PUGET SOUND
VITAL SIGNS

VITAL Sign
AIR QUALITY

A foundation of human health and wellbeing is breathing fresh air. The Air Quality Vital Sign tells us about people's exposure to impaired air quality in Puget Sound. Air quality varies by location and across the urban-rural gradient due to weather patterns, topography, and pollution sources. Sources of air pollution in Puget Sound include vehicle emissions, industrial emissions, wildfire smoke, and residential burning of wood and debris.



Wildfire smoke in Seattle. Photo credit: Bruce Englehardt.

VITAL SIGN > INDICATOR	PROGRESS	STATUS
Air Quality		
Exposure to impaired air quality	MIXED RESULTS	

Related Strategies

- Awareness of Effects of Climate Change
- Climate Adaptation & Resilience
- Education Partnerships
- Funding
- Greenhouse Gas Emissions & Carbon Sequestration
- Human Health
- Research & Monitoring
- Stewardship & Motivating Action
- Strategic Leadership & Collaboration

Vital Sign Reporter

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KEY VITAL SIGN MESSAGES

- Clean air is vital for everyone. The Washington Department of Ecology works in partnership with local clean air agencies and Tribes to monitor and track emissions to make sure outdoor air quality meets federal and state standards. Three local clean air agencies manage air quality in Puget Sound.
- The burden of air pollution is not evenly shared. People of color, especially Black people, and people who have low incomes disproportionately impacted by exposure to air pollution.
- The Washington Environmental Health Disparities Map is an online tool that shows the uneven distribution across the region of a community's vulnerability and exposure to environmental pollution, including air pollution.
- Air pollution impacts both urban and rural communities throughout the Puget Sound area from a broad range of sources, including wildfires, residential wood combustion, traffic and industrial sources.
- Fine particulate matter ($PM_{2.5}$) is generally the air pollutant that poses the most significant health concerns for Washington residents.
- The severity of local and regional wildfires has been the main cause of Puget Sound residents' exposure to $PM_{2.5}$ concentrations in recent years. In 2020, all Puget Sound residents were exposed to impaired air quality, with many areas reaching the very unhealthy and hazardous ranges of $PM_{2.5}$ for several days.
- Over the past several decades, the planet has increasingly warmed due to climate change, causing more potential for wildfires. With hotter and drier conditions in the years ahead, we expect more wildfires and longer fire seasons. Puget Sound's air quality and public health will be more at risk.
- Air toxics are hazardous air pollutants known or suspected to cause a broad range of serious health effects, including cancer. In the Puget Sound area, diesel particulate matter (DPM) accounts for most of the potential cancer risk from all air toxics. This means that communities near major roadways, like the Chinatown-International District in Seattle located along I-5 and I-90, are exposed to higher concentrations of toxics associated with vehicles.

BACKGROUND DOCUMENTS

- Leadership Council Resolution 2015-02, Human Health and Quality of Life Vital Signs and Indicators
- Human Wellbeing Vital Signs and Indicators for Puget Sound Recovery (2015), technical report describing the recommended portfolio of Puget Sound Human Health and Quality of Life Vital Signs and indicators

OTHER RESOURCES

- Washington clean air agencies
- American Lung Association State of the Air: Washington State Report Card
- Articles related to a healthy human population in the Encyclopedia of Puget Sound
- Air Quality Vital Sign and Puget Sound Air Toxics Data, presentation by Jill Schulte to the PSEMP Toxics work group, Jan. 14, 2021.
- Near-road air toxics study in the Chinatown-International District, report from the Puget Sound Clean Air Agency (2018). Full report and community report
- Fine particulate air pollution associated with higher risk of dementia, UW News

CONTRIBUTING PARTNERS