

Seattle-Beacon Hill Station

Focus on: Air Monitoring



DEPARTMENT OF
ECOLOGY
State of Washington

Ecology's Air Quality Program has operated our flagship Seattle-Beacon Hill National Air Monitoring Station since 1979. The station is one of 75 that stretch across Washington to form a monitoring network that provides near real-time public information about the health of the air we breathe. Funded by U.S. EPA, our state network also contributes air pollution and weather data to EPA's national air monitoring network.

Operations

Scientists at the Seattle-Beacon Hill station collect and measure outdoor air samples every day to ensure compliance with National Ambient Air Quality Standards for pollutants, including ozone, particle pollution (PM_{2.5} and PM₁₀), and nitrogen dioxide.

They also monitor trace gases, such as carbon monoxide and sulfur dioxide, as well as trends in air toxics, including metals, hydrocarbons, and volatile organic compounds.

Seattle-Beacon Hill has been the site of multiple state and national research projects on emerging air quality science. Site renovations planned for 2024-2025 (funded by the Inflation Reduction Act) will expand capacity for further research and collaboration with academic partners.

Value

Timely and accurate air quality information is of growing interest to researchers, policymakers, and the public. Nationwide air monitoring is what feeds this information, and it is essential to our understanding of air pollution, its sources, inequitable impacts, and the effectiveness of air pollution reduction efforts.



The Seattle-Beacon Hill station has produced more than 40 years of air pollution data in and around the city of Seattle. Long-term trends in this dataset shows how protective regulations can have a positive impact on air quality.

For example:

- Since 1979, concentrations of nitrogen dioxide recorded at Seattle-Beacon Hill have declined by more than 60% as stricter tailpipe and industrial emissions standards have taken effect.
- In almost 25 years of monitoring fine particles (PM_{2.5}) at Seattle-Beacon Hill, we saw average concentrations decline by more than 40% thanks to woodsmoke reduction programs and other emission-reduction efforts. (Unfortunately, recent wildfire seasons have reversed some of this trend.)

- As the only long-term lead-monitoring site in Washington, Seattle-Beacon Hill now records lead concentrations that are a very small fraction of the federal standard. In the 1970s and 80s, before lead was removed from gasoline, lead concentrations in the Seattle area were hundreds of times higher.

Thanks to our partnership with City of Seattle Parks and Recreation, which owns the Beacon Hill Reservoir-Jefferson Park complex where our station is situated, we plan to continue monitoring air quality for decades to come. This will allow us to track the positive air quality effects of new environmental protections that limit the burning of fossil fuels, including the Clean Energy Transformation Act, the Cap-and-Invest program, the Clean Fuel Standard, and Zero-emission Vehicles.



New initiative to improve air quality

The Seattle-Beacon Hill station is just east of the historic fishing grounds of the Duwamish people. Today's surrounding neighborhoods are located near industry, airports, and two major interstates.

We recently identified Beacon Hill and most of South Seattle for inclusion in new efforts to improve air quality in [overburdened communities highly impacted by air pollution](#) across Washington.

Access the network

Data from Washington's Air Monitoring Network is offered on an interactive map. [Access the map](#) to see air quality and meteorological information from monitoring stations across the state, including the Seattle-Beacon Hill station.

Washington's Air Monitoring Network



Susan Woodward
susan.woodward@ecy.wa.gov
360-688-8070



To request an ADA accommodation, contact Ecology by phone at 360-407-6800 or email at miriam.duerr@ecy.wa.gov, or visit <https://ecology.wa.gov/accessibility>. For Relay Service or TTY call 711 or 877-833-6341.