

An Environmental Justice Index for Seattle Neighborhoods

What environmental factors contribute to a healthy community?

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Introduction & Purpose

This project aims to build upon current quality of life index models through an environmental justice lens. With individual's perception of personal satisfaction (or dissatisfaction) within the cultural and social conditions, they are able to use this study to make decisions about neighborhoods in Seattle based on what is important to them. For example, each neighborhood was measured for basic quality of life conditions that are essential for a healthy community. These measurements reflect an environmental justice perspective which aims to ensure that **anyone** and **everyone** has the right to **equal** and **fair** housing conditions.

Index Factors

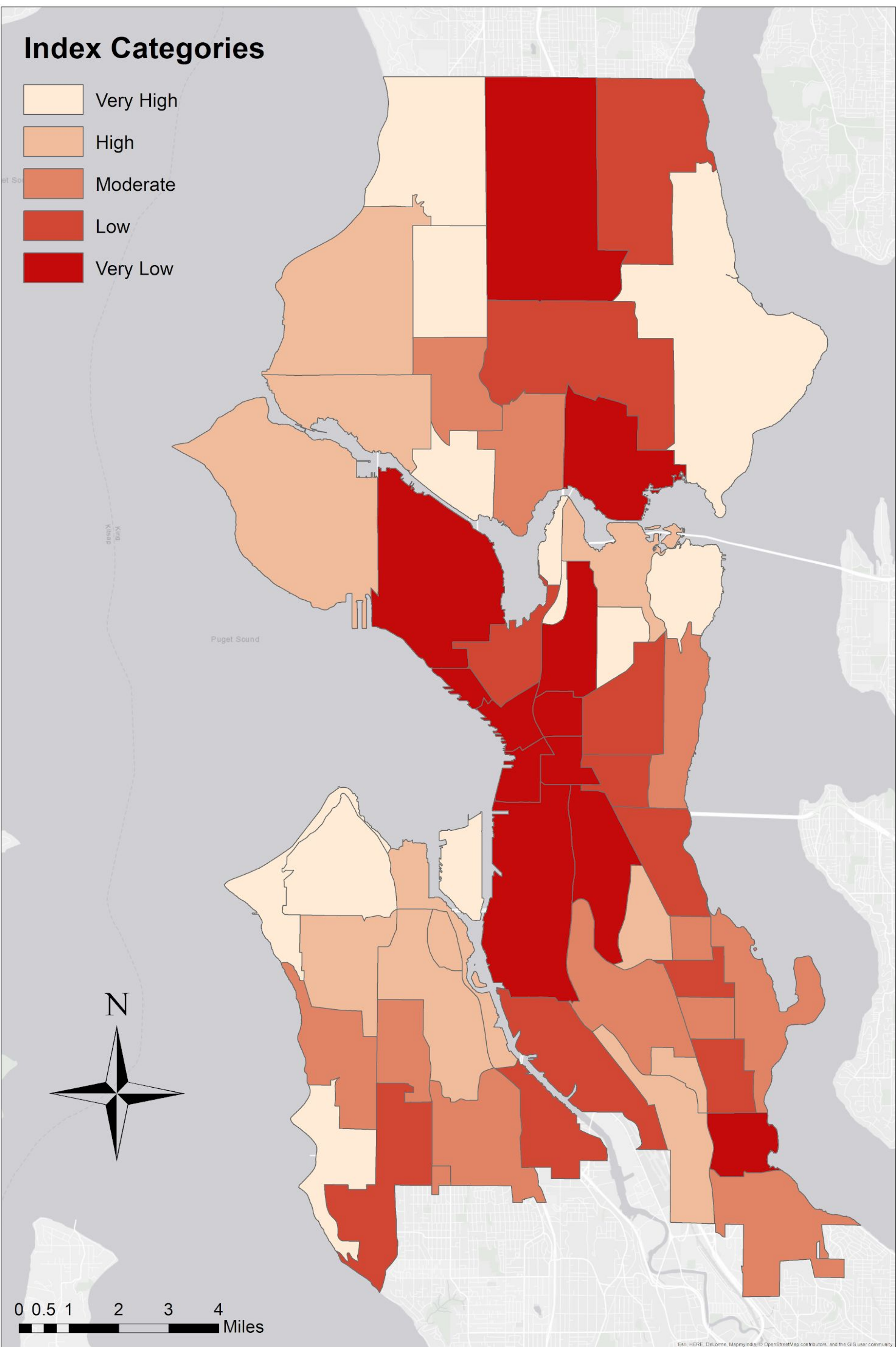


Methods

To construct the environmental justice index, we:

- Gathered data sources for information regarding crime occurrences, resource accessibility, air quality, water quality, and asthma rates for Seattle neighborhoods.
- Calculated Z-scores for each neighborhood per indicator.
- Averaged each neighborhood's Z-scores across every indicator to get a composite Z-score for each neighborhood.
- Sorted Z-Scores into quintiles: very low, low, moderate, high, and very high environmental quality. The higher the category, the greater the quality of life is for that neighborhood (relative to other neighborhoods).
- Mapped each neighborhood based on its index category (lighter colors indicate neighborhoods with higher index categories).

Environmental Justice Index by Seattle Neighborhoods, 2010s



Findings & Conclusions

Based on our research of factors that influence the quality of life (index factors), we conclude that neighborhoods in Seattle have disparate environmental justice when looking at quality of life in terms of location. Some neighborhoods are more vulnerable than others. This includes a lack of accessibility in essential services like grocery stores, uneven or no clinics within the area, high crime rate, poor air quality, etc. There is a high concentration of a low quality of life in the central/ downtown area. This may be a direct effect of downtown Seattle's heavy focus on industrialization and technological development. This attracts a high population in the work field. With a growing population, the city is challenged to keep up with the needs of its people. Meanwhile, other neighborhoods are more family-oriented and move away from the industry, providing safer and cleaner air.

Potential limitations:

- Our research is based on a measure of basic necessities and factors for a healthy community, and did not include all factors that may lead to a quality of life which differs among individual preferences.
- The index only evaluates neighborhoods relative to other Seattle neighborhoods, so it is difficult to draw conclusions for how well the quality of life is compared to places outside Seattle, and the differences among neighborhoods may not even be significant.
- Categories are not weighted, so all factors are equally considered despite possibly impacting quality of life differently.

References

- ArcGIS - Sarah Cole-Sigmon: USA Census Black Population (<http://uw-geog.maps.arcgis.com/home/item.html?id=ef3a329fb4a445859d3e731dd70653e8>)
- ArcGIS - Washington_MedicalCareClinics (<http://uw-geog.maps.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=0501fba8143499b990204d0a847040a>)
- EJSCREEN: Environmental Justice Screening and Mapping Tool (<https://www.epa.gov/ejscreen>)
- PolicyMap: GIS Mapping and Geographic Information System Data (<https://www.policymap.com/>)
- Seattle Police Department Crime Dashboard (<http://www.seattle.gov/police/information-and-data/crime-dashboar>)