

Harney Groundwater Investigation

Groundwater Level Data Update

Oregon Water Resources Department



Harney Groundwater Investigation

Presentation Outline

- OWRD Work Done Since October Meeting
- Challenges
- Synoptic Groundwater Level Comparisons
- Permit Condition Groundwater Level Data

Harney Groundwater Investigation

Work Done Since October Meeting

- Synoptic Groundwater Level Measurements (Fall 2016 & Spring 2017).
- Locate Additional Wells for Measurement (Synoptic & Quarterly).
- Drill Observation Wells & Seek Additional Locations.
- Seek Improving Well Measurability (5 wells).
- Feedback to USGS on Interactive Data Mapper.



Source: OWRD

Harney Groundwater Investigation

Challenges: Road & Field Conditions

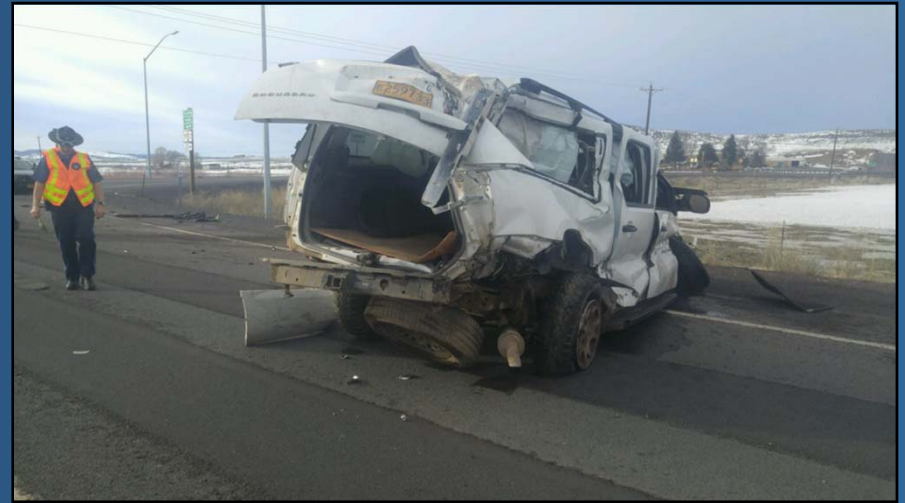


Source: OWRD



Harney Groundwater Investigation

Challenges: Interruptions



Harney Groundwater Investigation

Challenges: Other



Health

Source: giveawayservice.com

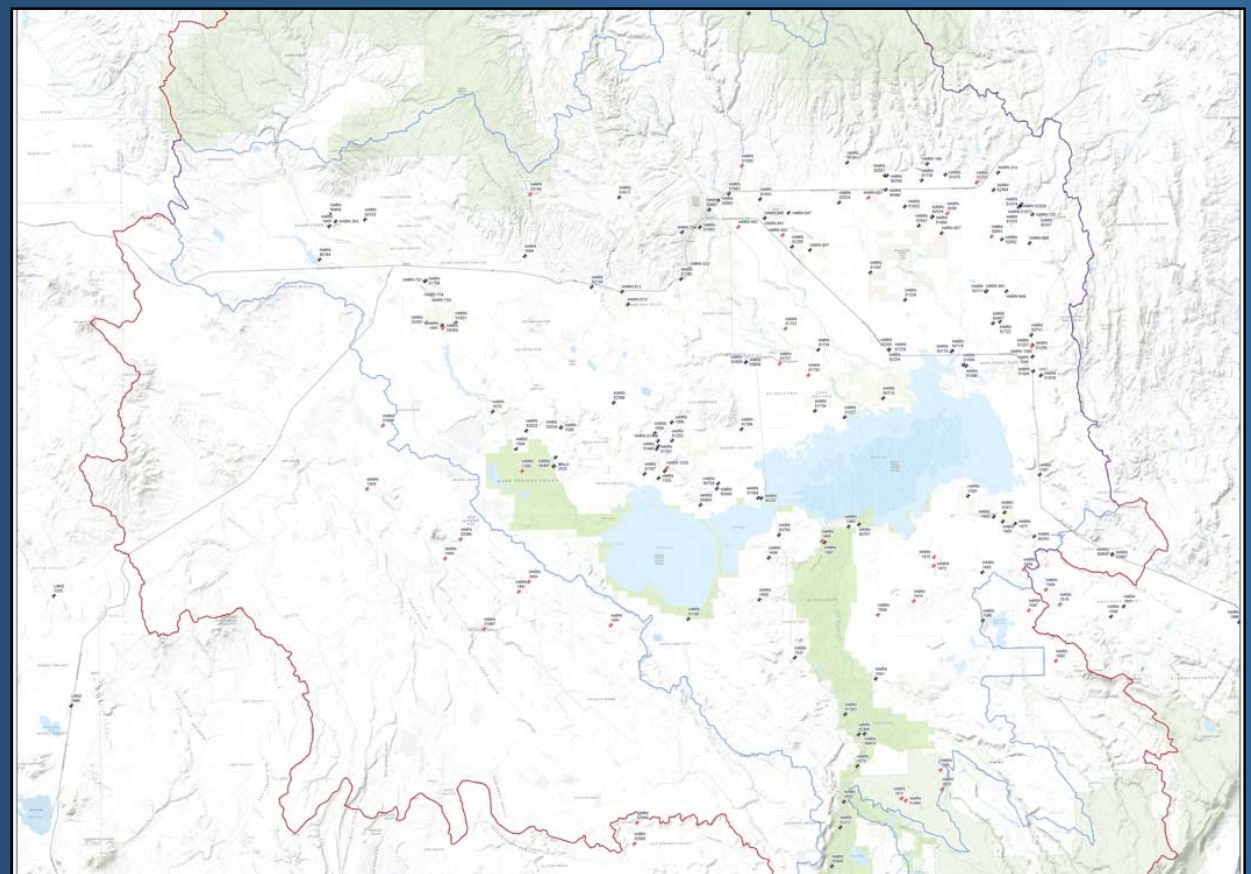
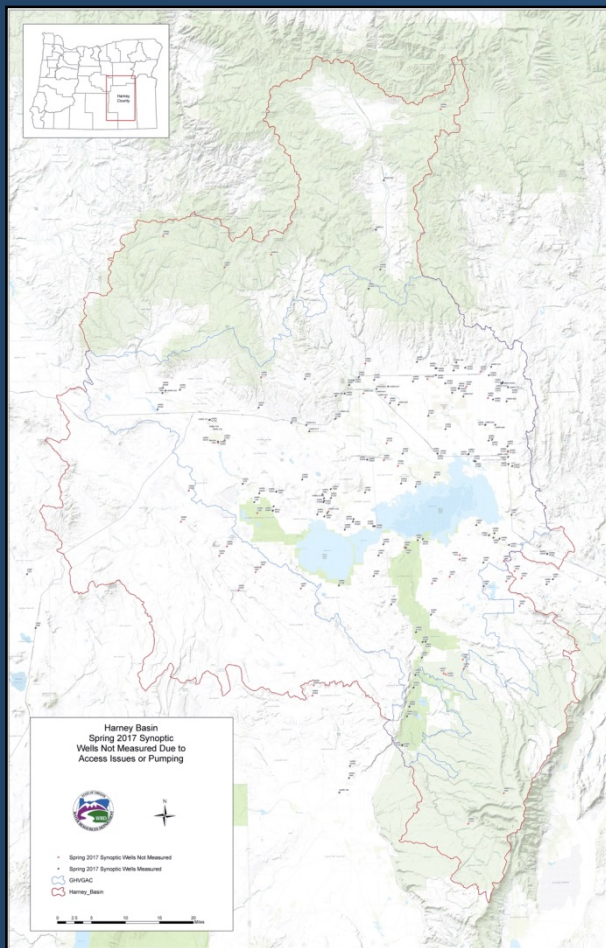


Calendar

Source: freepik.com

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Synoptic Groundwater Level Comparisons

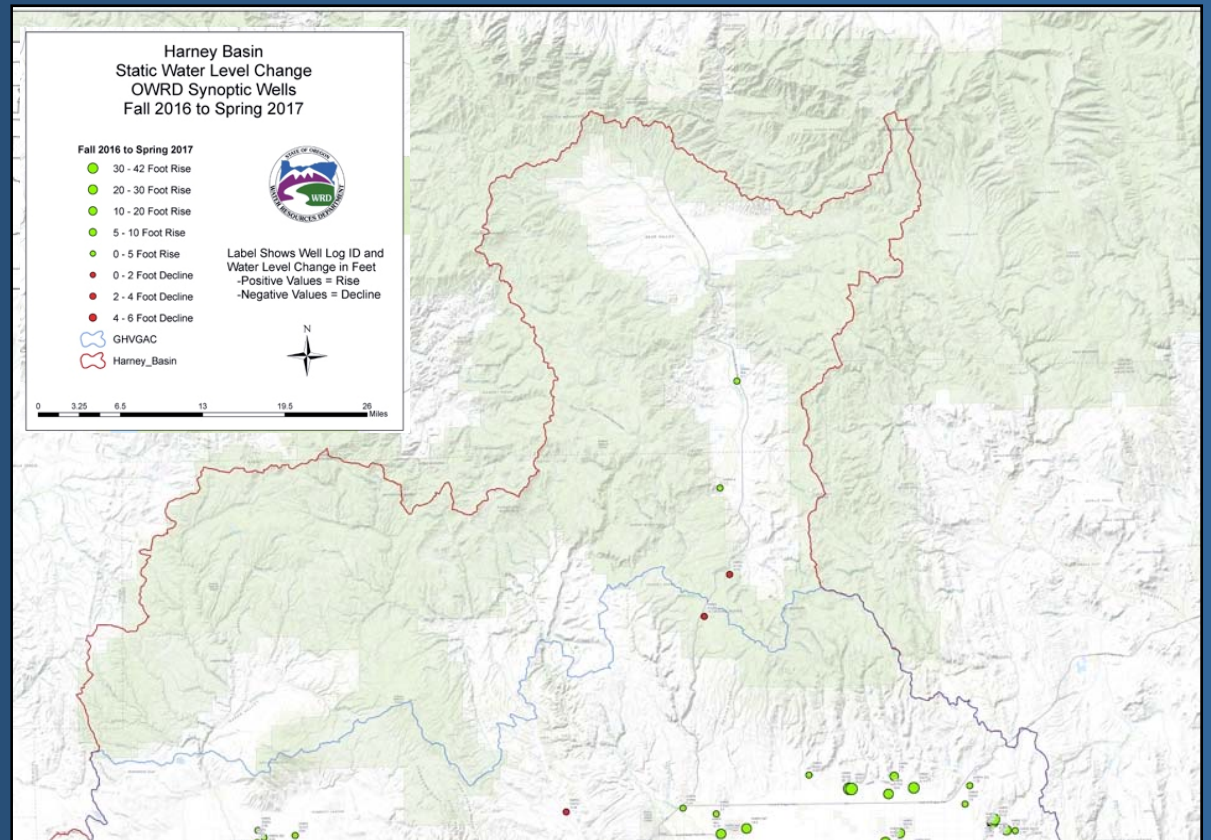
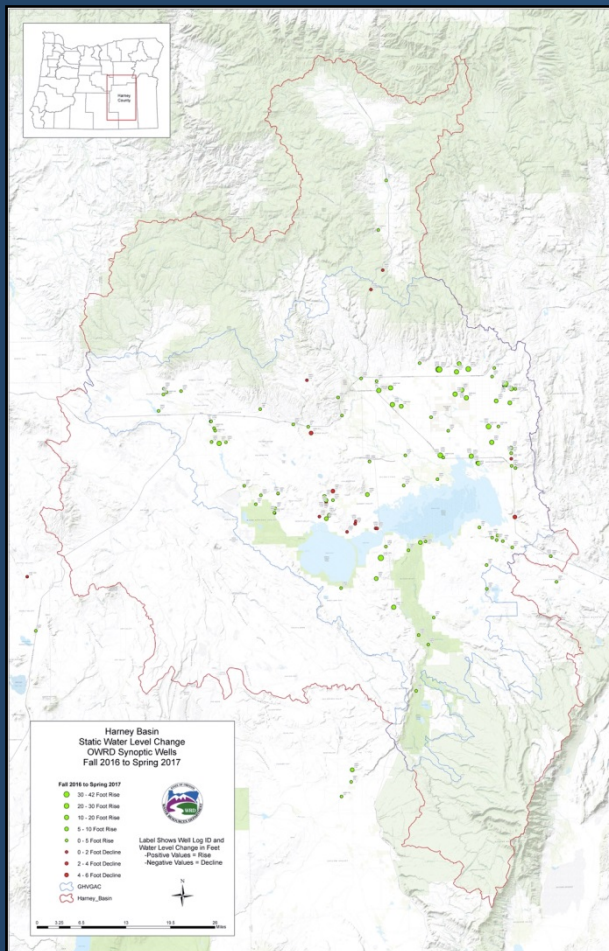


Source: OWRD

Synoptic Groundwater Level Wells

Harney Groundwater Investigation

Synoptic Groundwater Level Comparisons

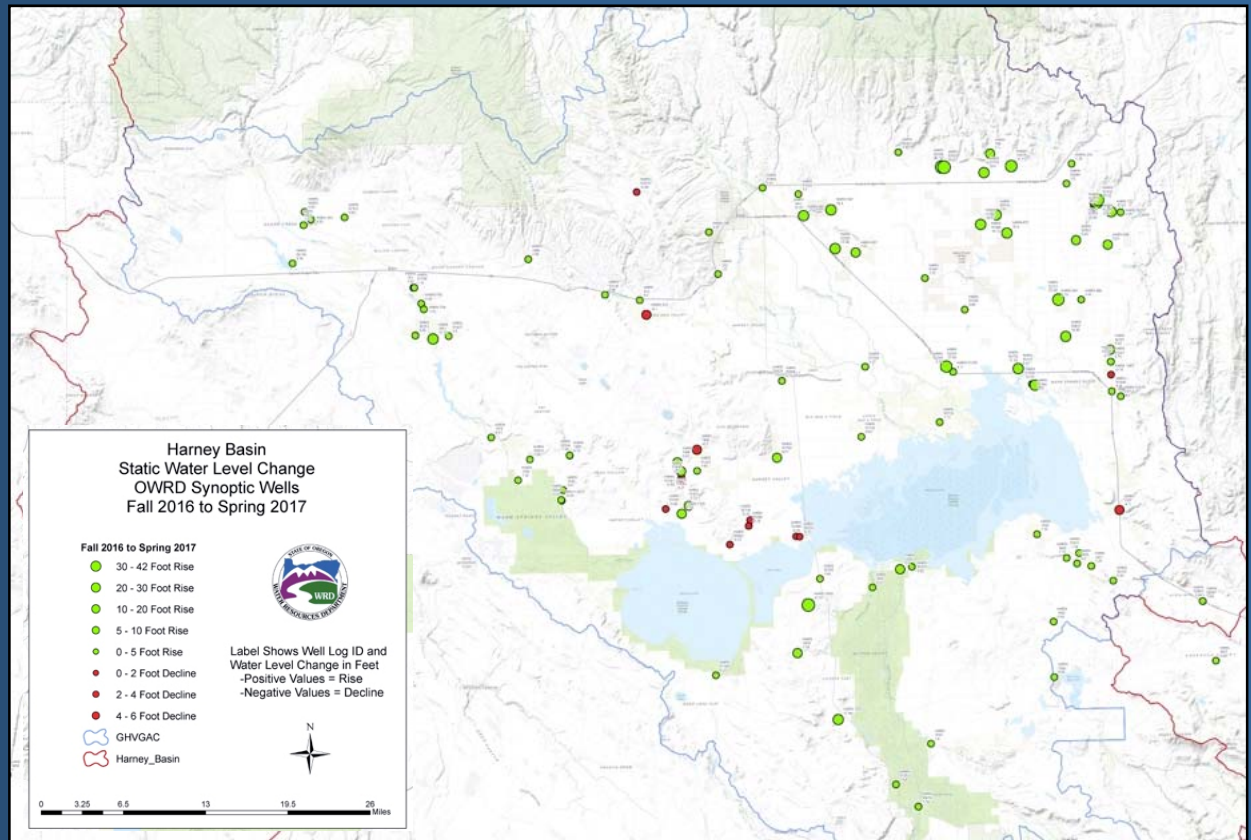
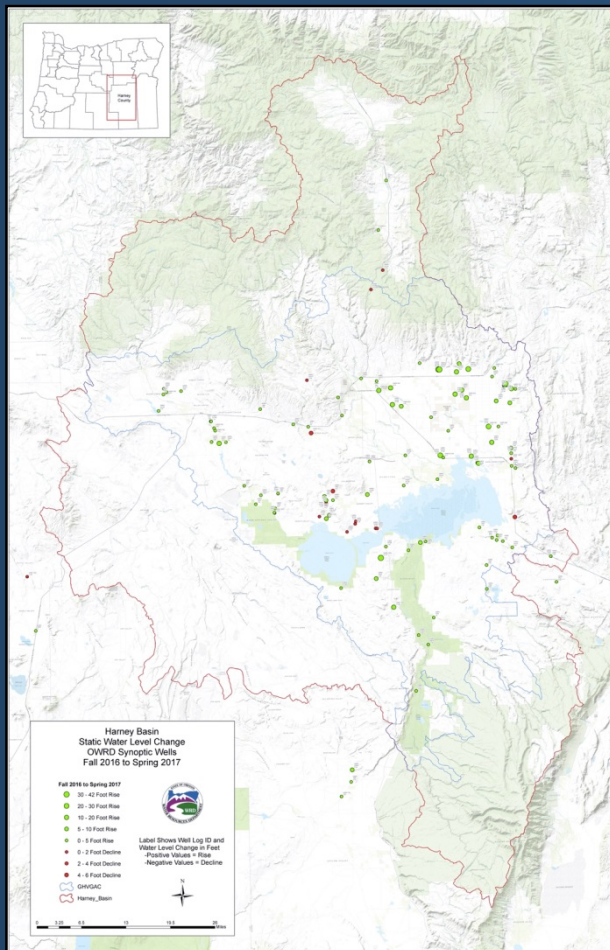


Source: OWRD

Fall 2016 to Spring 2017: North Harney

Harney Groundwater Investigation

Synoptic Groundwater Level Comparisons

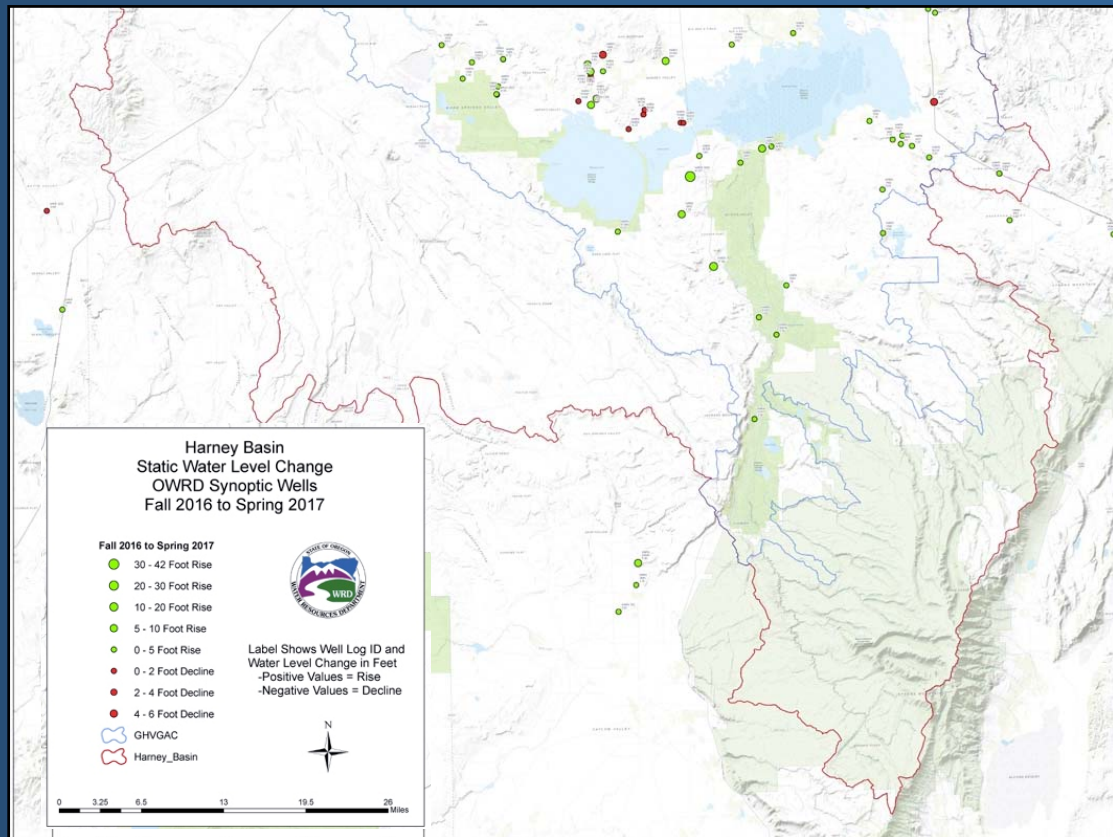
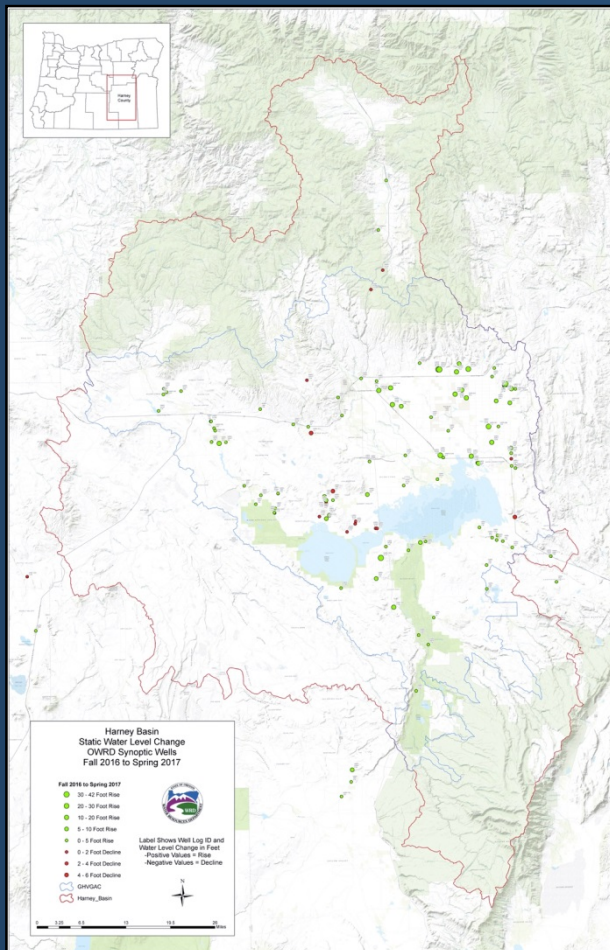


Source: OWRD

Fall 2016 to Spring 2017: Harney Valley

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Synoptic Groundwater Level Comparisons

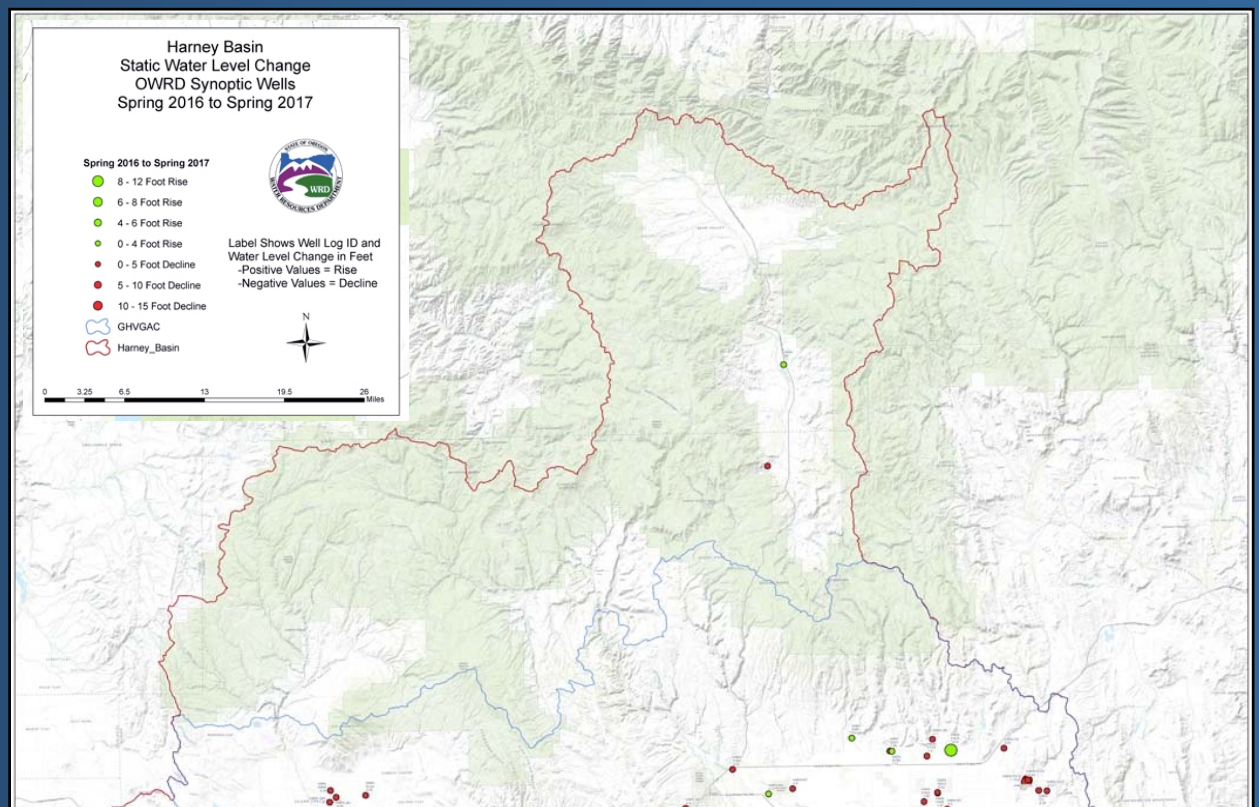
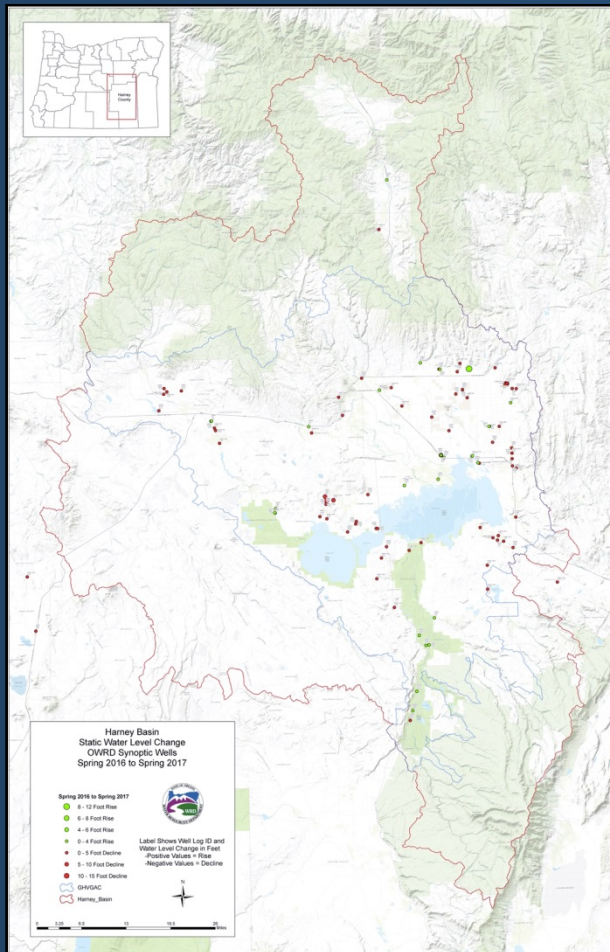


Source: OWRD

Fall 2016 to Spring 2017: South Harney

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Synoptic Groundwater Level Comparisons

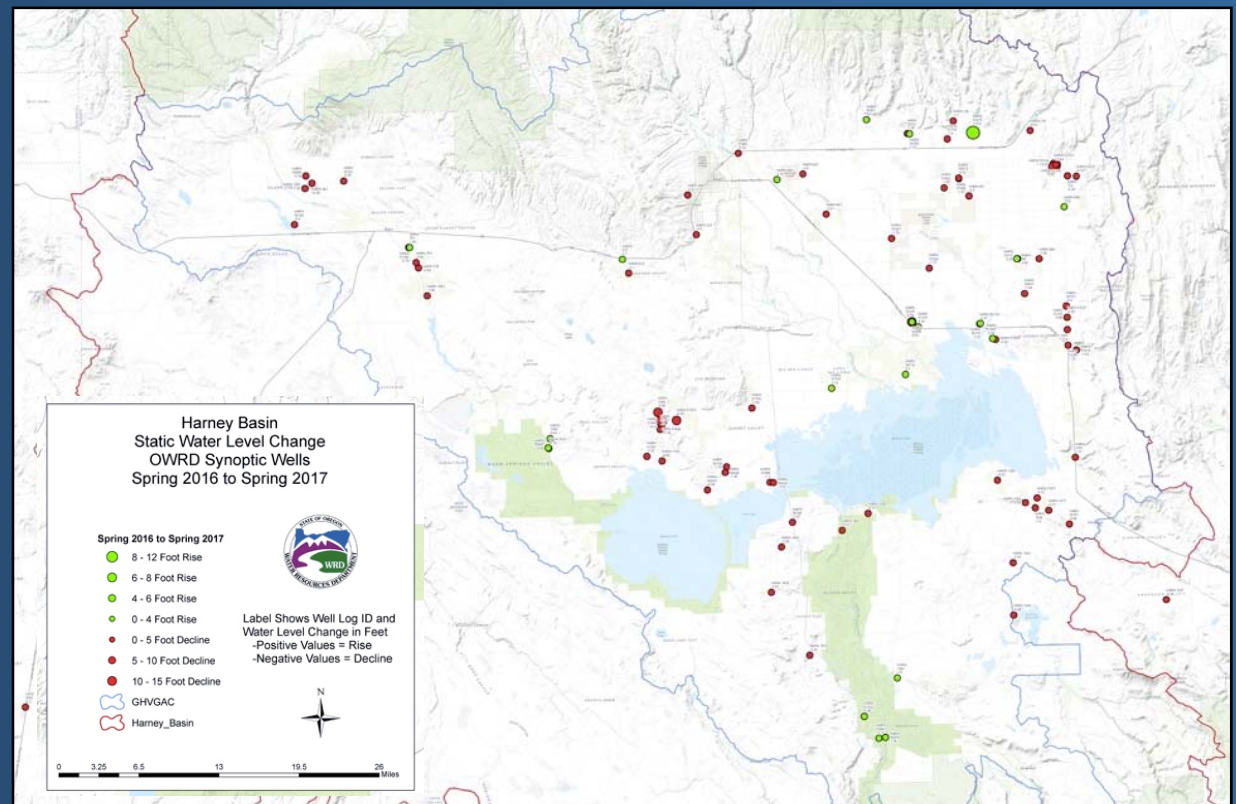
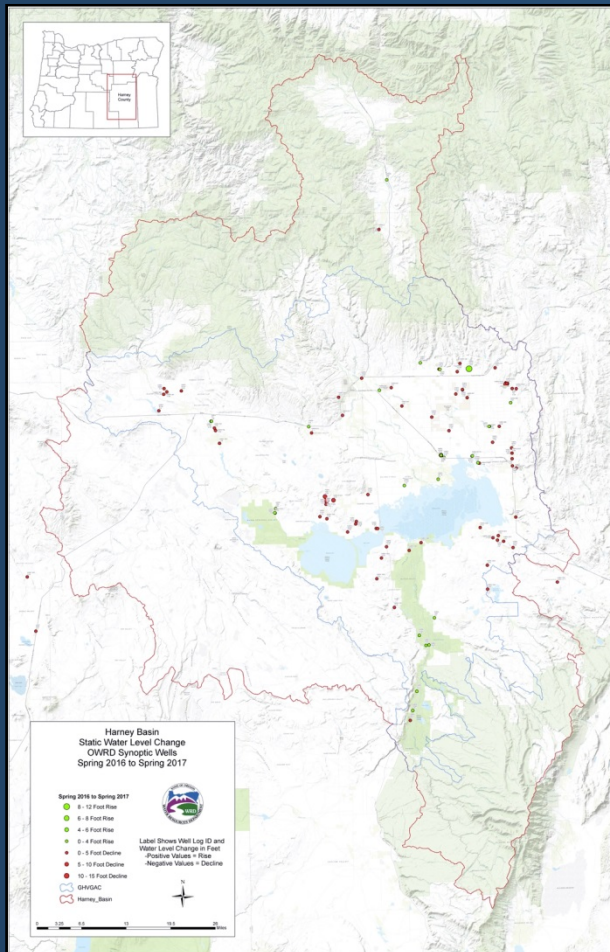


Source: OWRD

Spring 2016 to Spring 2017: North Harney

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Synoptic Groundwater Level Comparisons

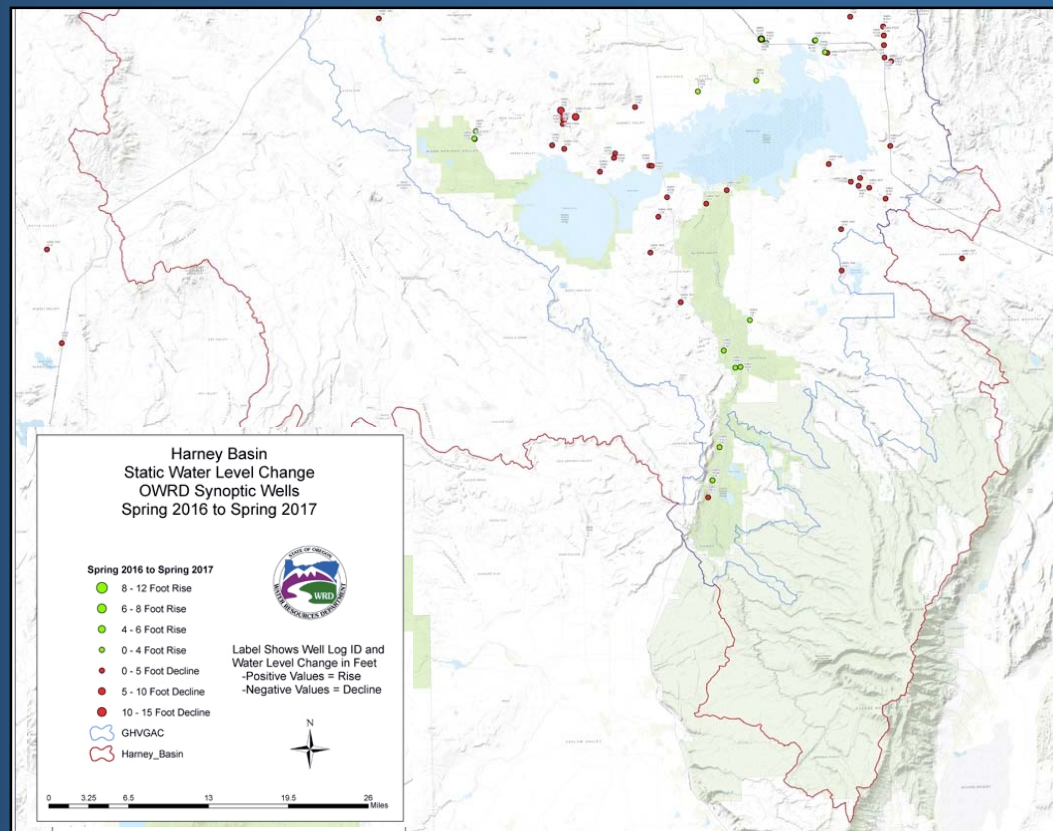
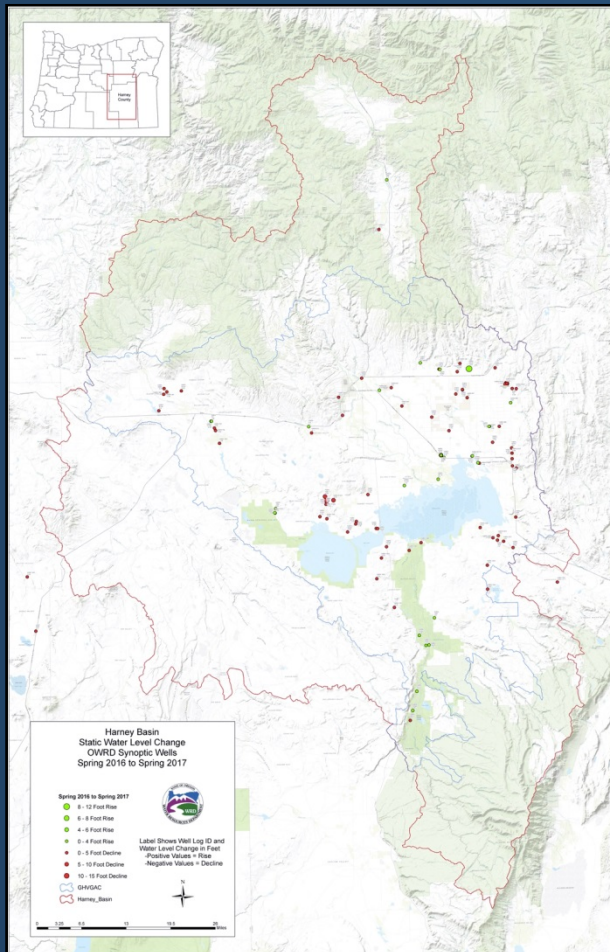


Source: OWRD

Spring 2016 to Spring 2017: Harney Valley

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Synoptic Groundwater Level Comparisons



Source: OWRD

Spring 2016 to Spring 2017: South Harney

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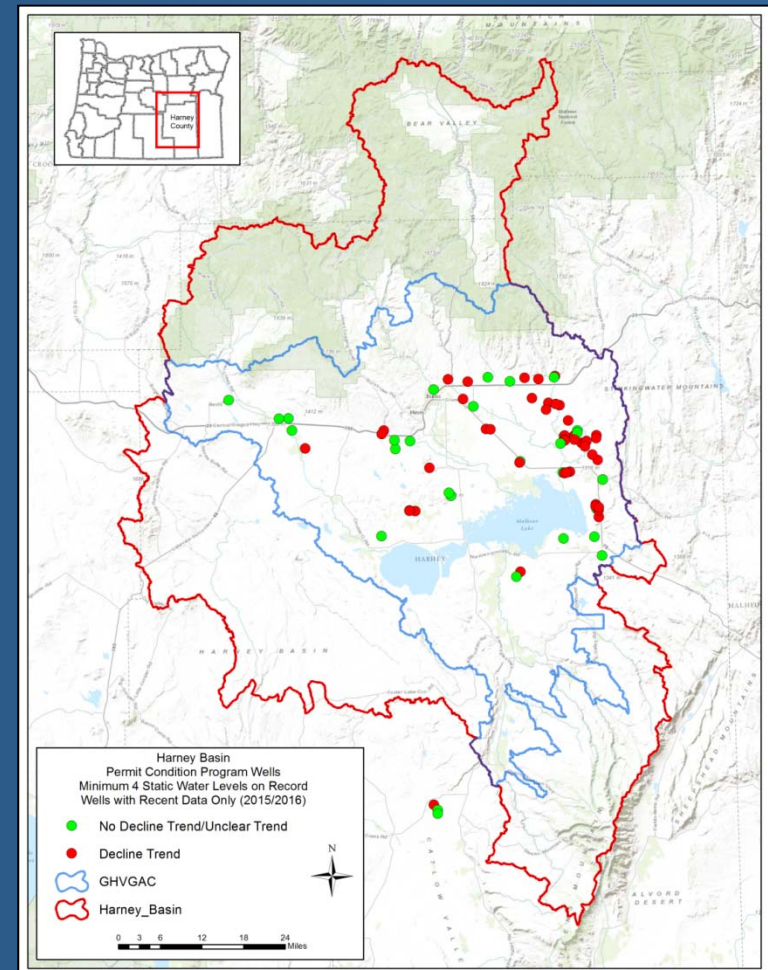
Permit Condition Groundwater Level Data

- Permit Condition Data Submitted to OWRD.
- Measurements by CWRE, RG, CEG, PE, Licensed Well Constructor, or Licensed Pump Installer.
- Data Shown Are From Wells with 4 or More Static Water Levels & Latest Level Is From 2015 or 2016.
- OWRD Is Still Receiving and Entering 2017 Data.
- Data Shown Are Generally March (Spring) Measurements.
- Data Shown Are Permit Condition Data Only. Possible Data From Other Sources Are Not Shown.
- Data From 78 Wells Meet the Above Criteria

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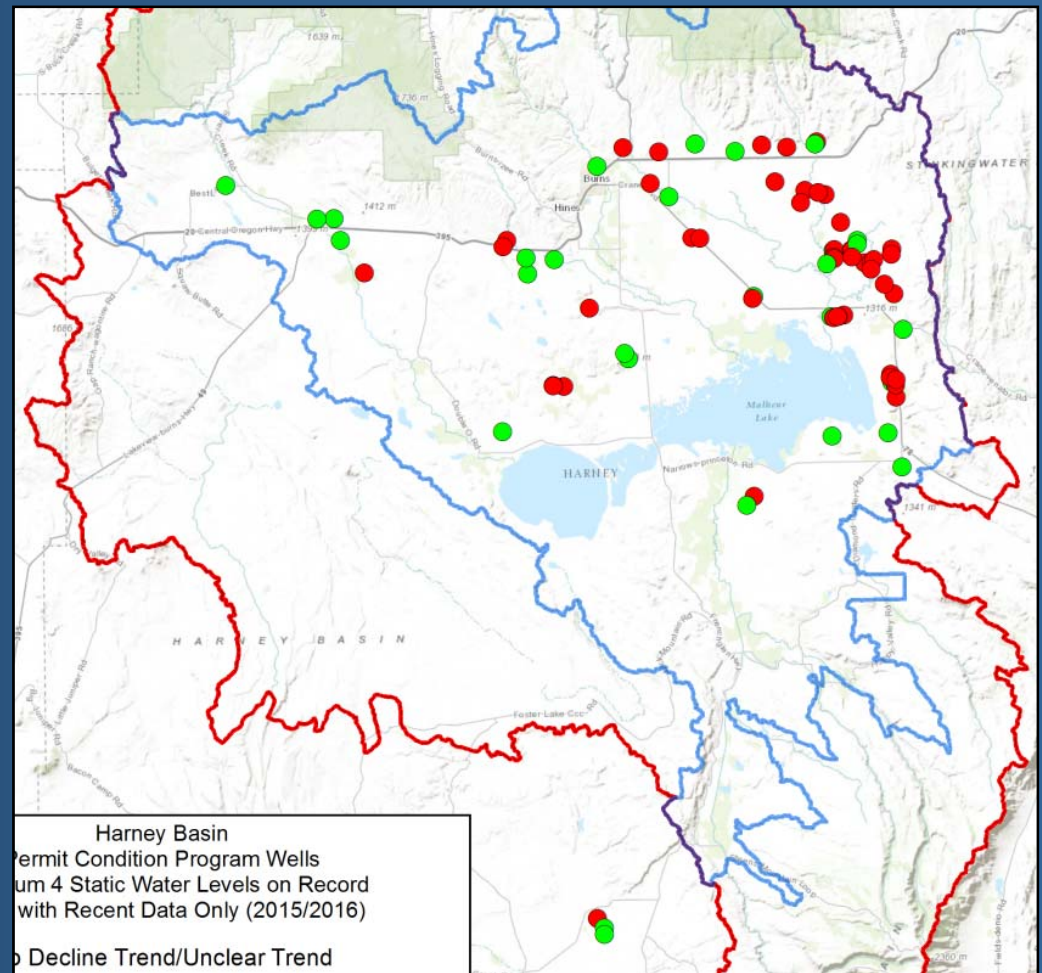
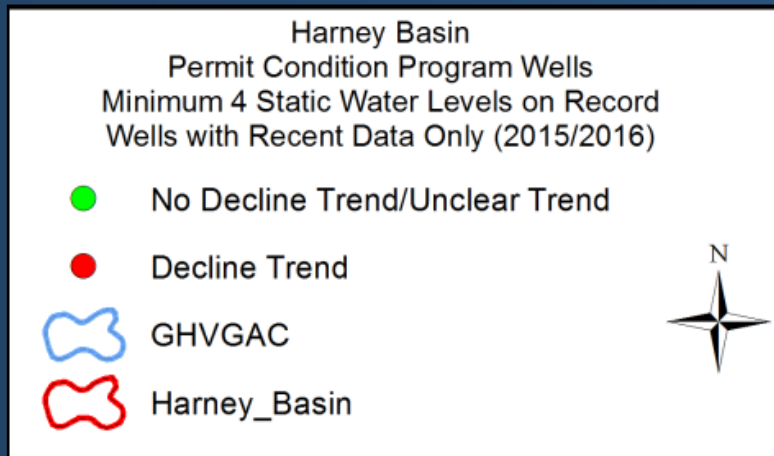
Permit Condition Groundwater Level Data

- Map Shows 78 Wells Meeting Previously Noted Criteria).
- Red Circle = Clear Decline Trend.
- Green Circle = No Decline Trend and/or Unclear Trend.
- Trend Analysis = Visual Inspection of Hydrographs.
- Decline Rates Vary From more than 5 ft./yr. to less than 1 ft./yr.
- 21 Example Hydrographs Follow. Graphs Available for All 78 Wells.



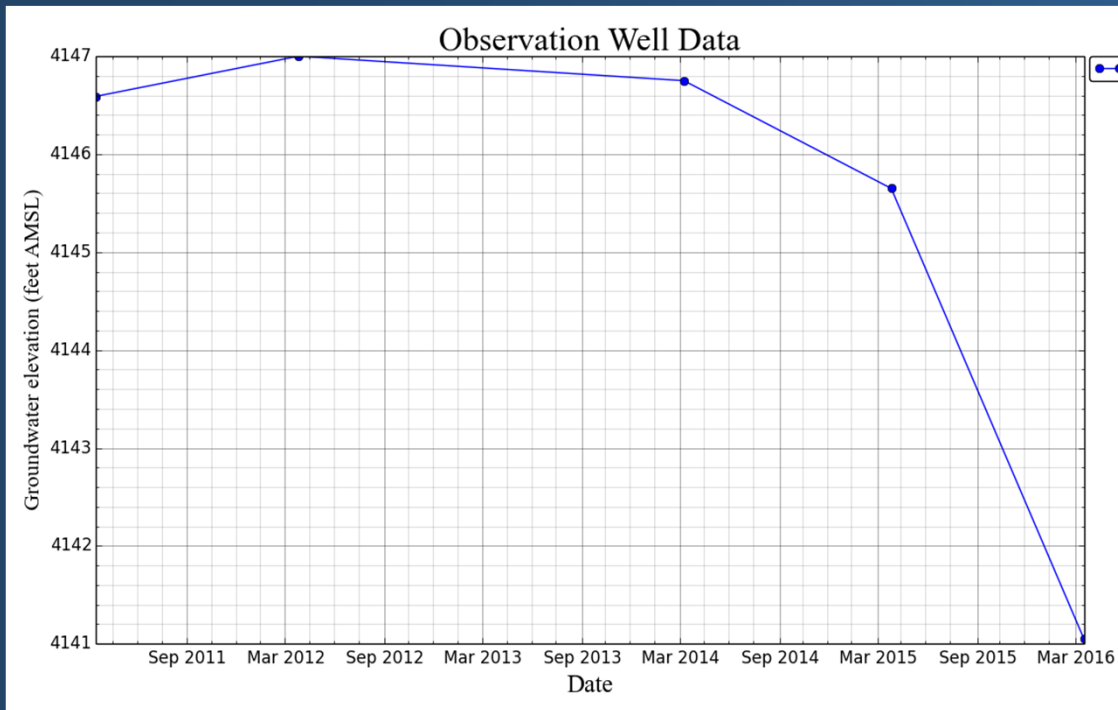
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Permit Condition Groundwater Level Data



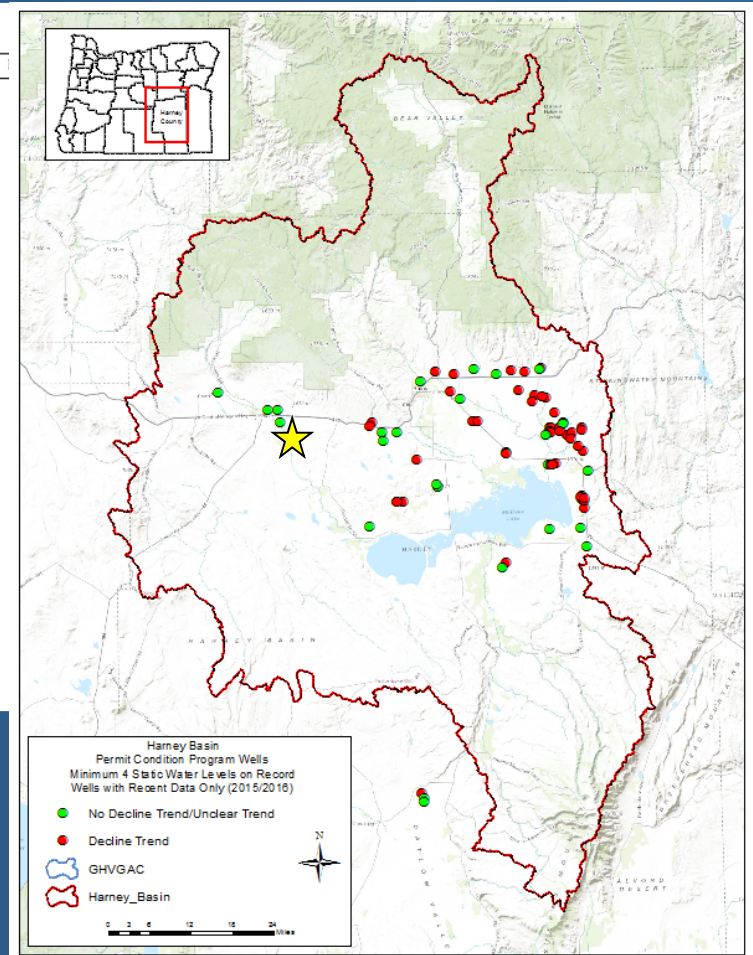
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Permit Condition Groundwater Level Data



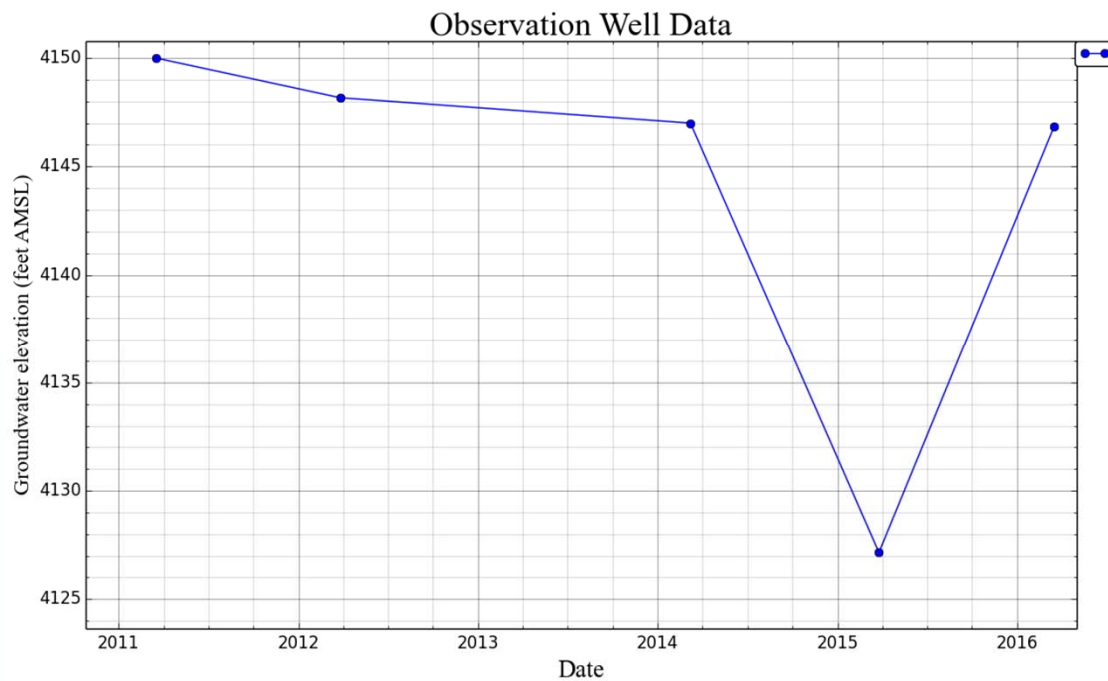
Upper Silver Creek

HARN 756: Down > 5 ft. 2014 - 2016



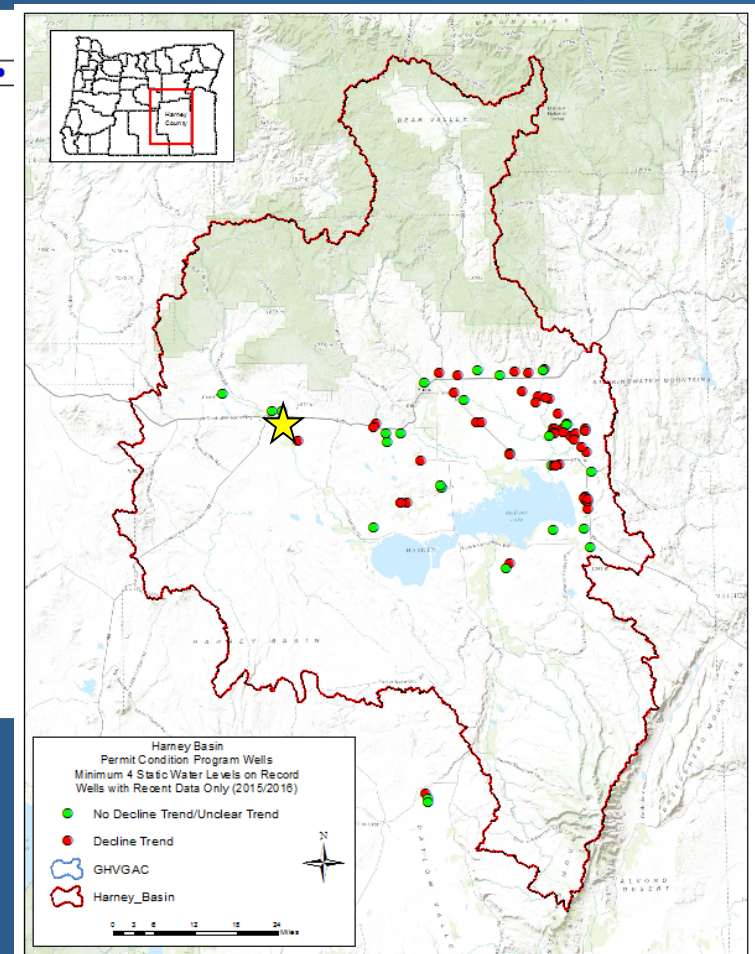
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



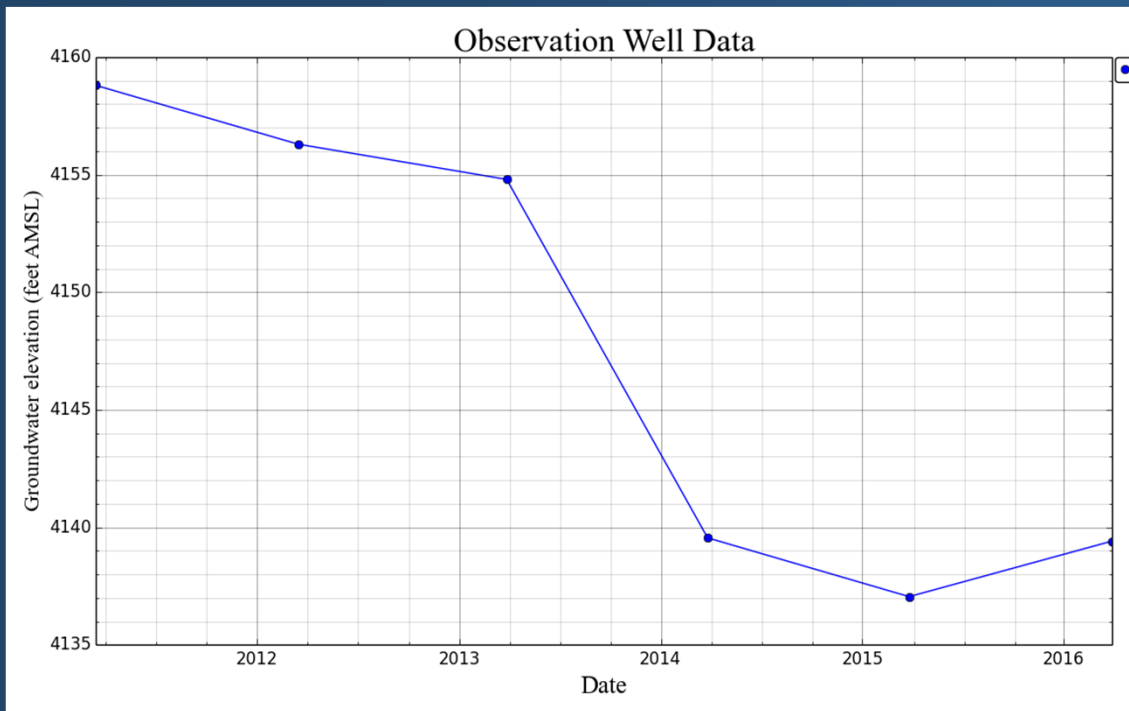
Upper Silver Creek

HARN 51756: Trend Uncertain



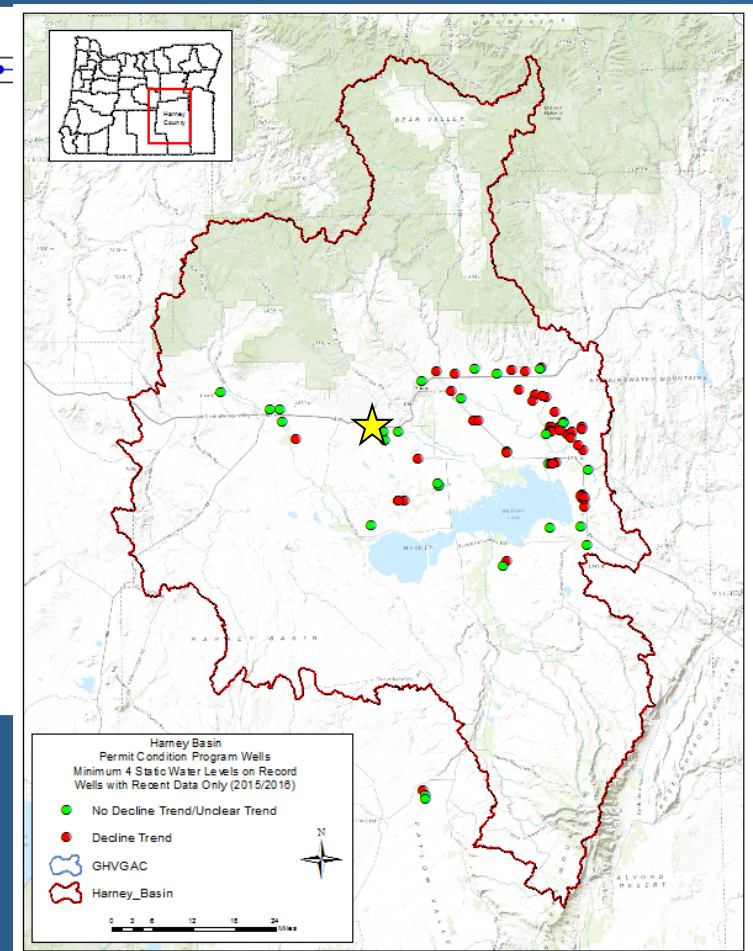
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Permit Condition Groundwater Level Data



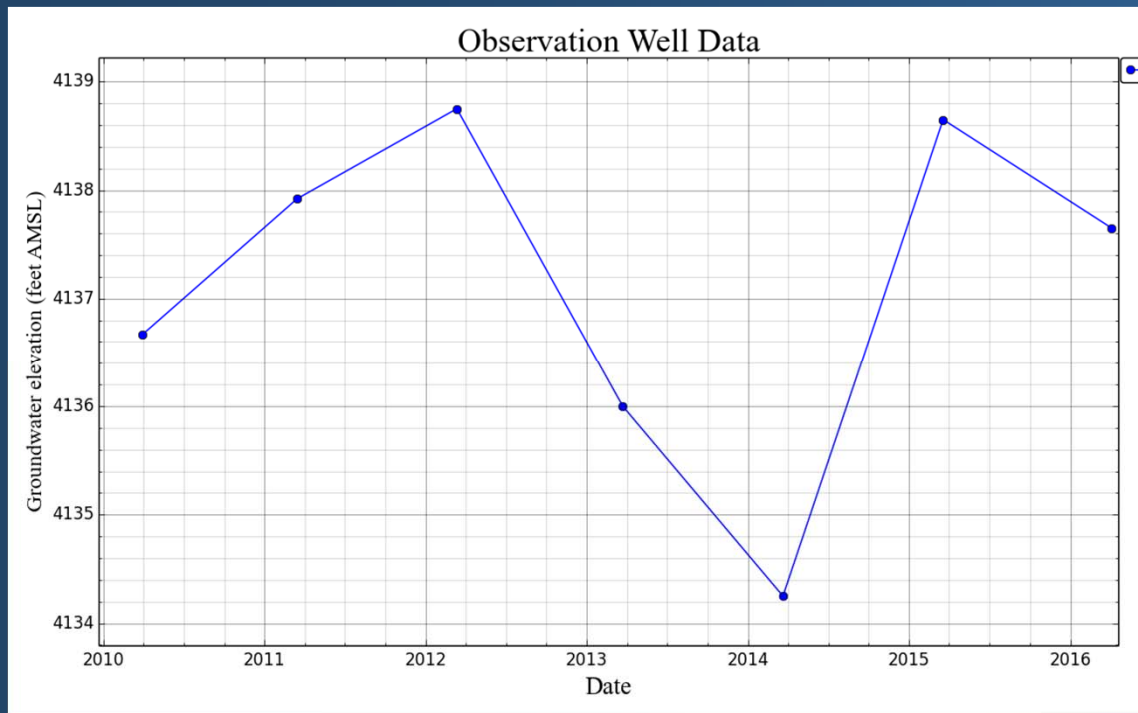
Sage Hen Valley

HARN 51143: Down > 15 ft. 2011 - 2016



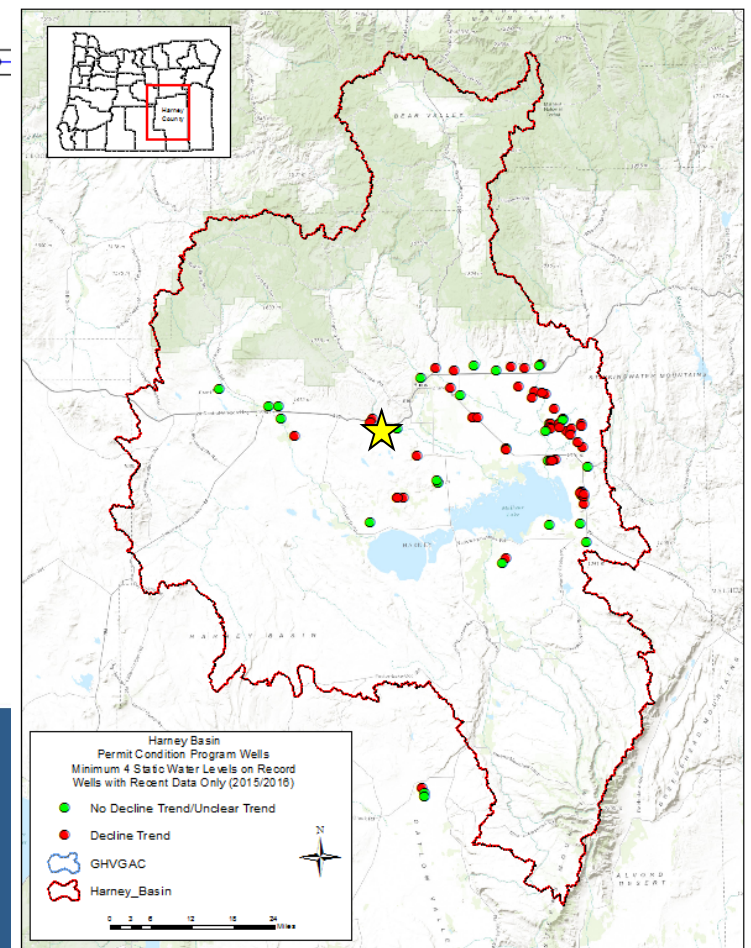
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Permit Condition Groundwater Level Data



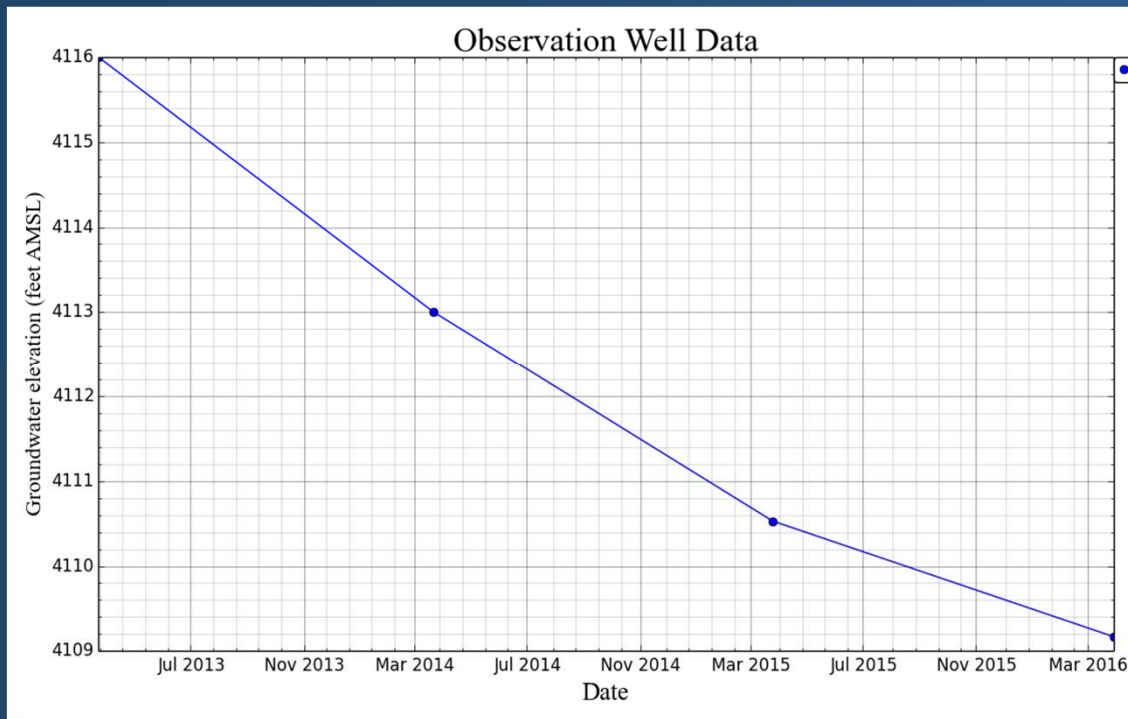
Sage Hen Valley

HARN 51557: Trend Uncertain



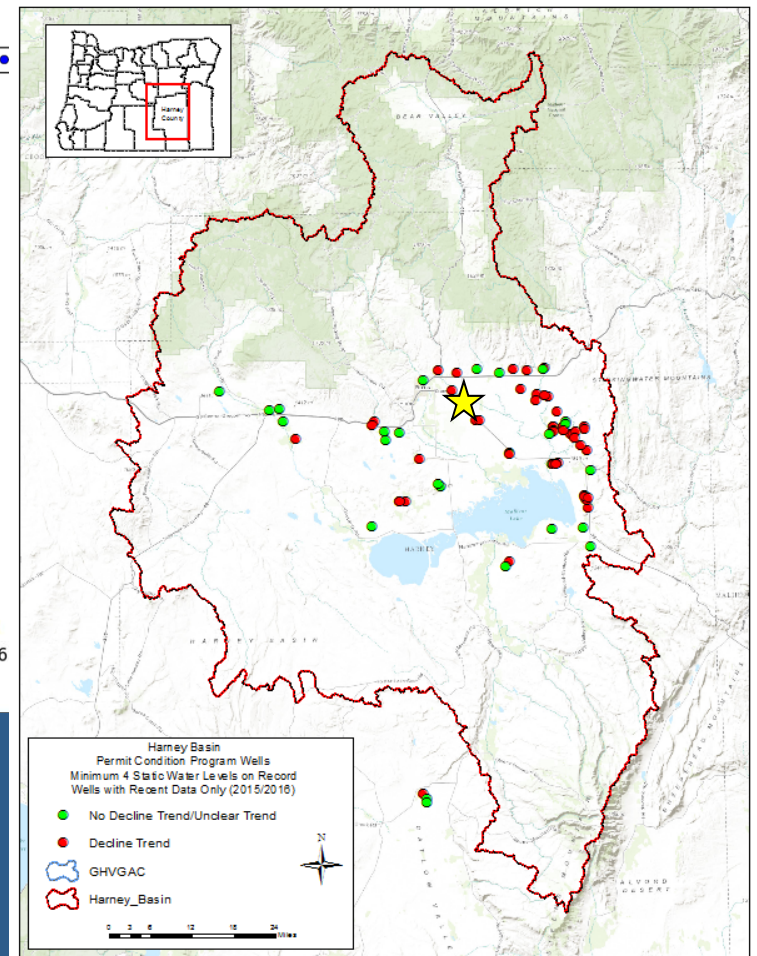
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Permit Condition Groundwater Level Data



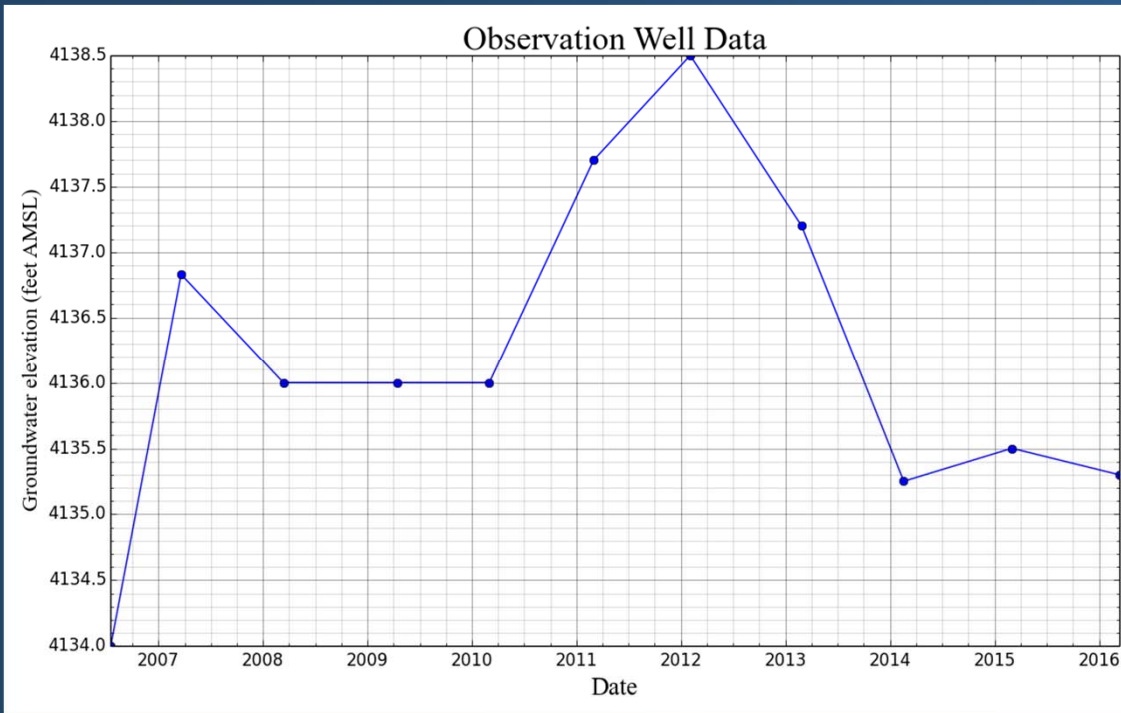
Northwest Harney Valley

HARN 51887: Down > 6 ft. 2013 - 2016



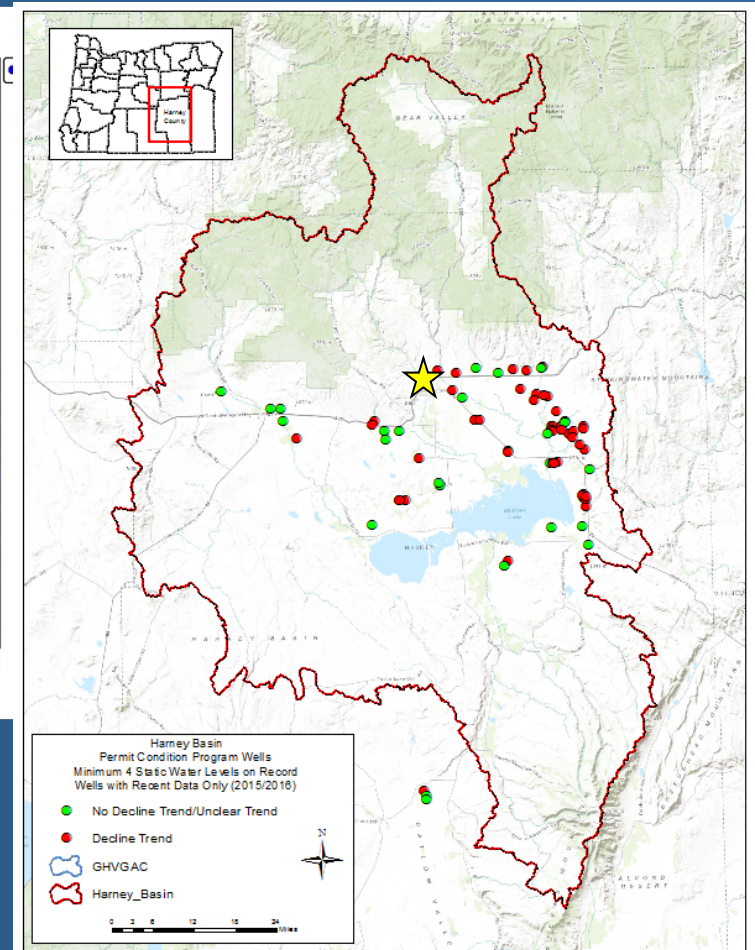
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



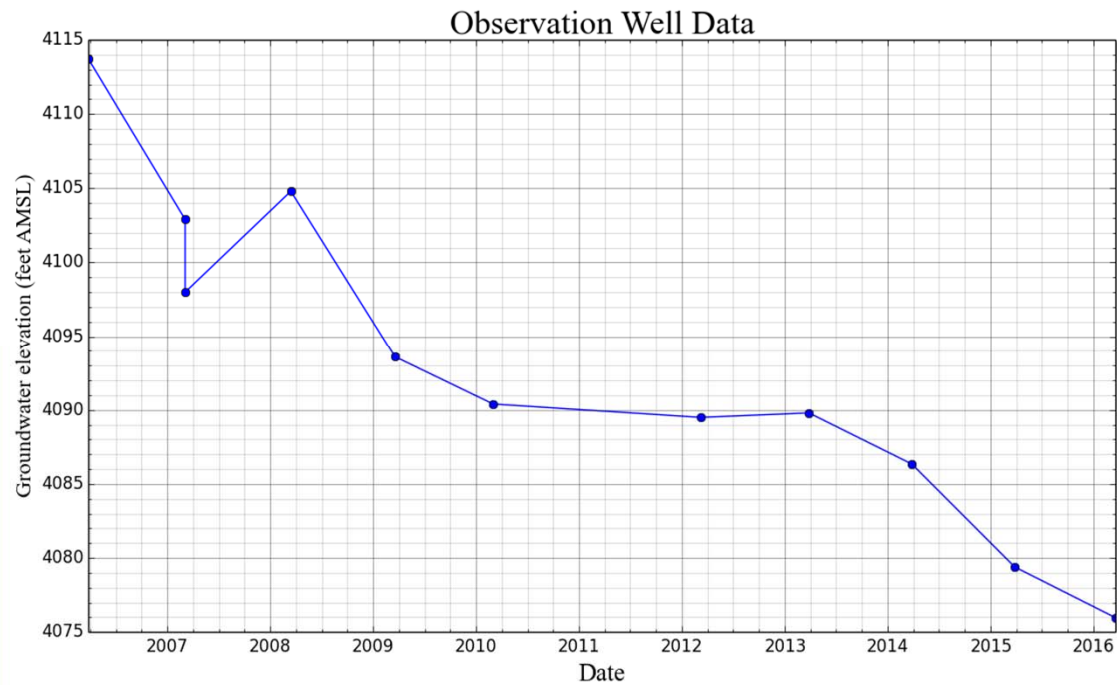
Northwest Harney Valley

HARN 1979: Trend Uncertain



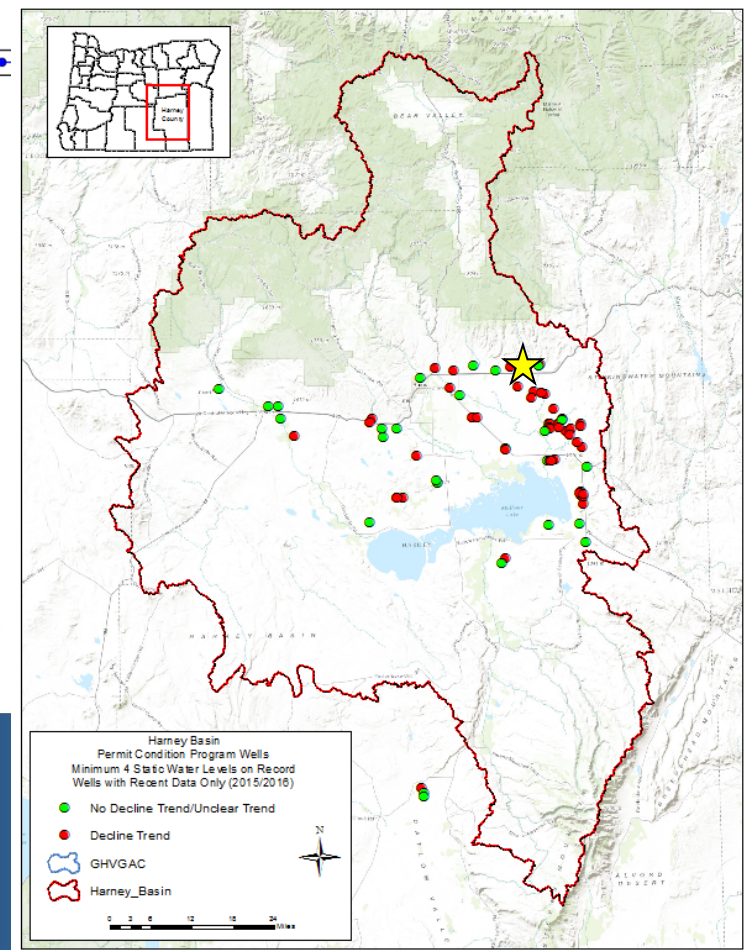
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



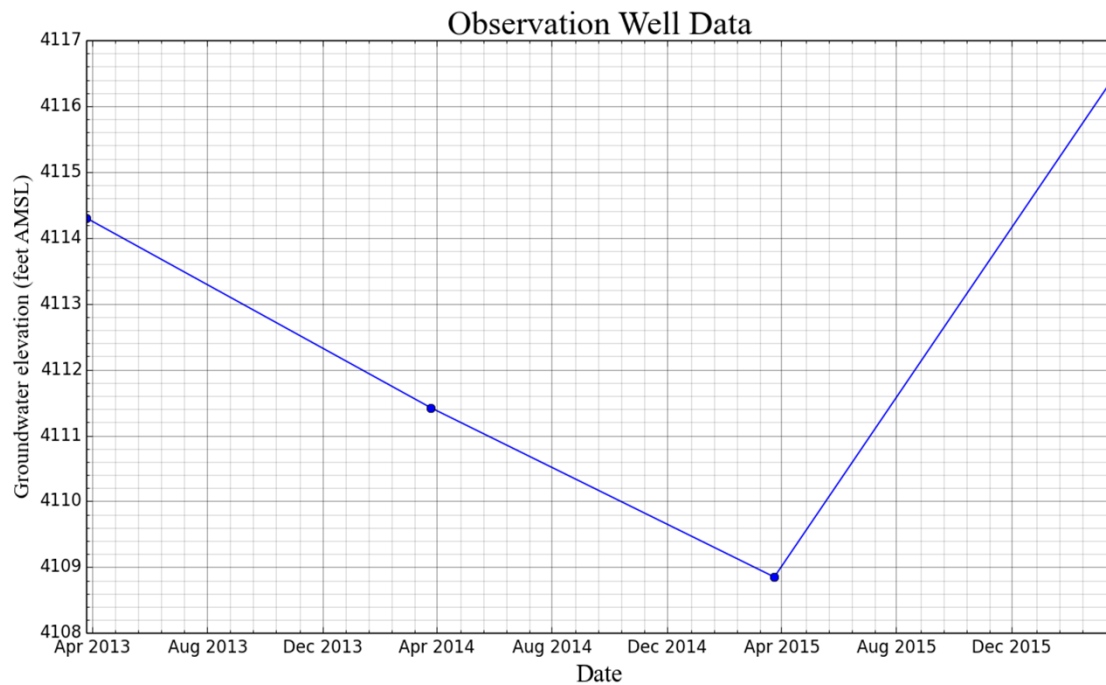
Northeast Harney Valley

HARN 50422: Down > 30 ft. 2006 - 2016



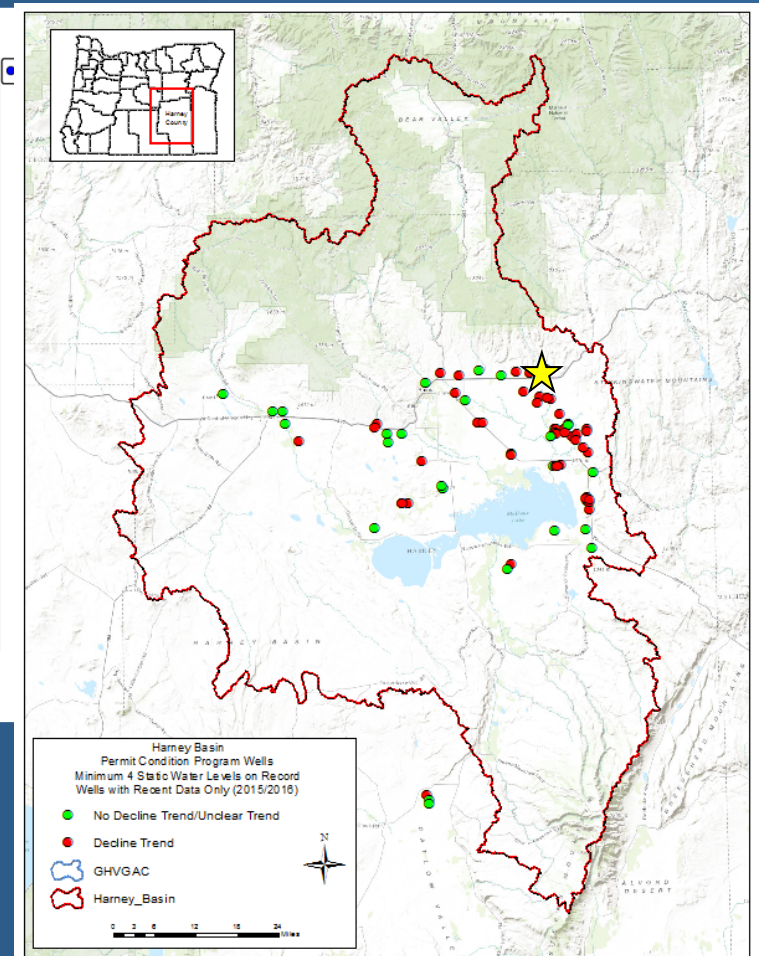
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



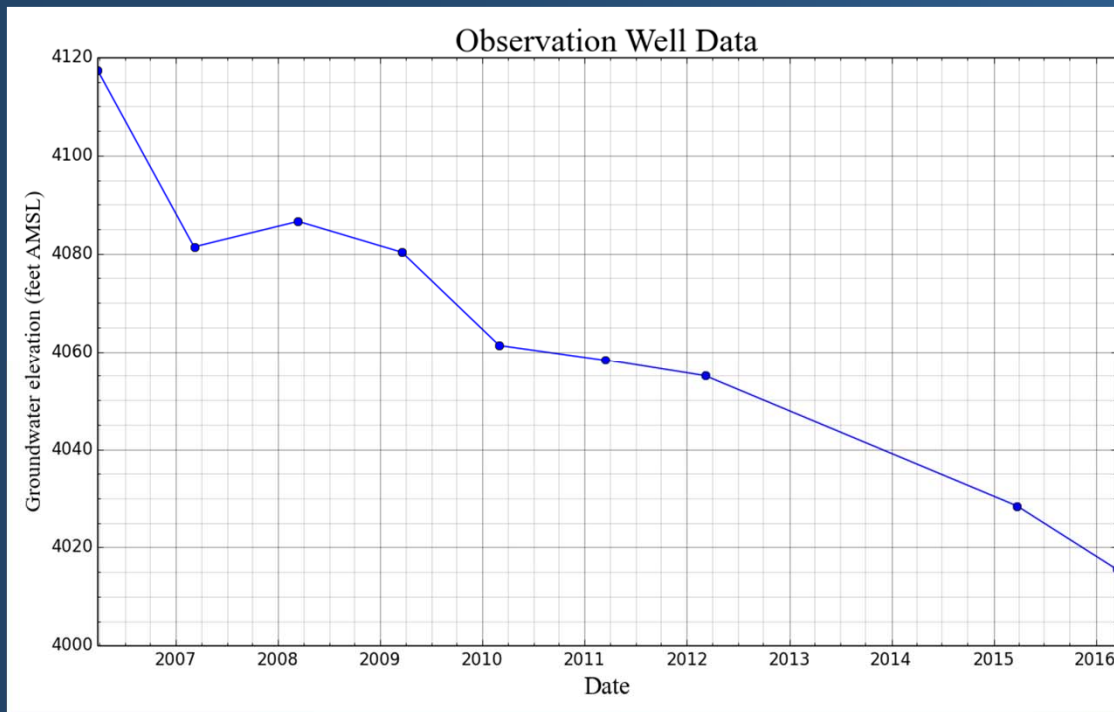
Northeast Harney Valley

HARN 51475: Trend Uncertain



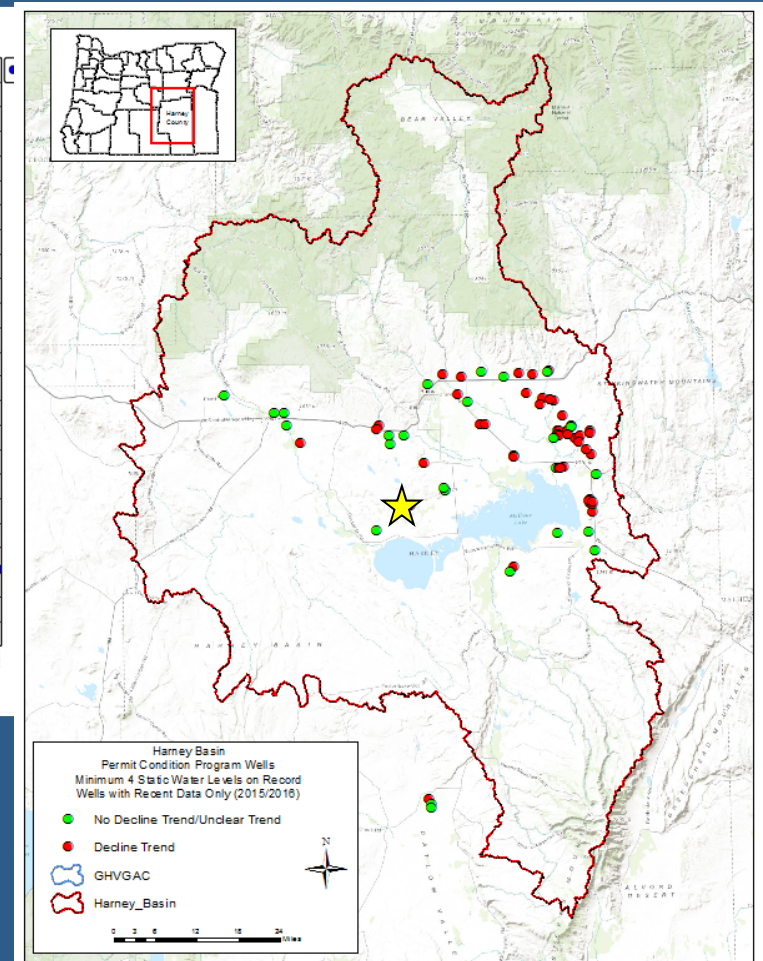
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



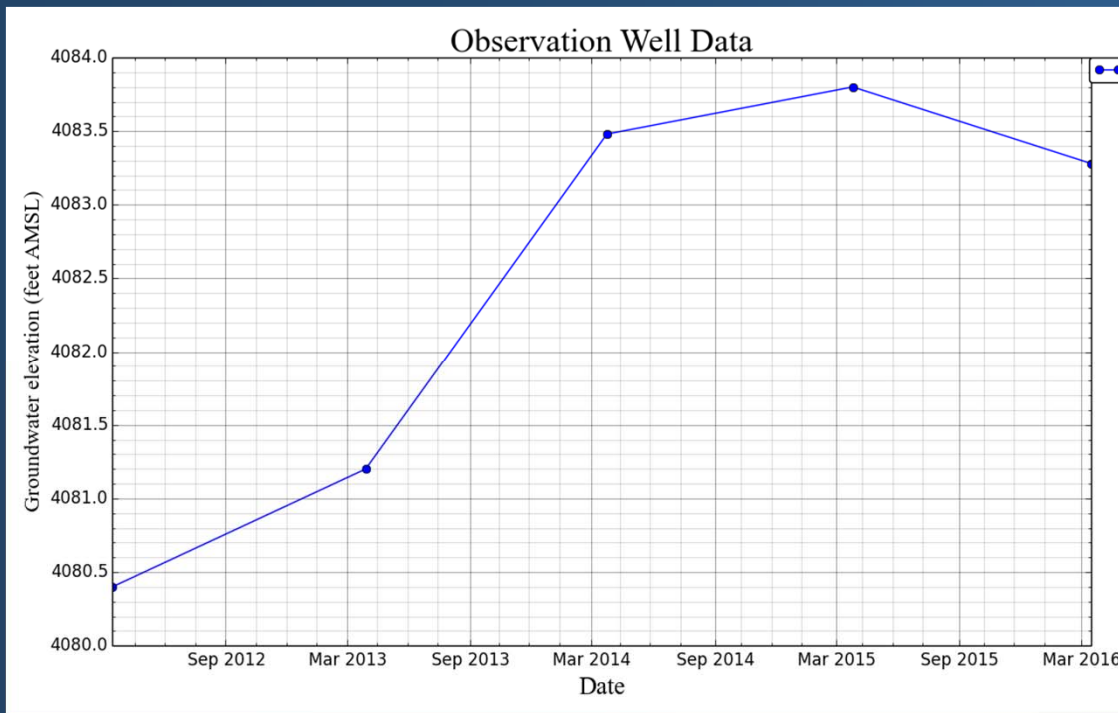
Weaver Springs – Wrights Point

HARN 51146: Down ~ 100 ft. 2006 - 2016



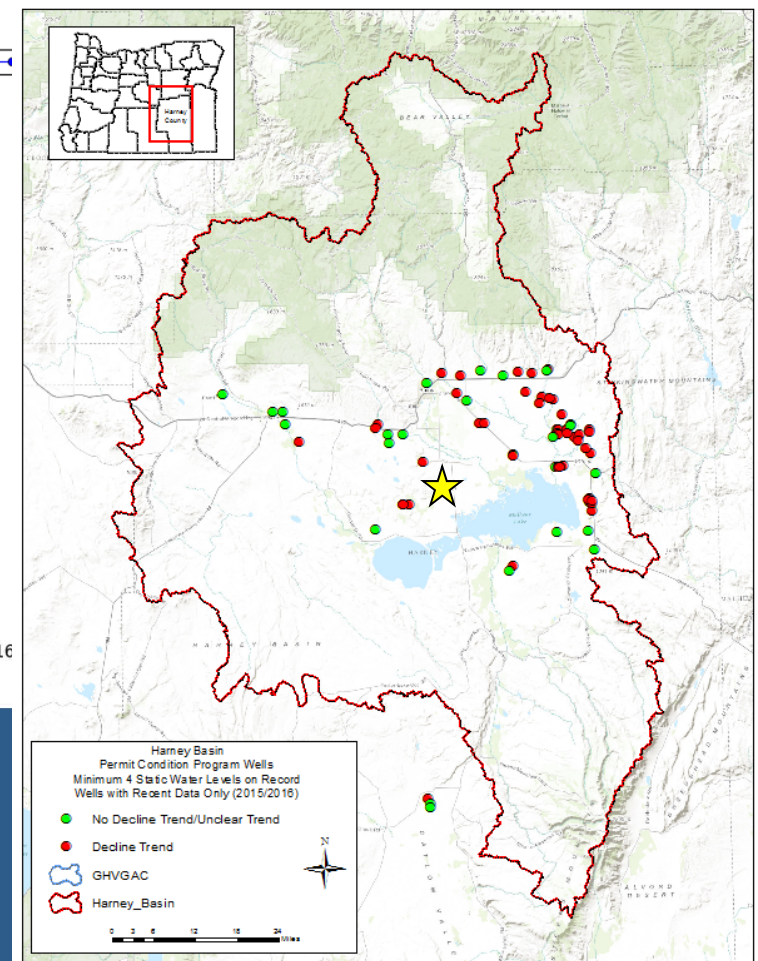
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Permit Condition Groundwater Level Data



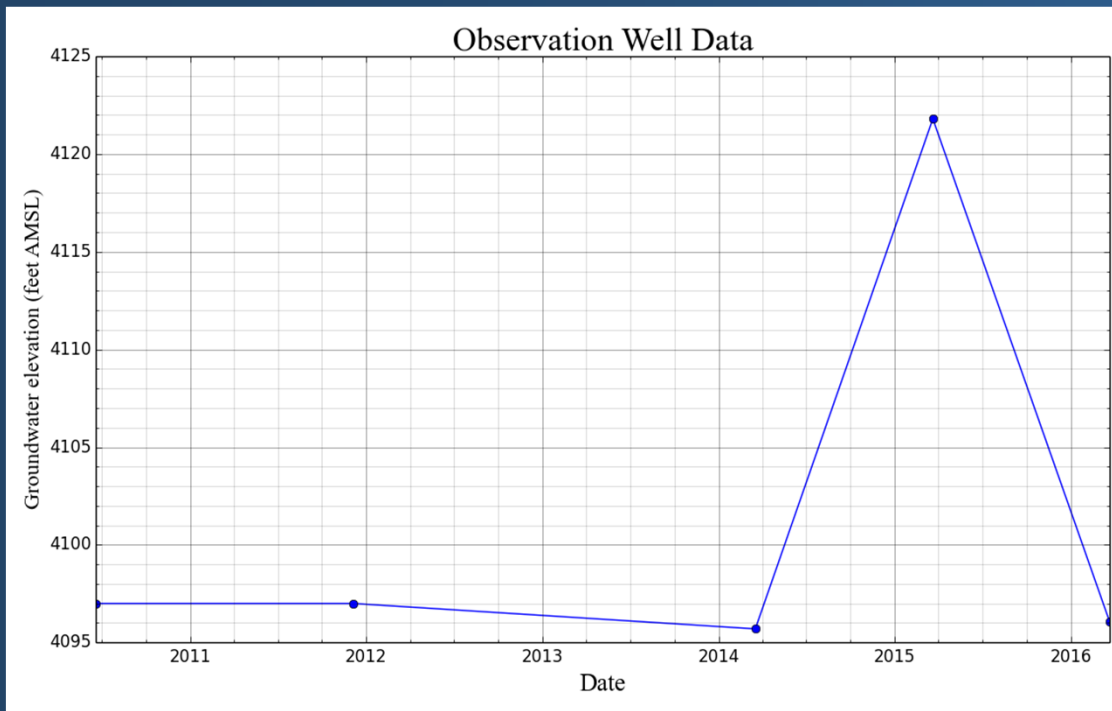
Weaver Springs – Wrights Point

HARN 50633: Up > 2.5 ft. 2011 - 2016

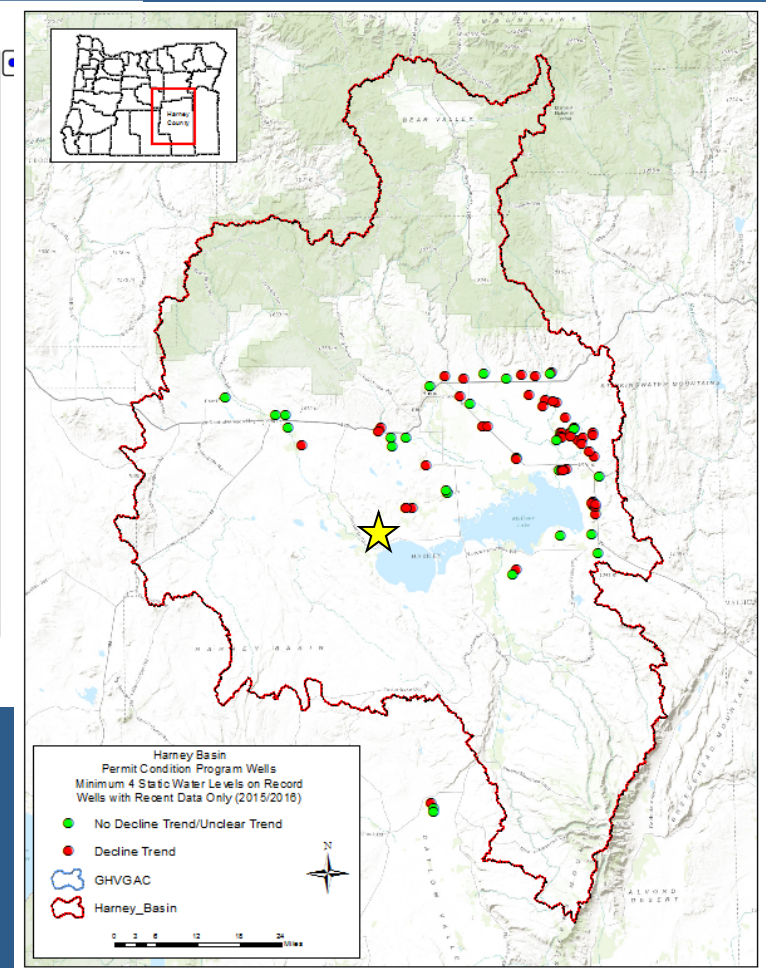


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Permit Condition Groundwater Level Data

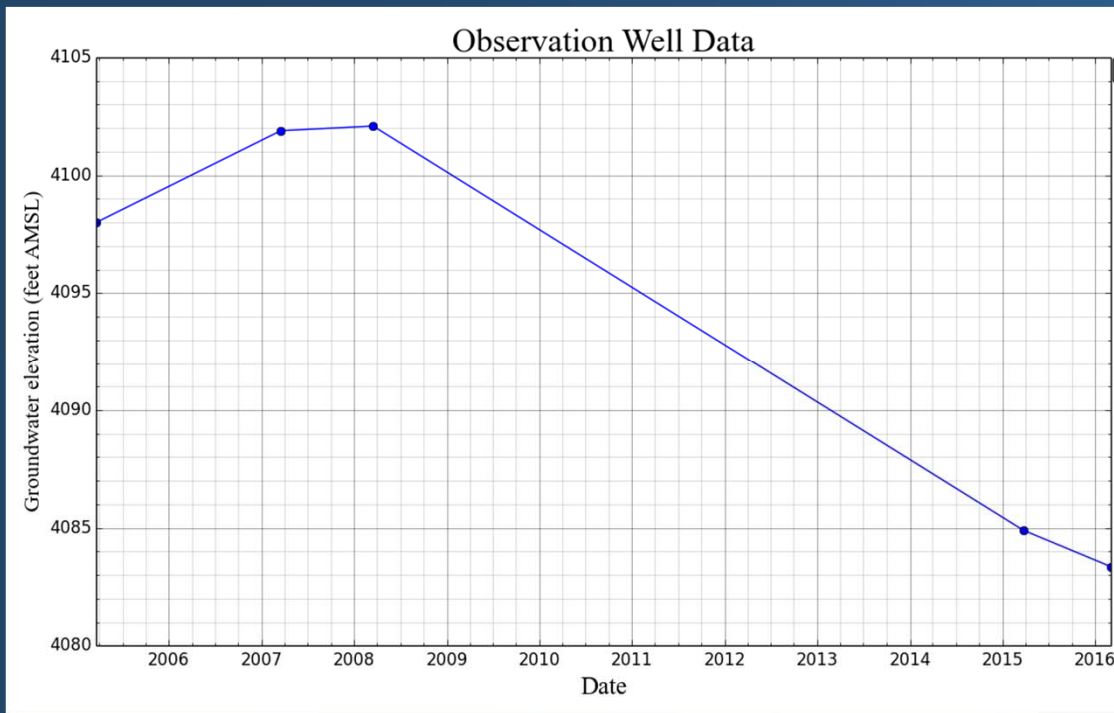


Weaver Springs – Wrights Point
HARN 51141: Trend Uncertain



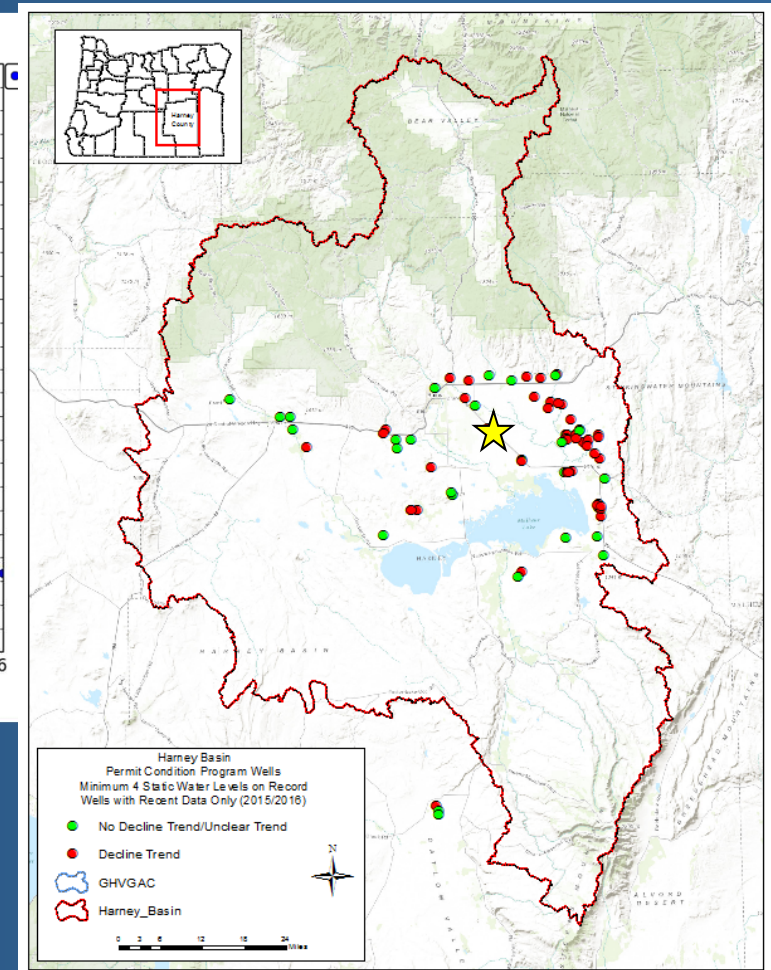
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



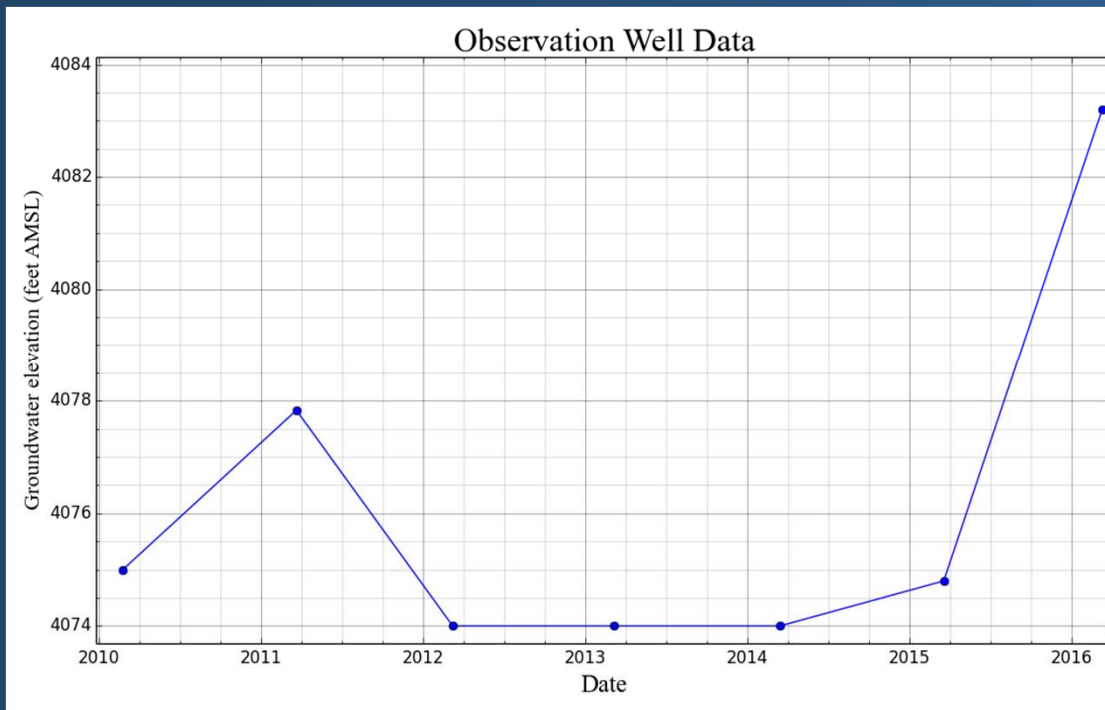
Lawen Vicinity

HARN 51340: Down > 14 ft. 2005 - 2016



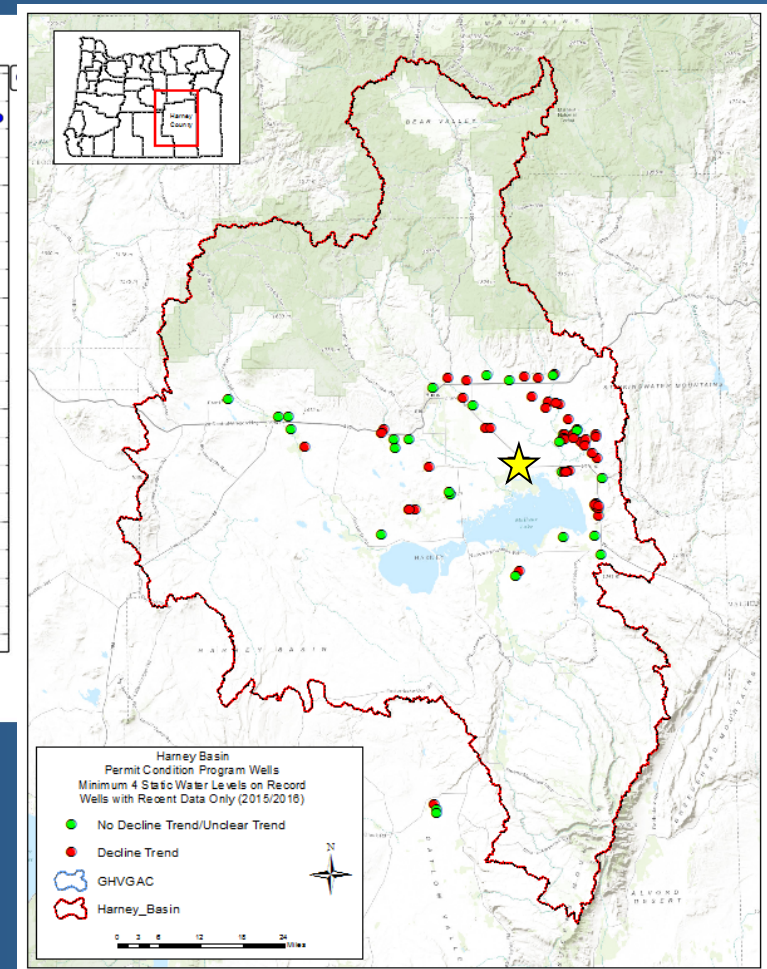
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



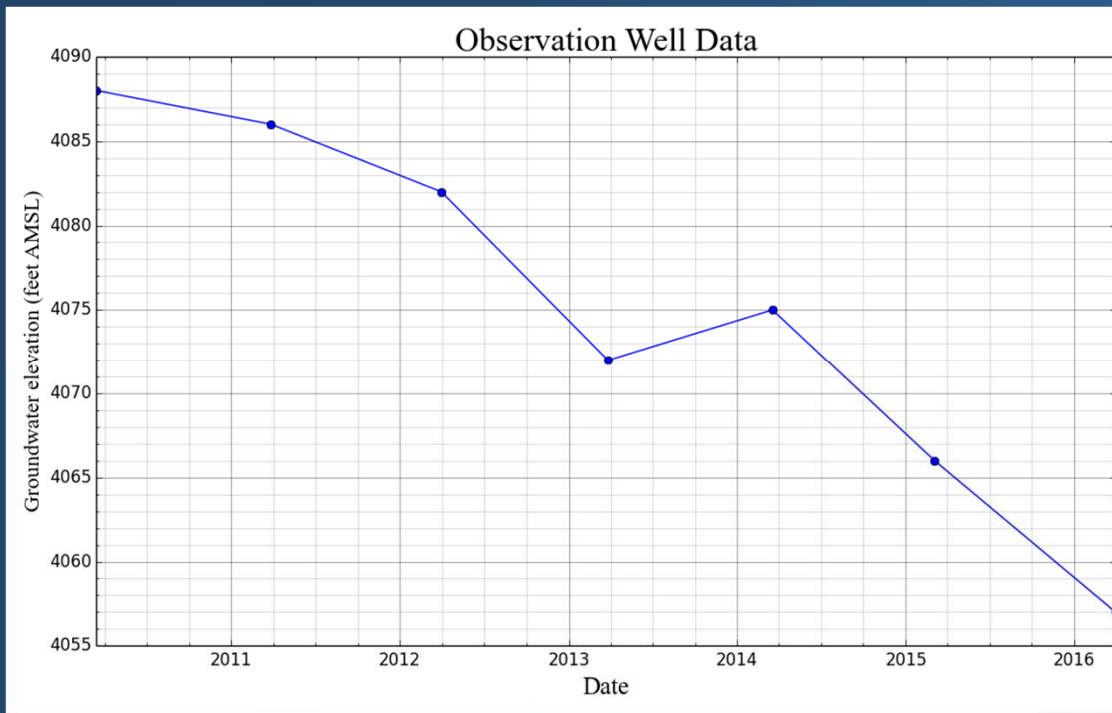
Lawen Vicinity

HARN 51322: Trend Uncertain



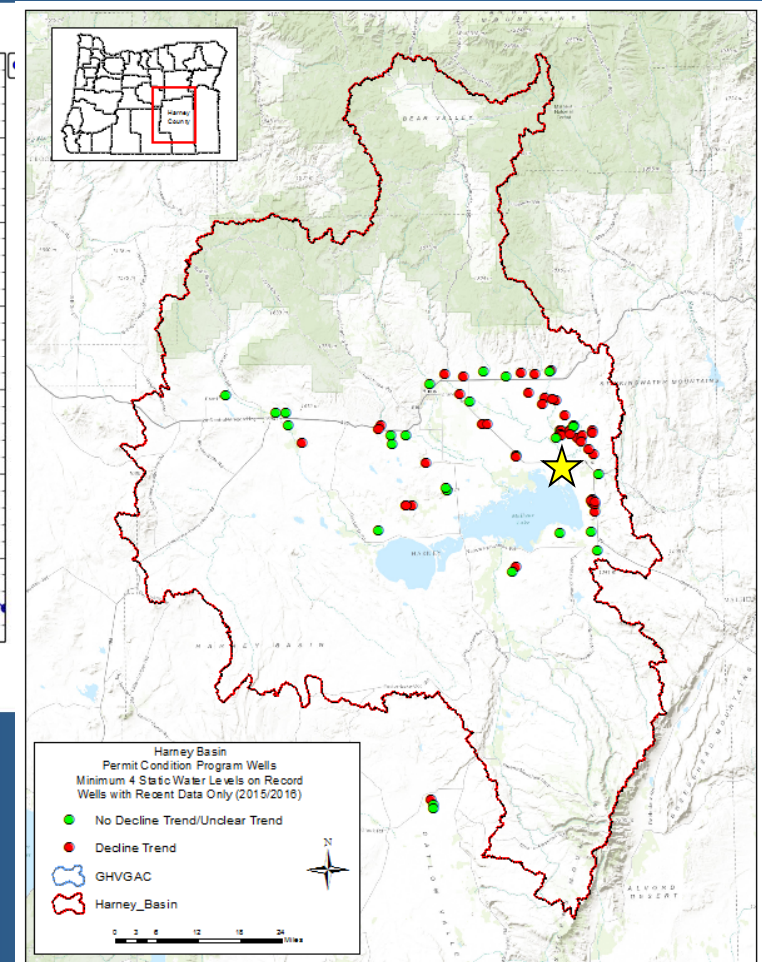
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



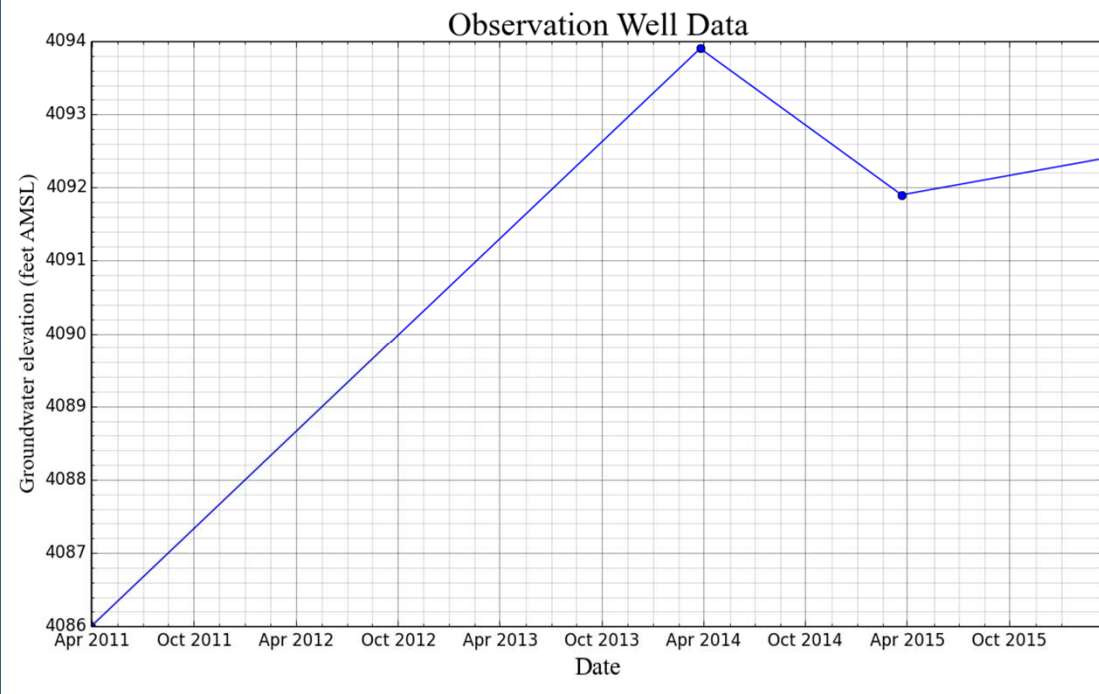
Crane Vicinity

HARN 51585: Down > 30 ft. 2010 - 2016



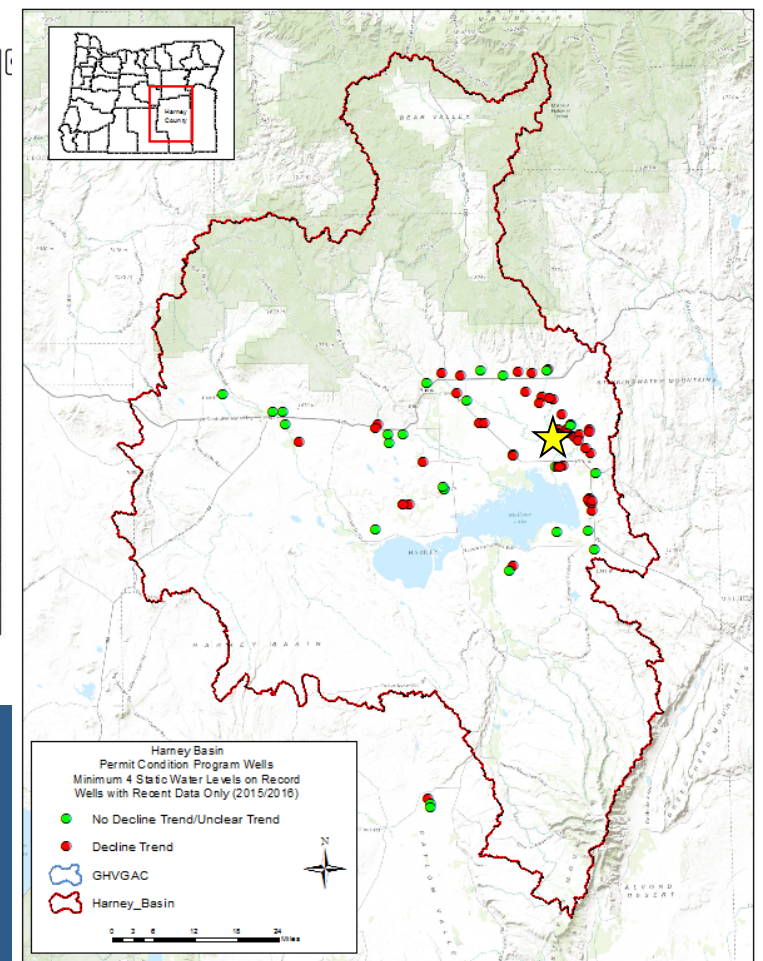
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



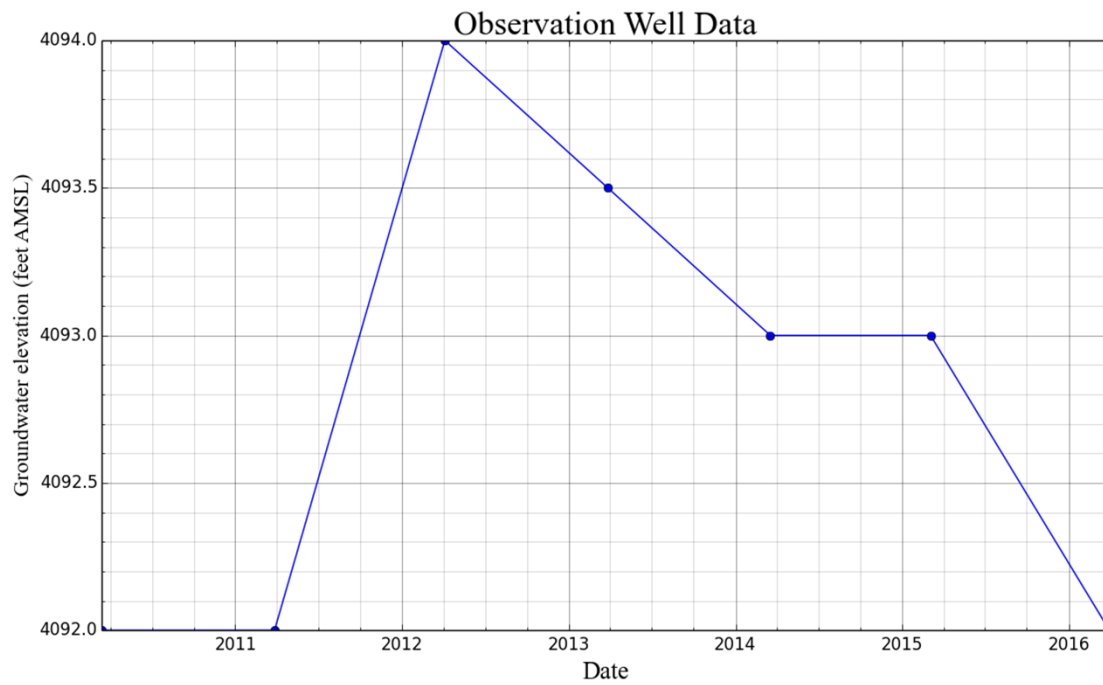
Crane Vicinity

HARN 1016: Rise ~ 6 ft. 2011 - 2015



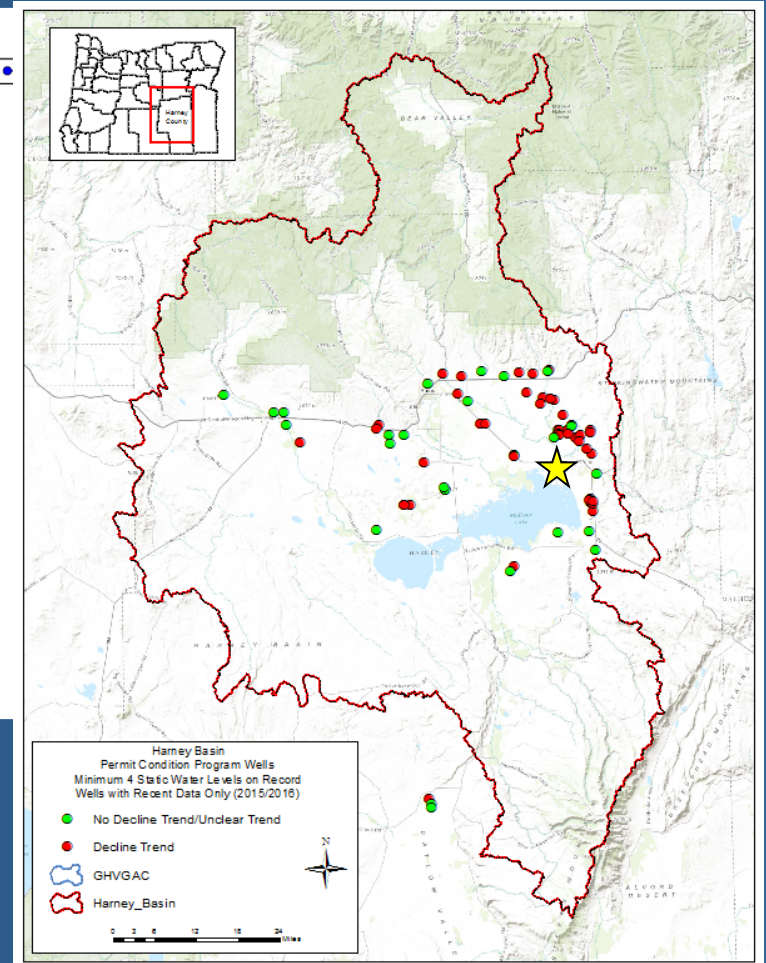
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



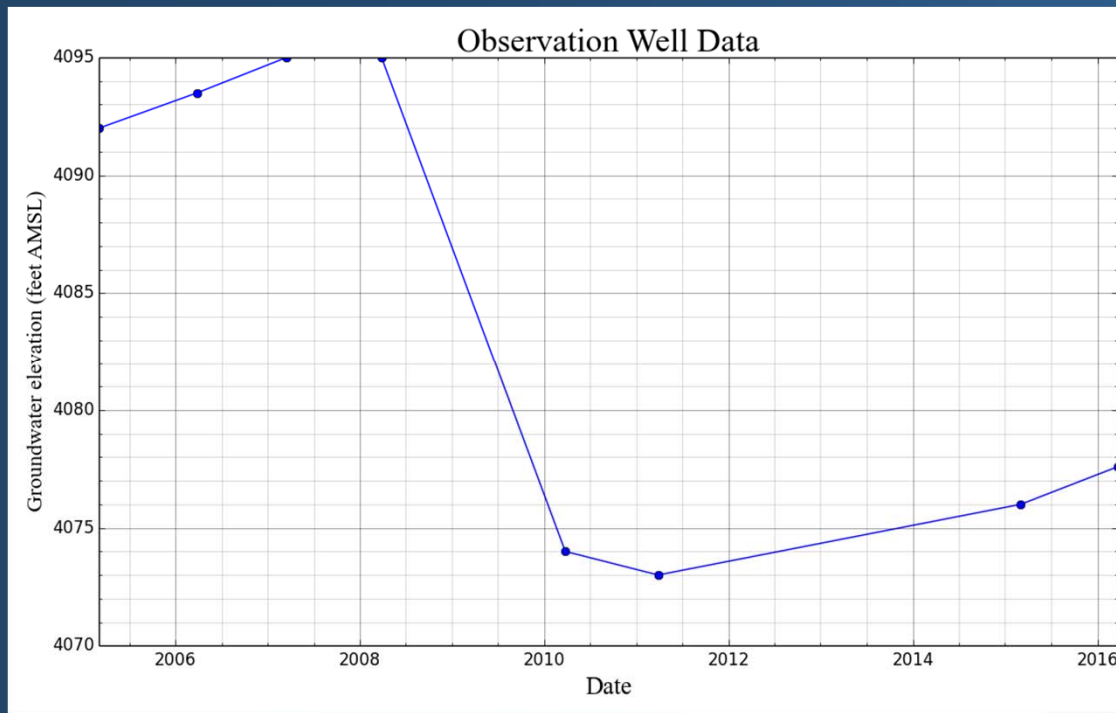
Crane Vicinity

HARN 51584: Trend Uncertain



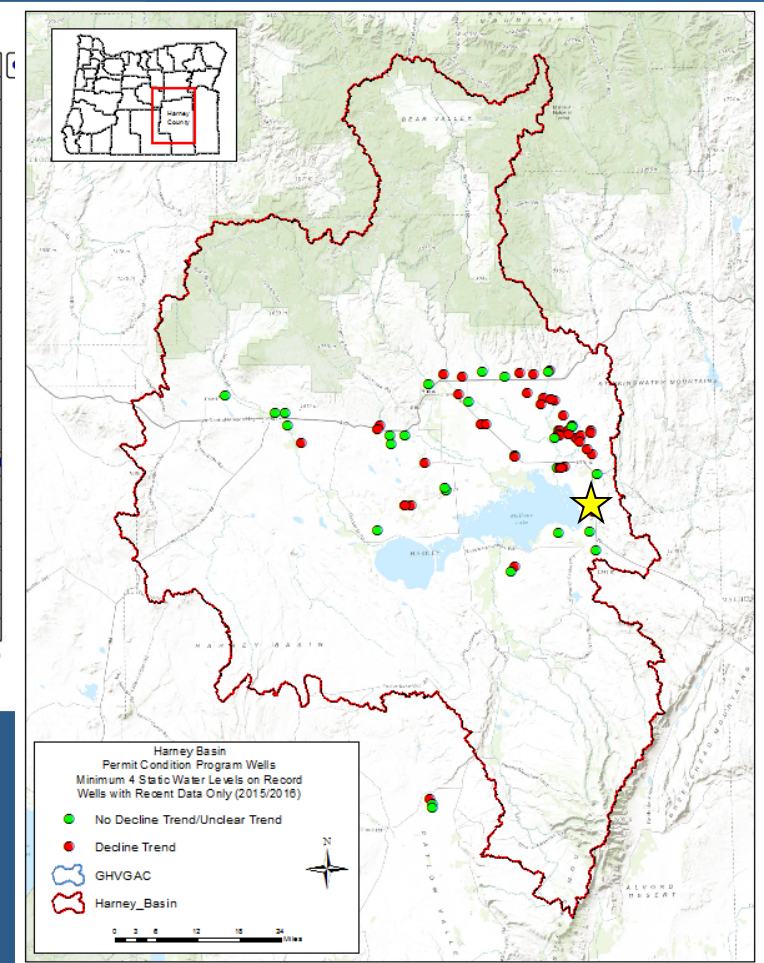
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



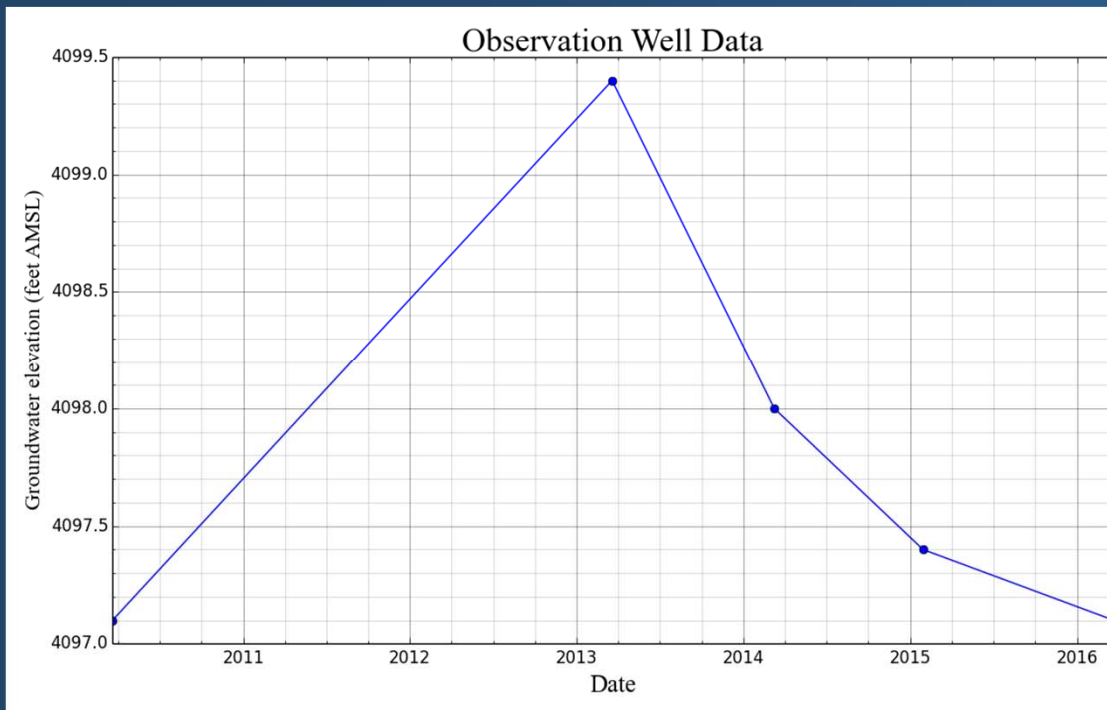
Princeton Vicinity

HARN 1867: Down ~ 14 ft. 2005 - 2016



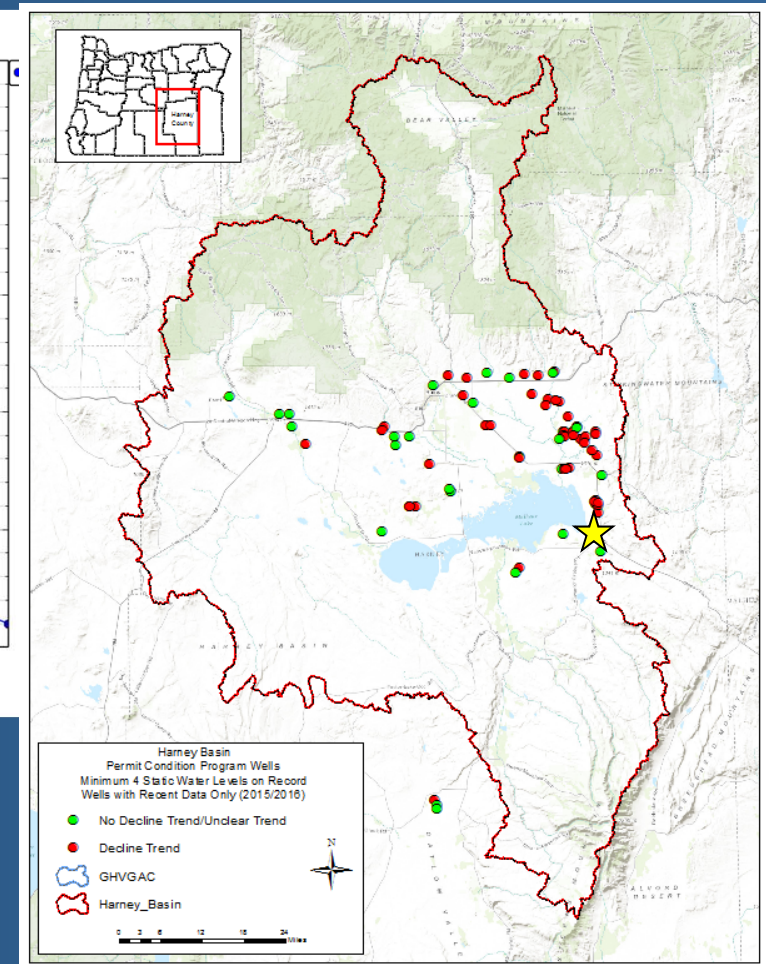
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



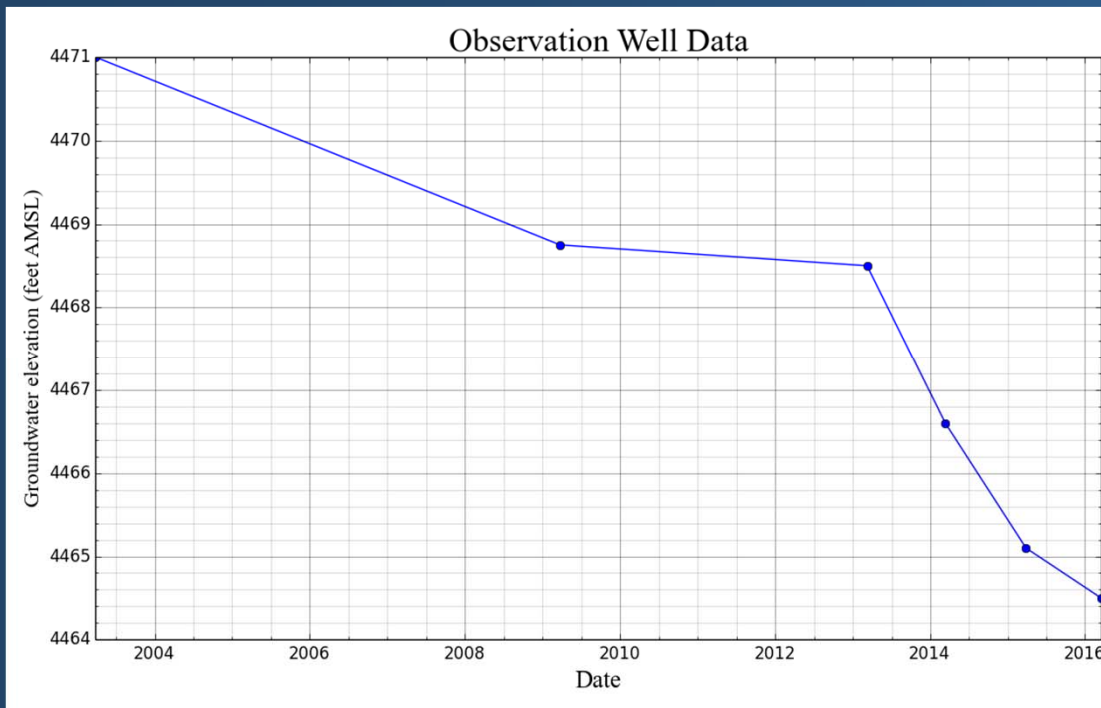
Princeton Vicinity

HARN 51805: Trend Uncertain



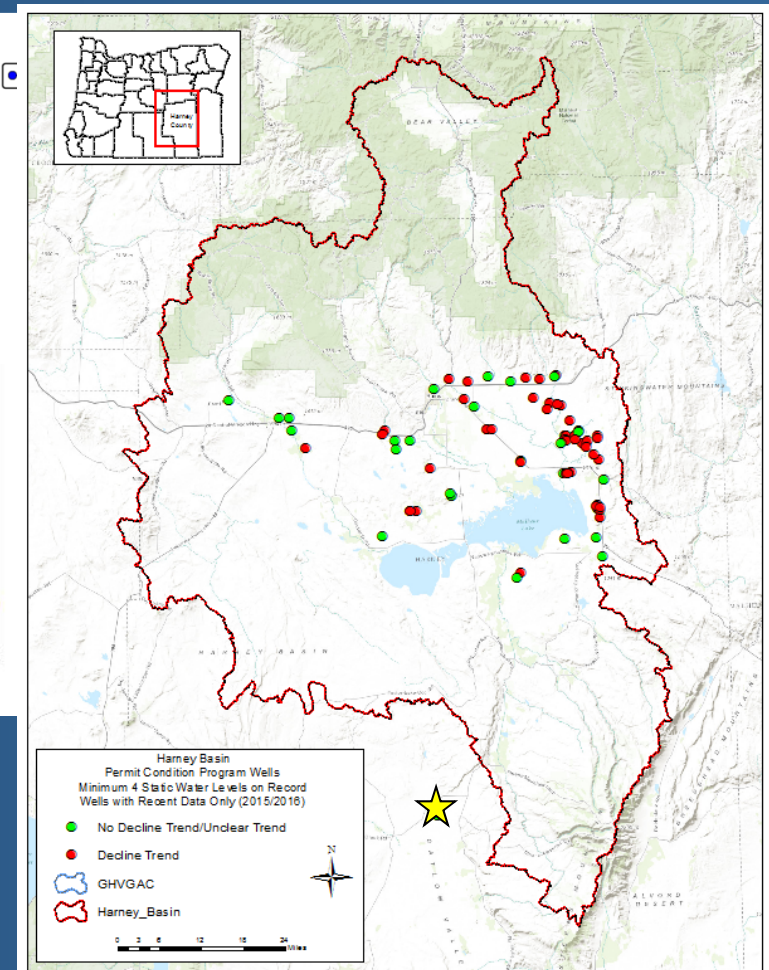
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



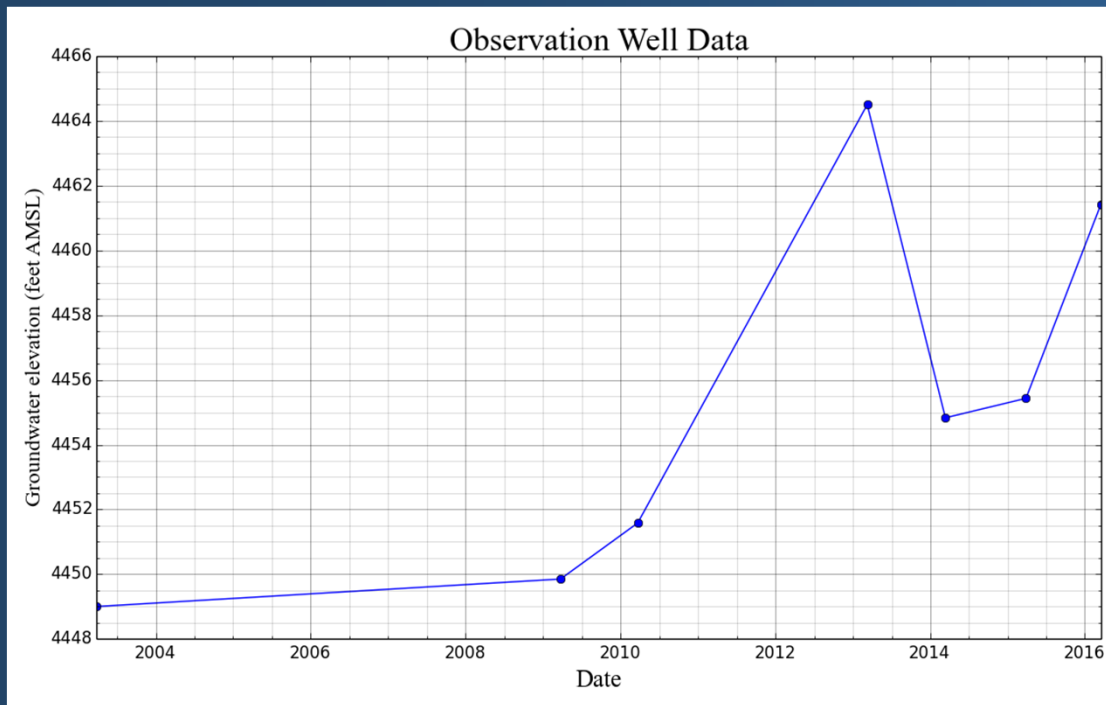
Catlow Valley

HARN 1677: Down ~ 6 ft. 2003 - 2016



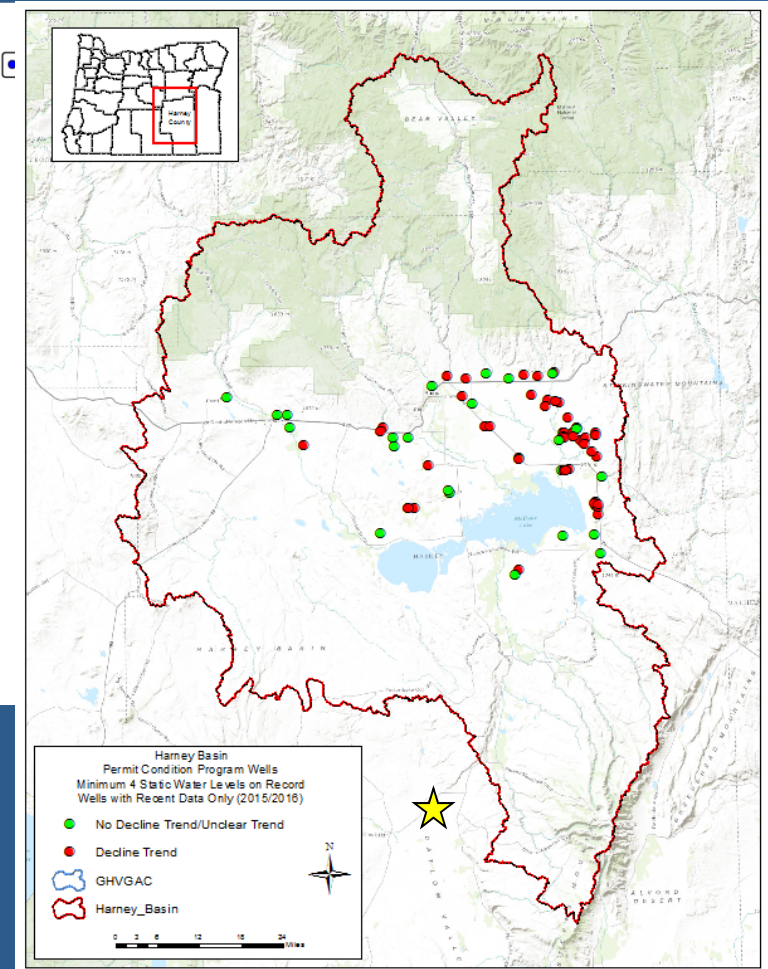
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



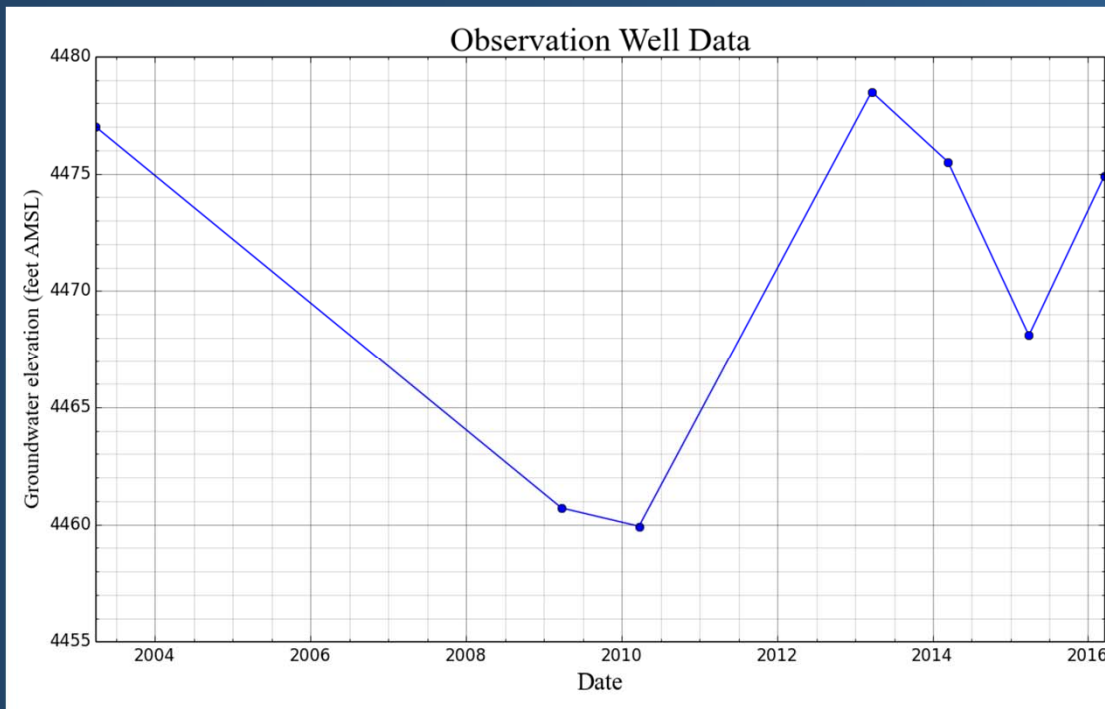
Catlow Valley

HARN 1843: Rising > 5 ft. 2003 - 2016



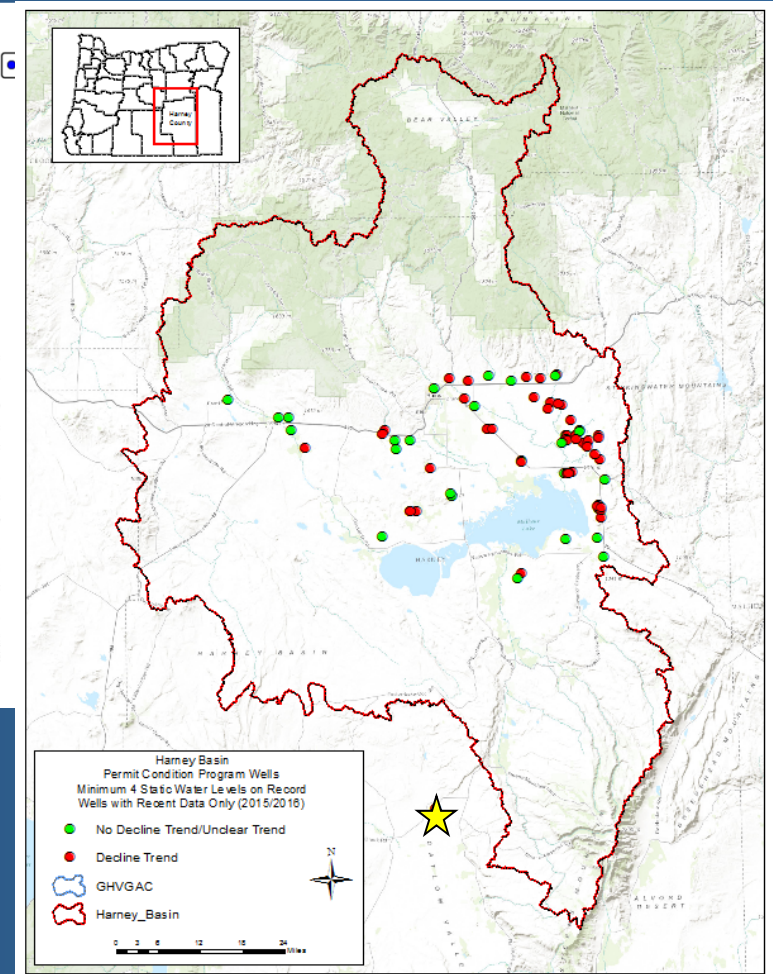
Harney Groundwater Investigation

Permit Condition Groundwater Level Data



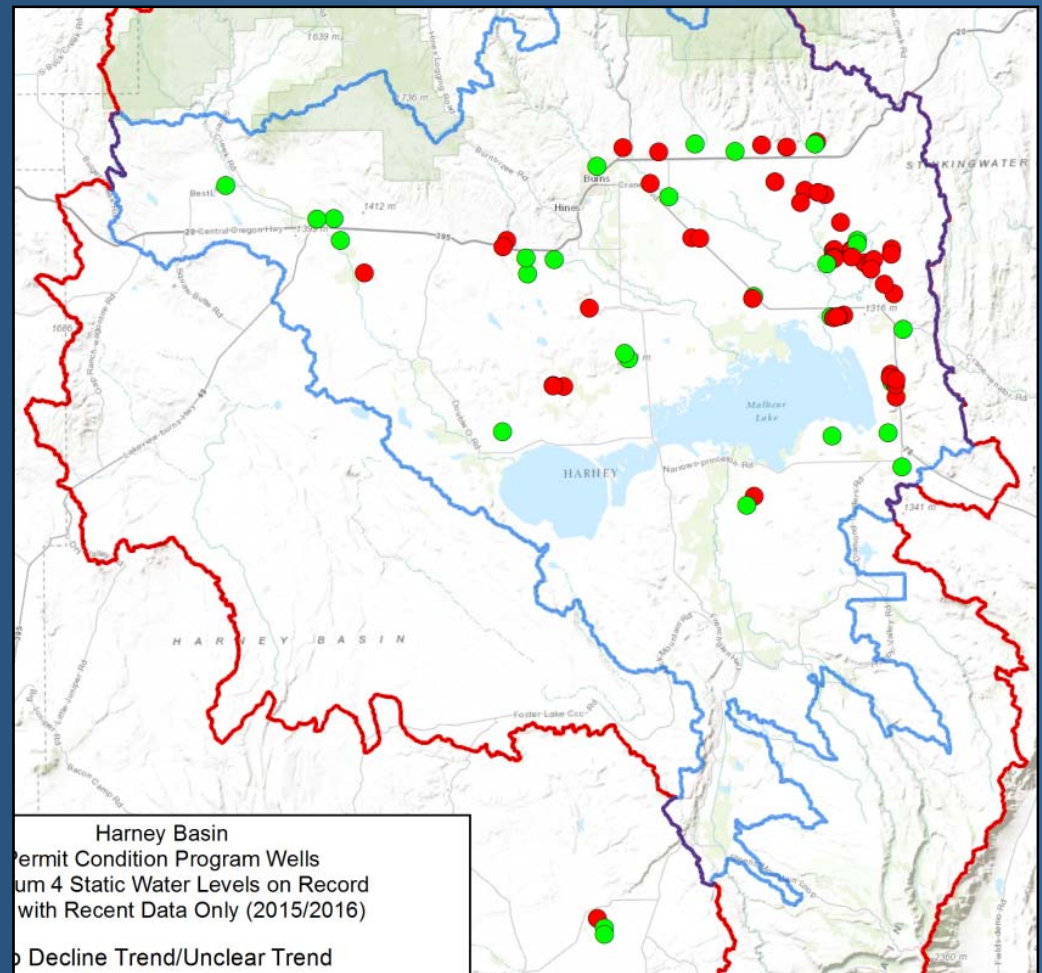
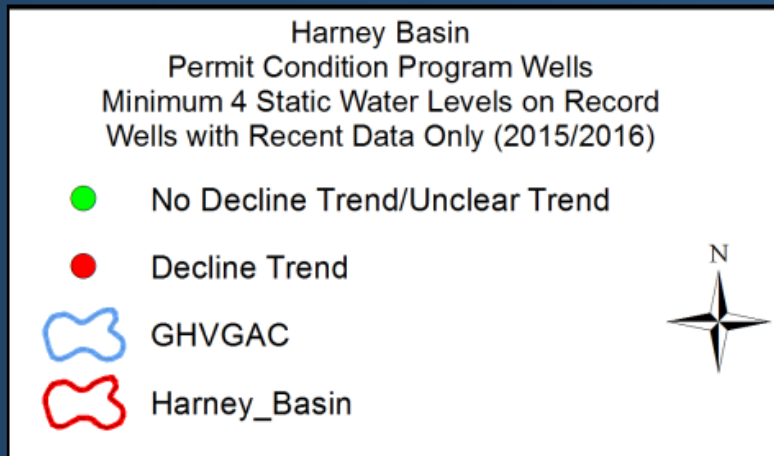
Catlow Valley

HARN 1844: Trend Uncertain



Harney Groundwater Investigation

Permit Condition Groundwater Level Data



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Questions & Thank You



Photo by Chad Sobotka