Facility Risk Action Levels*

	Cancer Risk	Noncancer Risk
Facilities may not receive a permit to operate above 500/20 for any length of time.	500	20/12/4**
Existing facilities over 200/10 are required to reduce risk over time, even if they already have Toxics Best Available Control Technology or TBACT.	200	10/6/2**
Existing facilities must have TBACT to be eligible for a permit above 50/5.	50	5/3/1**
Existing facilities that start below 50/5 and voluntarily reduce risk below 25/1 will not be required to do community engagement.	25	1
No additional actions required for permit.	5	0.5

*There are separate Risk Action Levels for cancer risk and risk of other health effects because scientists assess and describe these risks differently.
- **Cancer Risk** is described in terms of the number of excess cancer cases in 1 million lifetimes that may be caused by long-term exposure to a specific chemical concentration.
- **Noncancer Risk** is presented as a Hazard Index and is assessed for both chronic and short term health effects (acute). A Hazard Index below 1 means the facility is below the level that is expected to harm health. ** The values 1, 2, and 4 represent Risk Determination Ratios as calculated under OAR 340-245-0200(5).

DEQ

We hope to transform this data into WA action on:

1. new cumulative air toxics assessments and regulations like Oregon;

2. adaptive, localized and continuous air monitoring in overburdened communities; and

3. Tighter Particulate Matter (PM) standards.

Acknowledgements

Particulate Matter (PM) pollution in Seattle's Duwamish River Valley. January 14, 2021

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