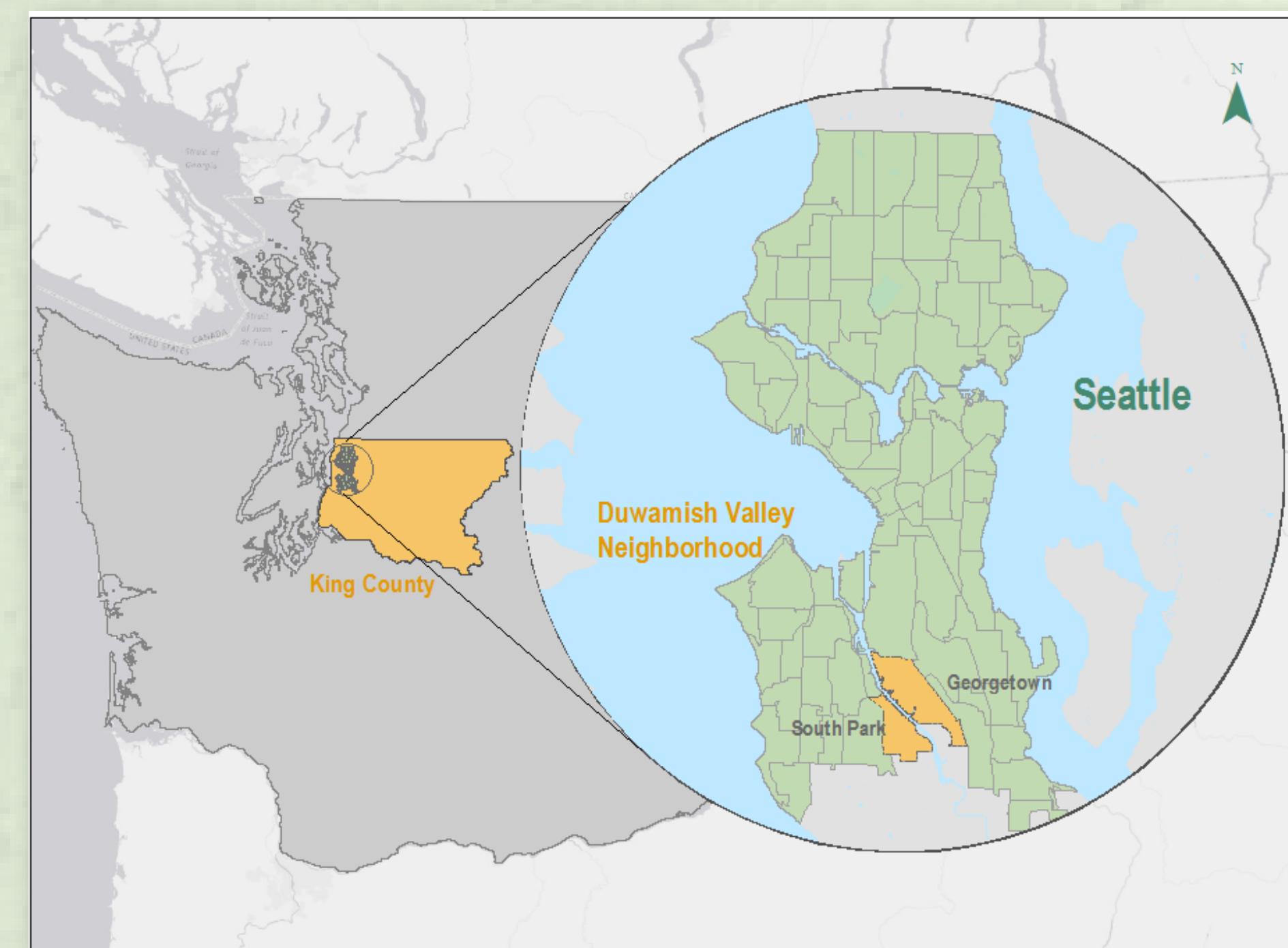


Seattle's Segregating Riskscape

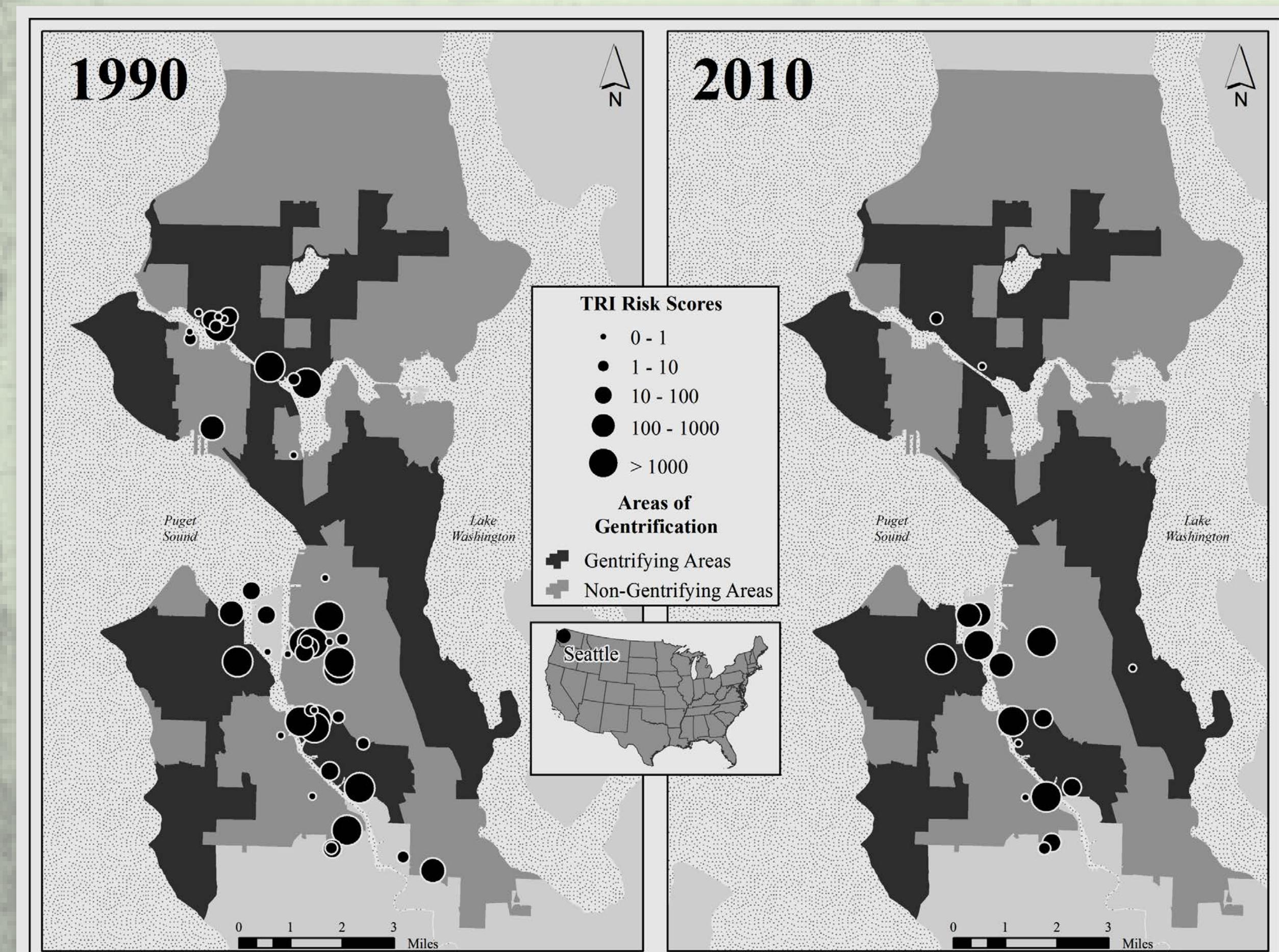
Troy D Abel¹, Jonah White², and Stacy Clauson¹. ¹Western Washington University and ²Michigan State University.

A Tale of Two Emerald Cities

Seattle has been heralded for its sustainability, but its segregating reality challenges this reputation. Many parts of the city are flourishing with vibrant green spaces, good jobs and safe and secure housing. However, other parts of the city have fared much worse, with unsafe housing conditions, deteriorating air quality, and economic insecurity. The South Seattle neighborhoods of Georgetown and South Park in particular are on the highest end of the air pollution risk gradient but on the lower end of the SES-health gradient.



In 1990, Seattle air toxics exposure risk from industrial facilities was almost equally split between the industrial zones of Ballard and Interbay in the north, and the Duwamish River Valley on the city's Southside (49 – 51%). Yet, industrial facilities in the Duwamish Valley outnumbered Ballard and Interbay sites by 3 to 1. By 2010, South Seattle polluters outnumbered those on the Northside by 6 to 1. Facilities in South Seattle also accounted for more than 95% of the air toxic pollution risk burden by 2010. Industry and its pollution is being gentrified out of North Seattle while concentrating in the Duwamish River Valley.



Jennifer and her family live in Ballard, north of the Downtown. Jennifer and her family live near Golden Gardens park, along Puget Sound. While her kids enjoy the swings, running across sandy beaches, or exploring the wetlands, she is happy knowing that her children are growing up in a safe environment and able to enjoy the outdoors.

Mateo and his family live in the Duwamish Valley in South Seattle, where his son plays soccer on a youth league that practices at South Park Playground. Mateo is concerned and fearful that the emissions from the industrial facilities and the truck traffic in his neighborhood and adjoining this playground will impact the health of his son, who like many children in the neighborhood suffer from asthma.

Families in the Duwamish Valley live amongst a confluence of industrial emissions, Particulate Matter (PM) pollution from thousands of diesel trucks, and rush hour traffic smog. Above, a steel plant's emissions distort a view of post WWII homes in one of the "fenceline communities" of South Seattle.

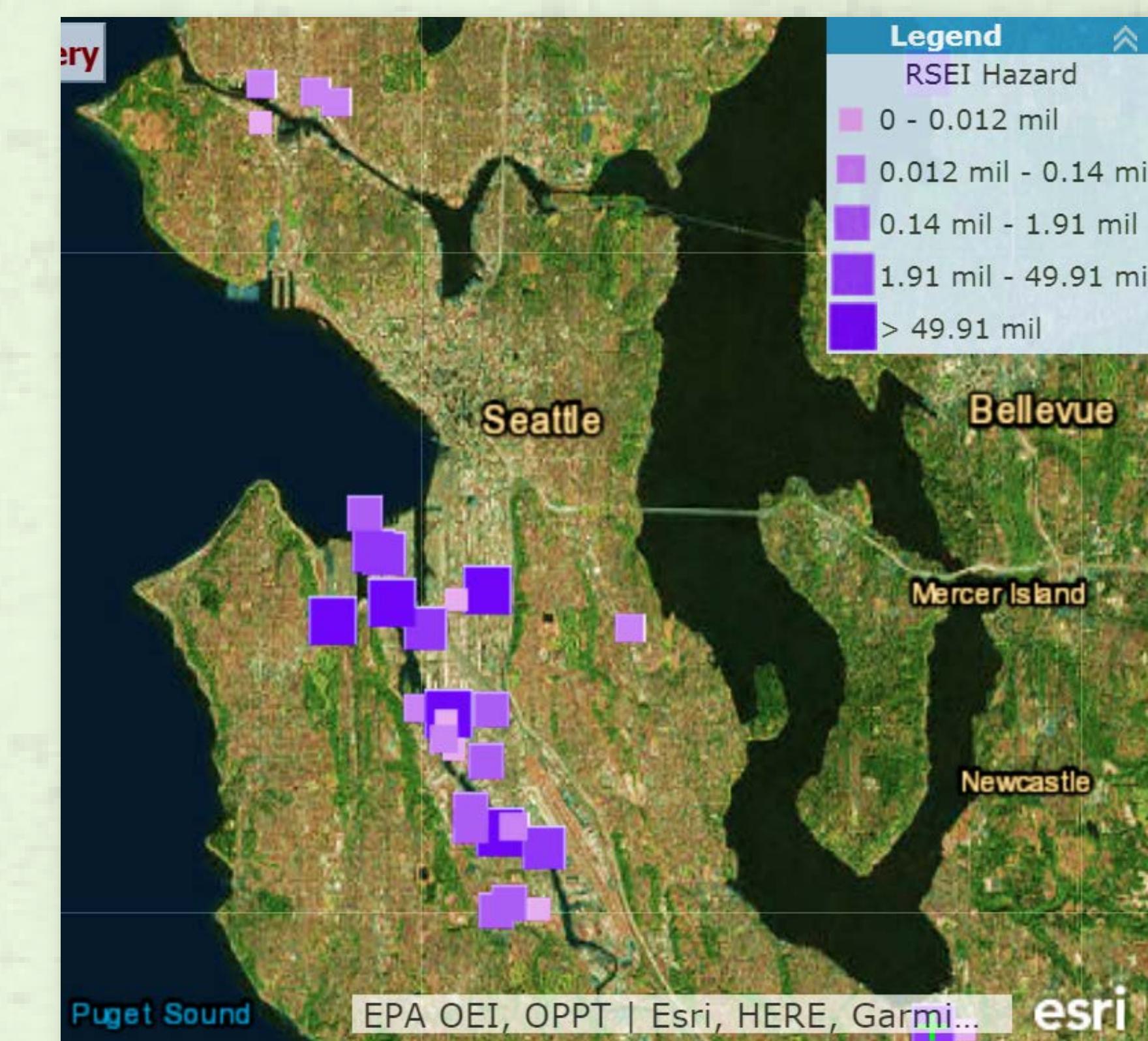
Socioeconomic Inequalities

Cluster type	Percent college graduates			Median Household Income		
	1990	2010	Change	1990	2010	Change
Gentrifying	36.2	60.4	24.2	51,353	69,114	34.6
Non-gentrifying	37.4	52.3	14.9	55,425	59,826	7.9
Seattle city	37.9	54.8	16.9	53,451	60,296	12.8
Cluster type	Median home value			Percent non-Hispanic White		
	1990	2010	Change	1990	2010	Change
Gentrifying	205,144	429,924	109.6	73.8	71.6	-2.2
Non-gentrifying	243,426	429,874	76.6	72.3	62.2	-10.1
Seattle city	239,198	446,900	83.9	75.9	67.1	-8.8

Seattle's socioeconomic divisions also are skewing. The 1990 median household income and home values were higher in non-gentrifying areas but over two decades, incomes and home values grew much faster in gentrifying areas. Whites fled non-gentrifying areas more rapidly while college graduates concentrated in gentrifying areas.

Concentrating Disadvantage

In the Georgetown and South Park neighborhoods, median house values were \$100k lower than the city average in 2009 while poverty levels climbed from 1990. Since 2010, five Duwamish Valley facilities accounted for 99% of the air toxic exposure risk from the city's 42 industrial polluters. Their emissions are more toxic heavy metal pollutants like chromium and lead that's displayed as bigger squares in darker shades below. The two worst facilities have also steadily increased their emissions since 2010. Similar to these worrisome industrial air pollution trends, other researchers find that transportation pollution also is skewed in South Seattle. For instance, the regional air quality agency attributed 70% of the extra cancer risk to Diesel PM in South Seattle.



Obscured Toxic Outliers

Many studies and official statistics tend to emphasize regional trends and aggregations. These perspectives obscure a class of toxic outliers and super-polluters that disproportionately burden low income and nonwhite communities with the worst of the worst chemical emissions. We join a growing body of research that reveals America's skewed industrial riskscape and link it to the sociohistorical restructuring of Seattle's land use patterns and its segregating spaces. Socioeconomic inequalities and pollution disparities are worsening for Duwamish Valley residents. Urban geographer Richard Florida recently wrote that "our cities, suburbs, and nation as a whole are splintering into a patchwork of concentrated advantage and disadvantage." Seattle exemplifies this pattern. A more just sustainability, instead of a segregating one, will require heightened political and policy attention to mitigate inequitable development and environmental injustice in Seattle and beyond.

Acknowledgements

This poster is part of the research program of Michigan State University Doctoral Candidate Jonah White and Western Washington University's (WWU) Professor Troy D. Abel and Spatial Analyst Stacy Clauson. Our research is the result of collaborations with James Rasmussen and Paulina Lopez of the Duwamish River Cleanup Coalition, Linn Gould of Just Health Action, the Region 10 Office of Environmental Justice in the U.S. Environmental Protection Agency, the Puget Sound Clean Air Agency, and community members from Seattle's Georgetown and South Park Neighborhoods. However, any faults of omission or commission are solely attributable to Dr. Abel.