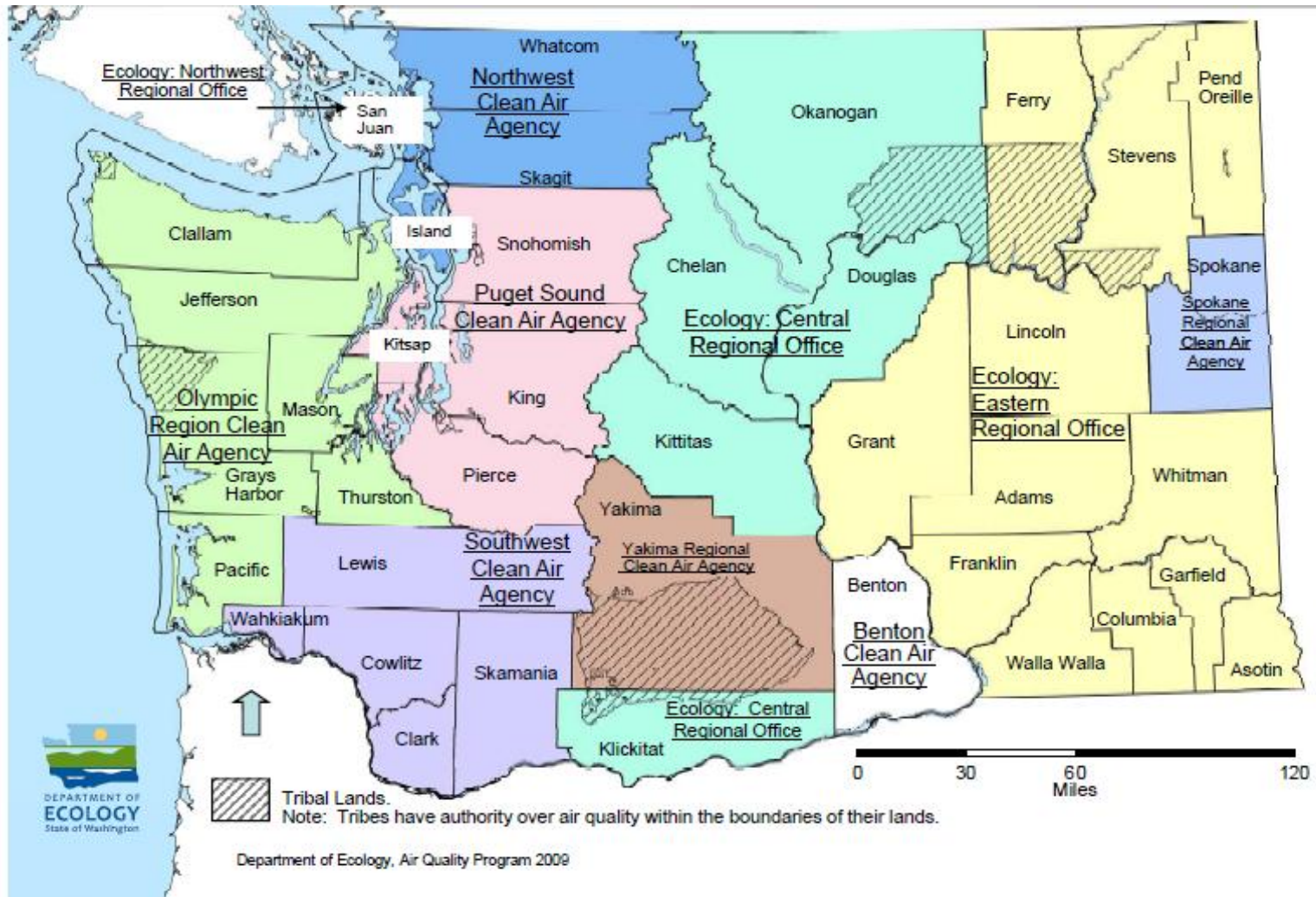


# Issues in Washington Air Quality

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**Air Quality Program**  
**Department of Ecology**

**Atmospheric Sciences 212**  
**February 17, 2011**

# Washington Clean Air Agencies



# Work of the Air Quality Program

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Air Quality Program Home Page:

<http://www.ecy.wa.gov/programs/air/airhome.html>

Puget Sound Clean Air Agency:

<http://www.pscleanair.org/>

# EPA's Criteria Pollutants:

- Ozone
- Particles
  - PM<sub>10</sub>
  - PM<sub>2.5</sub>
- Carbon Monoxide
- Nitrogen Dioxide
- Sulfur Dioxide
- Lead

# Toxic Air Pollutants

**Diesel Particulate Matter**  
**Wood Smoke**

**Benzene**

**Carbon Tetrachloride**

**Formaldehyde**

**Polycyclic Organic Matter**

**Chromium**

**Chloroform**

**Ethylene Dichloride**

**1,3-Butadiene**

**Ethylene Dibromide**

**Acetaldehyde**

**Tetrachloroethylene**

**Trichloroethylene**

**Nickel**

**Arsenic**

**1,4-Dichlorobenzene**

**1,3-Dichloropropene**

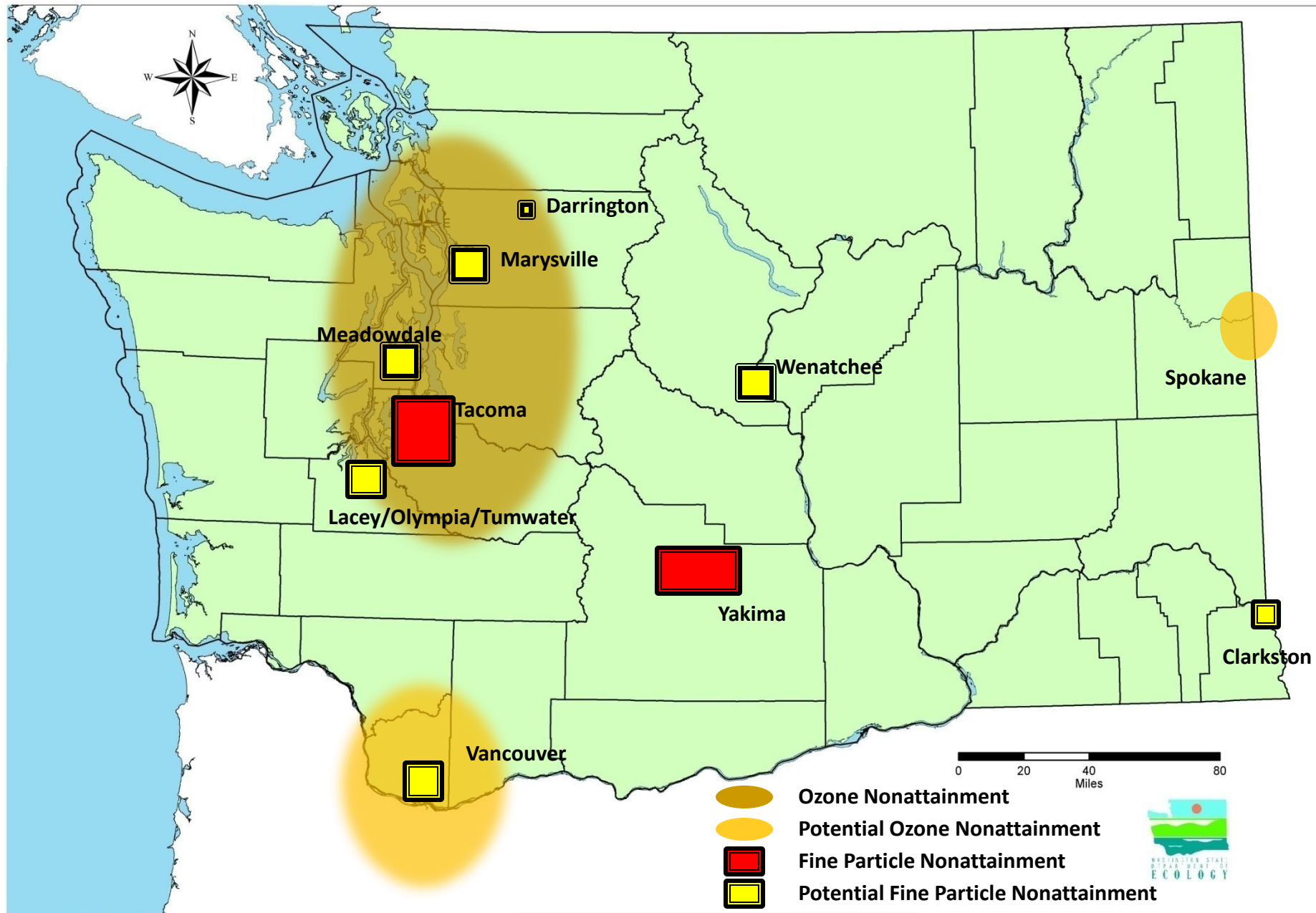
**Ethylene oxide**

**Selenium**

**Acrolein**

# EPA National Ambient Air Quality Standard Review

## Expected Nonattainment Areas and Potential Nonattainment Areas



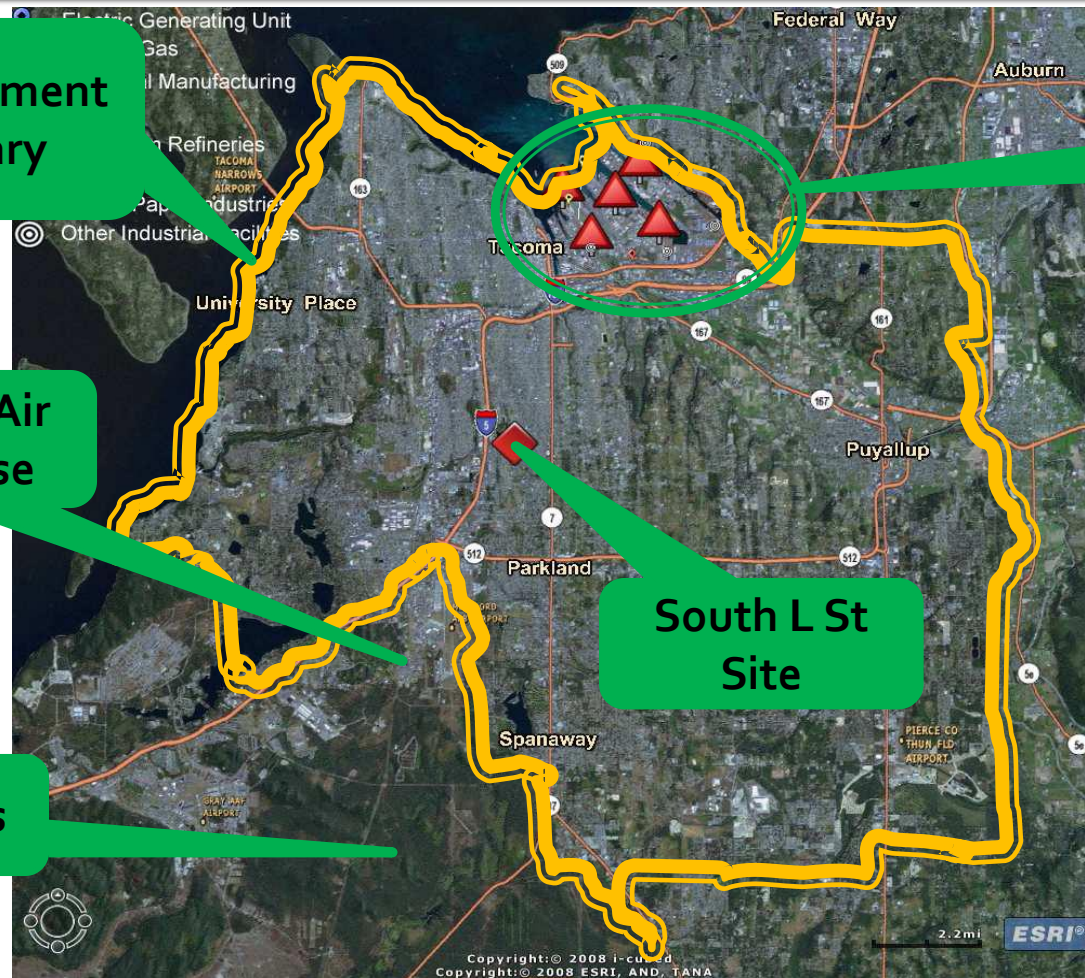
# Health Effects of PM<sub>2.5</sub>

- 1,500 nonfatal heart attacks
- 450 incidents of heart disease
- 1,900 incidences of acute bronchitis
- 100 cases of chronic lung disease
- 250 incidents of pneumonia
- 400 emergency room visits for asthma, and
- thousands of incidents of worsened asthma

Direct and indirect costs of >\$190 million/year  
to state of Washington



# Wapato Hills-Puyallup River Valley PM<sub>2.5</sub> Nonattainment Area



Nonattainment  
boundary

Port of  
Tacoma

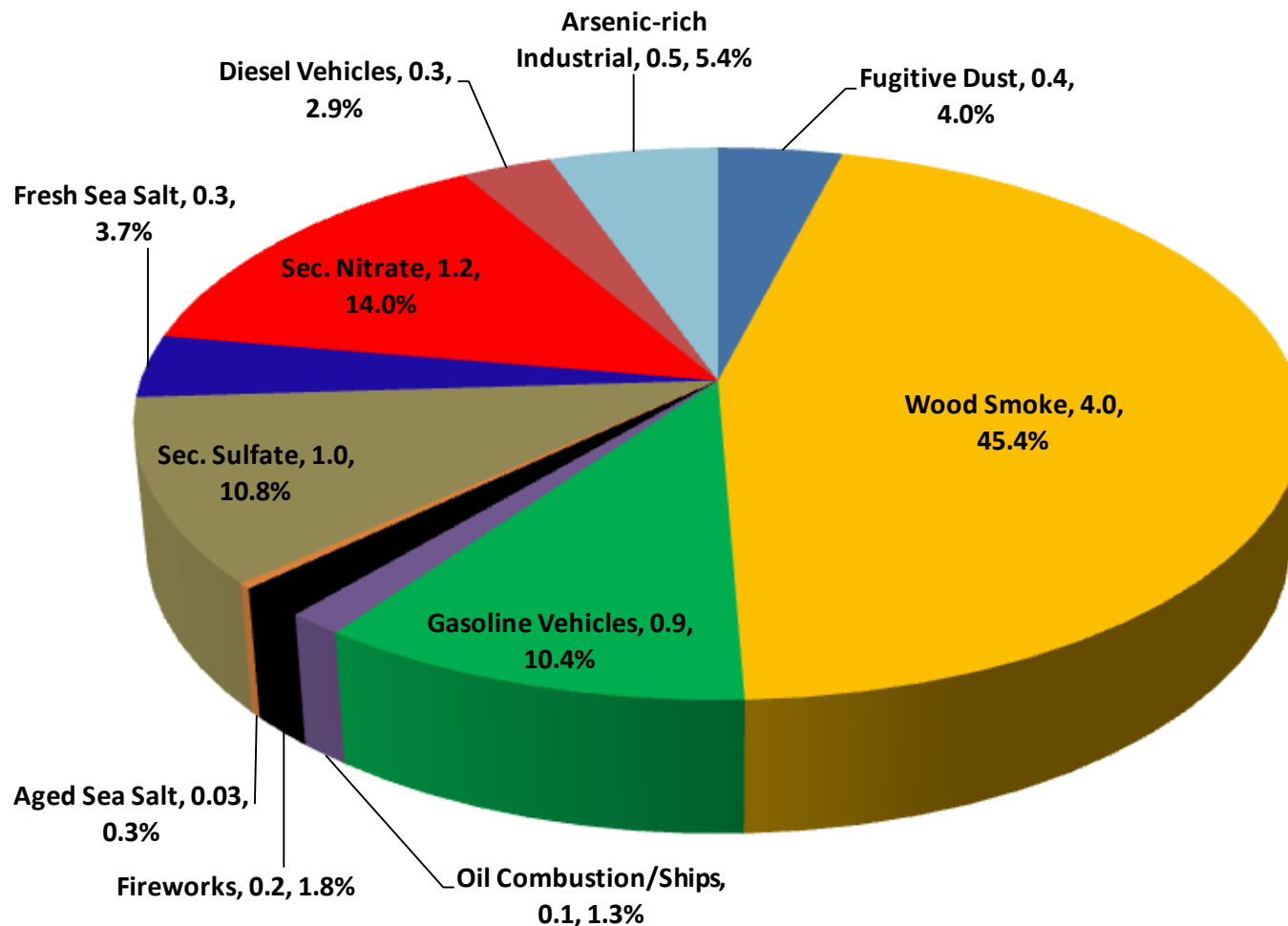
McChord Air  
Force Base

South L St  
Site

Fort Lewis

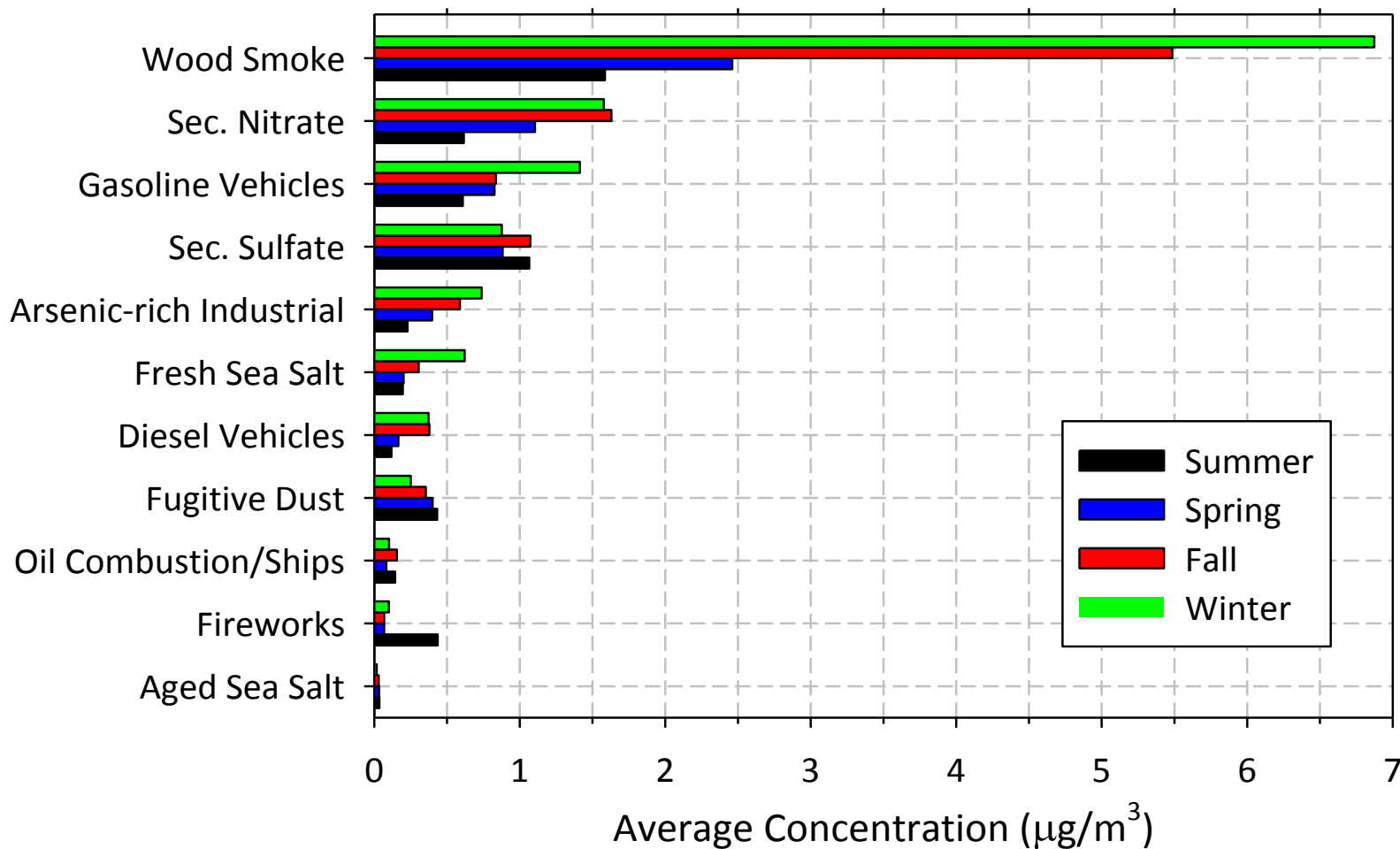


# What the data says: Overall

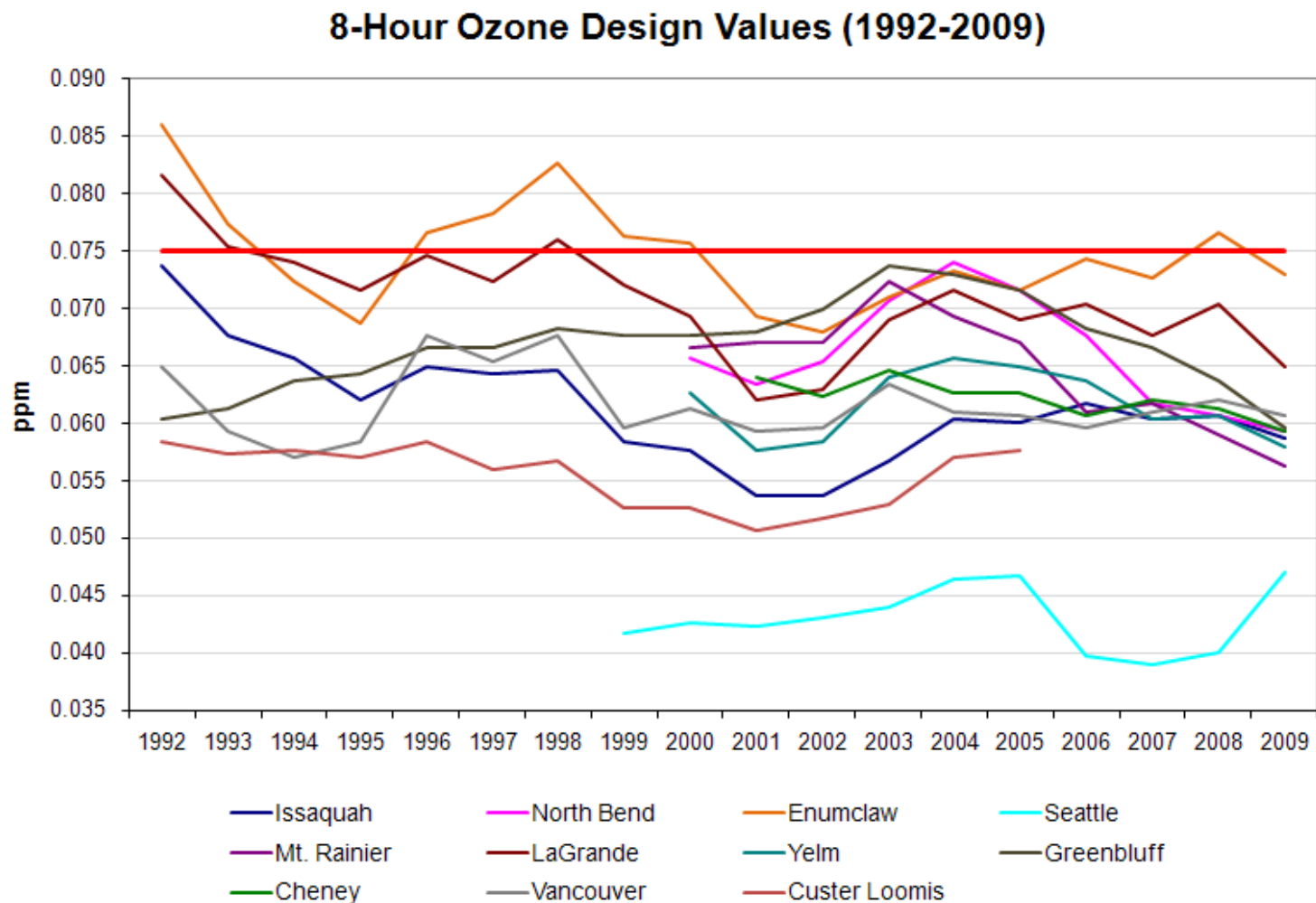


**Numerical values in the pie are:**  
resolved source,  
average  
concentration in  
 $\mu\text{g}/\text{m}^3$ , & percent of  
total, respectively

# What the data says: By Season



# Ozone in the Puget Sound Area



# Other Air Quality Issues:

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- Data centers in Eastern Washington
- Greenhouse gas reporting and permitting
- Energy generation from biomass

# Questions?

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