

## What is an aquifer?



Aquifers are layers of water in underground rock. The water comes from rainfall, snow-melt, lakes, streams, and wetlands. Wells are drilled into aquifers to extract water for homes, businesses, agriculture, and industries.

Some locations called

**Critical Aquifer Recharge Areas (CARAs)** fill aquifers faster. Locate and protect your local CARAs from excess nitrogen by clicking on the

**VSP Critical Areas Web Map** at



<http://www.fostercreekcd.org/programs/voluntary-stewardship-program/>

## Why is groundwater protection important?

### It is essential to life.

▪ At least 60% of Washington State residents get their drinking water from aquifers, especially in rural areas.



### Excess nitrogen can lead to dangerous environmental concerns.

▪ High concentrations of nitrogen create eutrophication events that lead to toxic algal blooms and suffocates fish.

### Exposure causes health concerns.

▪ One high exposure can make you sick.  
▪ It can make livestock ill.  
▪ Infants are most at risk to get a condition known as Blue Baby Syndrome.

Sources: (1) WA Department of Ecology: Groundwater, <https://ecology.wa.gov/Water-Shorelines/Water-quality/Groundwater>, & (2) WA Department of Health: Drinking Water, <https://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater>

## Water Testing Facilities

### Chelan County

- Cascade Analytical, Inc., Wenatchee

### Grant County

- Soiltest Farm Consultants, Inc. Laboratory, Moses Lake

### Okanogan County

- Okanogan County Public Health Laboratory, Okanogan

Source: WA Department of Ecology, <https://fortress.wa.gov/ecy/laboratorysearch>

## Need more information on a similar topic? Contact us!

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**Our Mission:** *Serving the community through quality technical assistance for natural resource stewardship.*

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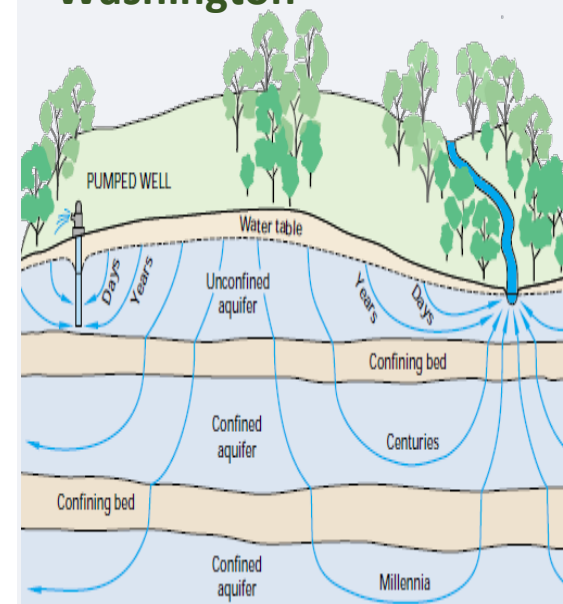
DEPARTMENT OF  
**ECOLOGY**  
State of Washington



# Nitrate in Groundwater

## How to keep your drinking water and wells healthy

## Douglas County, Washington



Source: <https://newvitruvian.com/explore/aquifer-drawing-watershed/>

The graphic above shows how it can take years, even centuries, for surface water to reach the bottom depths of aquifers!

Preventing nitrate contamination now guarantees cleaner water for the future generations.

## A.C.T. to Reduce Nitrogen Contamination

### AVOID Nutrient Loss

- Nutrient Management 4R's
  - Right rate,
  - Rate source,
  - Right time (ground cover),
  - Right placement
- Plant a Cover Crop
- Crop Rotation
- Irrigation Water Management

### CONTROL Nutrient Runoff

- Mulching / Reduced Till
- Terraces
- Strip-cropping
- Vegetative Barriers
- Waste Management: treatment, recycling, storage

### TRAP Nutrients & Sediment, if nitrogen escapes

- Conservation Cover (CRP)
- Field Borders
- Filter Strips
- Grassed Waterway
- Contour buffer strips

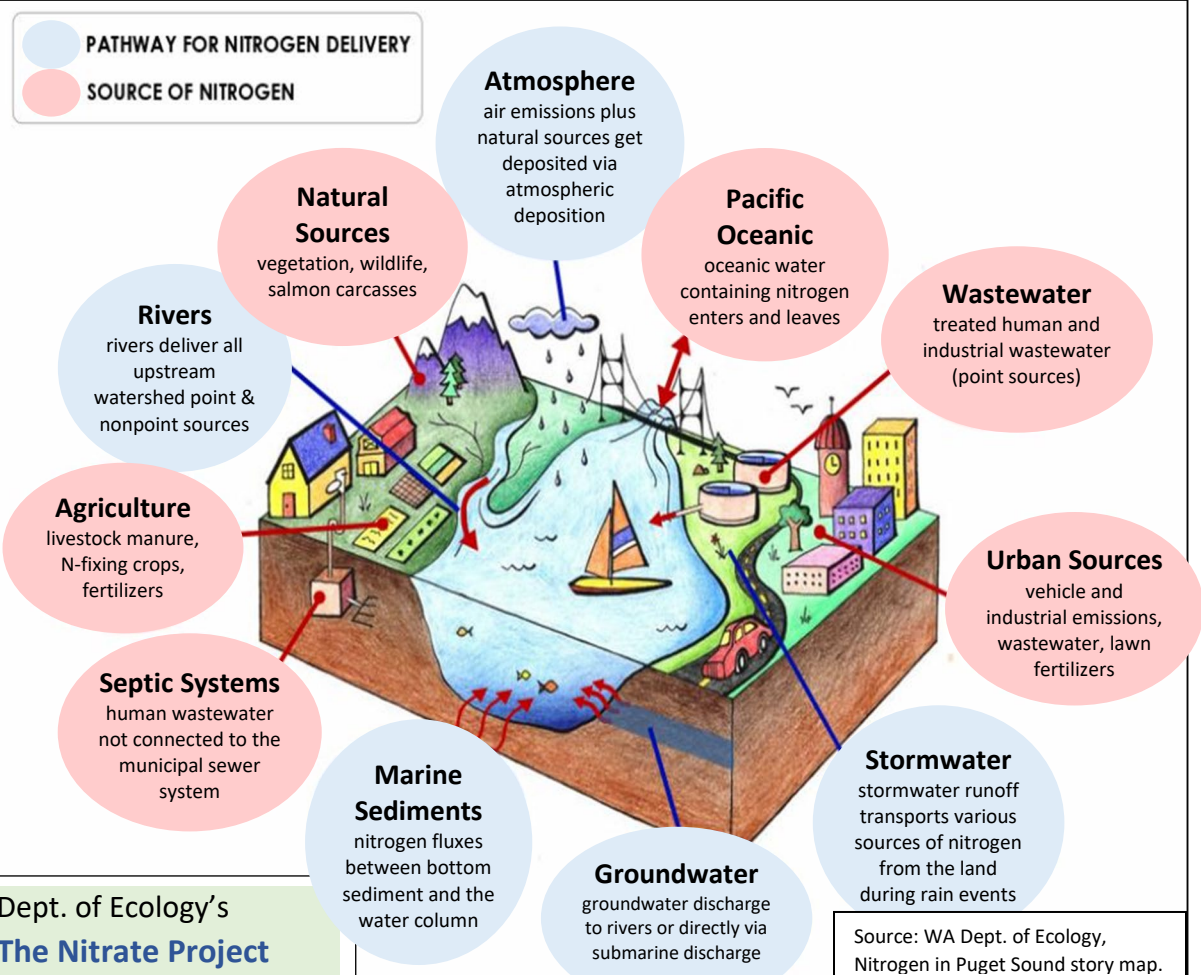
Source: Natural Resources Conservation Service (NRCS) webinar Nitrogen Management and Concerns

### DID YOU KNOW?

Nitrogen can take a variety of forms, including nitrate, ammonia, and nitrous oxide, to name a few.

## Nitrogen can leach into groundwater through multiple sources.

Testing your soils annually will save \$\$\$ and avoid applying excess nitrogen.



## Where can I get more information about my well?

### Public Water System Wells

- WA State Department of Health at (800) 521 – 0323
- East Wenatchee Water District at (509) 884 – 3569

### Private Wells

- Chelan-Douglas Health District at (509) 886 – 6400