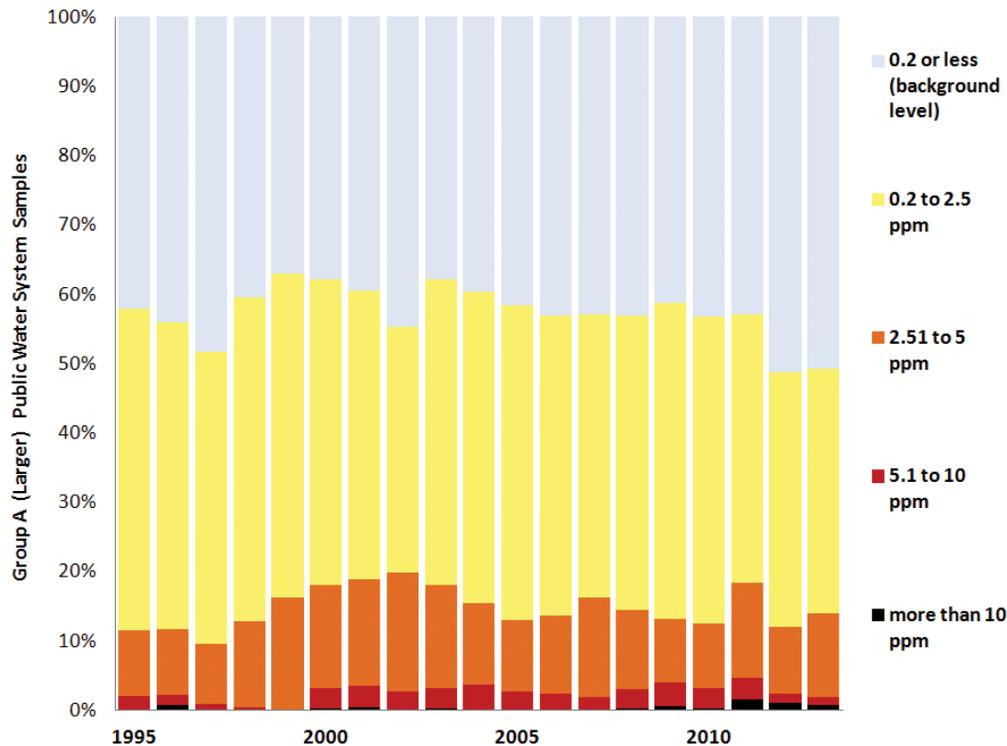




Water

Nitrate Levels in Public Water Sources



Data Source: Washington State Department of Health. Group A public water systems serve 15 or more connections, or more than 25 people per day, generally.

Nitrates in surface water or ground water sources used by large water systems have **varied**, while our Pierce County population has increased since 1995. About 2% of 2013 samples have nitrates above 5 parts per million (ppm) and about 14% above 2.5 ppm.

WHY CARE?

Hazards

- The highest nitrate levels allowed in drinking water is 10 ppm.
- Nitrates from fertilizers, manure, and sewage easily travel through water and soil. Sources include agricultural, residential, septic systems, and waste water treatment plants, as well as natural sources.¹
- High nitrate levels indicate that other contaminants may also be present, such as bacteria, viruses, and chemicals.
- Groundwater, rivers, streams, and the Puget Sound are connected. Nitrates and other contaminants in fresh waters can impact saltwater and contribute to algae blooms.²

With climate changes we expect:³

- Heavier winter rains which carry contaminants into shallow aquifers and rivers, which can then contaminate deeper groundwater aquifers.
- Drier summers and reduced snowpack, increasing contaminant concentrations.

Exposure

Public water systems are required to treat their water and test it to make sure it's safe to drink. If nitrate levels are higher than 10 ppm they look for other water sources.

- Large (Group A) public water systems serve over 75% of Pierce County residents.
- Smaller (Group B) public water systems and individual wells that get water from shallow aquifers are more likely to have contamination problems.

Human health impacts

- Drinking water with high nitrate levels can cause nitrate poisoning (Methemoglobinemia) in babies and young children, or “blue-baby syndrome.” Symptoms include shortness of breath, headaches, fatigue, and bluish skin.
- Drinking water with high nitrate levels may increase the risk of spontaneous abortion or certain birth defects.⁴

Who’s most vulnerable?

- Babies, very young children, and pregnant women.
- People getting water from shallow aquifers, smaller Group B public water systems, and individual wells that are not testing their water to make sure it’s safe to drink.
- In the Puget Sound Basin, shallow wells in parts of Tacoma and other areas with coarse-grained glacial deposits and residential, commercial, industrial, and/or agricultural land use nearby are most vulnerable to nitrate contamination.⁵

Economic Impacts

- Our economy relies on an adequate supply of clean water for public water systems that supply water to homes, businesses, and other places where people work, learn, and play.⁶
- Food production needs a lot of water per pound: beef almost 1800 gallons, chicken over 450 gallons, and potatoes about 120 gallons.⁷

WHAT CAN YOU DO?

Policy actions

- The federal Safe Drinking Water Act was first passed in 1974 and has been amended twice to protect public drinking water and its sources.
- Since the 1980’s, Tacoma-Pierce County Health Department has used federal, state, and local regulations to help water systems provide safe and reliable drinking water. When levels reach 5 ppm we increase efforts to reduce or eliminate nitrate sources. In areas with average nitrate levels of 2.5 ppm or higher we limit the number of new onsite sewage systems.

Personal actions

Find out where your drinking water comes from:

- Ask your water purveyor or call the Health Department at (253) 798-6470.

Prevent pollution at home, work, and school that can end up in our water supplies:

- Keep your home, gardens, and workplaces free of chemicals. Find out more at www.tpchd.org/natural-yardcare.



Neighbors planting a rain garden in Puyallup (Rain Dog Designs).

- Use fewer and properly dispose of oil, electronic waste, pharmaceuticals, pesticides, and other products. Find out where by calling (800) 287-6429 or at www.piercecountywa.org/hhw or www.tpchd.org/hazwaste.
- Become an EnviroStars business. Use EnviroStars businesses. Find out more at envirostars.org or call (253) 798-6429.

Use less water—water quantity impacts water quality:

- Fix drips and leaks, use water efficient showerheads and toilets.
- Calculate and pledge to reduce your water footprint at <http://environment.nationalgeographic.com/environment/freshwater/water-footprint-calculator/>
- For more ideas go to www.h2ouse.org/

Plant rain gardens and native plants that don’t need fertilizing or watering once established.

- Find out about these and other ways to help recharge and keep pollutants out of our water supplies at <http://raingarden.wsu.edu/Pierce.html>

Pierce County employees have reduced their water use by almost 4% since 2009.

1 Sources and Pathways of the Nitrogen in Puget Sound and Nitrogen in Groundwater, www.ecy.wa.gov/programs/eap/Nitrogen/sourcesPathwaysI.html, Washington State Department of Ecology, June 2014.

2 Nitrogen in Groundwater, www.ecy.wa.gov/programs/eap/Nitrogen/NitrogenInGroundwater.html, Washington State Department of Ecology, May 2014.

3 Climate change impacts on water management in the Puget Sound region, Encyclopedia of Puget Sound, 2012.

4 Nitrate in Drinking Water Questions & Answers, Washington State Department of Health, June 2010.

5 Predicting Ground-Water Vulnerability to Nitrate in the Puget Sound Basin, U.S. Geological Survey, June 1997.

6 Liquid Assets, www.liquidassets.psu.edu, 2012.

7 National Geographic Water: A Special Issue: the Hidden Water We Use, December 2011.