

LONG BEACH AIR QUALITY AND SOCAL PORTS



Every single day, the ports of Los Angeles and Long Beach produce 100 tons of smog.

This is more daily emissions than generated by all **6 million passenger vehicles** in the Los Angeles region!

Living next to a port can have significant human health impacts, and thus it is important to know how you can protect yourself and your loved ones when it comes to your city's air.

Heavy-Duty Trucks



Heavy-duty diesel trucks are one of the main sources of air pollution in Long Beach and other port-adjacent cities.

As a resident of Long Beach, you are impacted by the direct emissions from the two nearby ports, but also from the trucks and trains traveling through your city to reach the ports. Roughly **44% of all the emissions** released by the ports of Los Angeles and Long Beach derive from medium and heavy-duty vehicles moving freight between ports, rail centers, and logistics hubs. These diesel trucks are closely **associated with toxic air pollutants** including nitrous oxides (NO_x) and particulate matter, which can severely impair the air quality of communities along these truck routes.

Related Health Impacts

Continued exposure to high levels of nitrous oxides, for example, can irritate the respiratory tract, cause fluid to build up in the lungs, and lead to reduced oxygenation of body tissues. Likewise, breathing excess particulate matter, specifically fine particulate matter or PM 2.5, causes **reduced lung growth in children**. Diesel trucks significantly increase levels of ambient PM 2.5 in and around Long Beach, a pollution that is ranked as the second **leading cause of lung cancer deaths** in the United States.

In fact, citizens residing near the Long Beach port area have a significantly **higher risk of contracting cancer** from their air than the average South Coast basin resident, signifying the importance of prioritizing air quality in port-impacted communities.

In summary:

PM 2.5 causes...

- Reduced lung growth
- Lung cancer
- Aggravated asthma

Nitrous oxide causes...

- Respiratory tract irritation
- Fluid buildup in lungs
- Reduced oxygenation of body tissue

Both PM 2.5 and nitrous oxide levels are elevated in port-adjacent cities.

Weather Challenges in Long Beach

Long Beach is uniquely affected by port emissions due to its specific location and weather conditions.



Unique weather conditions in Long Beach, namely the marine inversion layer, frequently **trap emissions from the ports** and heavy-duty trucks near the city. Air close to the surface of earth is cooled by ocean water and then enclosed by a layer of warmer air above it, entrapping pollutants near ground level. Furthermore, in warmth and sunlight, common weather conditions in Long Beach, ambient PM 2.5 and other ozone precursors released from port sources (like NO_x) combine to form ground level ozone, another pollutant known to **trigger lung diseases and inflame airways**.

It is also critical to note that **Long Beach is highly affected** by the emissions of warehouses and logistics centers linked to the port. The port of Long Beach contains a whopping **22 shipping terminals** within the city of Long Beach, releasing significant pollution as docked ships run their diesel engines and freight trucks move goods throughout the terminal. This port infrastructure has created serious environmental justice concerns; people living close to the port and its terminals have a life expectancy up to **eight years shorter than the county average** due to the abundance of pollution in their region. Furthermore, these shipping hubs draw thousands of trucks through, to, and from Long Beach, bringing all their emissions with them.

Direct Emissions (ocean vessels)

At the broader scale, direct emissions from ocean-going vessels are not only the source of roughly half the emissions at the Port of Los Angeles but also the **largest source of air pollution** deriving from goods-movement in Southern California. While at berth in the port, vessels run their auxiliary engines to power lighting, refrigerators, and similar operations, and there are additional on-dock emissions from diesel cargo handling equipment like cranes and yard tractors, used to move goods on and off ships.

Emission summary Statistics:

- **Ocean-going vessels:** 50% of emissions at the port of Los Angeles
- **Heavy and medium-duty trucks:** roughly 44% of emissions from ports of Los Angeles and Long Beach
- **Ports as a whole:** 10% of nitrous oxide emissions in the entire South Coast basin



In Conclusion...

Combined together, the ports of Los Angeles and Long Beach handle roughly 40% of container imports and between 25-30% of all exports within the United States.

The sheer scale of port operations, including sources from ships, trucks, and warehouses as listed above, **put cities like Long Beach at the front line** when it comes to goods movement-related air pollution.

Understanding the origins and impacts of these pollutants is the first step to protecting your city's air quality and the health of all those residing within.

Interested in learning more?

Here are some great resources to check out if you are curious to learn more about sources of air pollution in your community:

<https://www.insurance.ca.gov/01-consumers/180-climate-change/upload/Strategy-to-Understand-and-Address-Potential-Insurance-Gaps-for-Zero-Emission-Medium-and-Heavy-Duty-Truck-Technologies-January-2025.pdf>

<https://www.aqmd.gov/nav/about/initiatives/clean-port>

<https://www.sciencedirect.com/science/article/abs/pii/S1352231025006119>

<https://www.staxengineering.com/stax-hub/understanding-the-health-risks-of-port-emissions-on-local-communities/>

<https://www.iqair.com/air-quality/usa/california/long-beach>