

IDWR Statewide Program Monitoring: 2023 Season Update

Allison Vincent
GWMTC Meeting
January 25, 2024



IDAHO DEPARTMENT OF
WATER RESOURCES

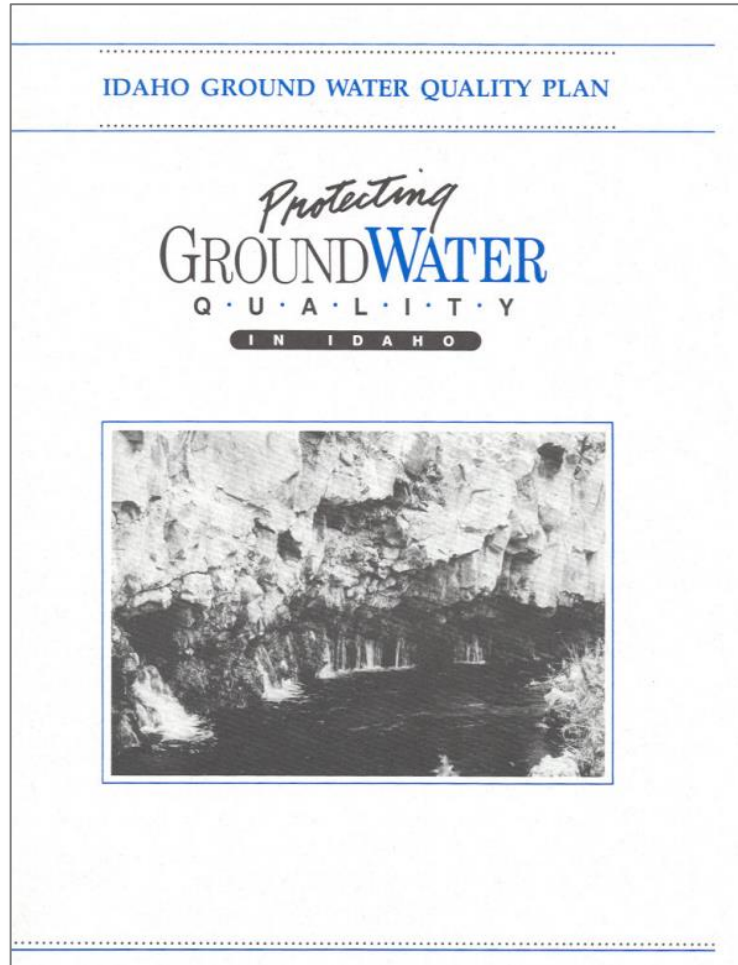


Presentation Outline

- Statewide Program Overview
- 2023 Sampling
- Pesticide Sampling Update
- PFAS Sampling
- Looking Ahead – 2024 Sampling

IDWR Statewide Program Overview

Groundwater Monitoring in Idaho



Statewide Program Goals

- Determine quality of Idaho's groundwater
- Identify existing or emerging problems
- Determine changes in quality over time

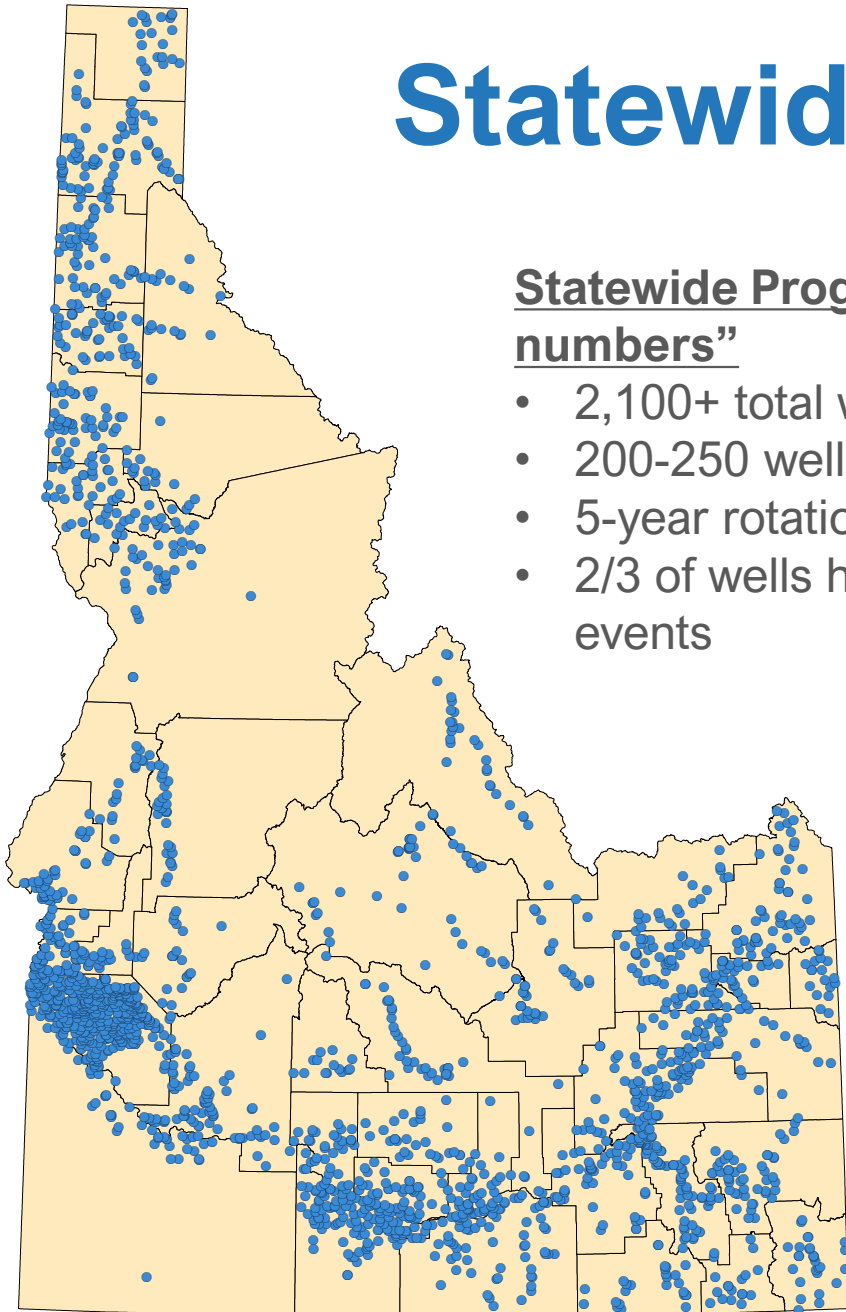
Idaho's Ground Water Quality Monitoring Programs



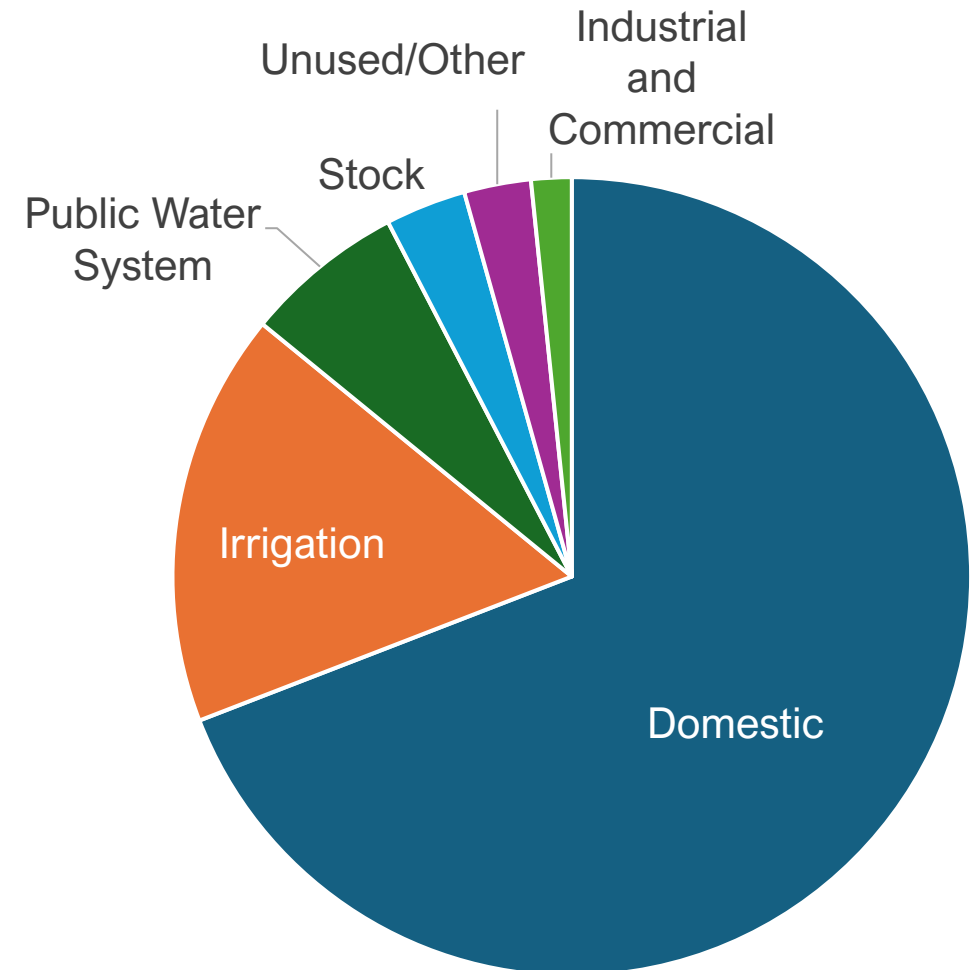
Statewide Program Network

Statewide Program “by the numbers”

- 2,100+ total wells sampled
- 200-250 wells sampled annually
- 5-year rotation schedule
- 2/3 of wells have 4+ sampling events

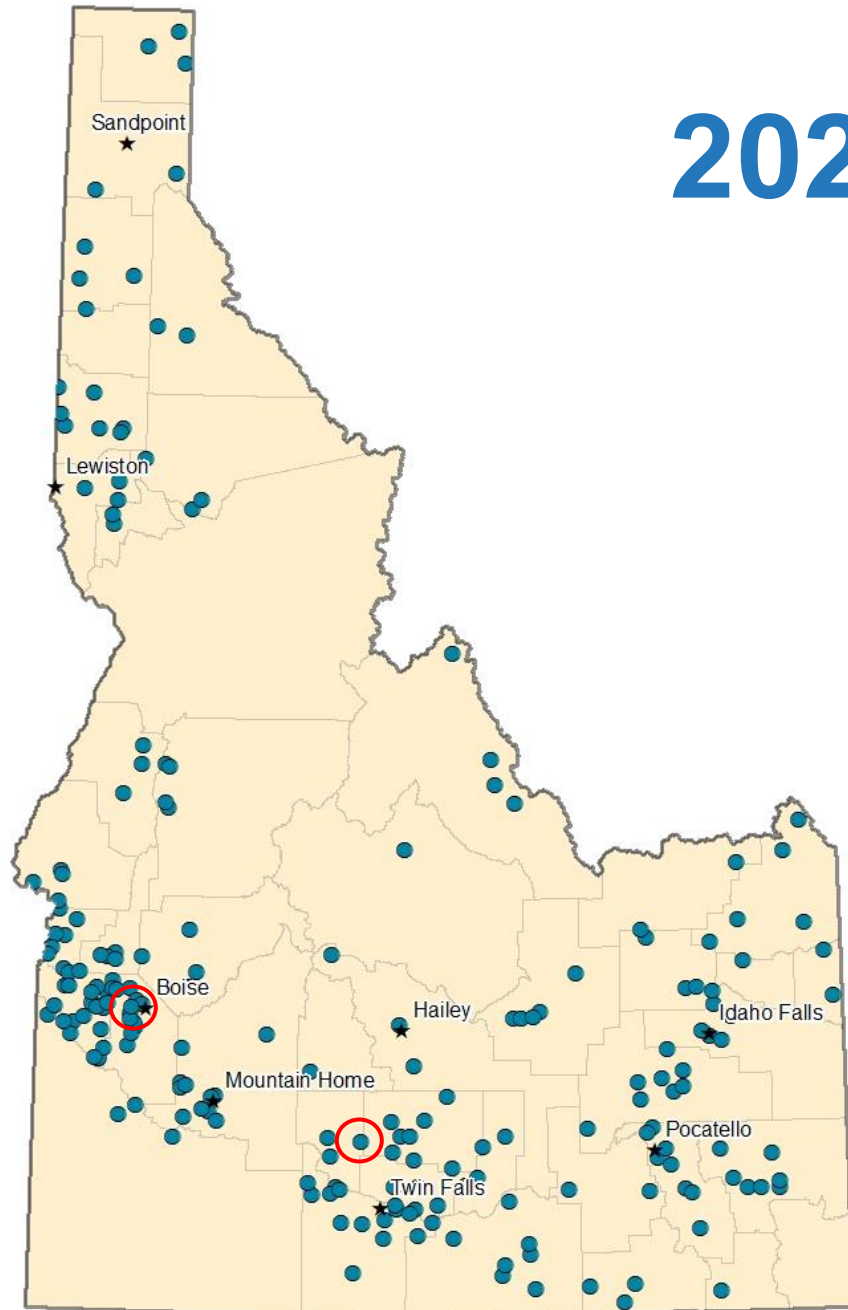


Types of wells sampled



2023 Sampling Review

2023 Sampling

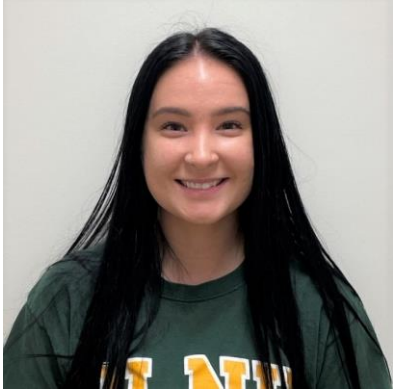


- Sampled 205 wells
- 2 new wells were added
- Sampling occurred June-September

Sampling Staff



Kaylene Cecil
CWI



Ashden Field
BSU



Kyle Formigli
BSU



Adrianna Hernandez
BSU/CWI




Jake Nebeker
IDWR - Eastern



Kent Aasa
IDWR - Southern



2023 Parameter List

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

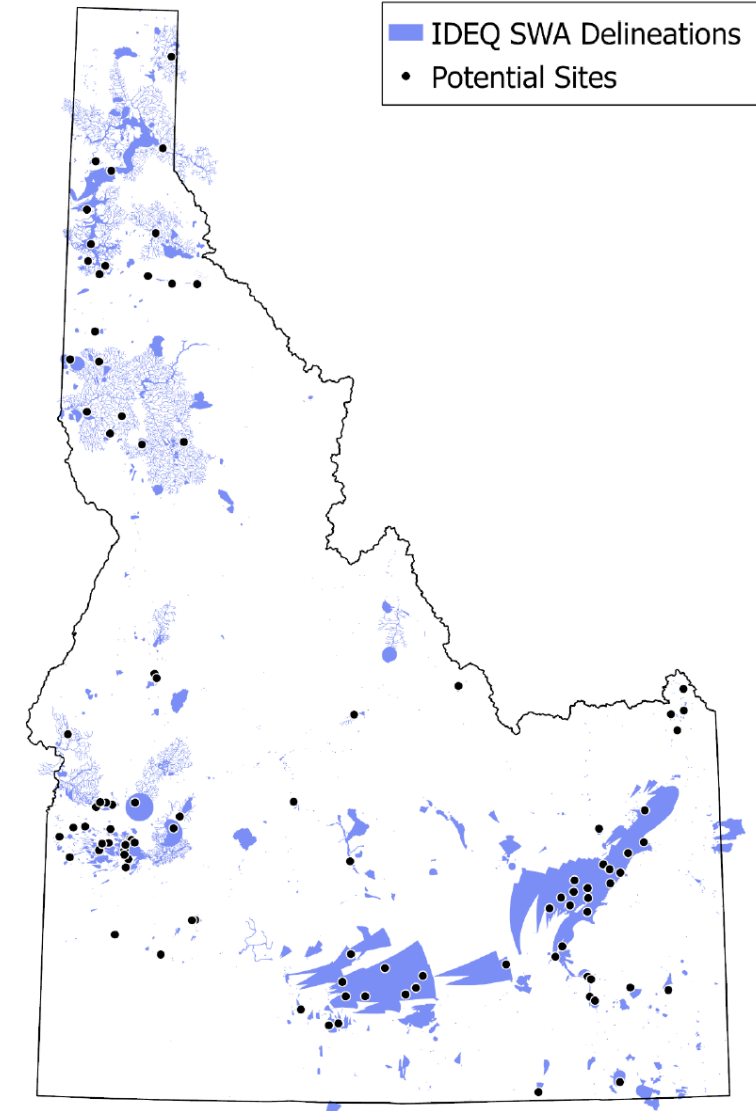
¹Sampled with DEQ BIL funding

²Sampled at a subset of sites



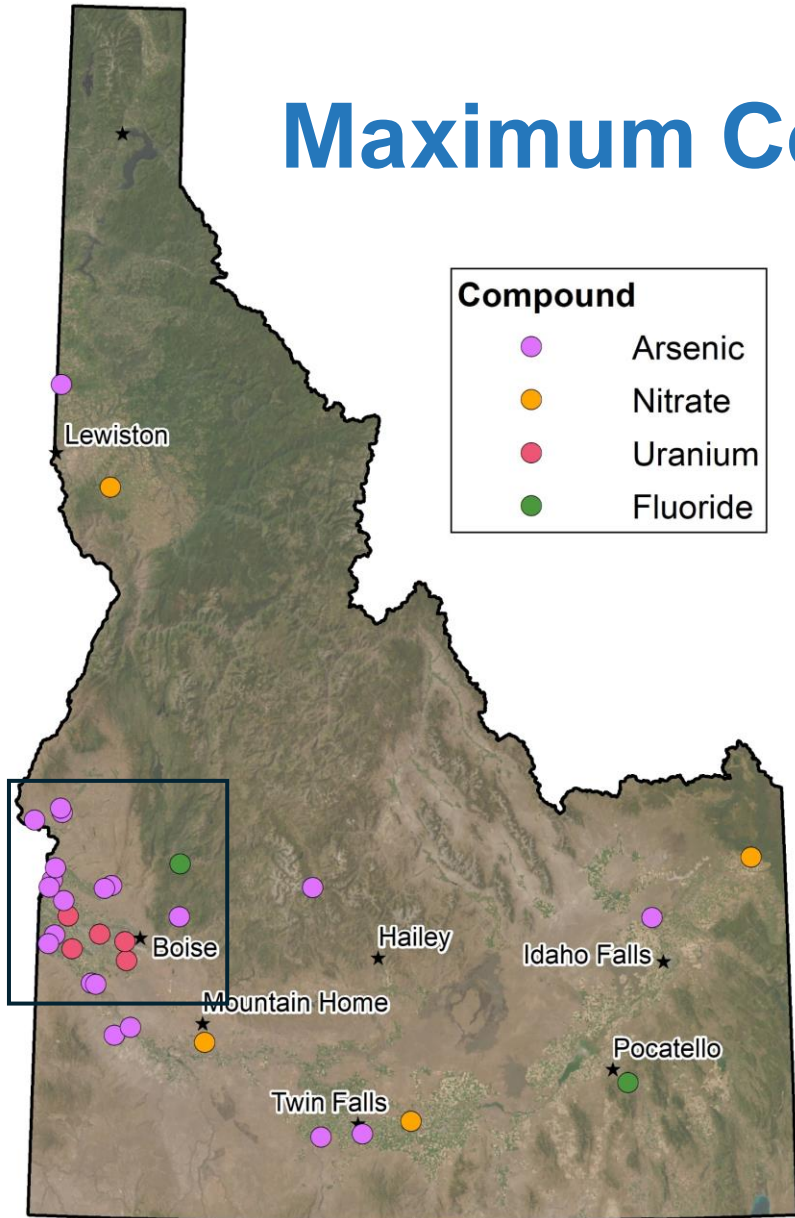
DEQ Bipartisan Infrastructure Law (BIL) Funding: Emerging Contaminants in Small or Disadvantaged Communities

- IDWR proposed using BIL funds to sample for:
 - Lithium
 - Manganese
 - PFAS
 - 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 would cover expenses for wells that fall within DEQ Source Water Assessment (SWA) time of travel zones



2023 Water Quality Data

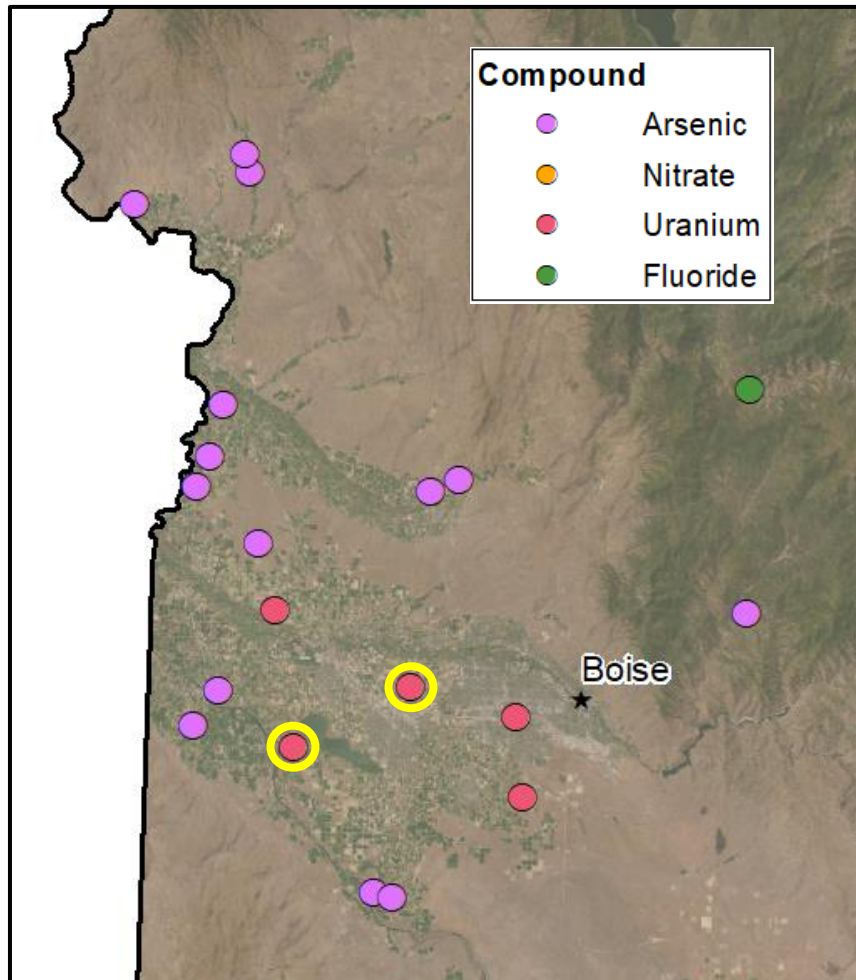
Maximum Contaminant Level (MCL) Exceedances



	Arsenic	Nitrate	Uranium	Fluoride
MCL	10 µg/l	10 mg/l	30 µg/l	4 mg/l
# of wells > MCL	21	4	5	2
# of first-time exceedances	0	0	2	0
Max value	740 µg/L	29 mg/L	110 µg/L	7.4 mg/L

A total of 32 wells, or 16% of sites sampled, had at least one MCL exceedance

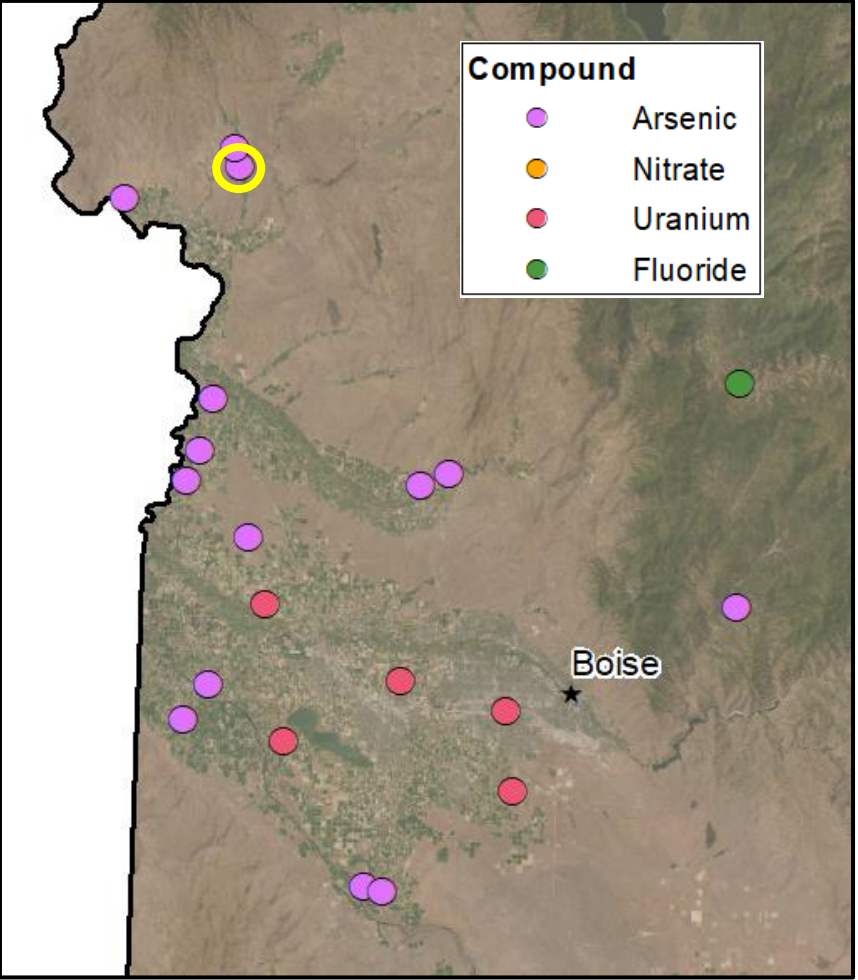
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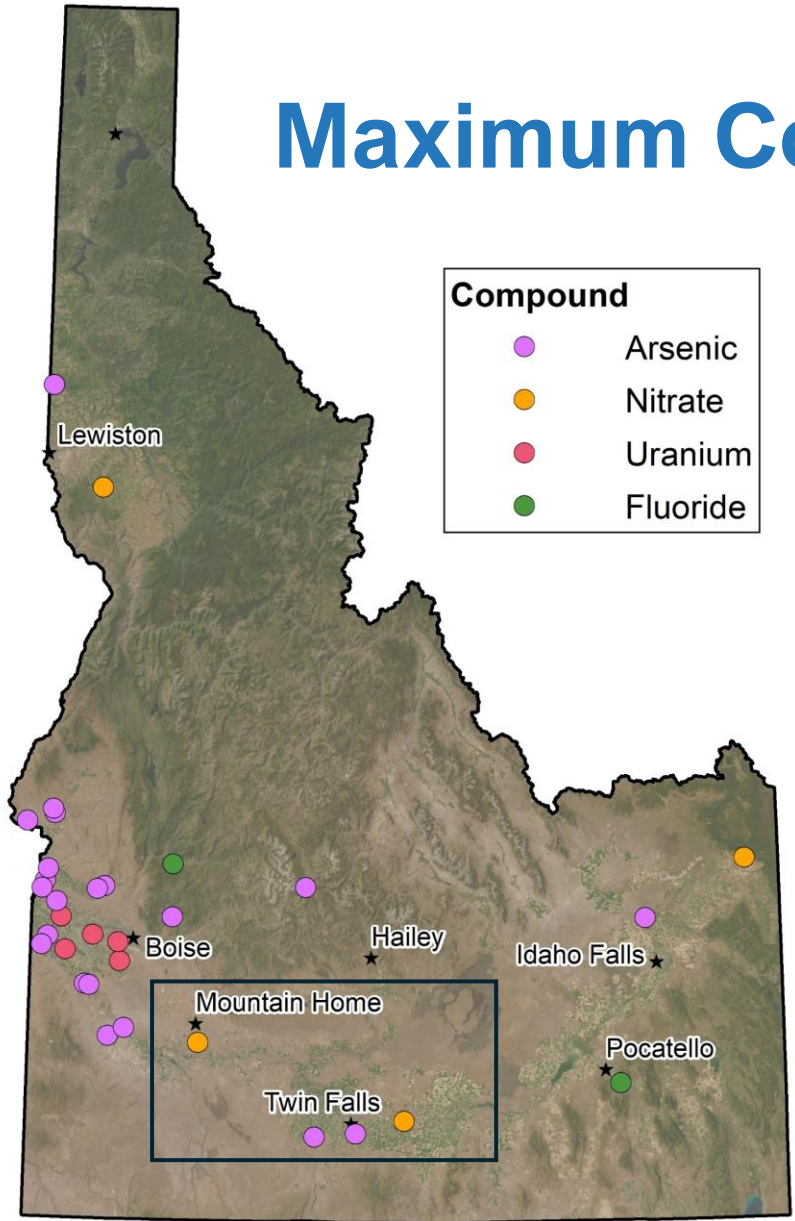
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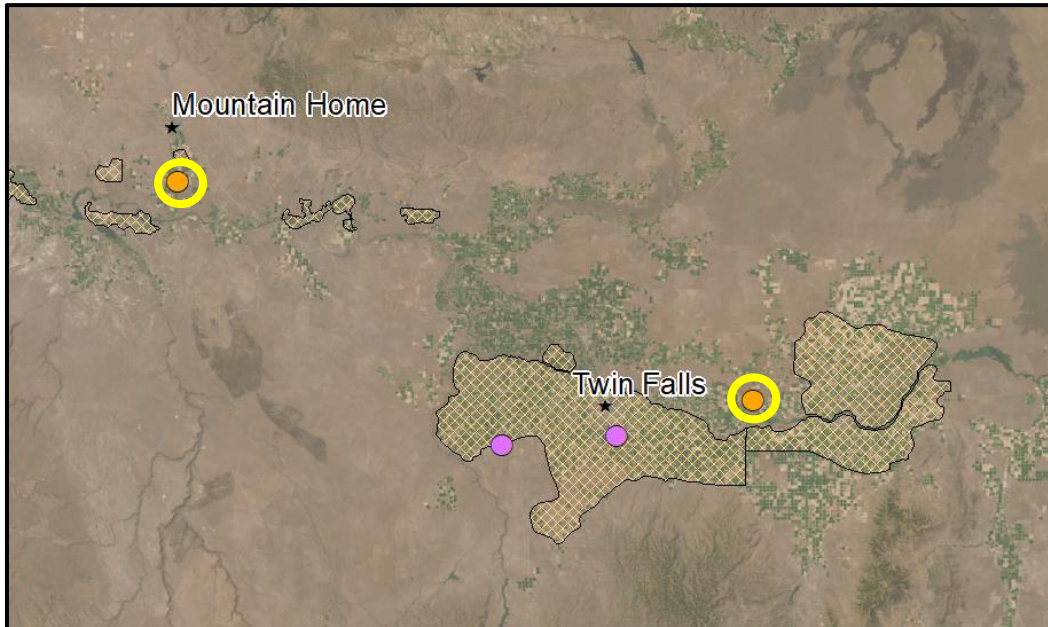
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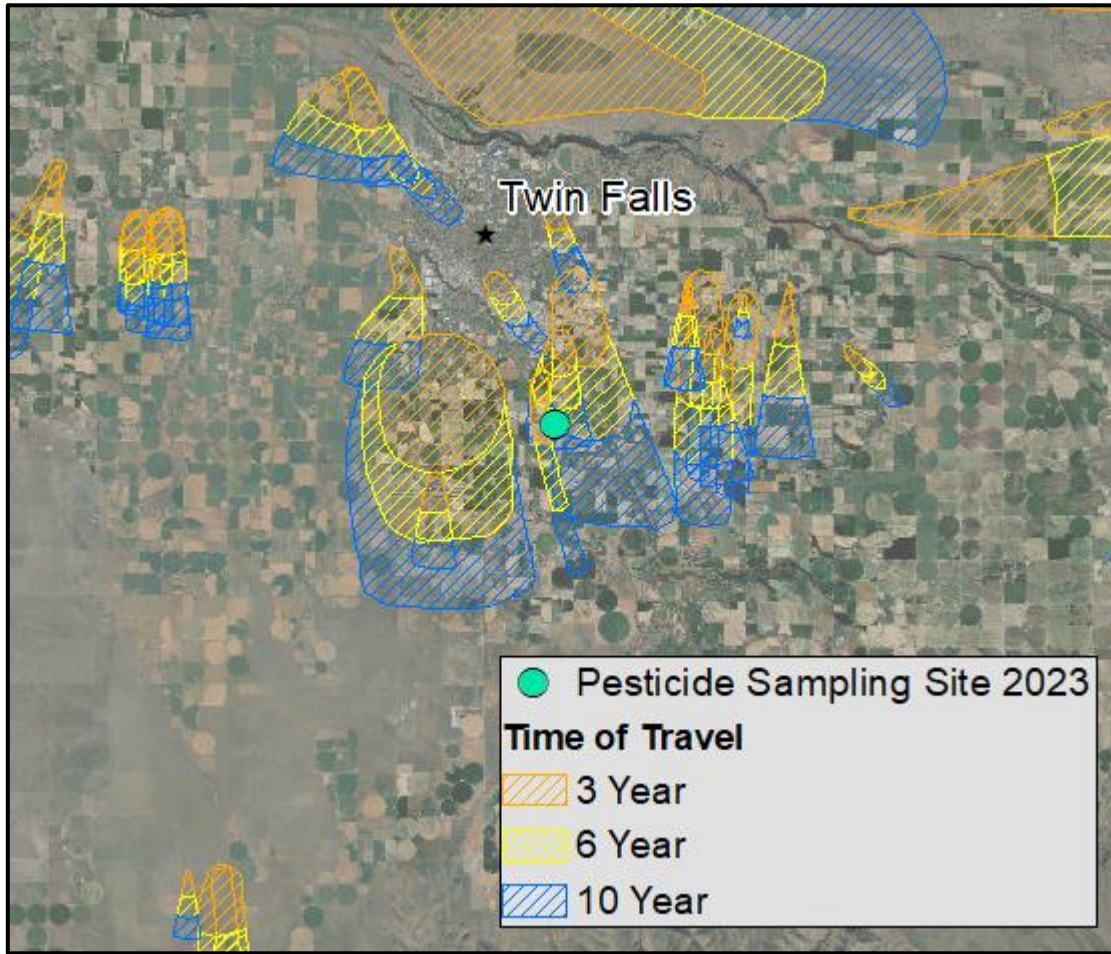
Pesticide Sampling Update

Pesticide Sampling Overview

- Recall discussion from last January on which method to use moving forward
- Decided to use a hybrid approach, testing with EPA 525.2 method plus Glyphosate Immunoassay testing
- Big thank you to Bureau of Labs and their efforts in this transition.

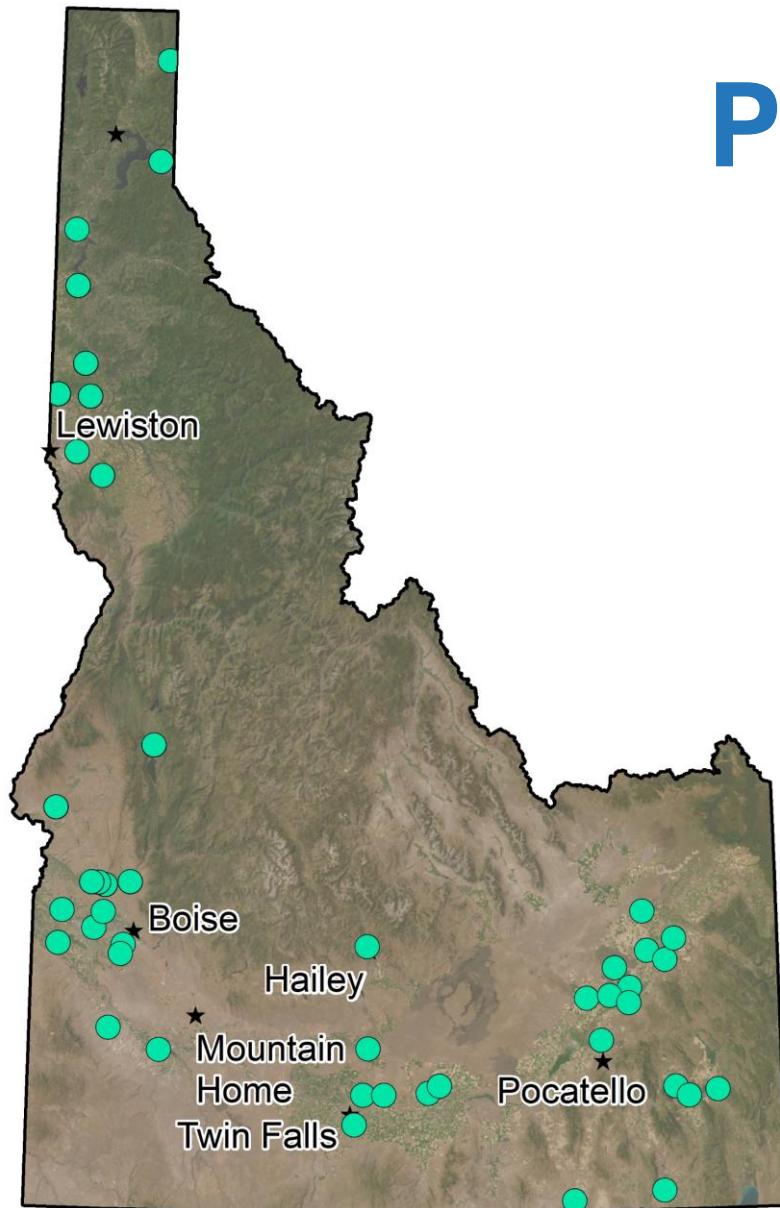
	Immunoassay sampling	EPA 525.2 (semi-VOCs)
Analytes	BPA, Triclosan, Atrazine, Glyphosate, Metolachlor	103 analytes; includes Alachlor, Atrazine, and Metolachlor
Cost per sample	~\$106	\$225
Holding time	6 months	14 days

Pesticide Sampling Overview



- Immunoassay testing for Glyphosate at all 205 sites
- EPA method 525.2 (semi-VOCs) at 45 sites
 - Located in DEQ SWA zones
 - Preference given to wells in agricultural areas

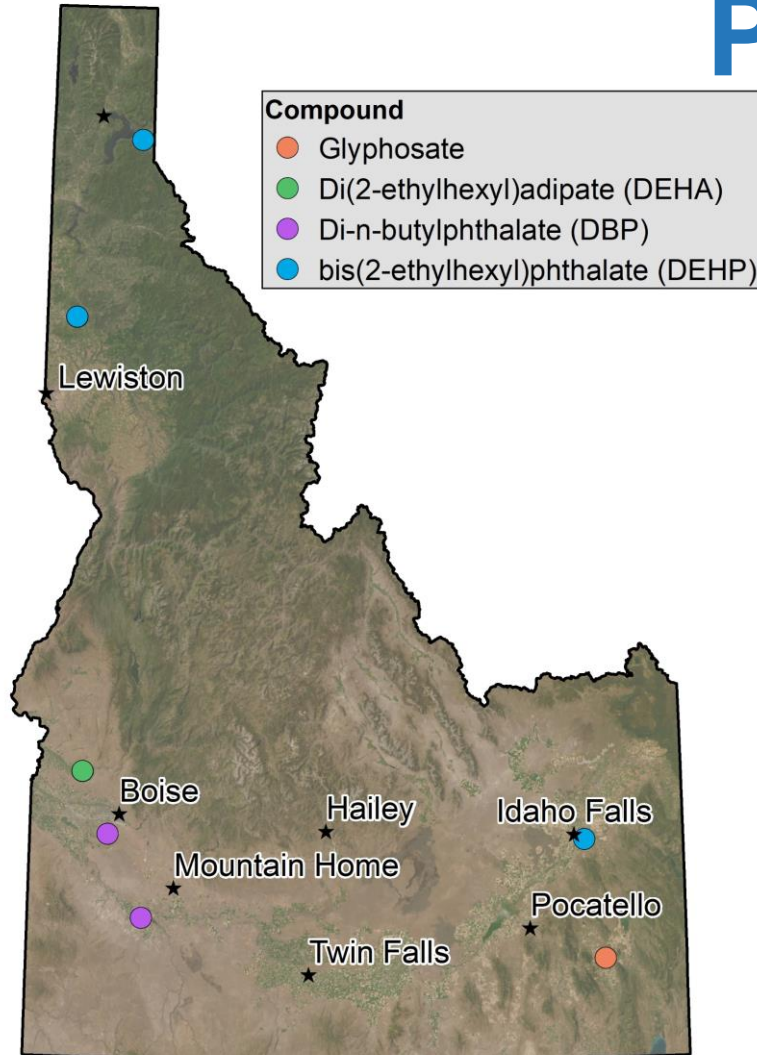
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Pesticide Sampling Detections

- 7 total pesticide detections



Compound	Number of Wells	Max Value	MCL
Glyphosate	1	1.4 µg/L	700 µg/L
Di(2-ethylhexyl)adipate	1	1.3 µg/L	400 µg/L
Di-n-butylphthalate	2	3.0 µg/L	-
bis(2-ethylhexyl)phthalate	3	5.3 µg/L	-

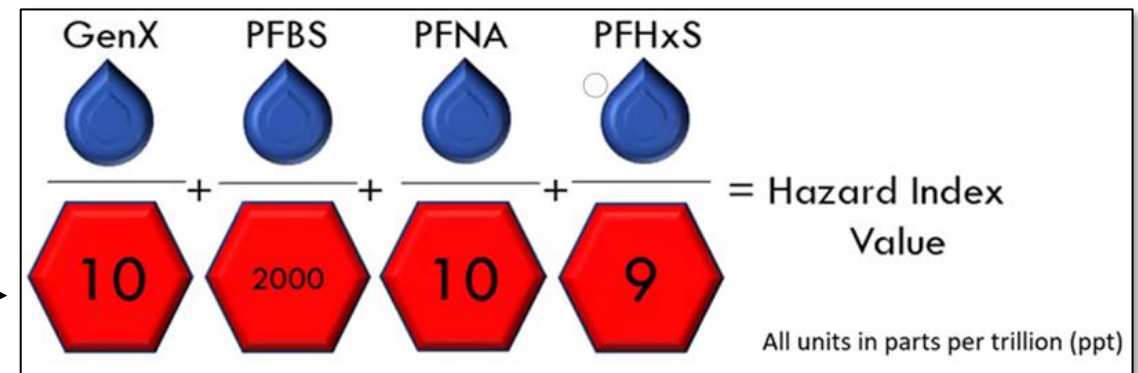
PFAS Sampling

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
- No MCL currently set for PFAS chemicals; EPA proposed MCLs in March 2023

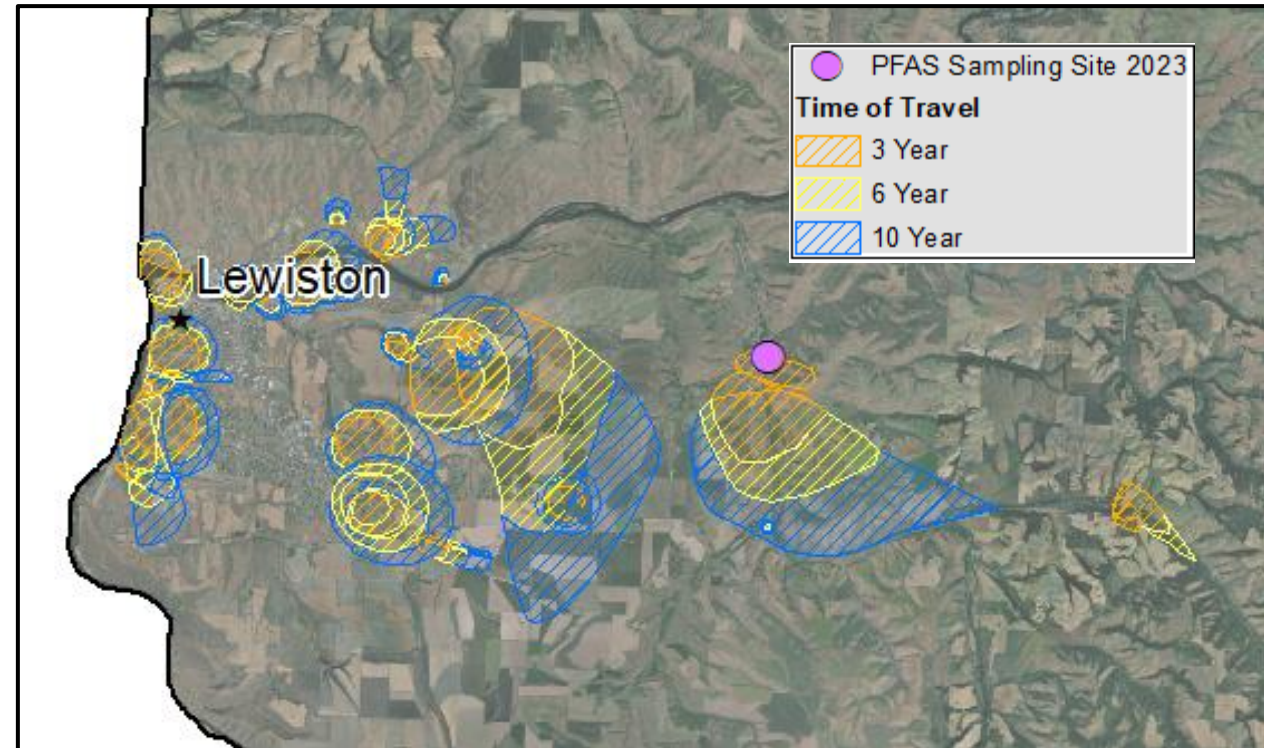


Analyte	Proposed MCL
PFOA	4 ppt
PFOS	4 ppt
Hazard Index	1.0 (unitless)



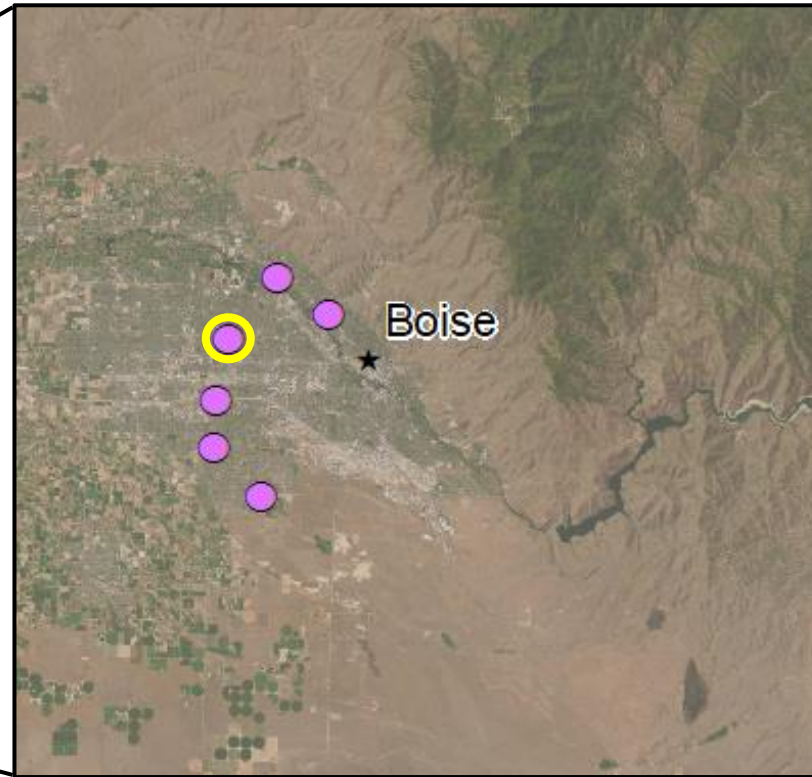
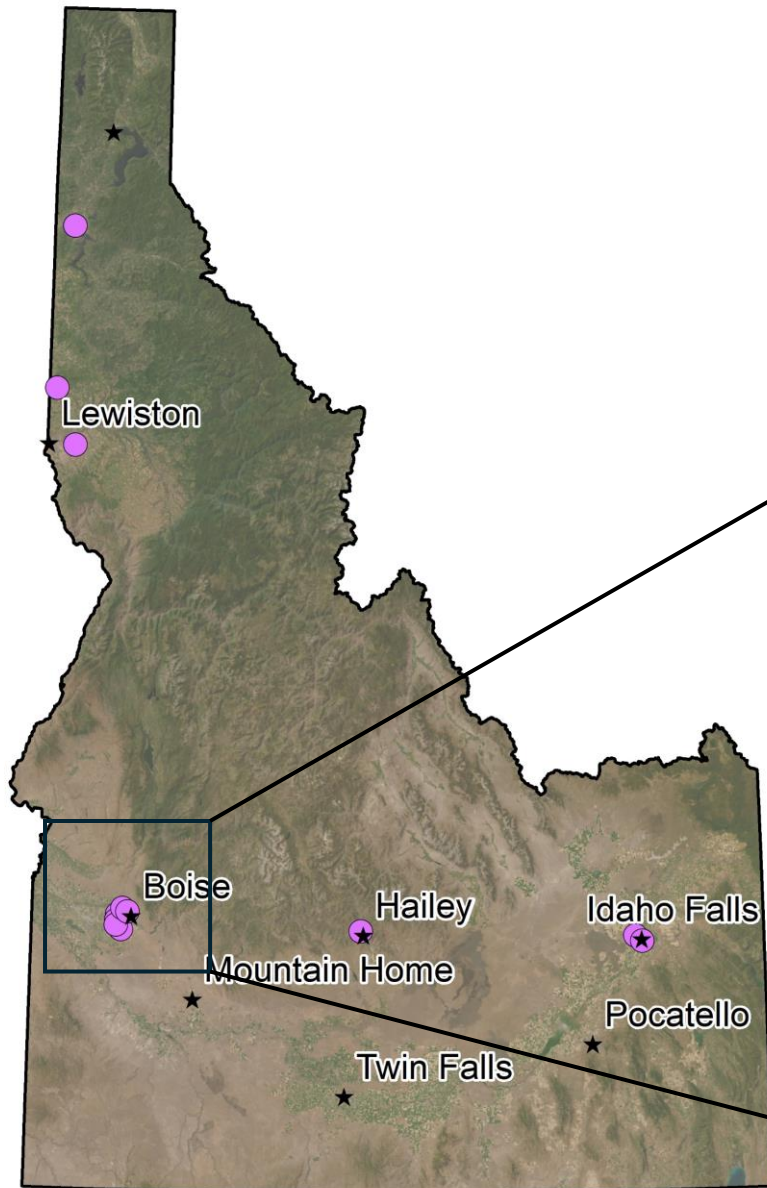
IDWR PFAS Sampling

- 2023 well selection criteria
 - 1) Wells already slated for sampling
 - 2) Wells located in DEQ's Source Water Assessment Time of Travel Zones
 - 3) Wells near known or suspected PFAS contamination sites
 - 4) Wells near prior PFAS detections
 - 5) Domestic wells were preferentially selected
- Used EPA method 533 (25 PFAS chemicals)
- Samples analyzed at Anatek Labs



IDWR PFAS Sampling

- 12 wells sampled in 2023; 2 detections

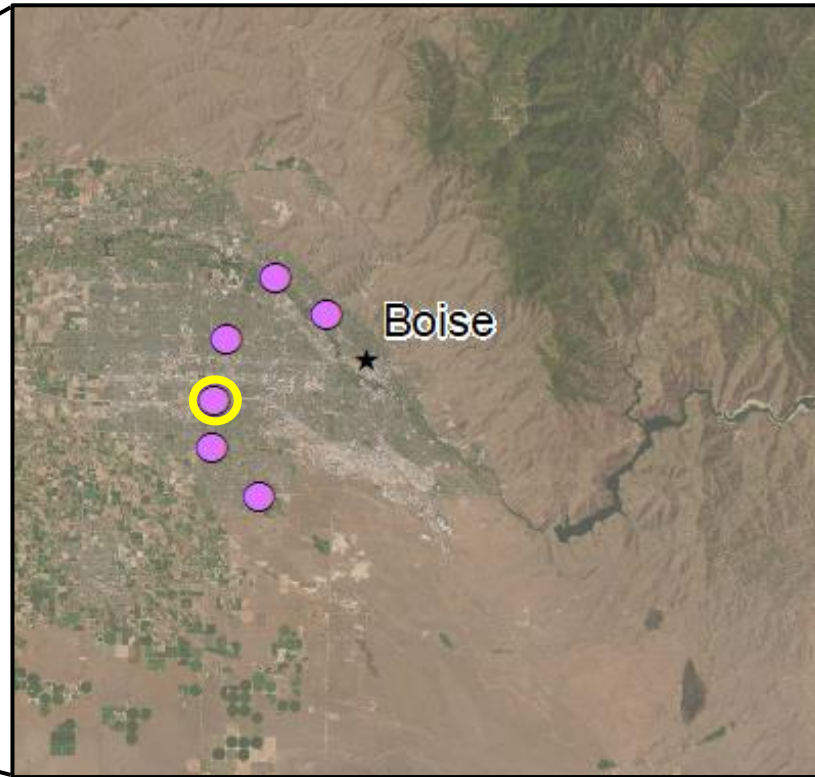
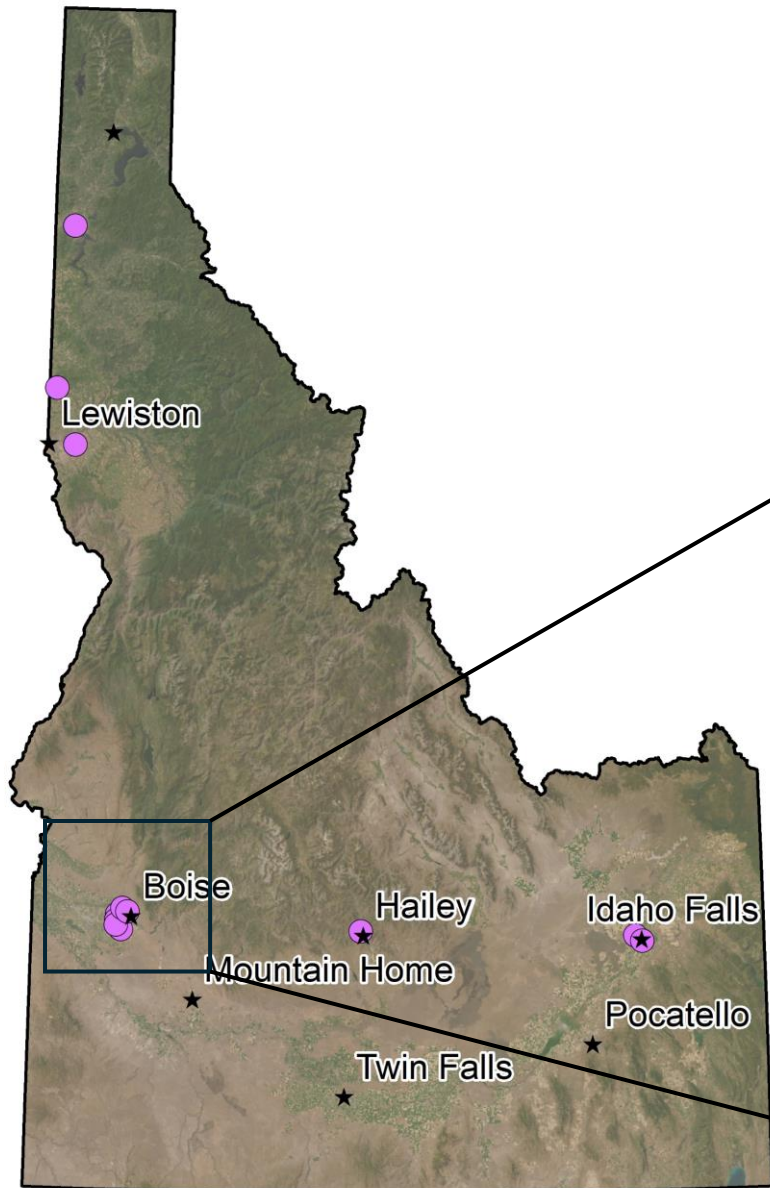


Analyte	June 2023 (ppt)	Sept 2023 (ppt)
PFBA	3.21	3.16
PFBS	4.04	3.18
PFHpA	2.40	2.77
PFHxA	6.51	5.27
PFHxS	2.05	2.29
PFOA	5.40*	8.55*
PFOS	4.52*	8.38*
PFPeA	5.16	4.70
Hazard Index	0.23	0.26

* Exceeds 4 ppt proposed MCL

IDWR PFAS Sampling

- 12 wells sampled in 2023; 2 detections



Analyte	June 2023 (ppt)	Sept 2023 (ppt)
PFBA	3.75	4.12
PFBS	3.39	3.97
PFHpA	3.90	4.01
PFHxA	6.23	7.20
PFHxS	7.80	7.78
PFOA	6.66*	8.05*
PFOS	14.60*	14.90*
PFPeA	6.12	6.86
Hazard Index	0.87	0.87

* Exceeds 4 ppt proposed MCL

Looking Ahead – 2024 Sampling

- Continue collaboration with DEQ for BIL funded sampling
- Increase PFAS testing throughout the state
- Increase pesticide sampling as IBL staffing time allows
- Hire great technicians – do you know anyone???
- What do you want to see us sample for? Let us know!

Thanks! Questions?



Allison Vincent
Allison.Vincent@idwr.idaho.gov
(208) 287-4878



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