



Regional Water Level Trends in Eastern Washington

Patrick Cabbage, LHG

Washington State Department of Ecology, Water Resources Program

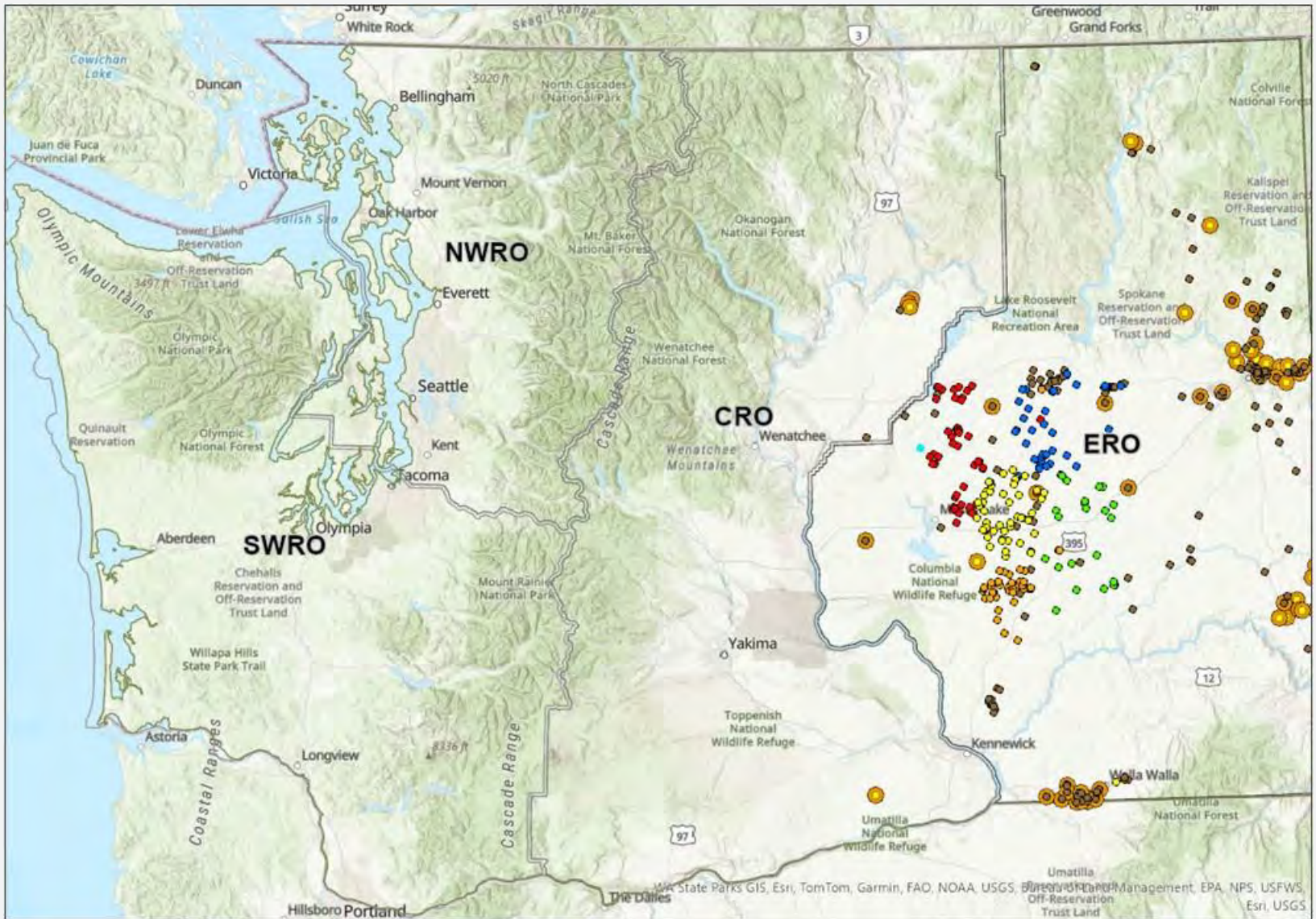
May 16, 2024

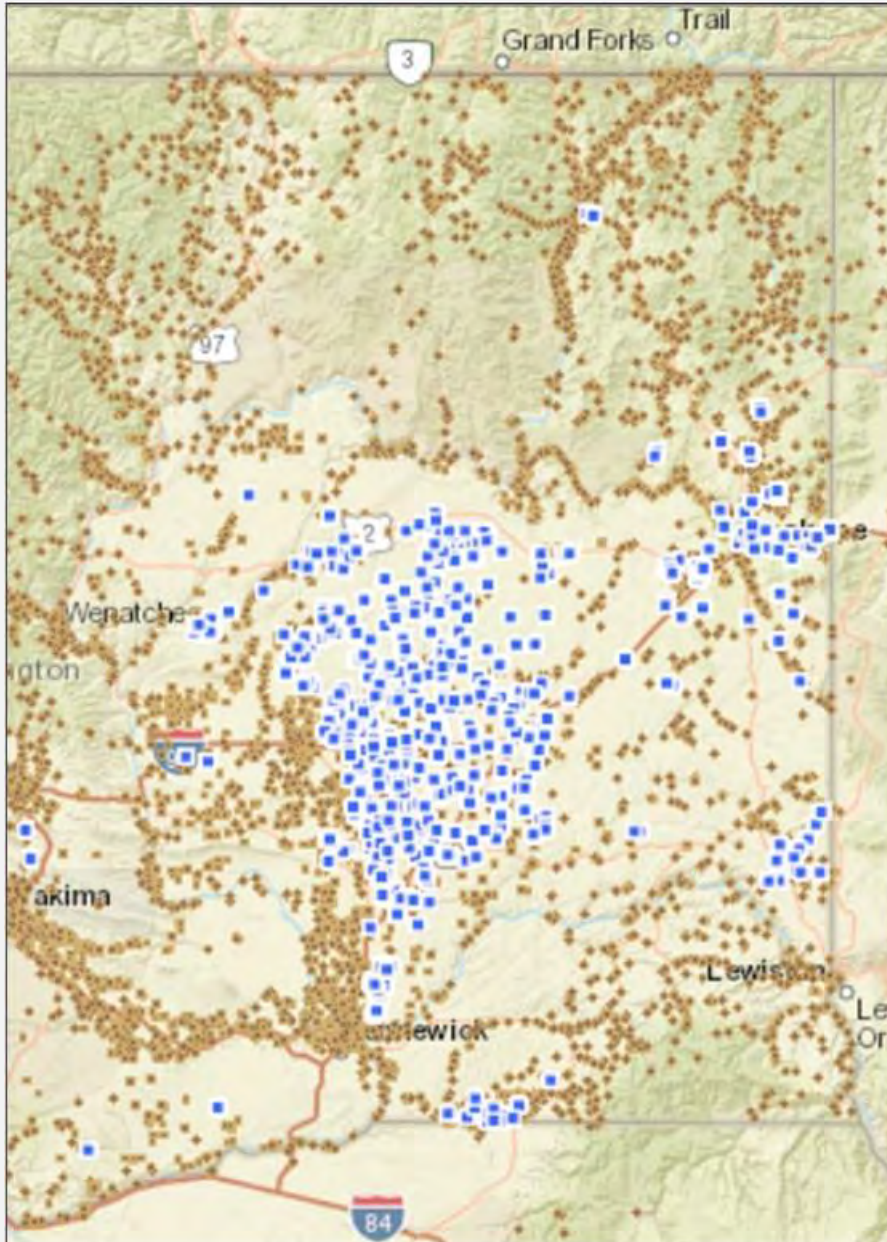


- Overview of Ecology groundwater monitoring network
- Wells and equipment
- Basin by basin summaries
- How we use data



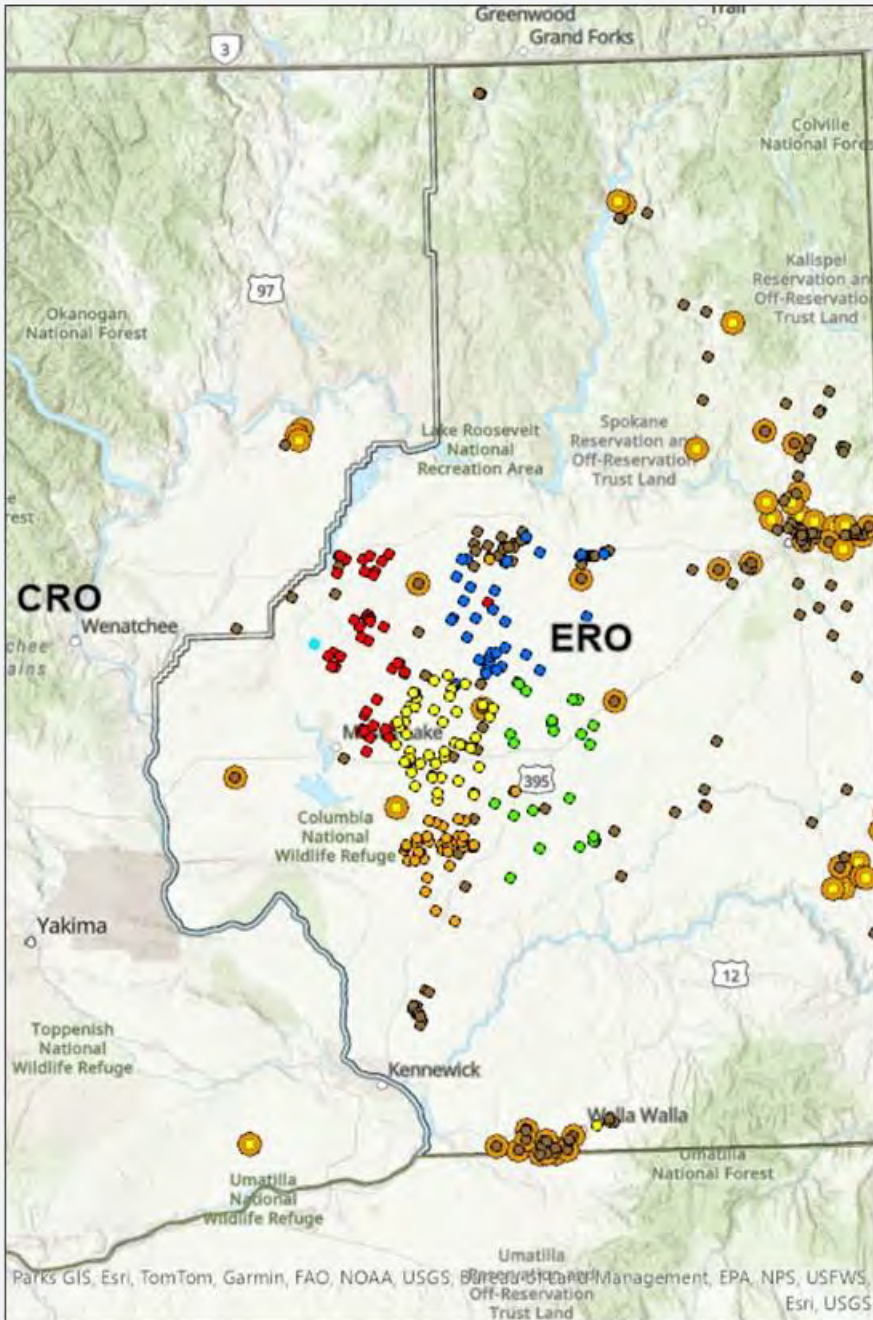
Ecology's ERO Groundwater Network





Historically ERO measured >400 wells annually

- Mostly operating ag wells
- Measure static water level each spring prior to irrigation
- Measure fall static in some
- Steel tape
- Air-line
- E-tape
- Sonic



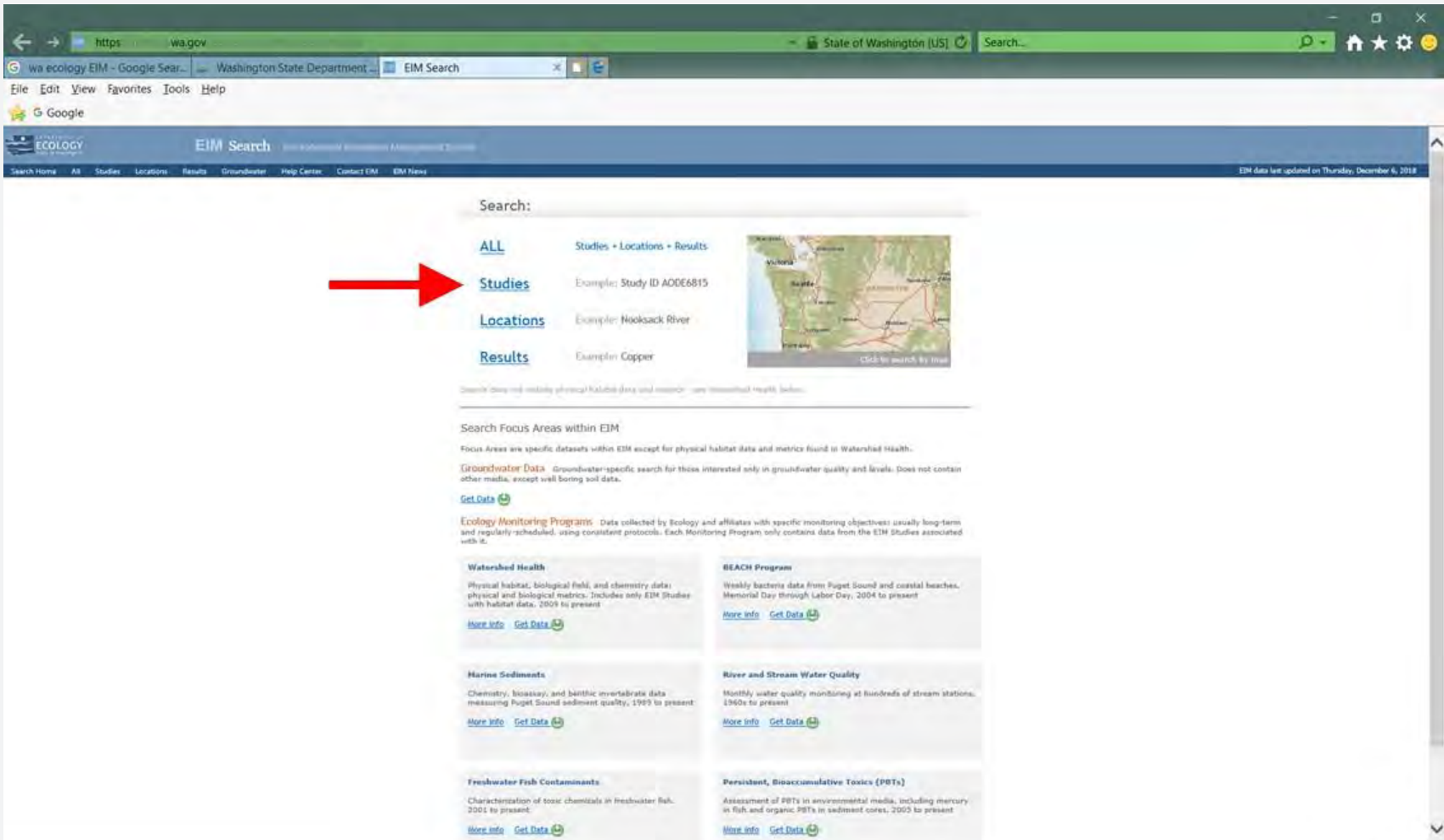
In the past ~30 years has
dropped to ~100 wells

Why do we lose wells ?

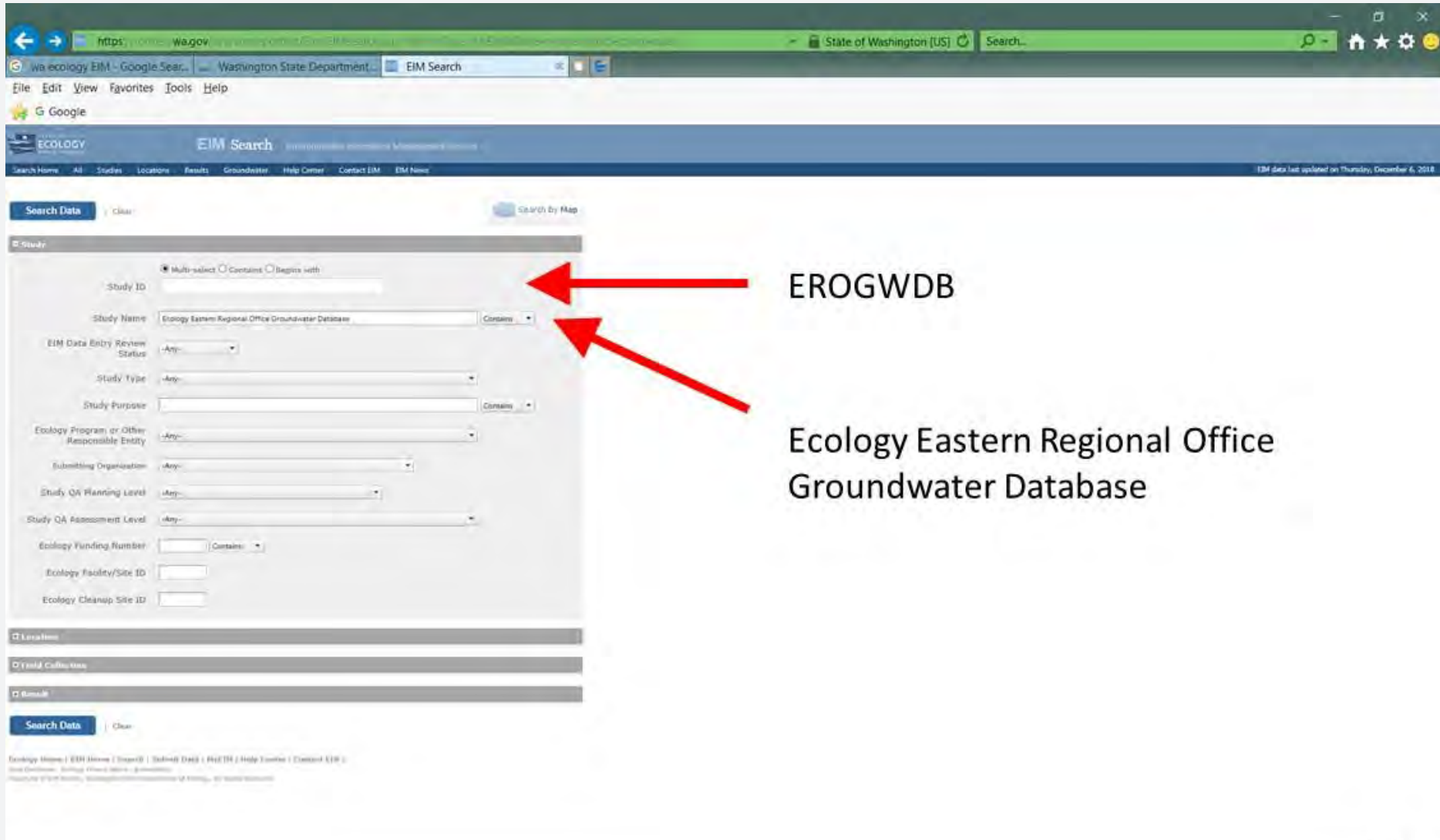
- Wells go offline
- Airline is plugged, crimped, broken off
- No safe/suitable access to well
- Unsafe conditions

Data entered into EIM

Ecology's Environmental Information Management System (EIM)



The screenshot shows the EIM Search website interface. The browser address bar displays <https://wa.ecology.wa.gov>. The page title is "EIM Search". The navigation menu includes "Search Home", "All", "Studies", "Locations", "Results", "Groundwater", "Help Center", "Contact EIM", and "EIM News". The main content area features a "Search:" section with four filter options: "ALL" (Studies + Locations + Results), "Studies" (Example: Study ID A0DE6815), "Locations" (Example: Nooksack River), and "Results" (Example: Copper). A red arrow points to the "Studies" filter. To the right of the filters is a map of Washington state with a search box labeled "Click to search by map". Below the filters, there is a section titled "Search Focus Areas within EIM" with a description: "Focus Areas are specific datasets within EIM except for physical habitat data and metrics found in Watershed Health." This section lists several focus areas: "Groundwater Data", "Watershed Health", "Marine Sediments", "Freshwater Fish Contaminants", "BEACH Program", "River and Stream Water Quality", and "Persistent, Bioaccumulative Toxics (PBTs)". Each focus area has a "More info" and "Get Data" link.



Search Data | Clear

Study

Multi-select | Contains | Begins with

Study ID

Study Name: Ecology Eastern Regional Office Groundwater Database | Contains

EIM Data Entry Review Status: Any

Study Type: Any

Study Purpose: Contains

Ecology Program or Other Responsible Entity: Any

Submitting Organization: Any

Study QA Planning Level: Any

Study QA Assessment Level: Any

Ecology Funding Number: Contains

Ecology Facility/Site ID

Ecology Cleanup Site ID

Search Data | Clear

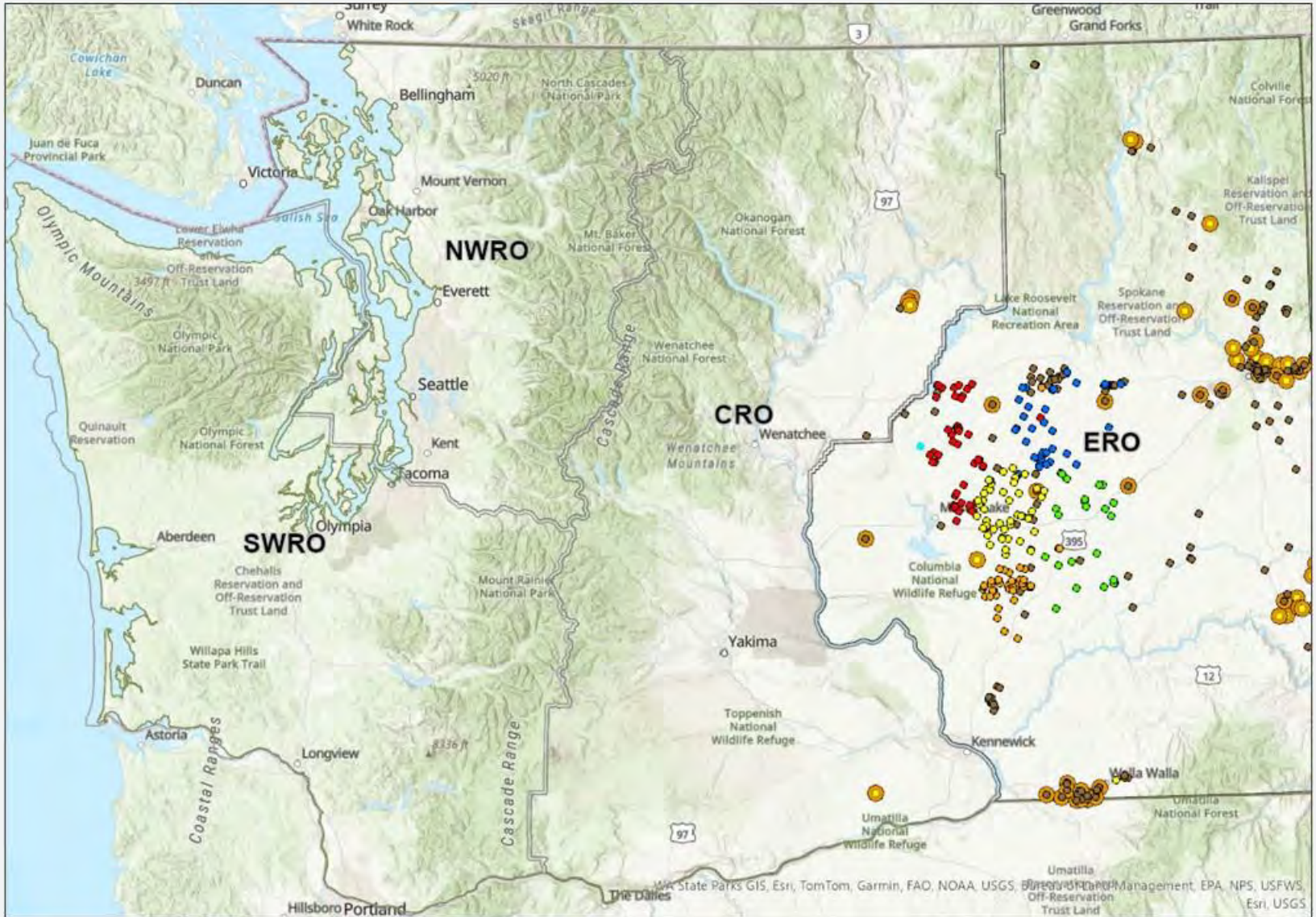
EROGWDB

Ecology Eastern Regional Office
Groundwater Database

Ecology Home | EIM Home | Support | Submit Data | Help Center | Contact EIM

85%

Ecology's ERO Groundwater Network



Active agricultural wells



Active agricultural wells



Active agricultural wells



Active agricultural wells



Active agricultural wells



Dedicated Monitoring wells



Dedicated Monitoring wells



Dedicated Monitoring wells



Dedicated Monitoring wells



Repurposed wells



Repurposed wells



Repurposed wells



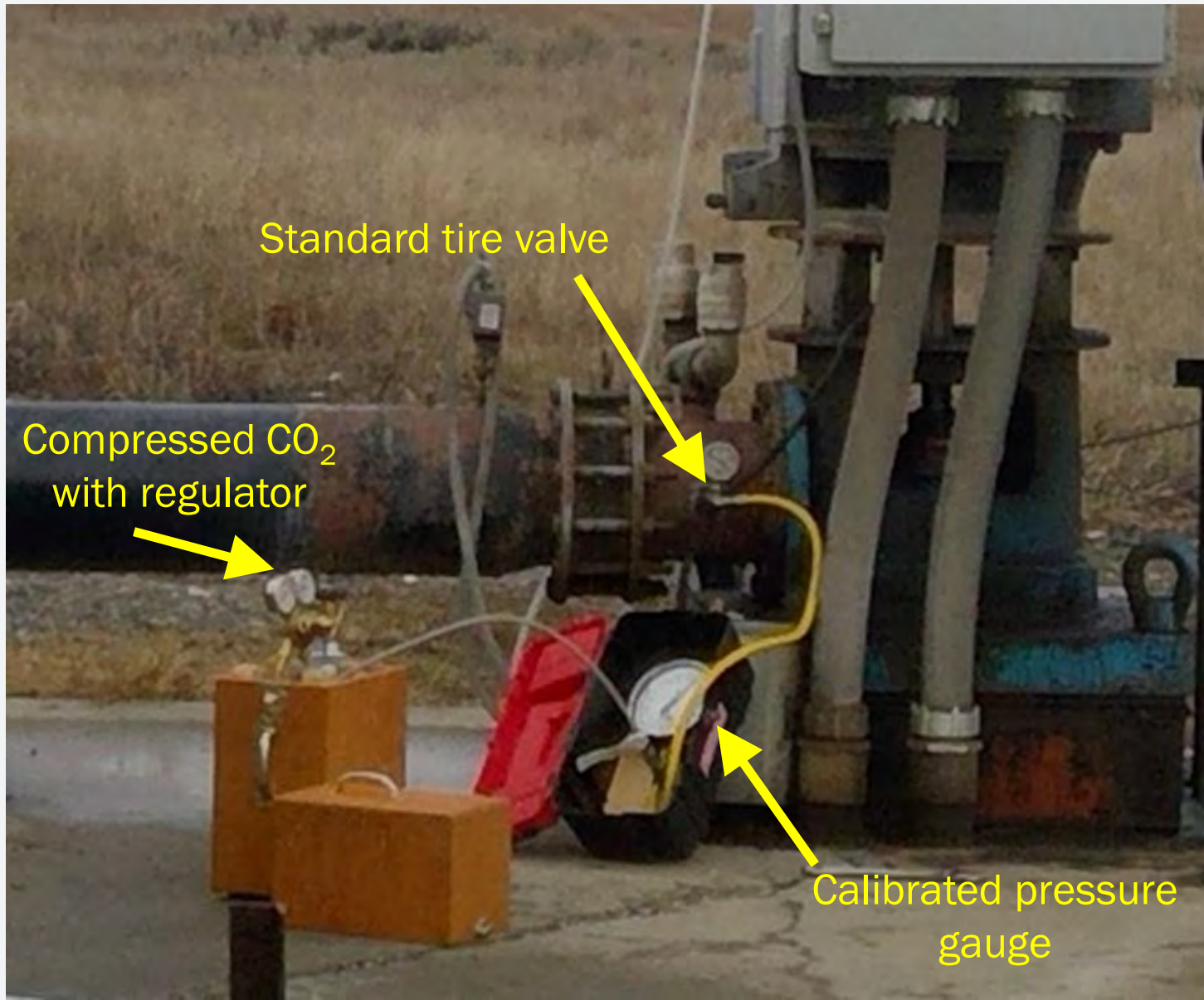
Repurposed wells



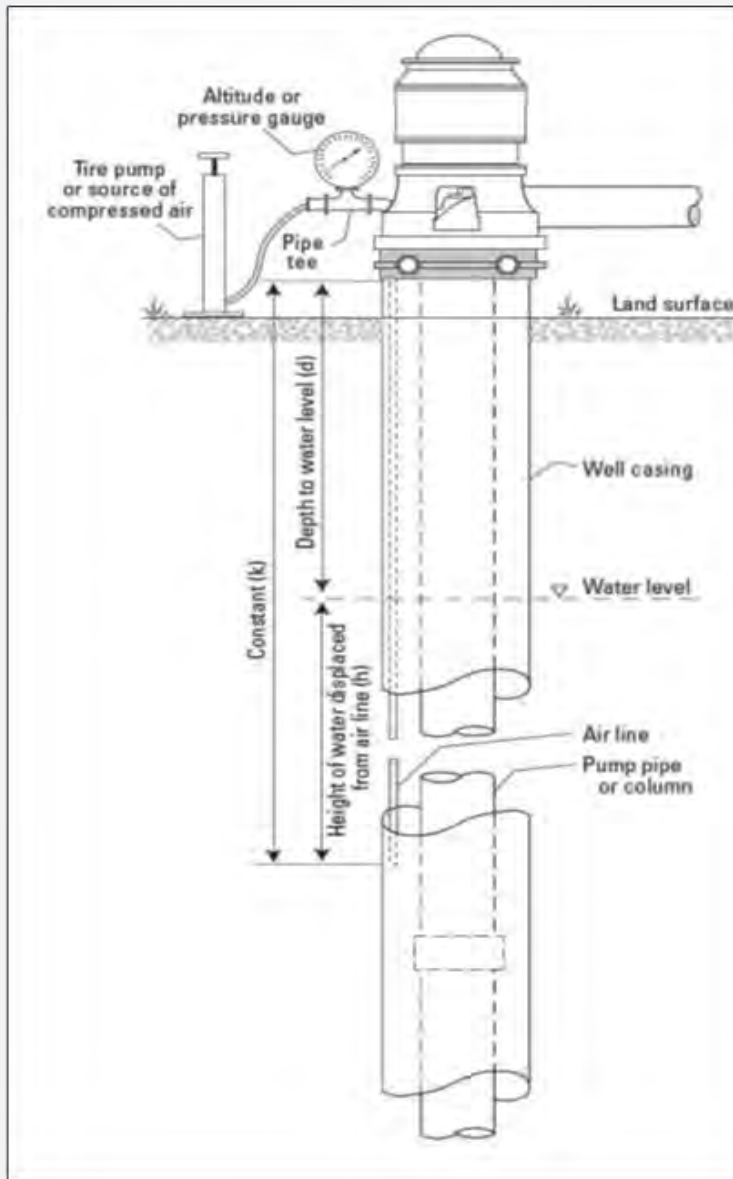
What tools do we use?



What tools do we use?



Airline Measurements



- Use gauge to measure how many psi of air it takes to push water completely out of airline
- Multiply psi reading by 2.31 ft/psi
- Subtract the result (ft) from the total vertical length of airline
- This gives the depth to the water (from the gauge)

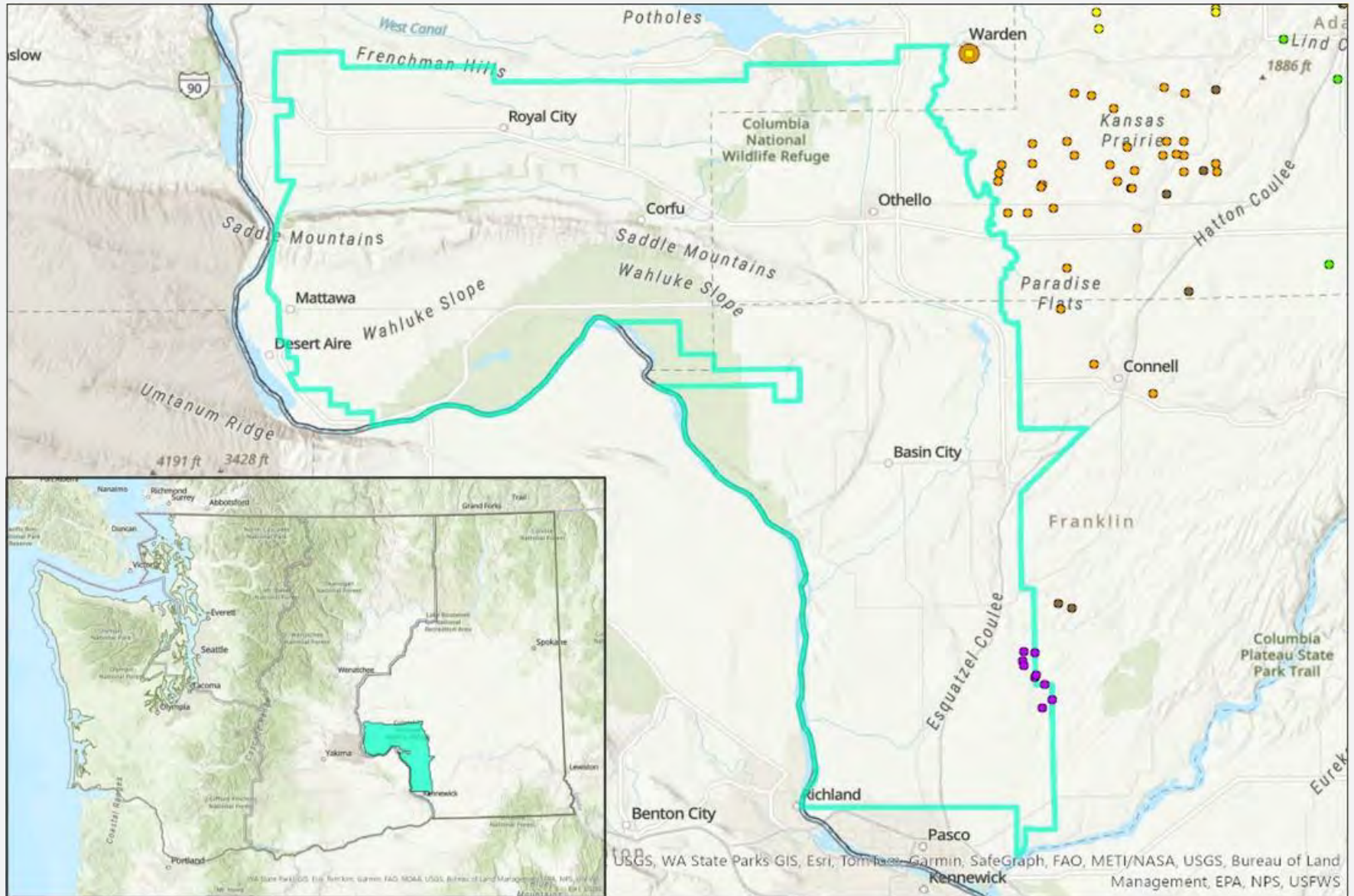
Groundwater Monitoring Trends



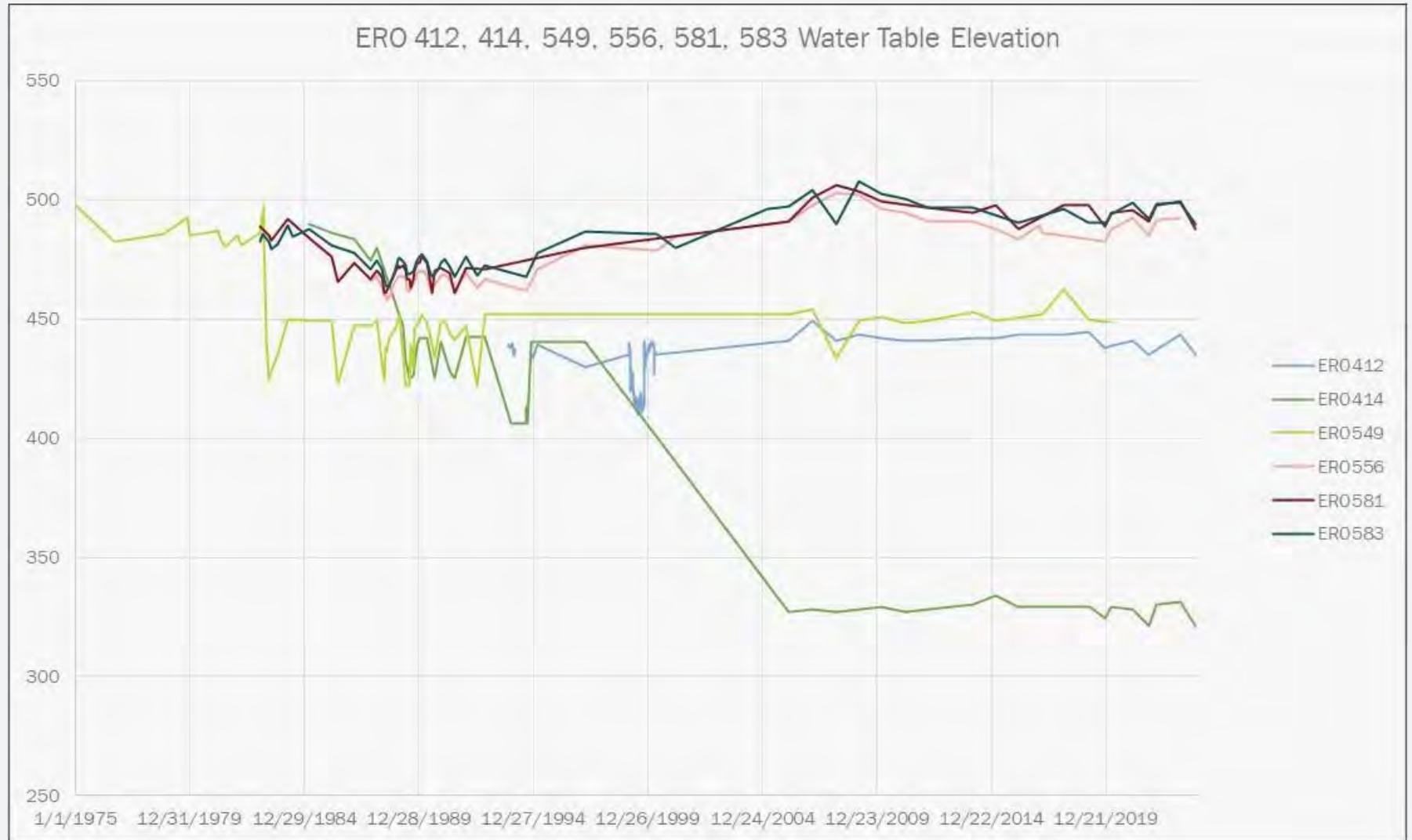
- Pasco Basin
- Odessa Subarea
- Quincy Basin
- Spokane Valley Rathdrum Prairie
- Palouse Basin
- Walla Walla Basin



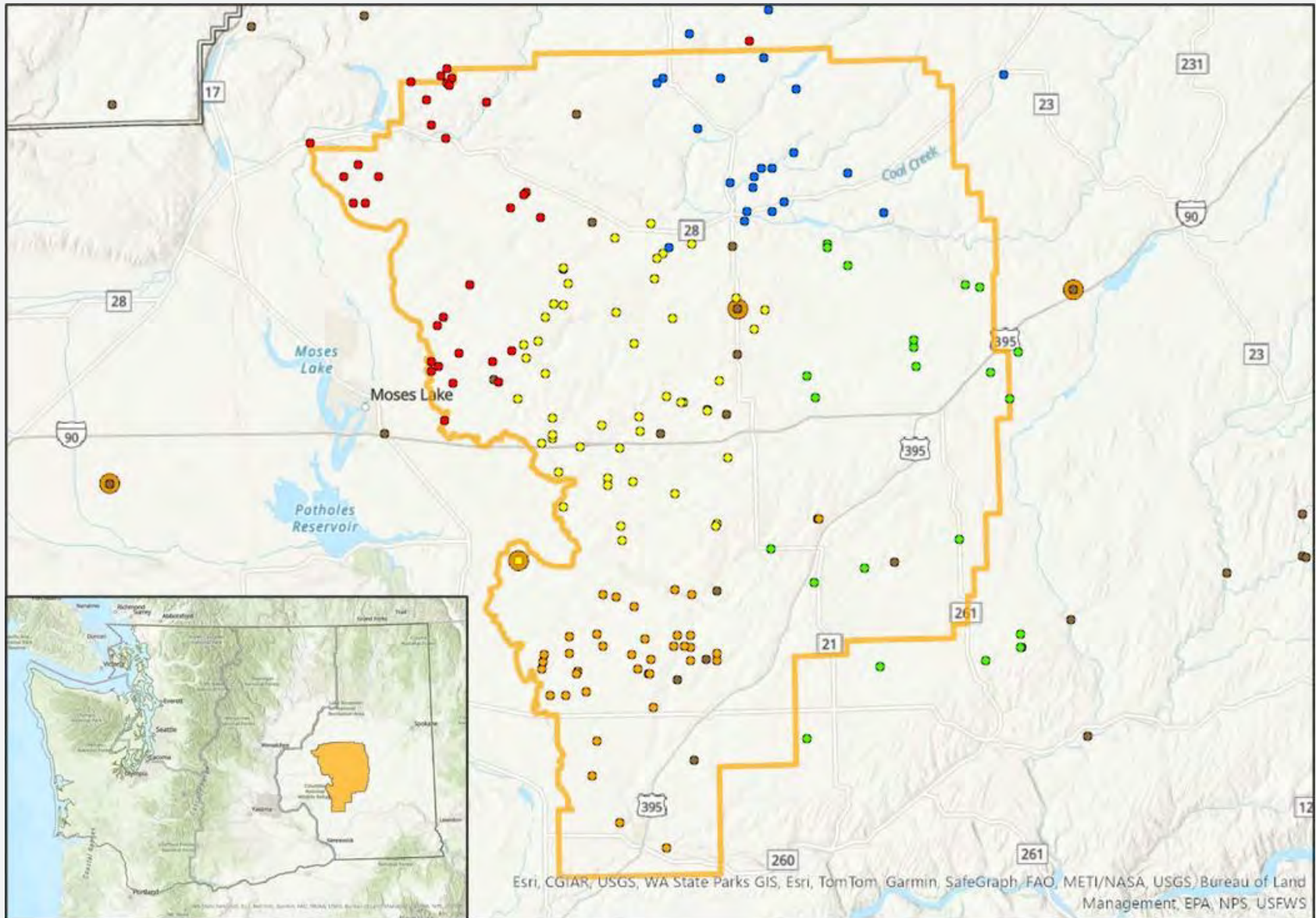
Pasco Basin



Pasco Basin



Odessa Subarea

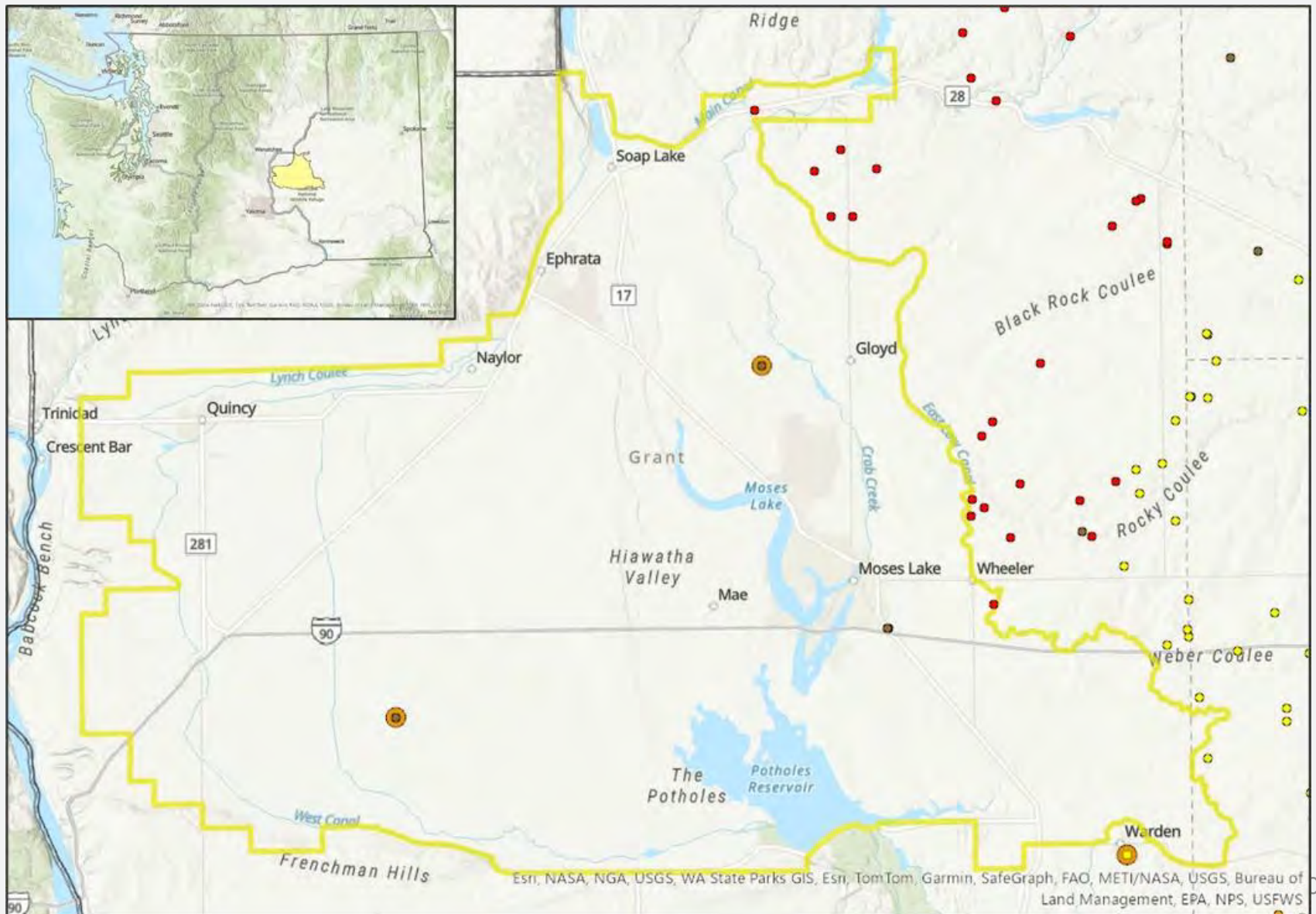


Odessa Subarea

ERO 166, 169, 266, 267, AHP752, BHT051 Water Table Elevation



Quincy Basin



Quincy Basin



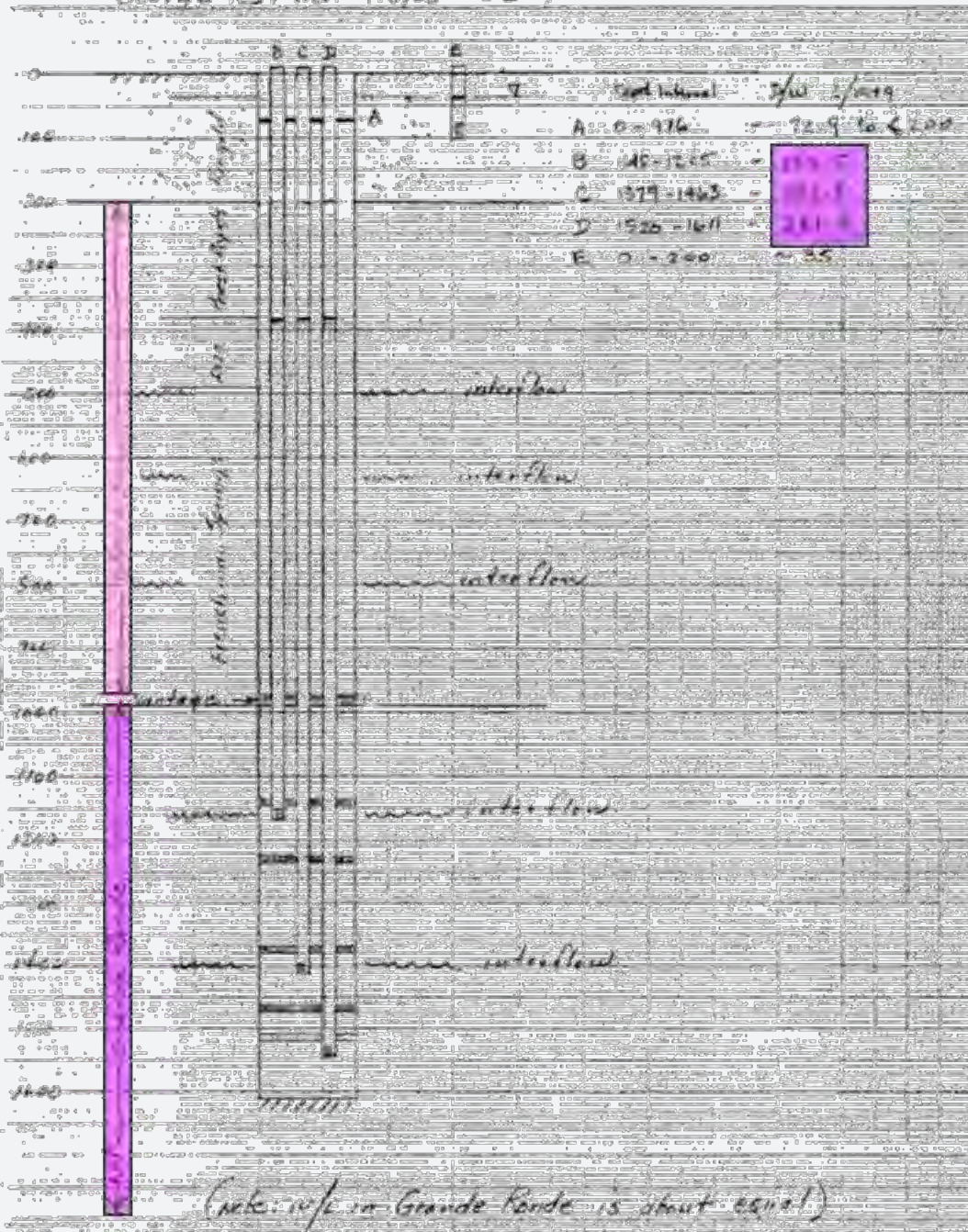
Quincy Basin

George Well, piezos, water elevation (ft amsl)



Quincy Basin

George Test Well (18/25-15E)



2/11/2024

George Well

1130 - onsite

- DTW:

1218 - Main Con: 222.21' TOC ⁸⁷⁶

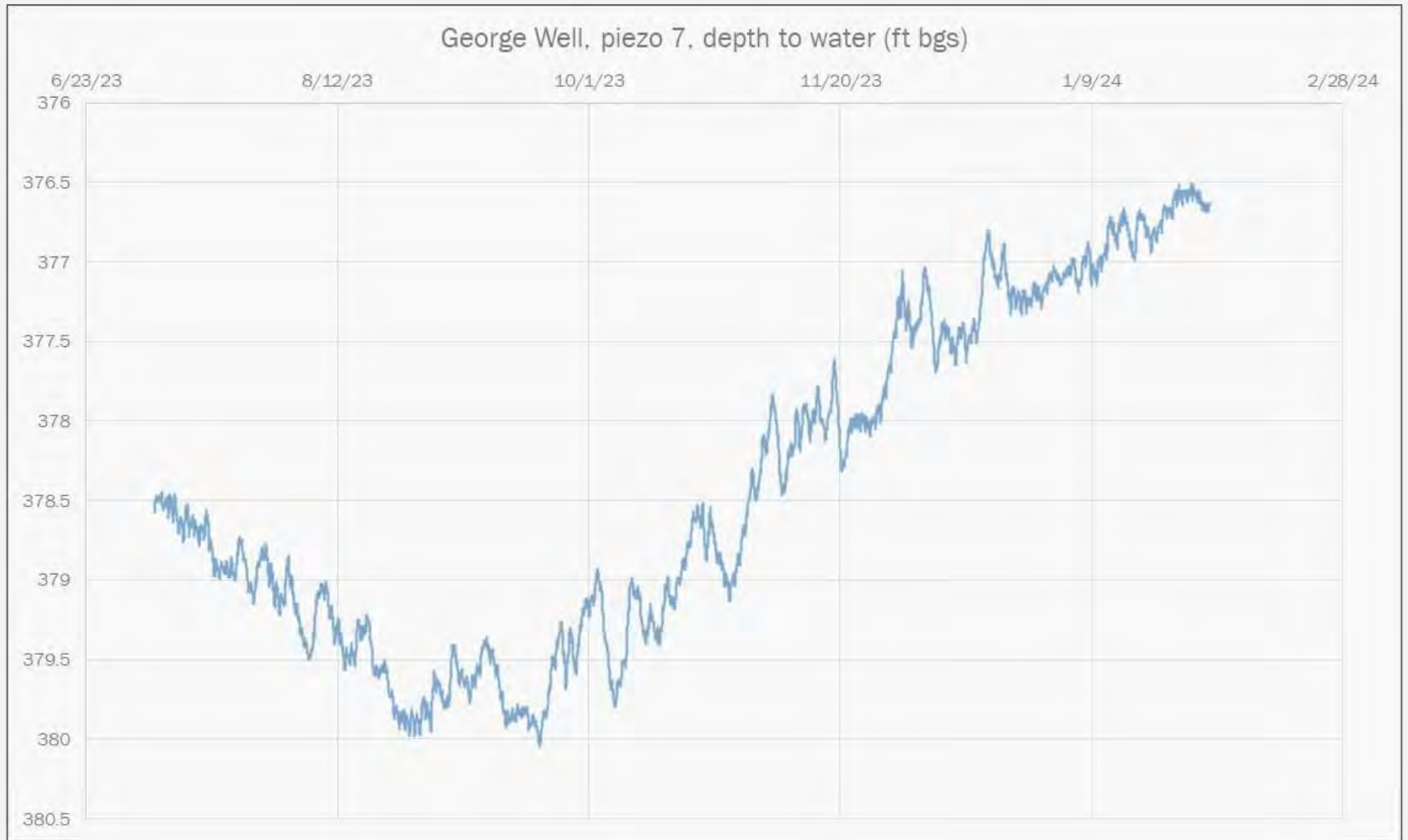
1144 - 6: 375.98' TOP

logged 21644054 · 7: 376.10' TOP (1148)

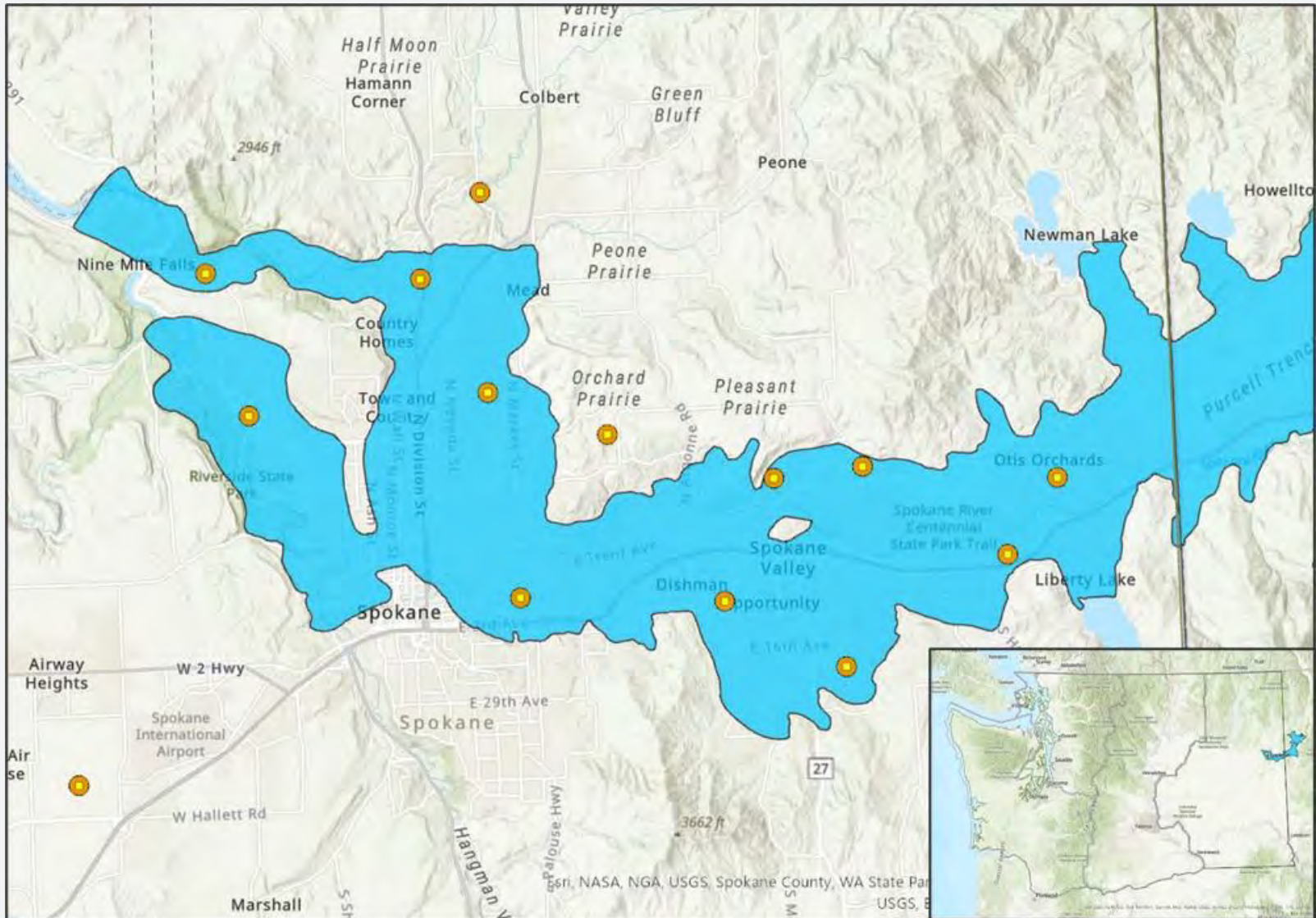
1154 - 8: 360.02' TOP

Main Con 000

Quincy Basin



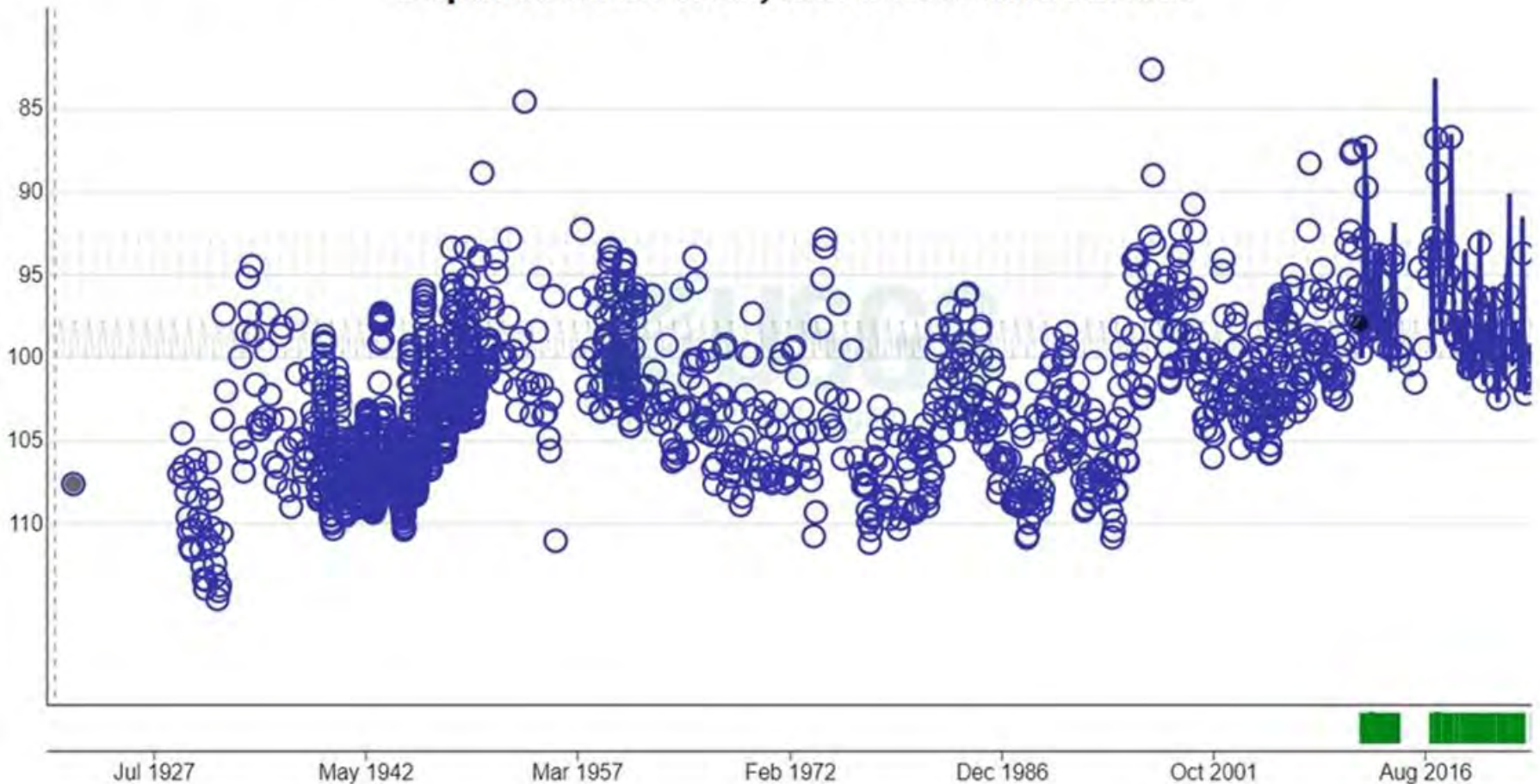
Spokane Valley Rathdrum Prairie Aquifer



Spokane Valley Rathdrum Prairie Aquifer

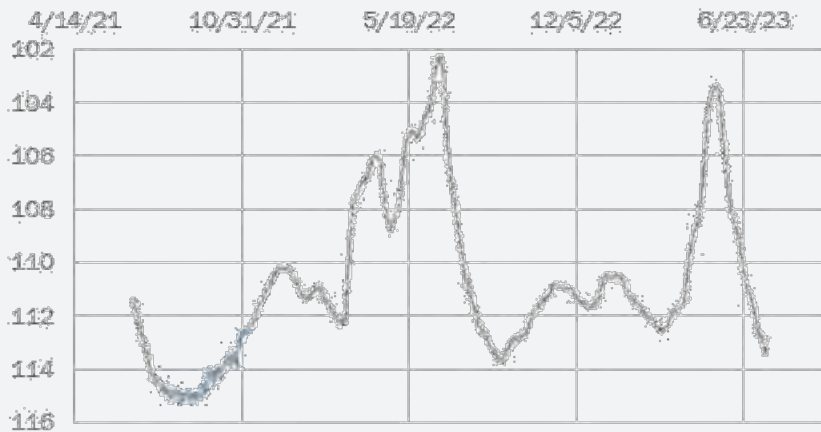
25N/45E-16C01 - 474011117072901

Depth to water level, feet below land surface

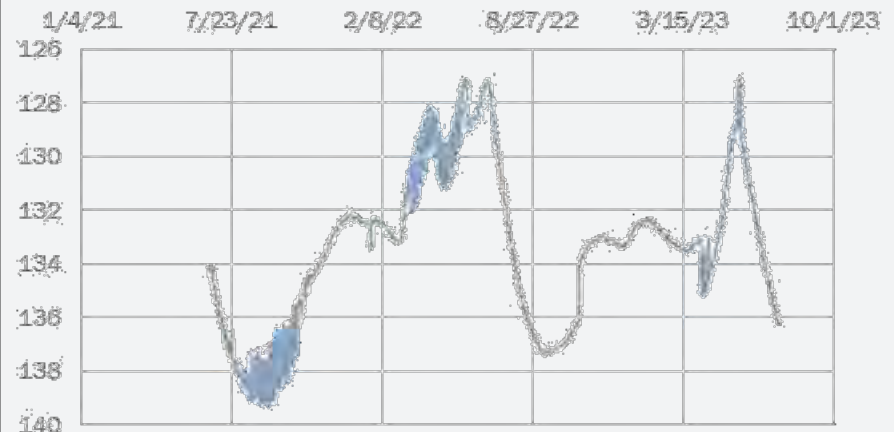


Spokane Valley Rathdrum Prairie Aquifer

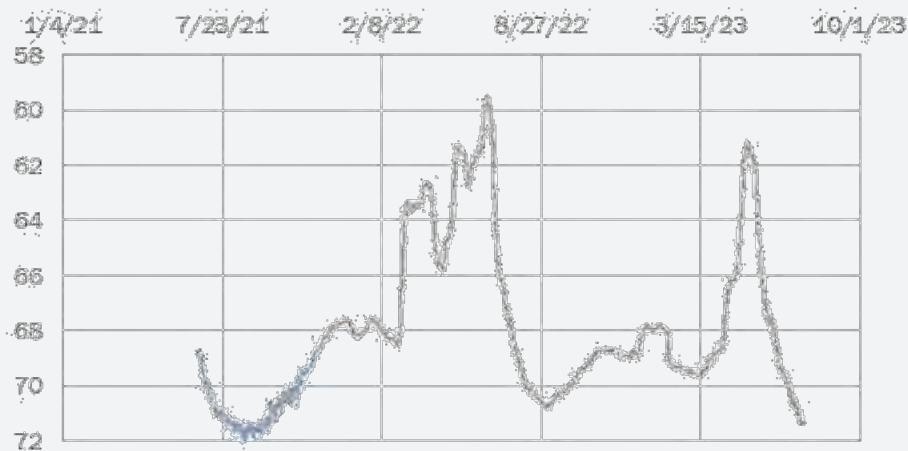
EVHS, depth to water (ft bgs)



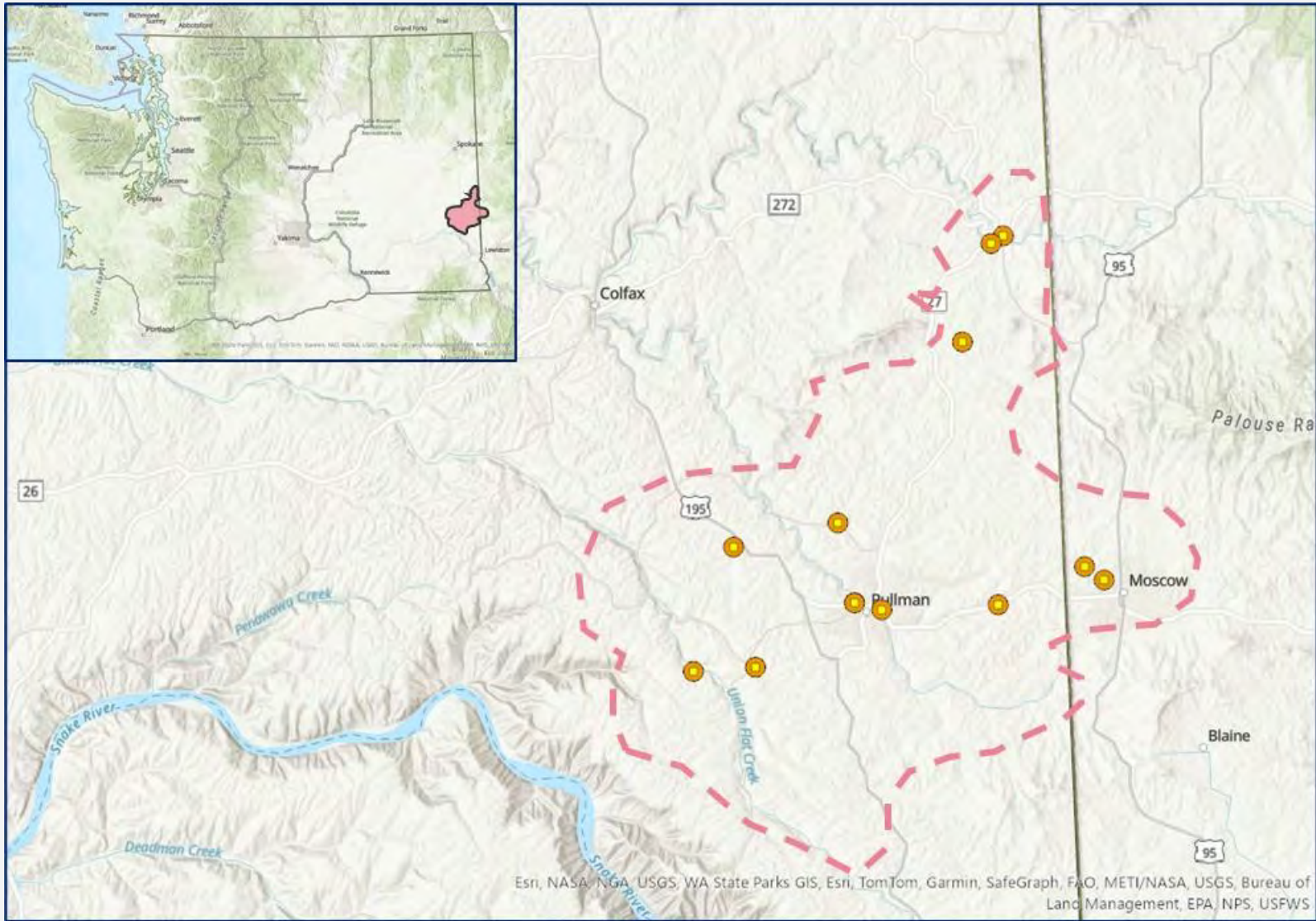
24th and Adams, depth to water (ft bgs)



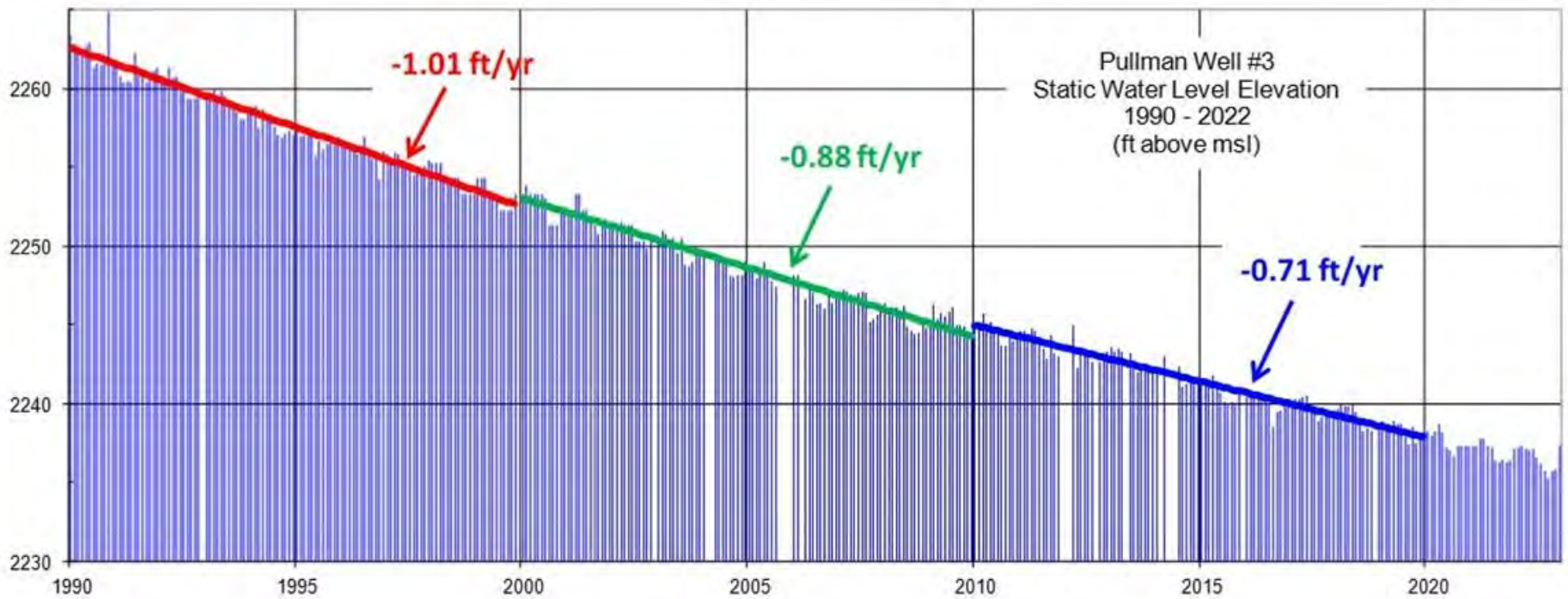
Olive and Fiske, depth to water (ft bgs)



Palouse Basin

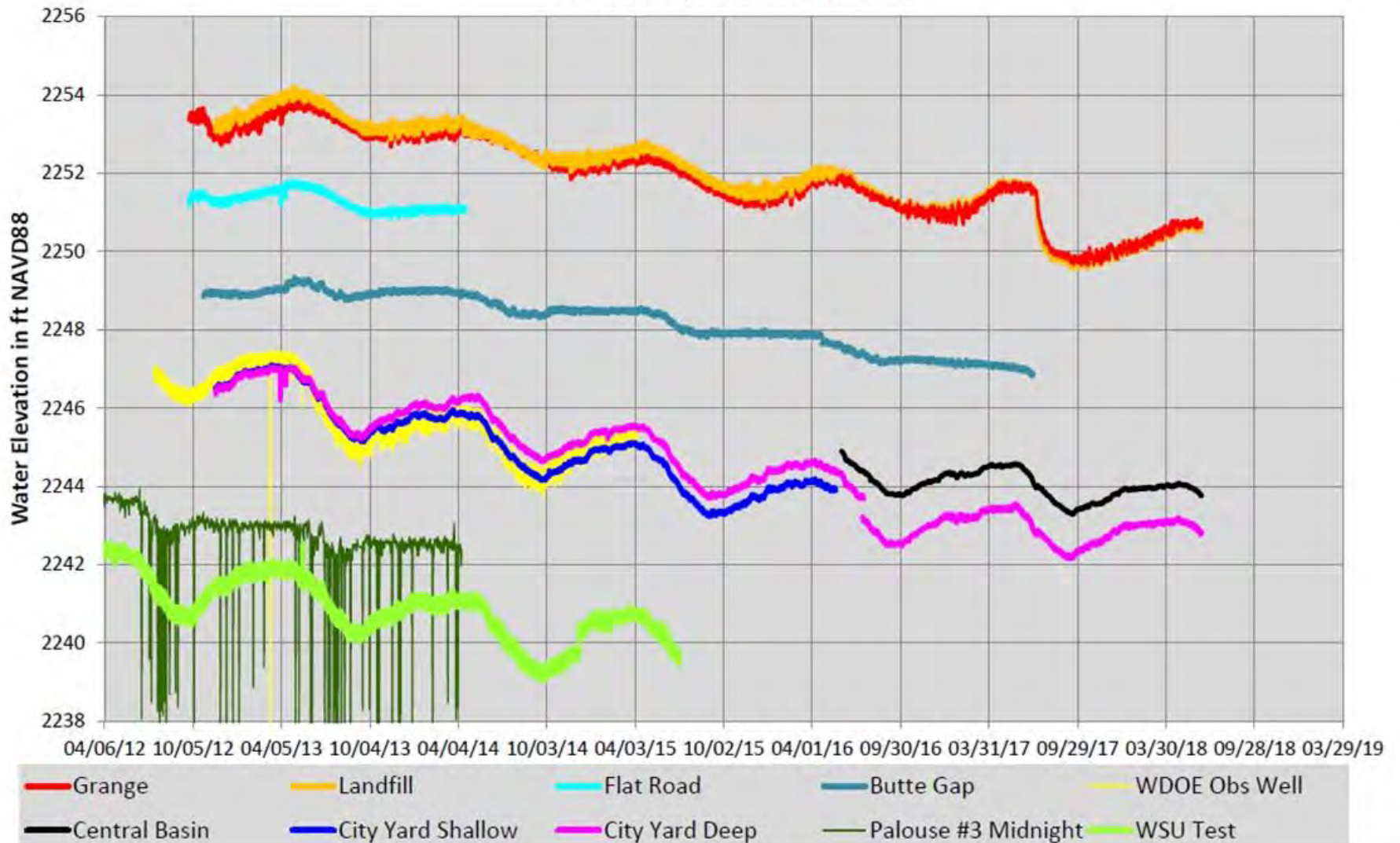


Palouse Basin



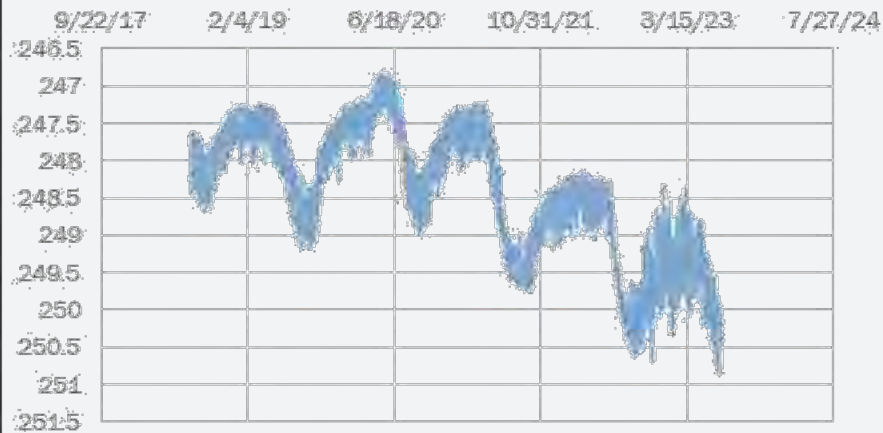
Palouse Basin

Palouse/Pullman Wells

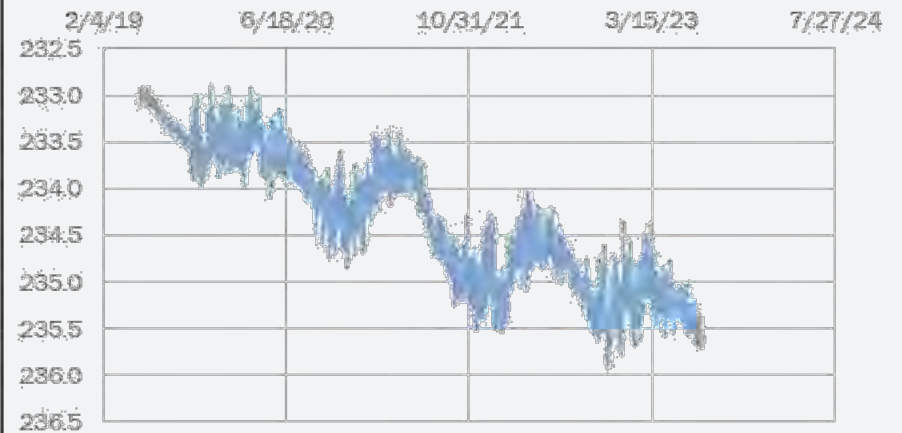


Palouse Basin

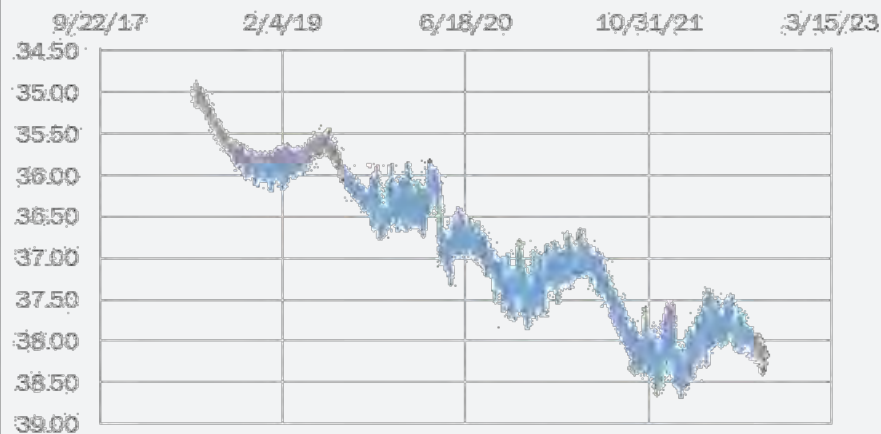
SR 270, depth to water (ft bgs)



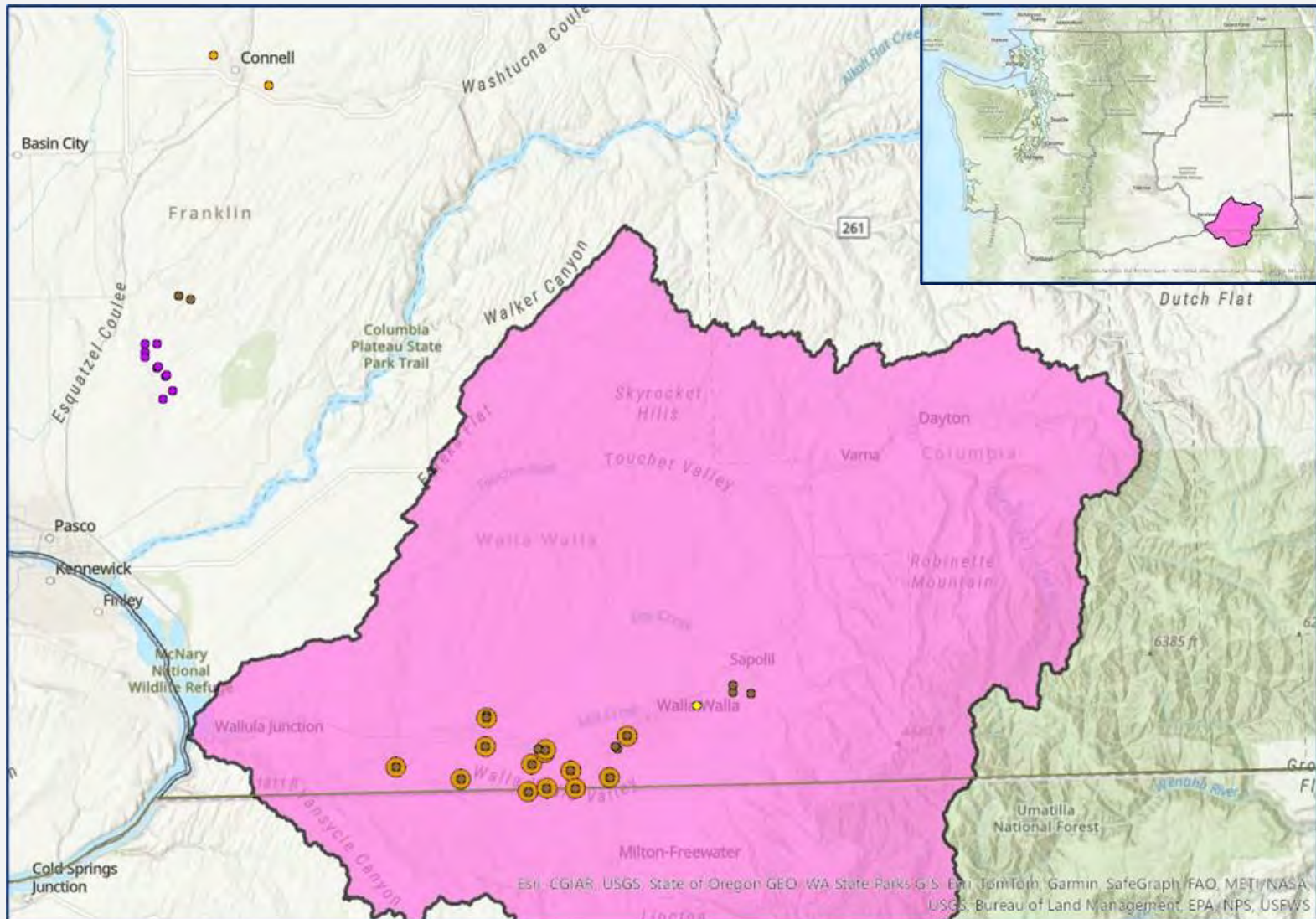
Flat Road, depth to water (ft bgs)



Ewartsville Grange, depth to water (ft bgs)

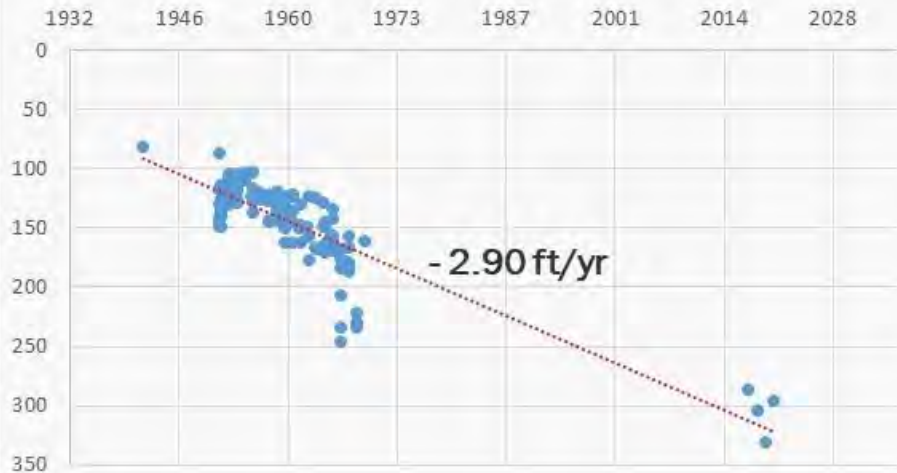


Walla Walla Basin

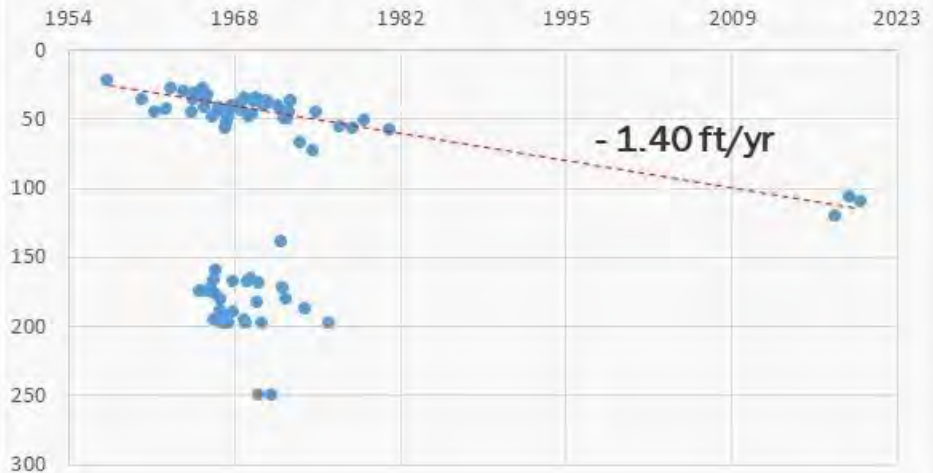


Walla Walla Basin

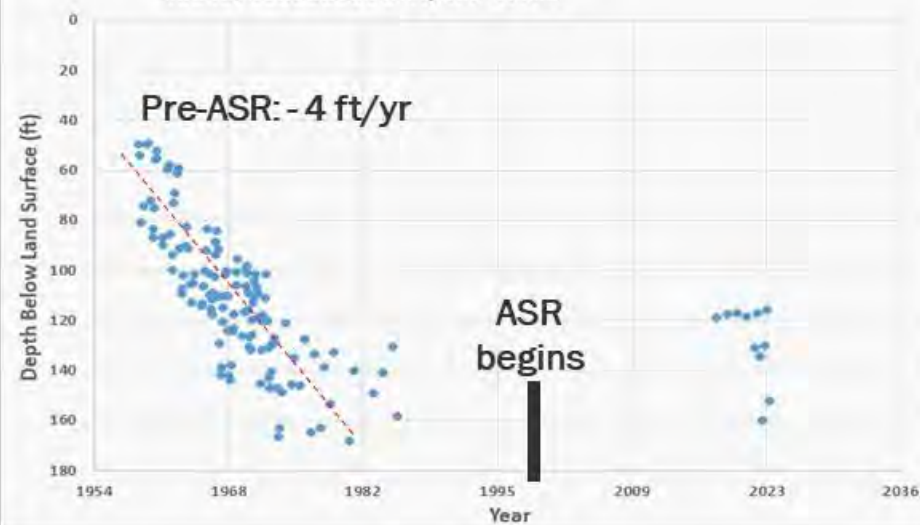
USGS 46051611815150107N/36E-13F02



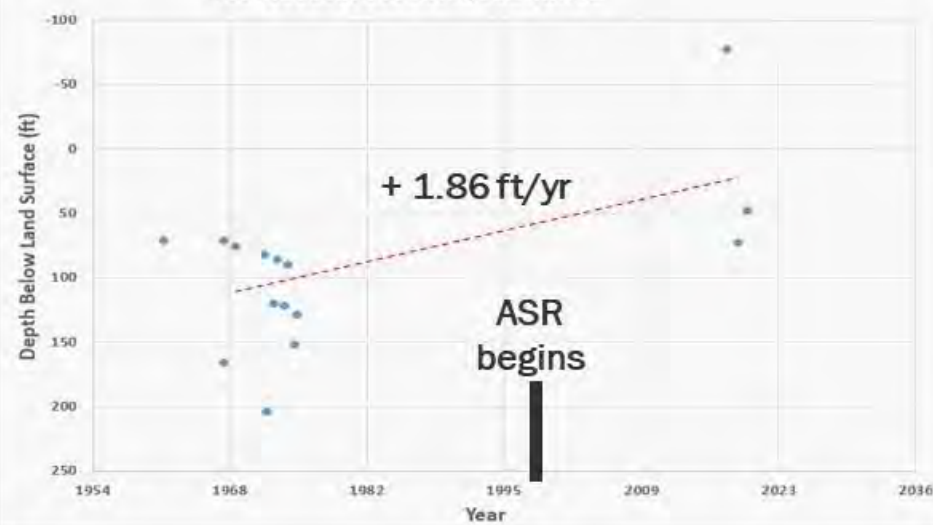
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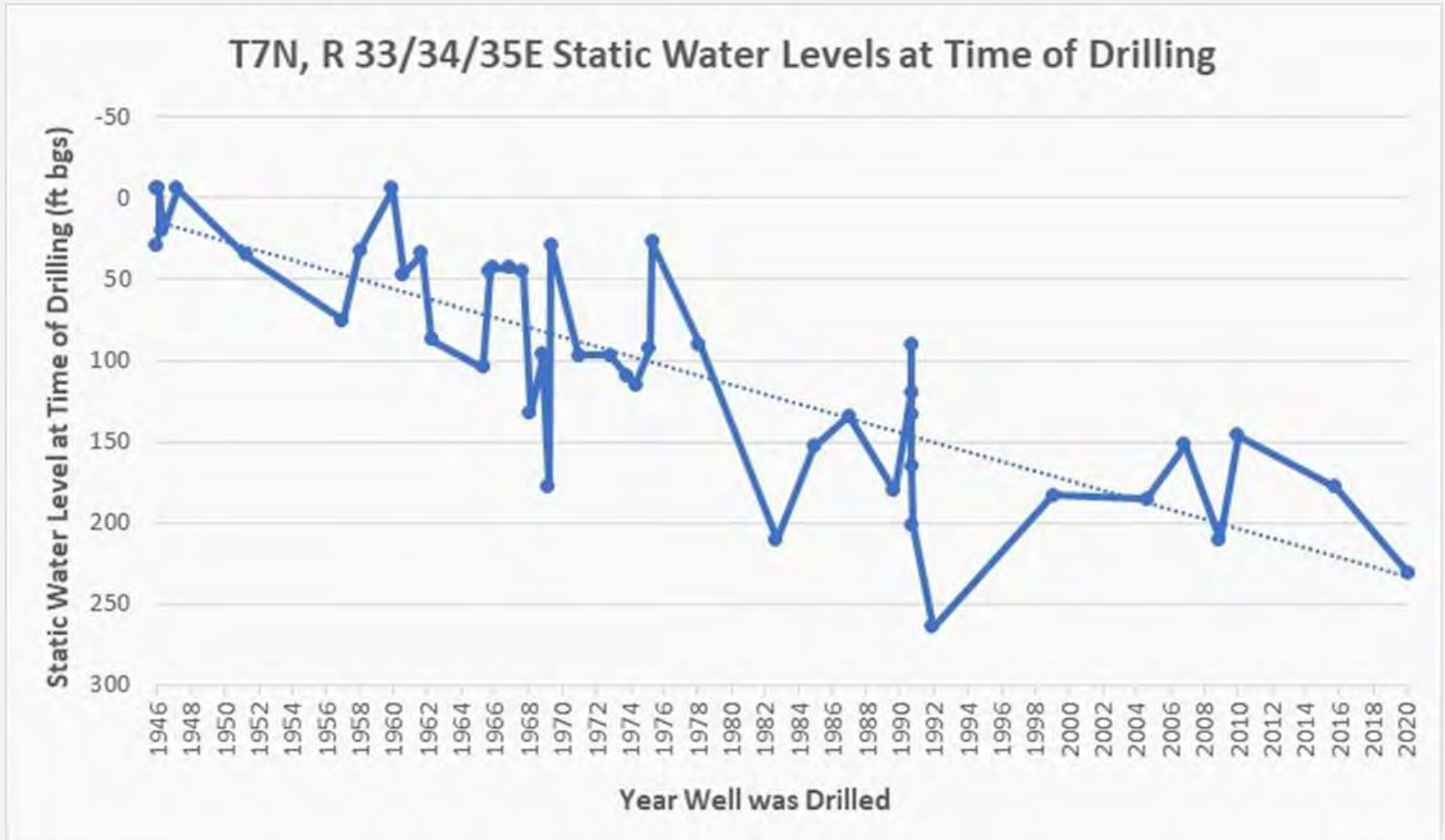
46045711820090107N/36E-17L01



46041811817160107N/36E-22H01



Walla Walla Basin



How do we use monitoring data?

- **Review of water right applications**
 - New applications
 - Applications for change
 - Location specific, done on a case-by-case basis
- **Local or regional groundwater studies**
 - White paper for a basin or sub-basin
 - Cooperative studies with other agencies/partners
- **Respond to public inquiries**
- **Provide technical assistance**

What if we don't have data?

- Nearby well logs (water level at time of drilling)
- Project-specific monitoring data (provided by applicant or consultants)
 - Preliminary Permits
- Other nearby data in EIM
- Data from published reports/models

WATER WELL REPORT

STATE OF WASHINGTON

(1) OWNER: Dawn Craig, 2004 1st St, Bellingham, WA 98226

(2) PROPOSED USE: Domestic

(3) TYPE OF WORK: Domestic

(4) DIMENSIONS: 4" diameter, 300' depth

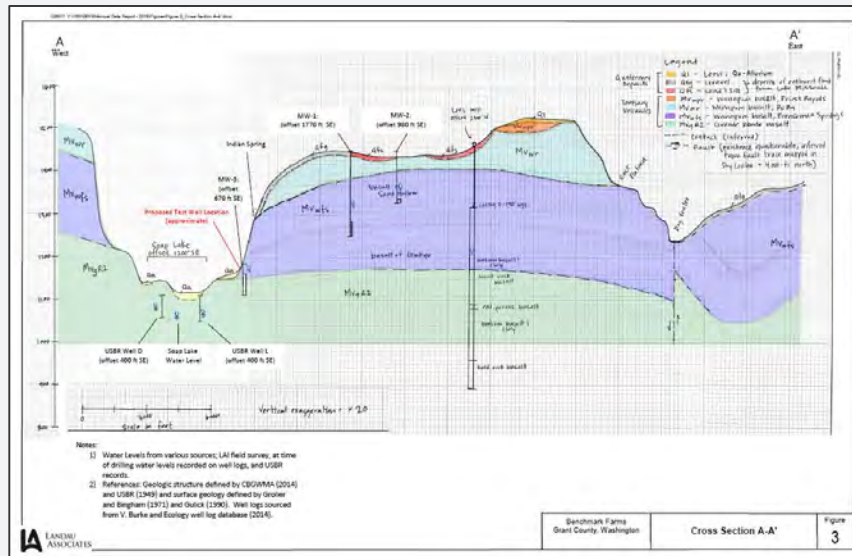
(5) CONSTRUCTION DETAILS: Casing installed: 2" steel pipe, 200' depth

(6) WELL TESTS: None

WELL OWNER'S STATEMENT: I certify that the information provided in this report is true to the best of my knowledge and belief.

WELL DRILLER'S STATEMENT: I certify that the information provided in this report is true to the best of my knowledge and belief.

WELL DRILLER: Mike's Well Drilling, 80 Box 415 Quincy WA, Jerry S. Mizuk, 1/19/2014



USGS
United States Geological Survey

Groundwater Resources Program

Numerical Simulation of Groundwater Flow in the Columbia Plateau Regional Aquifer System, Idaho, Oregon, and Washington

Scientific Investigations Report 2014-5127
Version 1.1, January 2015

U.S. Department of the Interior
U.S. Geological Survey

Goals for Ecology's Groundwater Monitoring

- Bring wells back into our synoptic water level measurement network
- Expand/grow our transducer network
- Work through backlog of transducer data entry in EIM
- Drill or repurpose wells for monitoring needs:
 - Quincy Basin, both Wanapum and Grande Ronde
 - Walla Walla basalt wells



Thank you!

Patrick Cabbage

patrick.cabbage@ecy.wa.gov

(509) 834-9985