

IDWR Statewide Groundwater Quality Monitoring Program: 2024 Season Update

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GWMTC Meeting
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IDAHO DEPARTMENT OF
WATER RESOURCES



Presentation Outline

- Statewide Program Overview
- 2024 Sampling Season Review
- Water Quality 2024 Data Highlights
- Pesticide Sampling
- PFAS Sampling
- Looking Ahead – 2025 Sampling

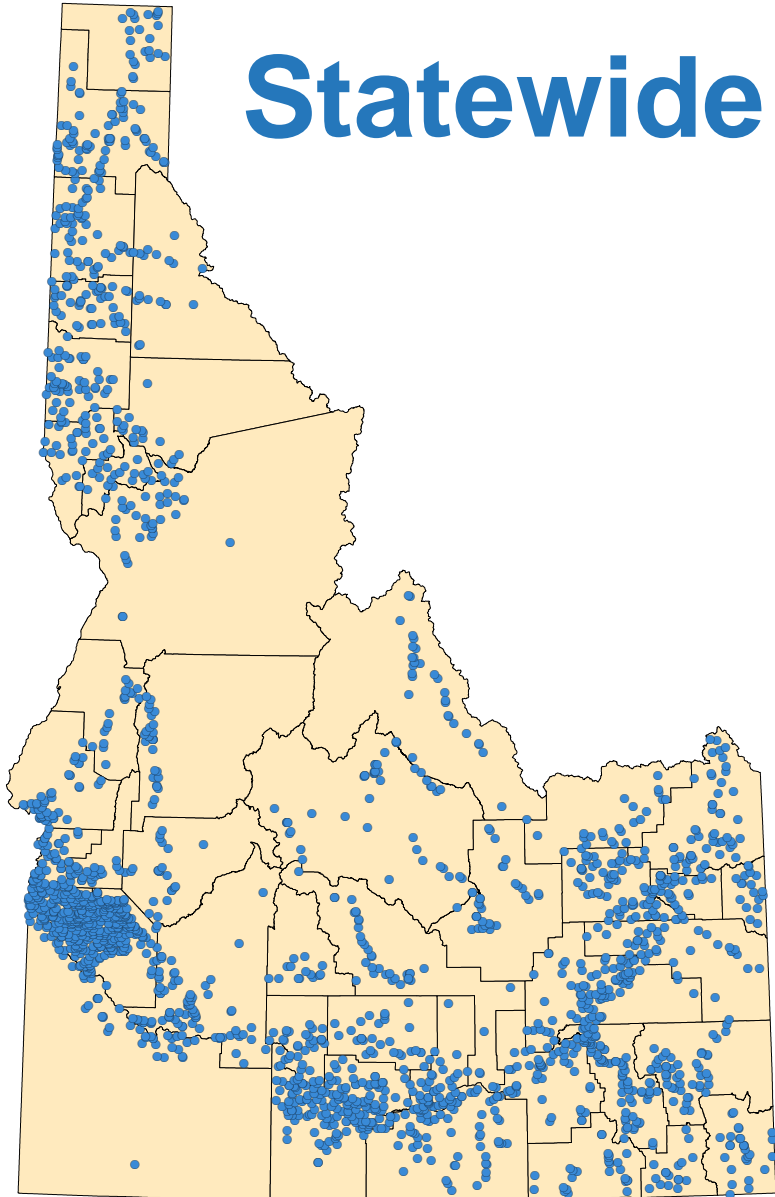
IDWR Statewide Program Overview

IDWR's Statewide Program



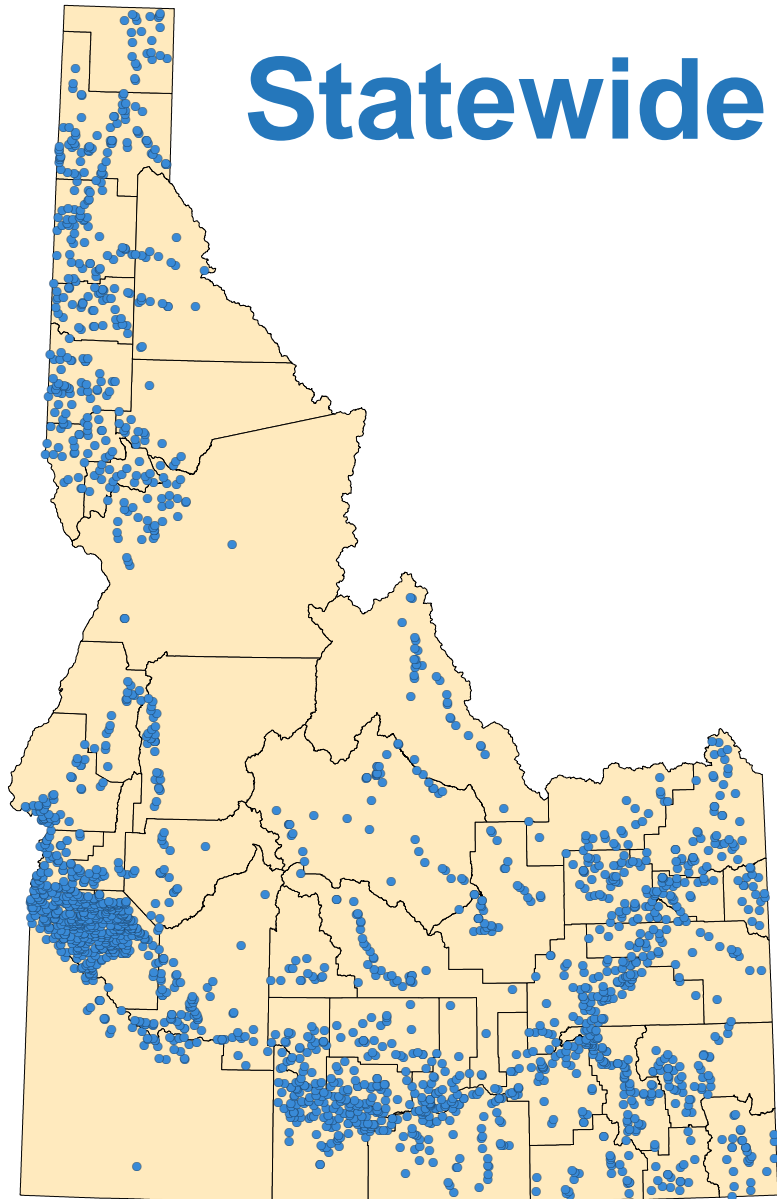
- Yearly sampling effort to test ambient groundwater conditions throughout the state
- Identify current and emerging groundwater quality issues over time

Statewide Program Network

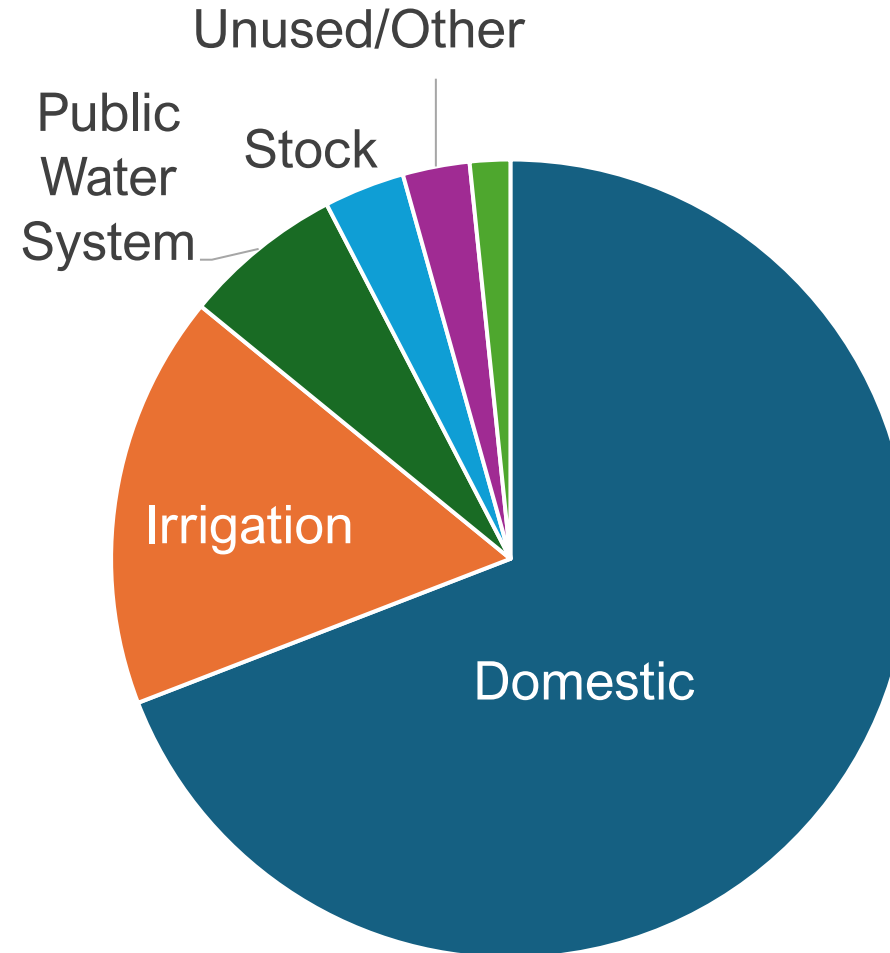


- Program started in 1990
 - 35 years of data!
- Over 2,100 wells have been sampled
 - ~1,500 currently active
- 200-250 wells are sampled each year
- Wells are on a 5-year rotation

Statewide Program Network

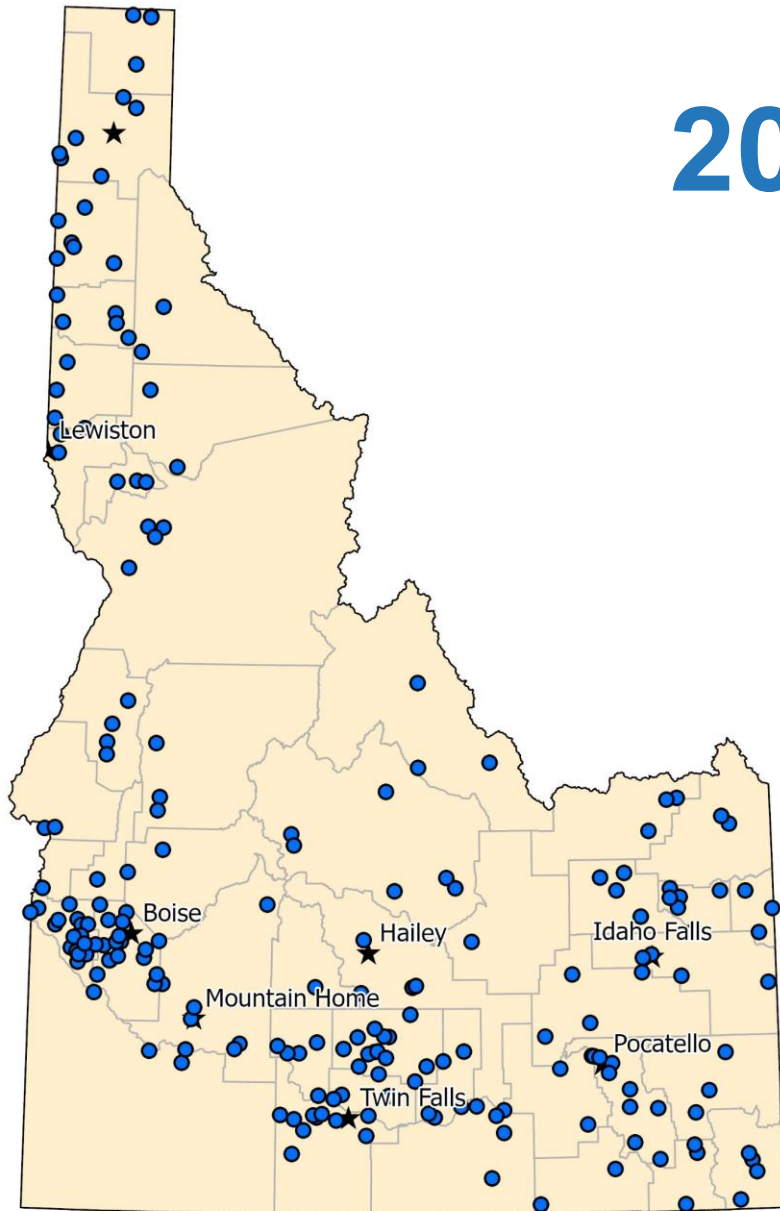


Types of wells sampled



2024 Sampling Season Review

2024 Sampling



- Sampled 204 wells
- Sampling occurred June-September
- 3 new wells added

Sampling Staff



Samuel Bernard
U of I



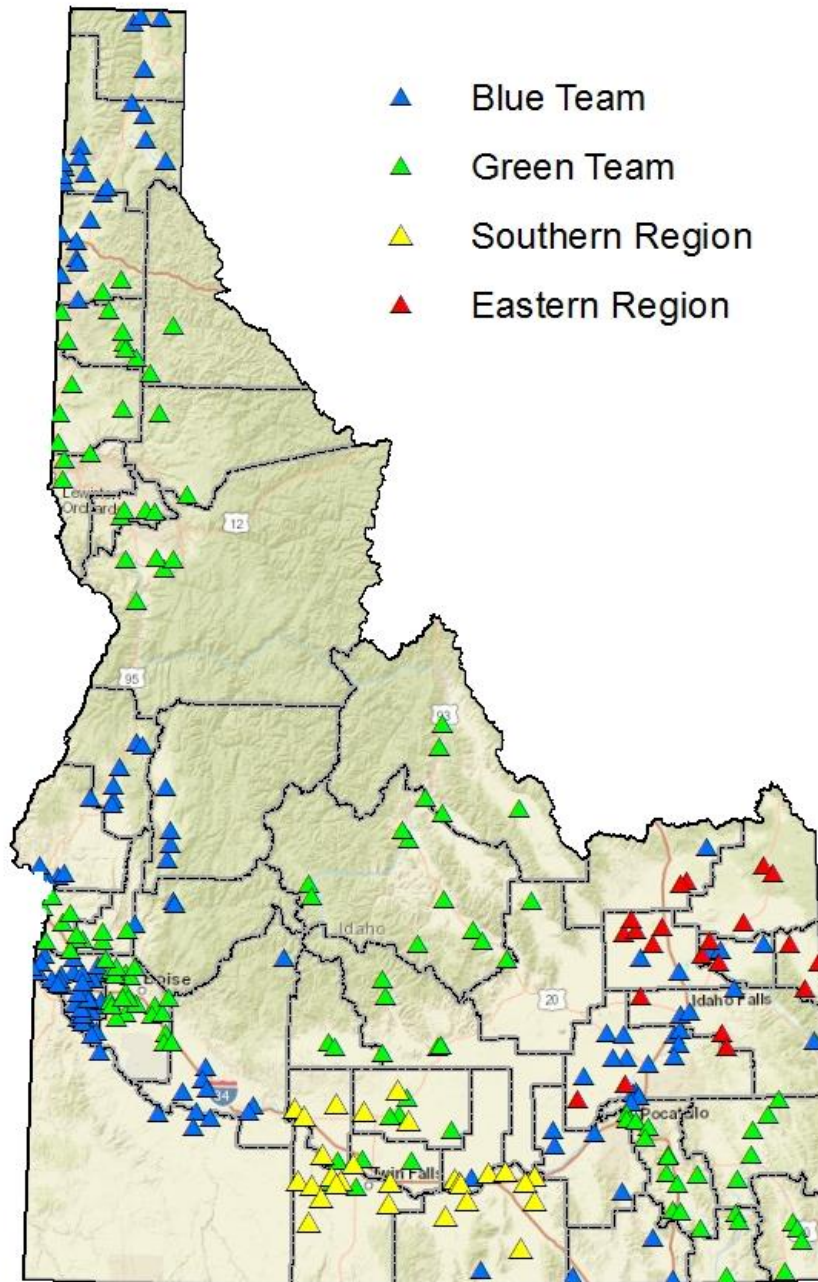
Luke Quinn
BSU



Juliette Flowers
BSU



Olivia Omas
Vanderbilt University





Jake Nebeker
IDWR Eastern Region



Kent Aasa
IDWR Southern Region

2024 Parameter List

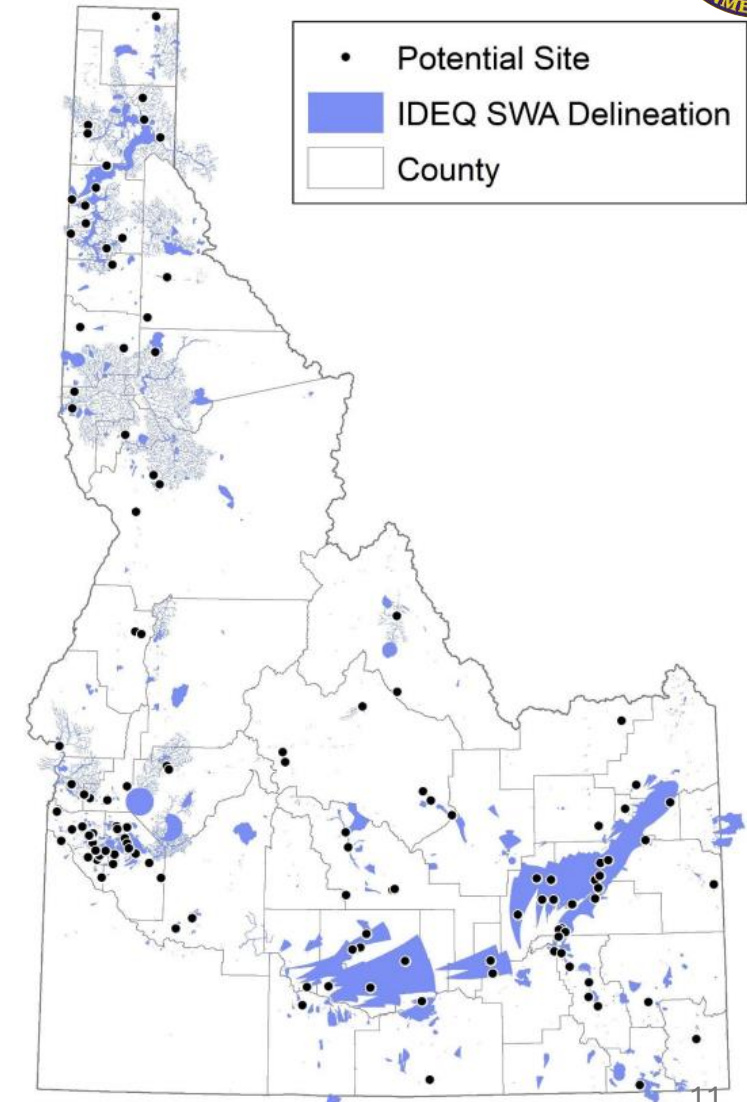
Field Parameters	Metals cont.	Nutrients
Alkalinity	Calcium	Ammonia
Conductivity	Iron	Nitrate
Depth to water	Lithium ¹	Total Phosphorus
Dissolved Oxygen	Magnesium	Emerging Contaminants
pH	Manganese ¹	PFAS ^{1,2}
Temperature	Molybdenum ²	Pesticides
Common Ions	Potassium	Glyphosate
Chloride	Selenium	EPA 525.2 ^{1,2}
Fluoride	Silica	Collaborative Sampling
Sulfate	Sodium	 Bacteria/Pathogens ²
Metals	Thallium	N-15 Isotope ²
Arsenic	Uranium	Methane ² 
Cadmium	Vanadium ²	

¹Sampled with DEQ BIL funding ²Sampled at a subset of sites₁₀

DEQ Bipartisan Infrastructure Law (BIL) Funding: Emerging Contaminants in Small or Disadvantaged Communities

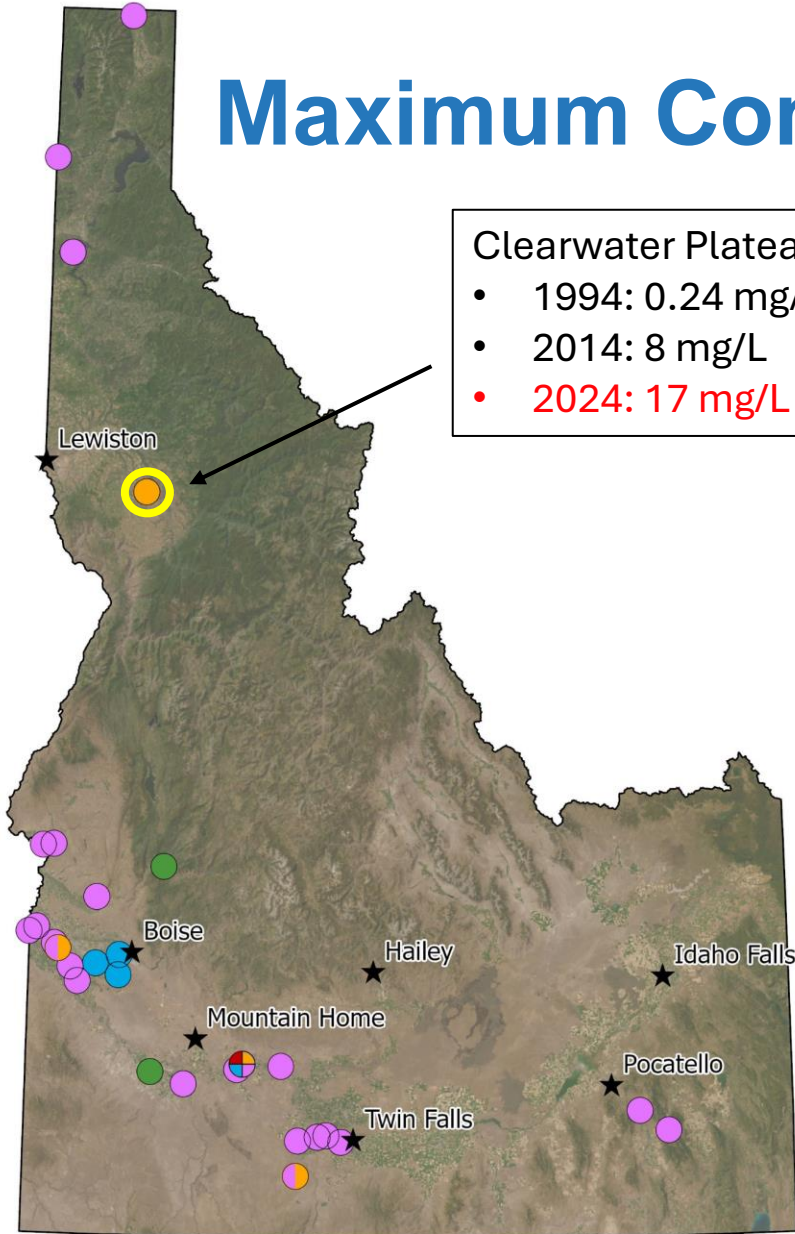


- Continued collaboration with DEQ using BIL funds to sample for:
 - PFAS
 - Lithium
 - Manganese
 - Pesticides (EPA 525.2), includes:
 - Alpha-Hexachlorocyclohexane, Chlorpyrifos, Diazinon, Dieldrin, Ethoprop, Malathion, Norflurazon, Permethrin, Propachlor, Propazine
- All above are on EPA's Contaminant Candidate List (CCL)
- DEQ covered sample testing costs for wells that fall within Source Water Assessment (SWA) time of travel zones



2024 Water Quality Data Highlights

Maximum Contaminant Level (MCL) Exceedances



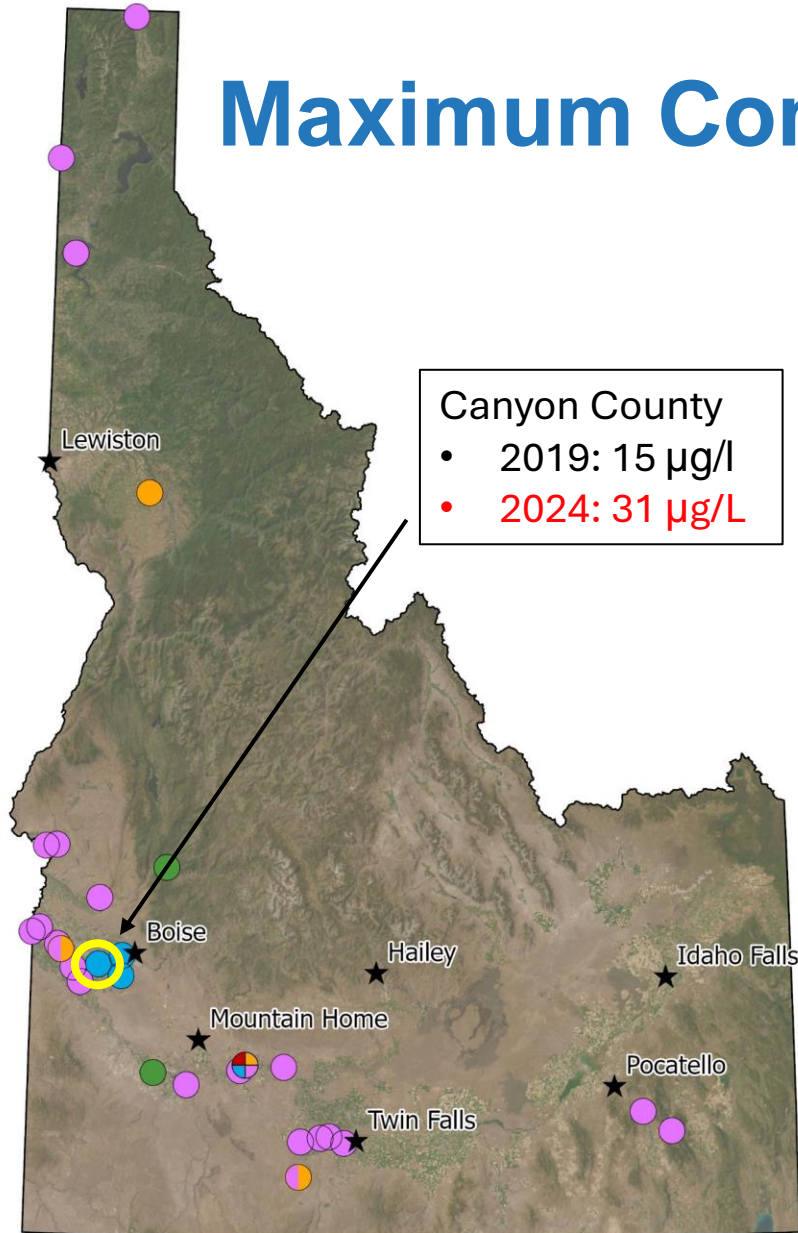
Clearwater Plateau NPA

- 1994: 0.24 mg/L
- 2014: 8 mg/L
- 2024: 17 mg/L

	Arsenic	Nitrate	Uranium	Fluoride	Selenium
MCL	10 µg/l	10 mg/l	30 µg/l	4 mg/l	50 µg/l
# of wells > MCL	23	4	4	2	1
# of first-time exceedances	0	1	1	0	0
Max value	130 µg/L	17 mg/L	120 µg/L	5.26 mg/L	52 µg/l

A total of 29 wells, or 14% of sites sampled, had at least one MCL exceedance.

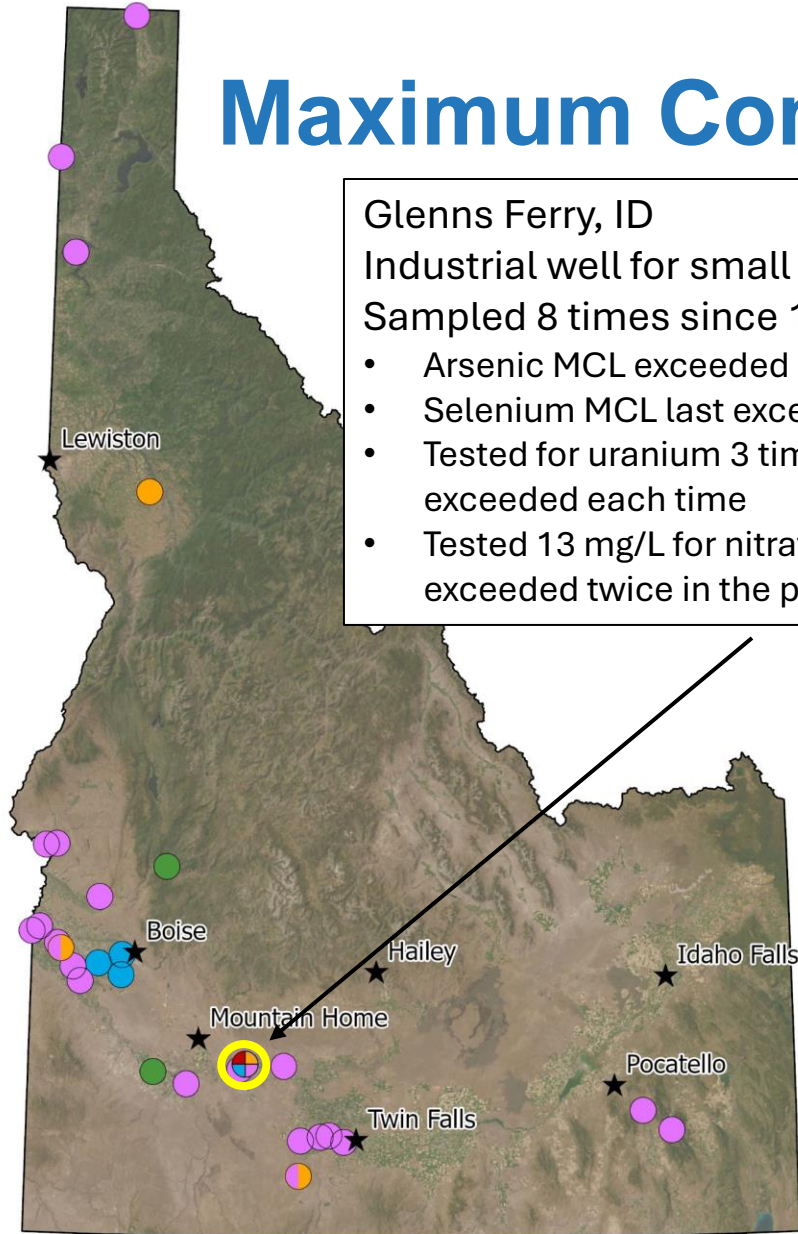
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Maximum Contaminant Level (MCL) Exceedances



Glenns Ferry, ID
 Industrial well for small cattle farm
 Sampled 8 times since 1991

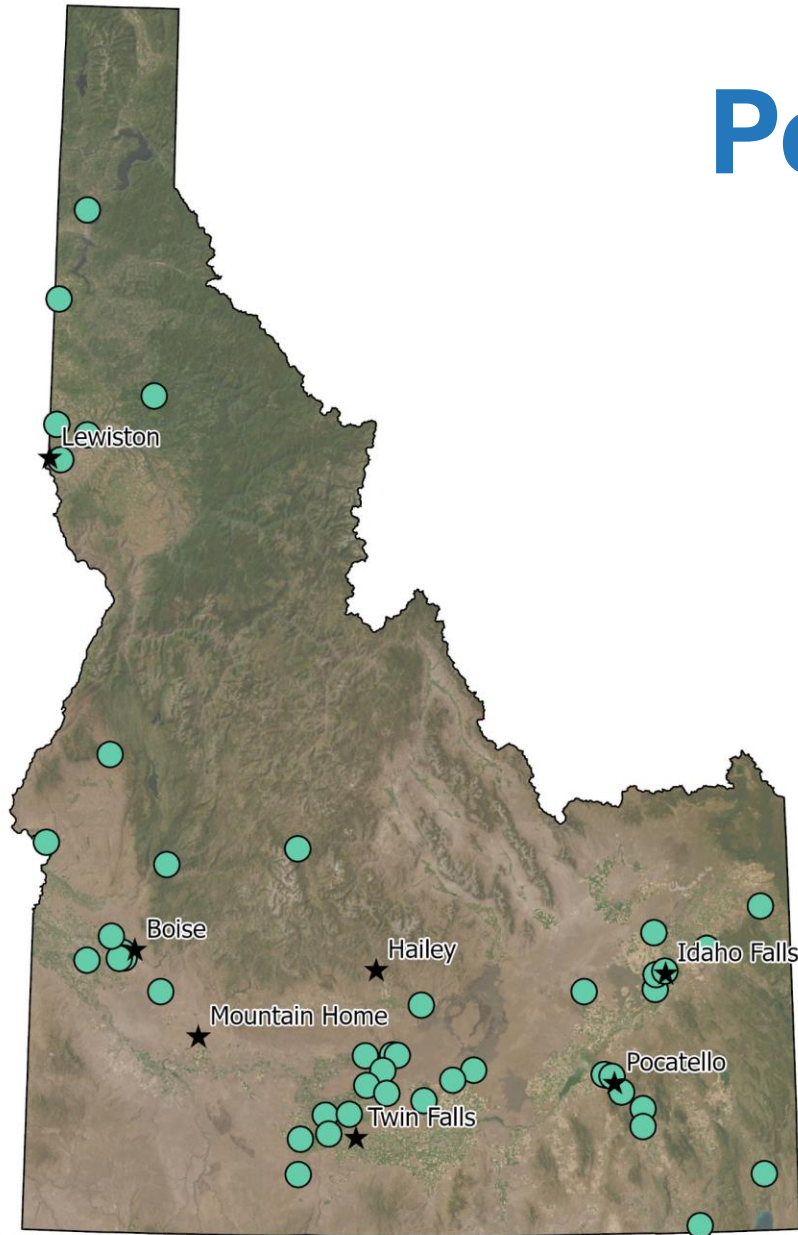
- Arsenic MCL exceeded every time
- Selenium MCL last exceeded in 2009
- Tested for uranium 3 times since 1991- exceeded each time
- Tested 13 mg/L for nitrate in 2024. MCL exceeded twice in the past.

	Arsenic	Nitrate	Uranium	Fluoride	Selenium
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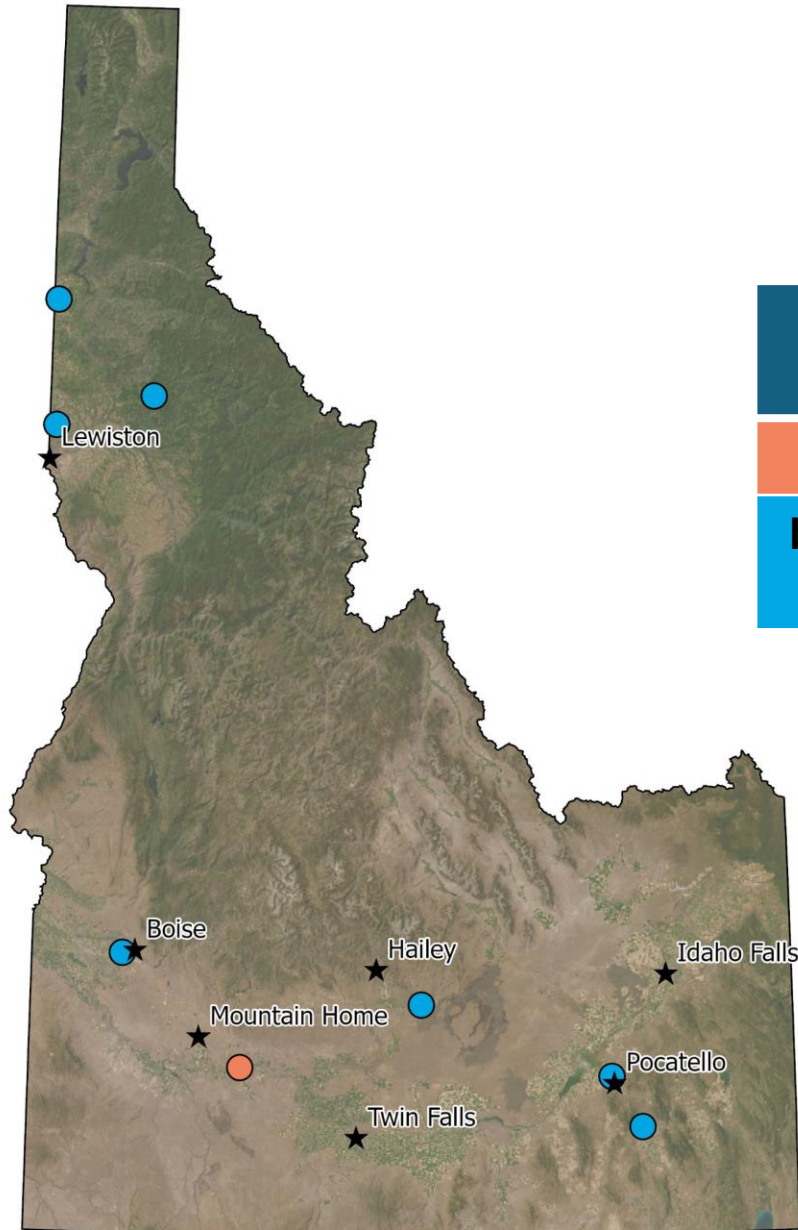
Pesticide Sampling

Pesticide Sampling Overview



- Immunoassay testing for Glyphosate at all sites
- EPA method 525.2 (semi-VOCs) -103 analytes; includes Alachlor, Atrazine, and Metolachlor
 - Sampled at 47 sites (shown)
 - 34 supported by DEQ BIL funds – sampled in SWA zones
 - Preference given to wells in agricultural areas

Glyphosate/Semi-VOC Sampling Detections



Compound	Number of Wells	Max Value	MCL
Glyphosate	1	0.6 µg/L	700 µg/L
bis(2-ethylhexyl)phthalate (DEHP)	7	7.3 µg/L	-

- Glyphosate detected in a domestic well in an agricultural area
- DEHP detections
 - 5 detections in domestic wells
 - 2 detections in public water systems

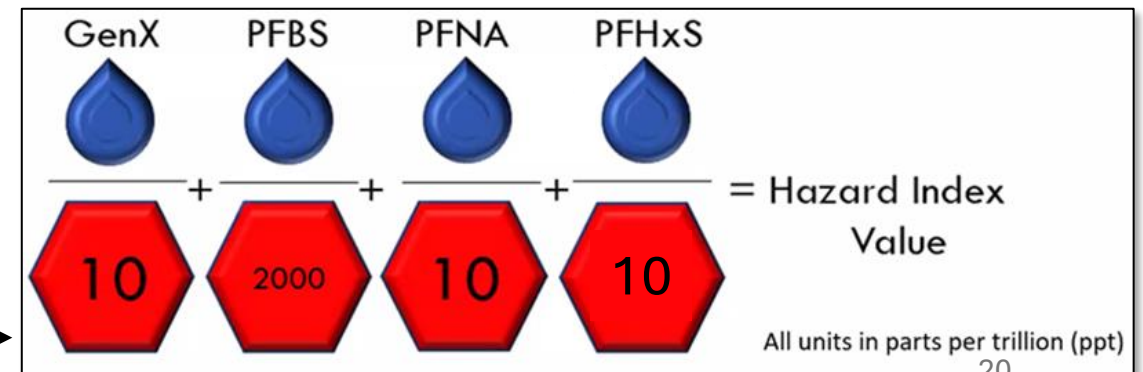
PFAS Sampling

PFAS Overview

- PFAS (per- and polyfluoroalkyl substances) are man-made chemicals found in a wide range of products
- Most PFAS chemicals do not break down & persist in the environment
- PFAS sampling in Idaho has been limited
 - Military installations
 - DEQ public water systems
- EPA finalized MCLs for select PFAS analytes in April 2024

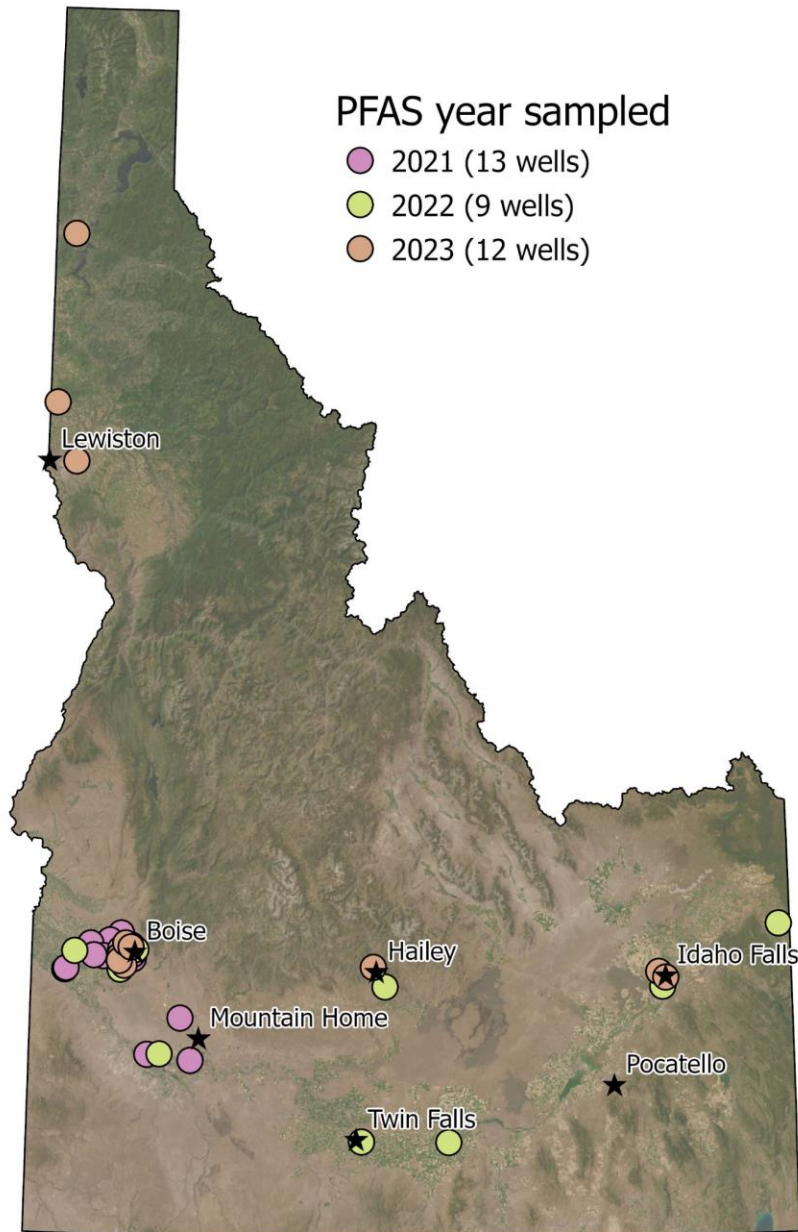


Analyte	MCL
PFOA	4 ppt
PFOS	4 ppt
PFHxS	10 ppt
PFNA	10 ppt
HFPO-DA (GenX)	10 ppt
Hazard Index	1.0 (unitless)

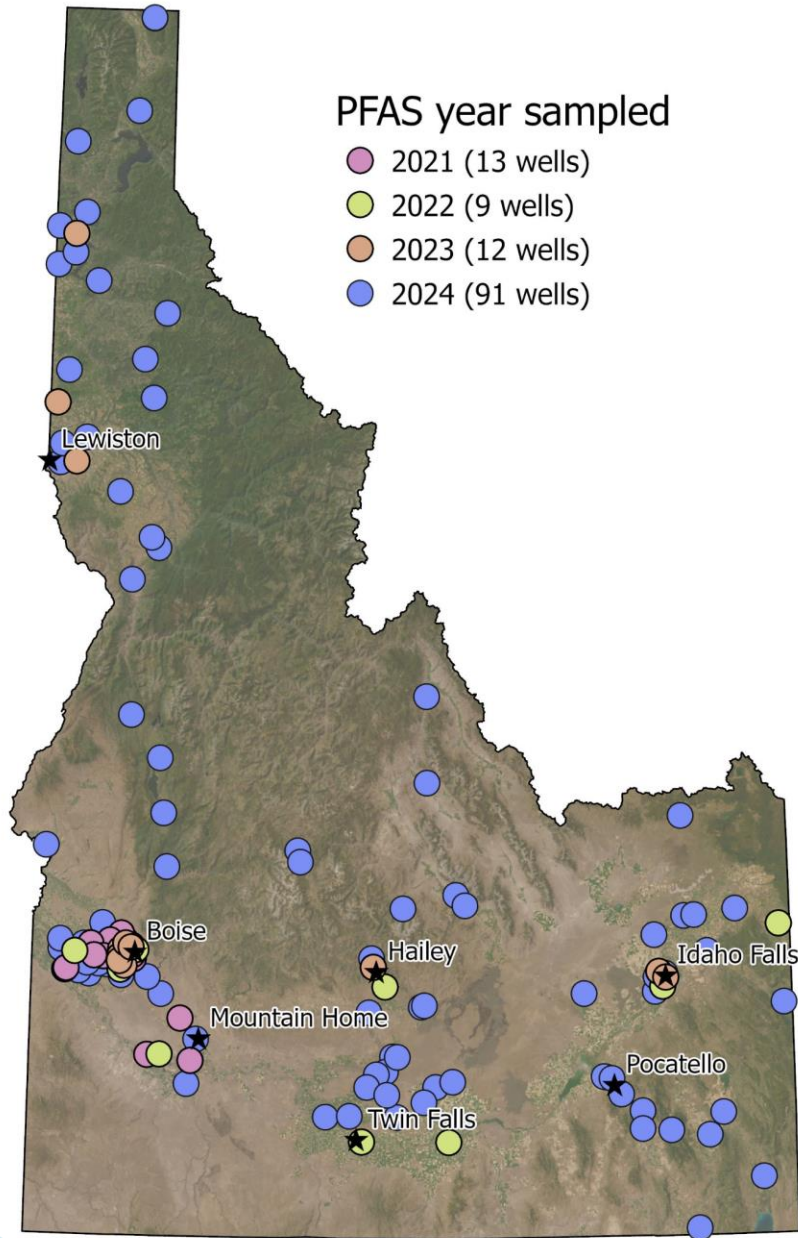


PFAS Sampling

- Statewide Program has been conducting PFAS testing since 2021 at a subset of sites
- Used EPA method 533 (25 PFAS analytes)
- Samples analyzed at Anatek Labs in Moscow

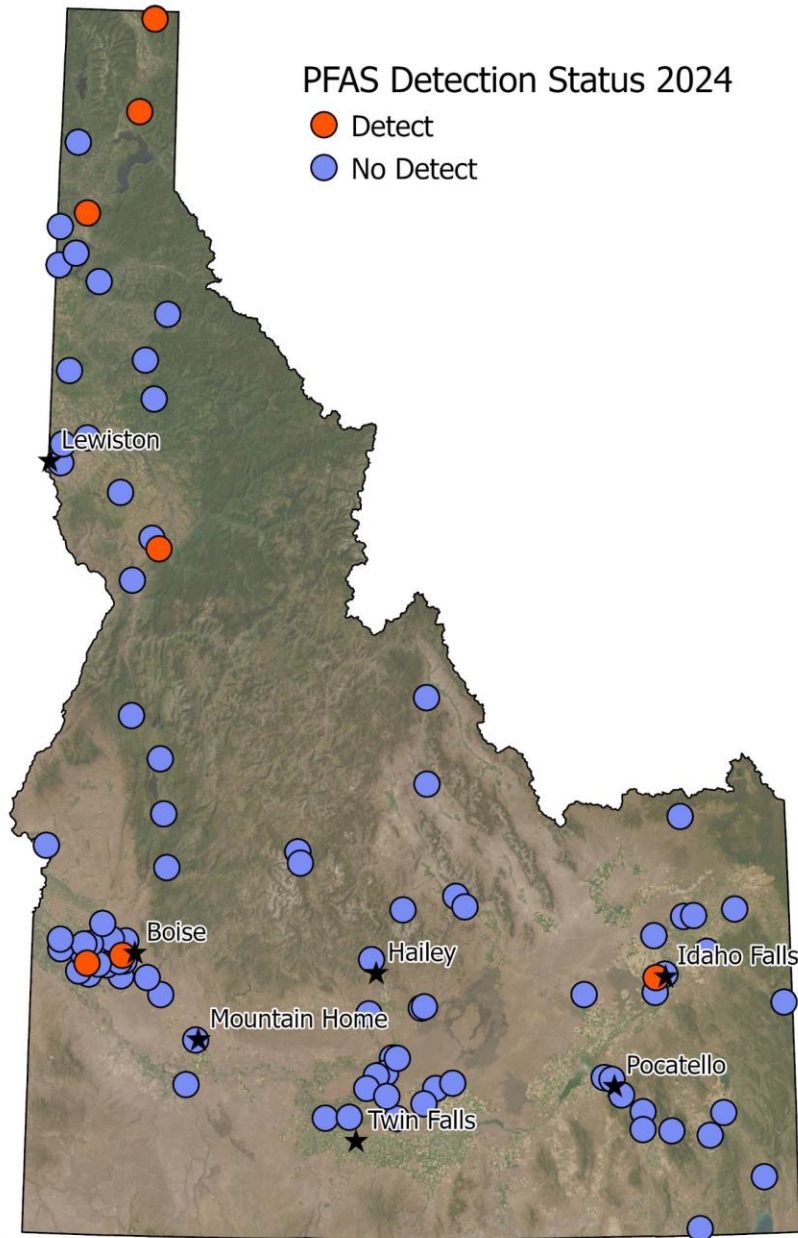


PFAS Sampling



- Expanded sampling to 91 wells throughout the state
 - 77 supported by DEQ BIL funds – sampled in SWA zones
 - Total of 125 Statewide wells sampled over last 4 years

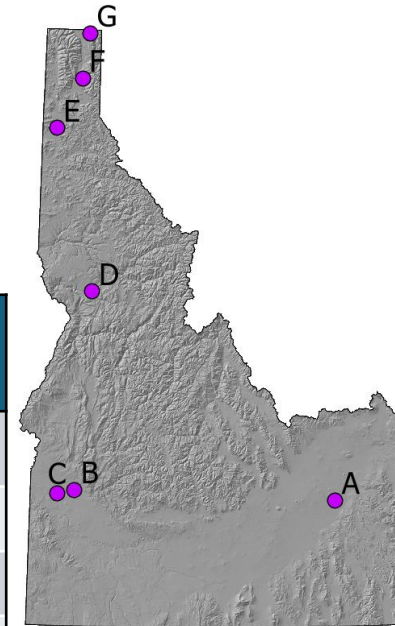
PFAS Sampling



- Expanded sampling to 91 wells throughout the state
 - 77 supported by DEQ BIL funds – sampled in SWA zones
 - Total of 125 Statewide wells sampled over last 4 years
- 7 of 91 wells had detections (8%)
 - 6 detects in domestic wells
 - 1 detect in a commercial well

PFAS Sampling

- All values in parts per trillion (ppt); reporting limit is 2 ppt
- **Red** values indicate the result is over the EPA MCL



	Well A Bonneville		Well B Ada		Well C Canyon		Well D Idaho		Well E Kootenai		Well F Bonner		Well G Boundary	
	July	Sept	July	Sept	July	Sept	Aug	Oct	July	Oct	July	Oct	Aug	Oct
PFBA									3.47					
PFBS ¹					4.26	4.56							2.22	
PFHxA					2.33	2.57								
PFHxS ^{1*}				2.78					2.08					
PFOA*											2.02		5.44	4.56
PFOS*			2.90	2.47			5.72	6.00					14.7	10.4
PFPeA	2.06	2.10			2.54	2.96								
Hazard Index	0	0	0	0.28	0	0	0	0	0.21	0	0	0	0	0

¹PFBS and PFHxS are used in the Hazard Index calculation; the other two analytes (GenX and PFNA) were not detected

*Analyte has an EPA MCL

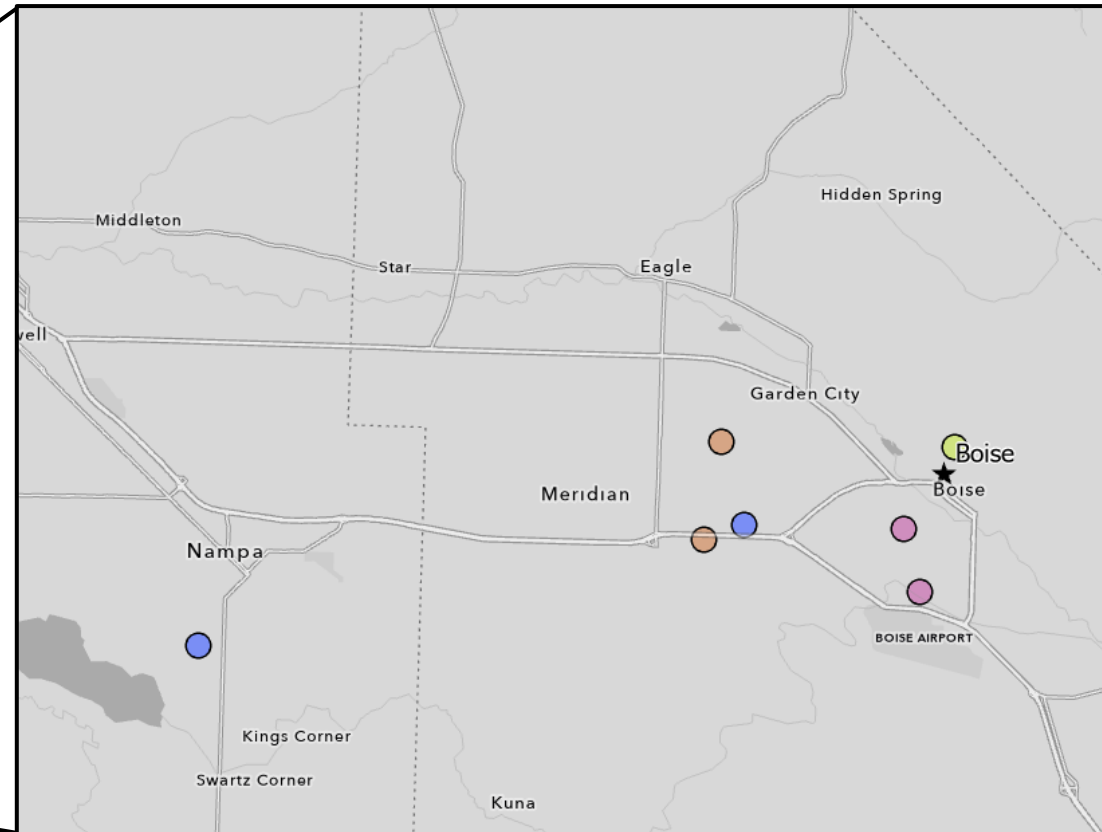
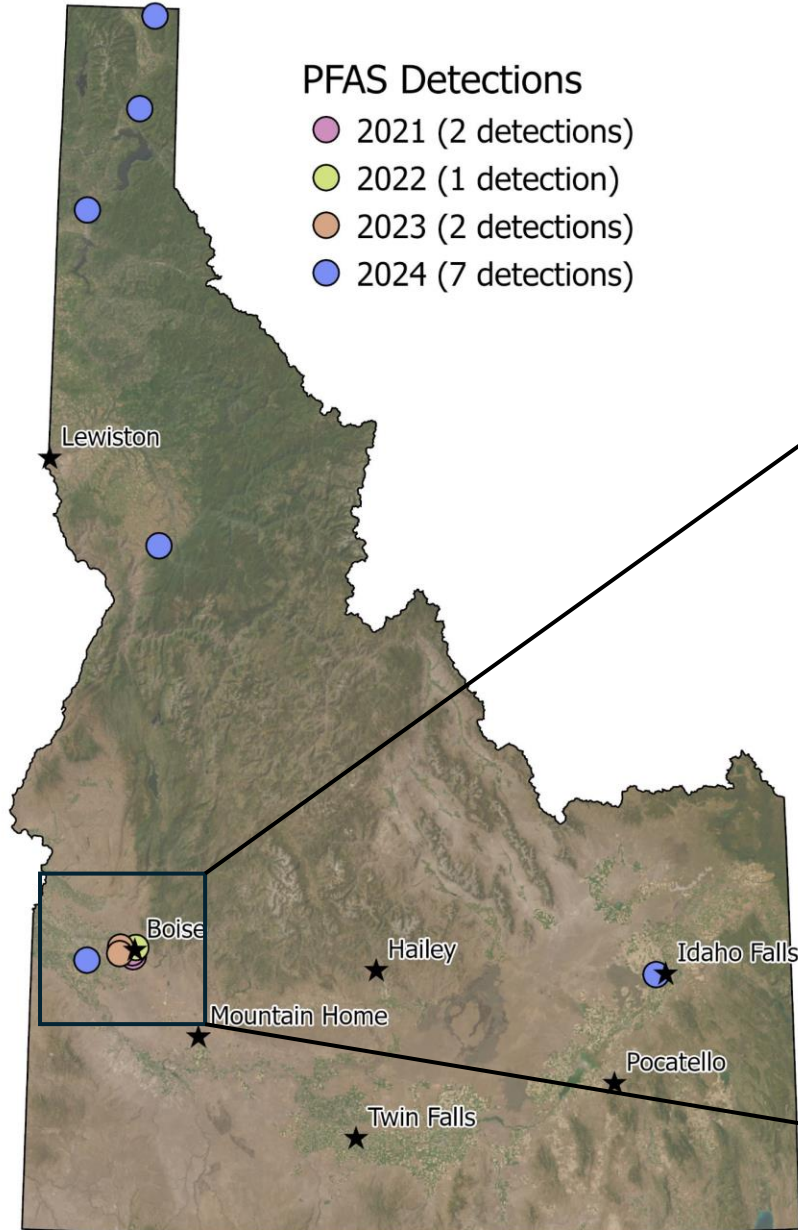
A blank cell indicates a non-detect for that analyte

PFAS Sampling

PFAS Detections

- 2021 (2 detections)
- 2022 (1 detection)
- 2023 (2 detections)
- 2024 (7 detections)

PFAS detections in the Treasure Valley



Looking Ahead – 2025 Sampling

- Continue collaboration with DEQ for sampling
- Continue PFAS and pesticide testing throughout the state
- Hire great technicians – do you know anyone???
- We rely on the GWMTC's expertise to help us choose what we sample for. What are we missing?

Thank you to our partners who make our program possible!



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Access our data:

- IDWR's Groundwater Data Portal
<https://idwr-groundwater-data.idaho.gov>
- Environmental Data Management System
<https://idwr.idaho.gov/water-data/groundwater-quality/map/>



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