



Water

Long-Term Trends in Groundwater Levels in B.C.

Groundwater is an essential source of water for British Columbians. One in four people in B.C. rely on groundwater for drinking water. It also provides water for industry, municipalities, and farms.

Groundwater is found underground in layers of rock, gravel, or sand called [aquifers](#). Human usage, weather, climate, and aquifer type all impact groundwater levels. B.C. has a [network of > 200 observation wells](#) to track groundwater availability in aquifers. These observation wells are not used for domestic or commercial purposes.

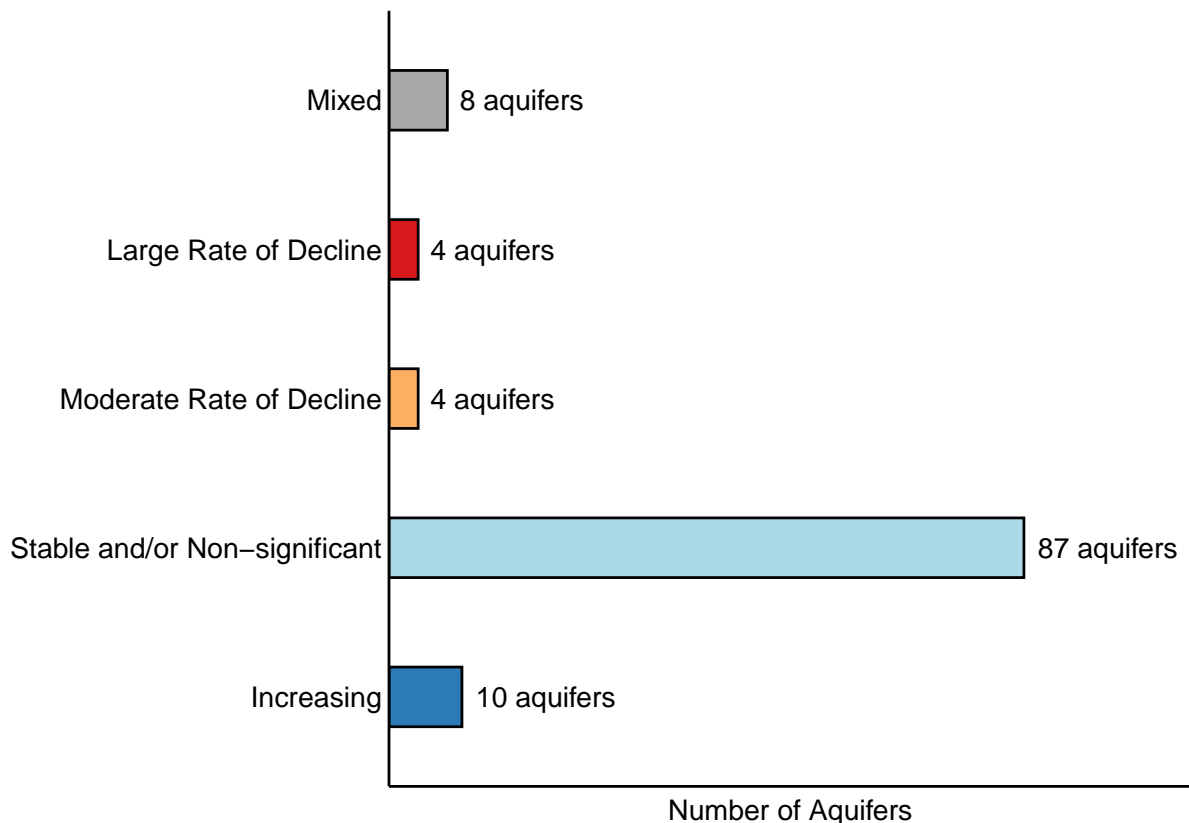
This indicator shows a trend analysis of groundwater levels in observation wells over time. The results by well are displayed in a map below and in an [interactive map online](#). Summary figures of the trends observed across the province and regionally are provided below.

- Wells that have been monitored for 10 or more years, have fewer than 15% missing observations, and were active as of 2013 are analyzed in this indicator.
- There are multiple options to look at trends in groundwater levels in the online interactive version of this indicator. There are different data requirements for each trend option selected and the number of wells assessed varies. This assessment includes results from the 10-year (2013-2023) trend analysis and the all available data trend analysis.
- The location of the wells and the trend results are provided in the map below.
- The results are categorized by the statistical significance and magnitude of the change in groundwater levels over time. The categories are:
 - **Increasing:** the trend was significantly different from zero with an increasing trend of 3 or greater cm per year.
 - **Stable and/or Non-significant:** the trend was not significantly different from zero or the trend was significantly different from zero with a trend (increasing or decreasing) of less than 3 cm per year.
 - **Moderate Rate of Decline:** the trend was significantly different from zero with a declining trend of between 3 and 10 cm per year.
 - **Large Rate of Decline:** the slope was significantly different from zero with a declining trend of more than 10 cm per year.
 - **Insufficient Data:** there is an observation well but there is not enough data to calculate.
- Additional options to view trends are available in the interactive map in the online version of the indicator page. There are several different options to look at trends at observations wells
 - **Trend type:** The user can select annual or monthly trends. The figures and map below are based on annual trends of groundwater levels.
 - **Time-span:** The user can select the entire length of available data or can look at more recent trends over the past 10 or 20 years. The figures and map below include the entire length of the dataset which varies from well to well. Please note that not all wells will have enough data for the 20-year time-span option. Also, by selecting a shorter time-span, the user is choosing to exclude part of the available dataset.

Trends in Groundwater Levels Observed by Aquifers

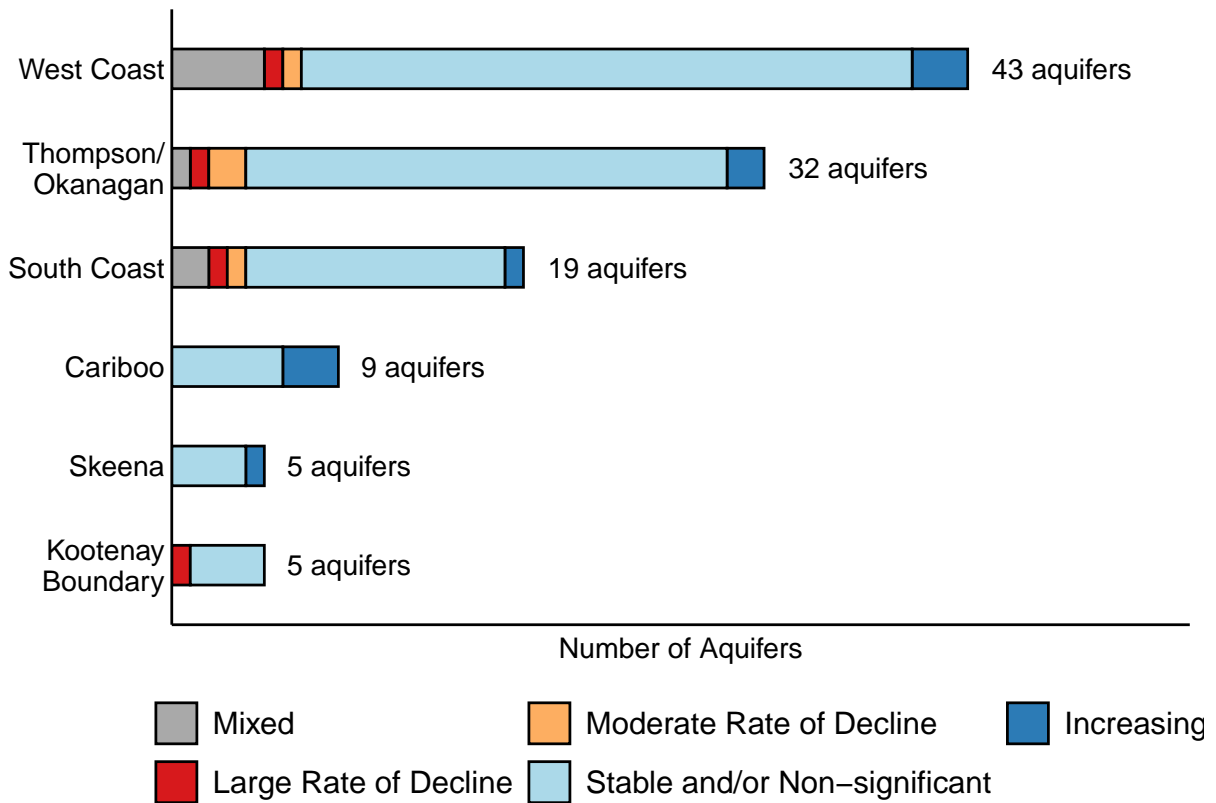
Provincial Summary of Trends in Groundwater Levels (10 year trends)

- The results of 10 year trend analysis for observation wells were grouped by aquifer. The results are grouped by aquifer as some aquifers have multiple wells with the same trending results which may skew the provincial and regional summary. The 140 observation wells that had adequate data and were assessed for trends are located in 113 aquifers.
- The 10 year results are used to compare across aquifers as each well has a different time span of data.
- The “Mixed” category introduced below occurs when an aquifer has multiple observation wells with different trending categories (i.e. an aquifer has one well with “Stable and/or Non-significant” results and one with “Increasing” results).
- Of the 113 aquifers examined, 77% of results were stable and/or non-significant trends. Increasing trends were detected in 9% of aquifers. 4% of aquifers show a moderate rate of decline in water levels, and 4% of aquifers show a large rate of decline. Note that only wells with enough data for trend analysis are included in the following figures.

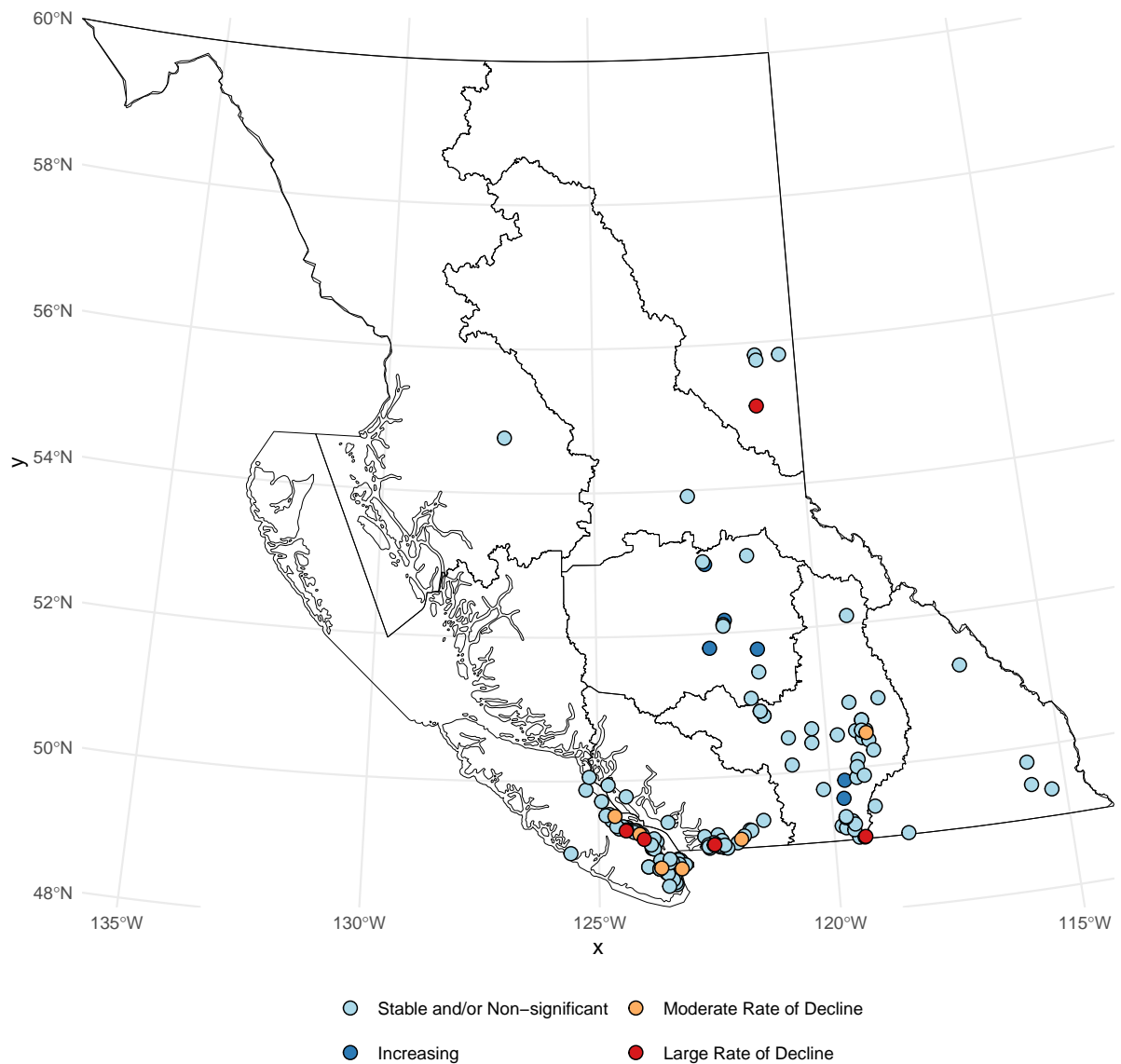


Regional Summary of Trends in Groundwater Levels (10 year trends)

- The number of aquifers assessed in each [Natural Resource Regions](#) varies. The highest number of aquifers assessed were in the West Coast Region. The lowest number of aquifers is the Skeena and Omineca regions.



Location and Status of Observation Wells (All Available Data)



More About Groundwater Levels

Groundwater levels are sensitive to rainfall, aquifer storage capacity, recharge rate—the rate at which surface water trickles down to refill a groundwater aquifer—and human use. Trends presented here show long-term changes in groundwater, but have not been corrected for the above factors. Thus, any significant trends are not necessarily due to human use alone. Information on long-term trends can be useful for prompting further research and informing decision-making.

Methods

R package and code: We have developed an R package to facilitate working with, analyzing, and visualizing British Columbia groundwater level data. Download the 'bcgroundwater' package from [GitHub](#). The source code for repeating the analysis presented on this page is also available on [GitHub](#).

Data Filtering and Imputation

We completed several data filtering steps prior to trend analysis. The data filtering ensures that each well has sufficient observations for trend analysis and does not have large data gaps. There are stricter data requirements for shorter timeseries (e.g. the 10-yr analysis). The steps we used for filtering data and the order they were conducted are listed below.

- After the time series were constructed, we inspected each well for consecutive missing values near the beginning or the end of the time series, due to the strong influence of these regions on trend analysis. If there were more than four consecutive missing values in the first or last 10% of the time series, the time series was truncated to remove the missing values.
- Wells with more than 15% missing data over the timeseries were excluded.
- For the 10-year timeseries, each year needed at least 8 months of collected data. This is to avoid including years where monitoring ended in the first few months of the year or started near the end.
- To avoid including wells with large data gaps in the middle of the timeseries, we applied a limit of years that could be missing. The limit for 10-15 years was 1 missing year, 15-19 years was 3 missing years, and the 20 + years limit was 5 missing years.
- Any missing data in the timeseries remaining was then interpolated.
- We applied the same procedure for the monthly analysis but instead of requirements applying to the year period, we applied them to the month in question.

We interpolated the remaining missing values by first fitting a 12-period (i.e., monthly) basic structural time series model (BSM) to the data (Harvey, 1990). Fixed-interval smoothing (Durbin & Koopman, 2012) was then applied to the fitted model to generate predicted values for the entire time series; the predicted values were substituted into the original time series where there were missing data. This resulted in a full monthly time series for each well, with one observation per month. Finally, we calculated the mean annual groundwater level and mean monthly groundwater levels for applicable months, and performed trend analysis.

Trend Analysis

Trend analysis was considered for groundwater observation wells that had ten or more complete years of data, met the data requirements detailed above, and were active as of January 1, 2013. This resulted in 155 wells with suitable data records for analysis for the "All-Data" trending option. For each trend option selected, the amount of data missing was calculated separately which led to several cases where there was enough data for one time period but not another (for example, a 10-year trend was calculated for a well but there was too much missing data

to calculate a trend for the entire time series). To standardize the 10-year (2013 - 2023) and 20-year (2003 - 2023) trend analyses, we set a requirement for 10 years of data for the 10-year analysis and 18 years of data for the 20-year analysis to avoid having a well with 11 years of data being assessed in both categories.

We conducted trend analysis both annually and monthly. For the annual analysis, a median value was calculated for each month that had more than one observation. The annual mean groundwater level was then calculated for each year that contained a sufficient number of monthly values in the year. For the monthly analysis, a mean value was calculated for each month in the year. The monthly trend analyses were conducted on mean groundwater levels found in a particular month over the time series (i.e. January).

We used the Zhang et al. (2000) method of trend analysis as detailed in the **zyp** R Package (Bronaugh and Schoeneberg 2023). The Zhang method first assesses and removes significant autocorrelation in the timeseries and then conducts Mann Kendall test using Theil Sen approach to determine the magnitude of the trend.

Time series were not corrected for precipitation or any other climatic or hydrologic processes. As such, no causation for trends are implied.

Important Changes

These methods were implemented using the R package 'zyp' version 0.11-1 (Bronaugh, D. & Schoeneberg, A., 2023). The analysis described above follows the Zhang *et al* (2000) method, however previous versions of this indicator used the Yue-Pilon method (Yue *et al* 2002). The methods were modified after the Yue Pilon method was found to have very high Type-1 error rates (Buerger 2017, Zhang and Zwiers 2004). Type 1 error rates occur when the null hypothesis is falsely rejected and analysis finds significant differences where none existed.

The minimum amount of missing data was lowered from 25% in the previous version of the indicator to 15% in this updated version.

Note on Trend Significance

In the results on the online map version and in the following table, there are instances where a decreasing or increasing trend is visually observed but the change over time is not statistically significant. When a trend is not statistically significant, it means the observed pattern was not clear enough to rule out the trend occurring by random chance (i.e. the null hypothesis of no trend is accepted). We used a p-value of 0.05 which translates to a <5% chance the observed trend happened by random chance. When a trend is not significant, you should be cautious about interpreting the presence and magnitude of a visual trend. High variability in data points, sample size, magnitude of the trend, and other factors impact the p-value. When using trend results to make decisions, p-values are one of several important considerations and should not be solely relied on. More details on the trends results are available in Appendix A.

Useful Links

- Visit the [Monitoring Aquifers: Provincial Observation Well Network homepage](#) for more information on groundwater monitoring observation wells.
- [Groundwater Wells and Aquifers \(GWELLS\)](#)
- [Water Data & Tools for British Columbia](#)
- [Previous B.C. State of Environment reports and indicators on groundwater levels in B.C.](#)

Data

The data sets are all sourced from the B.C. Data Catalogue, distributed under the [Open Government Licence - British Columbia](#).

- [Indicator Summary Data: Long-term Trends in B.C. Groundwater Levels](#)
- [Provincial Groundwater Observation Well Network - Groundwater Levels Data](#)
- Groundwater well metadata, such as location, depth, and aquifer type were obtained from the Ground Water Wells (Spatial View) Dataset
- [Natural Resource \(NR\) Regions](#), accessed with the 'bcmaps' R package

References

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Appendix 1 - Trending Results in Tables

Table 1: Summary of annual results of trend analysis of groundwater levels

Wells with 10 or more complete years of data for trend analysis are included. All available years are included in analysis.

Well No	Result	Aquifer Type	Region Name	Years	Intercept	Slope	p-value
080	Stable and/or Non-significant	Sand and Gravel	Cariboo	49	5.04	-0.01	0.17
081	Stable and/or Non-significant	Bedrock	Cariboo	48	5.40	-0.04	0.26
082	Stable and/or Non-significant	Bedrock	Cariboo	39	8.26	-0.03	0.12
088	Stable and/or Non-significant	Sand and Gravel	Cariboo	46	18.87	-0.05	0.54
260	Increasing	Sand and Gravel	Cariboo	37	65.29	-0.04	0.00
261	Stable and/or Non-significant	Sand and Gravel	Cariboo	43	26.48	-0.01	0.87
289	Increasing	Sand and Gravel	Cariboo	34	11.58	-0.09	0.02
364	Stable and/or Non-significant	Sand and Gravel	Cariboo	17	52.96	-0.02	0.17
374	Increasing	Sand and Gravel	Cariboo	16	39.54	-0.17	0.00
376	Increasing	Bedrock	Cariboo	17	6.61	-0.10	0.00
217	Stable and/or Non-significant	Sand and Gravel	Kootenay / Boundary	44	3.06	0.00	0.52
291	Stable and/or Non-significant	Bedrock	Kootenay / Boundary	35	9.98	-0.02	0.91
306	Stable and/or Non-significant	Sand and Gravel	Kootenay / Boundary	34	5.42	0.00	0.61
309	Stable and/or Non-significant	Sand and Gravel	Kootenay / Boundary	34	24.04	-0.01	0.13
362	Stable and/or Non-significant	Sand and Gravel	Kootenay / Boundary	16	2.98	0.02	0.14
363	Stable and/or Non-significant	Unknown	Kootenay / Boundary	18	8.11	0.01	0.32
286	Large Rate of Decline	Sand and Gravel	Northeast	35	9.62	0.12	0.00
416	Stable and/or Non-significant	Bedrock	Northeast	10	19.46	0.16	0.37
420	Stable and/or Non-significant	Bedrock	Northeast	11	34.42	-0.02	0.21
445	Stable and/or Non-significant	Sand and Gravel	Northeast	10	25.65	0.00	0.92
378	Stable and/or Non-significant	Sand and Gravel	Omineca	16	34.51	-0.01	0.48
377	Stable and/or Non-significant	Unknown	Skeena	15	25.05	0.12	0.55
002	Stable and/or Non-significant	Sand and Gravel	South Coast	51	12.49	0.00	0.99
015	Stable and/or Non-significant	Sand and Gravel	South Coast	40	13.21	-0.12	0.23
255	Stable and/or Non-significant	Bedrock	South Coast	41	2.77	-0.01	0.04
259	Stable and/or Non-significant	Sand and Gravel	South Coast	44	0.68	0.02	0.00
272	Stable and/or Non-significant	Sand and Gravel	South Coast	42	5.40	-0.01	0.68
275	Stable and/or Non-significant	Sand and Gravel	South Coast	42	5.74	-0.01	0.36
292	Stable and/or Non-significant	Sand and Gravel	South Coast	39	9.62	0.01	0.10
299	Stable and/or Non-significant	Sand and Gravel	South Coast	36	3.10	-0.01	0.23
301	Stable and/or Non-significant	Sand and Gravel	South Coast	36	17.55	0.00	0.67
353	Stable and/or Non-significant	Sand and Gravel	South Coast	19	4.50	0.01	0.62
354	Stable and/or Non-significant	Sand and Gravel	South Coast	19	11.86	-0.04	0.16
357	Stable and/or Non-significant	Sand and Gravel	South Coast	19	10.14	0.01	0.67
359	Large Rate of Decline	Sand and Gravel	South Coast	17	27.22	0.22	0.00
360	Stable and/or Non-significant	Sand and Gravel	South Coast	19	5.21	-0.01	0.63
361	Stable and/or Non-significant	Sand and Gravel	South Coast	14	7.50	-0.20	0.13
406	Moderate Rate of Decline	Sand and Gravel	South Coast	13	2.60	0.03	0.00
408	Stable and/or Non-significant	Sand and Gravel	South Coast	12	21.94	0.00	0.73
414	Large Rate of Decline	Sand and Gravel	South Coast	11	32.50	0.13	0.00
415	Stable and/or Non-significant	Sand and Gravel	South Coast	11	41.52	0.12	0.21
441	Stable and/or Non-significant	Sand and Gravel	South Coast	10	14.32	0.13	0.16
446	Stable and/or Non-significant	Sand and Gravel	South Coast	11	14.22	0.01	0.64
447	Stable and/or Non-significant	Sand and Gravel	South Coast	10	8.62	-0.02	0.12
448	Stable and/or Non-significant	Sand and Gravel	South Coast	11	2.69	0.02	0.35
449	Stable and/or Non-significant	Sand and Gravel	South Coast	11	4.00	0.02	0.21
450	Stable and/or Non-significant	Sand and Gravel	South Coast	10	2.84	0.02	0.25

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Well No	Result	Aquifer Type	Region Name	Years	Intercept	Slope	p-value
451	Stable and/or Non-significant	Sand and Gravel	South Coast	10	8.78	0.09	0.35
460	Stable and/or Non-significant	Sand and Gravel	South Coast	14	83.15	0.02	0.85
035	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	56	3.45	0.01	0.58
045	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	58	8.67	0.02	0.00
047	Stable and/or Non-significant	Bedrock	Thompson / Okanagan	56	6.64	0.00	0.93
075	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	55	2.25	0.01	0.10
096	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	51	3.82	0.00	0.14
117	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	52	16.03	0.02	0.00
118	Moderate Rate of Decline	Sand and Gravel	Thompson / Okanagan	52	13.21	0.05	0.04
122	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	47	0.96	0.02	0.38
172	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	46	15.57	0.00	0.89
180	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	48	6.85	0.06	0.06
185	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	45	4.11	0.02	0.00
203	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	46	24.47	0.01	0.09
236	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	45	20.56	0.09	0.11
262	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	43	55.09	0.05	0.38
282	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	35	10.14	0.01	1.00
294	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	37	8.63	0.01	0.05
296	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	34	4.03	0.01	0.36
302	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	36	8.42	-0.01	0.05
332	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	25	18.10	0.02	0.59
344	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	24	3.17	0.01	0.11
346	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	13	1.84	0.01	0.50
356	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	20	7.51	0.00	1.00
365	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	17	6.42	0.00	0.65
366	Increasing	Sand and Gravel	Thompson / Okanagan	13	9.61	-0.99	0.02
375	Stable and/or Non-significant	Bedrock	Thompson / Okanagan	17	7.58	-0.01	0.17
381	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	16	4.83	0.11	0.37
384	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	16	80.10	0.06	0.07
399	Stable and/or Non-significant	Bedrock	Thompson / Okanagan	13	1.63	0.01	0.76
400	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	12	3.84	-0.01	0.64
401	Stable and/or Non-significant	Bedrock	Thompson / Okanagan	12	4.08	0.02	0.95
402	Large Rate of Decline	Bedrock	Thompson / Okanagan	12	10.95	0.11	0.03
403	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	13	37.46	0.05	0.54
404	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	13	22.87	0.00	1.00
407	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	12	11.41	0.01	0.19
409	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	11	10.44	0.24	0.16
410	Stable and/or Non-significant	Bedrock	Thompson / Okanagan	11	4.66	-0.02	0.24
411	Increasing	Bedrock	Thompson / Okanagan	11	8.63	-0.68	0.03
412	Stable and/or Non-significant	Bedrock	Thompson / Okanagan	10	9.58	-0.01	0.88
422	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	12	9.79	-0.07	0.06
423	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	12	5.04	0.02	0.53
464	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	16	4.62	0.04	0.62
058	Stable and/or Non-significant	Sand and Gravel	West Coast	57	9.16	-0.02	0.19
060	Stable and/or Non-significant	Sand and Gravel	West Coast	57	9.87	0.00	0.39
061	Stable and/or Non-significant	Sand and Gravel	West Coast	43	7.58	-0.02	0.53
065	Stable and/or Non-significant	Bedrock	West Coast	42	2.70	-0.01	0.00
071	Stable and/or Non-significant	Bedrock	West Coast	48	6.50	-0.01	0.14
125	Stable and/or Non-significant	Bedrock	West Coast	52	0.11	0.01	0.00
128	Stable and/or Non-significant	Bedrock	West Coast	51	1.27	0.00	0.03
204	Stable and/or Non-significant	Sand and Gravel	West Coast	47	1.85	0.01	0.02
211	Moderate Rate of Decline	Sand and Gravel	West Coast	44	1.97	0.03	0.00
228	Stable and/or Non-significant	Sand and Gravel	West Coast	62	6.46	0.00	0.73

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Well No	Result	Aquifer Type	Region Name	Years	Intercept	Slope	p-value
232	Stable and/or Non-significant	Sand and Gravel	West Coast	44	3.47	0.02	0.50
233	Stable and/or Non-significant	Sand and Gravel	West Coast	34	31.99	-0.06	0.24
240	Stable and/or Non-significant	Bedrock	West Coast	42	5.41	0.02	0.05
258	Stable and/or Non-significant	Bedrock	West Coast	44	10.42	0.03	0.04
265	Stable and/or Non-significant	Bedrock	West Coast	43	9.40	-0.03	0.44
268	Stable and/or Non-significant	Bedrock	West Coast	39	0.18	0.00	0.51
281	Stable and/or Non-significant	Bedrock	West Coast	32	6.06	0.00	0.31
283	Stable and/or Non-significant	Bedrock	West Coast	41	4.84	0.01	0.12
284	Moderate Rate of Decline	Bedrock	West Coast	41	-1.45	0.07	0.00
287	Large Rate of Decline	Bedrock	West Coast	38	3.47	0.10	0.00
288	Moderate Rate of Decline	Bedrock	West Coast	40	13.15	0.05	0.00
290	Stable and/or Non-significant	Bedrock	West Coast	34	0.88	0.01	0.04
295	Increasing	Sand and Gravel	West Coast	37	14.82	-0.18	0.00
303	Stable and/or Non-significant	Sand and Gravel	West Coast	35	23.67	0.02	0.73
304	Stable and/or Non-significant	Sand and Gravel	West Coast	35	9.65	-0.08	0.48
310	Stable and/or Non-significant	Sand and Gravel	West Coast	32	7.93	0.01	0.69
312	Stable and/or Non-significant	Sand and Gravel	West Coast	31	3.51	0.00	0.89
314	Stable and/or Non-significant	Sand and Gravel	West Coast	30	7.85	-0.16	0.07
316	Stable and/or Non-significant	Unknown	West Coast	24	2.03	-0.01	0.10
318	Stable and/or Non-significant	Sand and Gravel	West Coast	24	4.10	-0.01	0.90
320	Stable and/or Non-significant	Sand and Gravel	West Coast	31	23.83	0.00	0.95
321	Stable and/or Non-significant	Sand and Gravel	West Coast	28	9.08	0.10	0.12
327	Increasing	Bedrock	West Coast	29	13.10	-0.22	0.02
329	Stable and/or Non-significant	Sand and Gravel	West Coast	26	5.65	0.01	0.33
337	Stable and/or Non-significant	Bedrock	West Coast	22	12.37	0.18	0.63
338	Increasing	Bedrock	West Coast	25	32.01	-0.04	0.03
340	Moderate Rate of Decline	Sand and Gravel	West Coast	24	20.59	0.08	0.00
343	Stable and/or Non-significant	Bedrock	West Coast	26	11.52	0.00	0.98
345	Stable and/or Non-significant	Sand and Gravel	West Coast	24	52.98	-0.01	0.82
351	Stable and/or Non-significant	Unknown	West Coast	22	9.02	-0.03	0.00
355	Stable and/or Non-significant	Sand and Gravel	West Coast	20	4.27	-0.01	0.89
369	Stable and/or Non-significant	Sand and Gravel	West Coast	18	1.26	0.01	0.20
371	Stable and/or Non-significant	Sand and Gravel	West Coast	16	4.57	0.00	0.48
372	Stable and/or Non-significant	Bedrock	West Coast	16	55.70	0.01	0.82
373	Stable and/or Non-significant	Bedrock	West Coast	18	2.91	0.02	0.23
383	Stable and/or Non-significant	Sand and Gravel	West Coast	16	49.70	-0.01	0.62
385	Stable and/or Non-significant	Bedrock	West Coast	13	12.88	0.03	0.10
388	Large Rate of Decline	Bedrock	West Coast	12	7.95	0.63	0.00
389	Stable and/or Non-significant	Sand and Gravel	West Coast	13	3.11	0.00	0.66
390	Increasing	Bedrock	West Coast	11	29.90	-0.11	0.00
391	Stable and/or Non-significant	Sand and Gravel	West Coast	13	37.26	0.01	0.95
393	Stable and/or Non-significant	Sand and Gravel	West Coast	13	8.27	-0.01	0.30
394	Stable and/or Non-significant	Sand and Gravel	West Coast	10	12.06	0.01	0.86
396	Stable and/or Non-significant	Unknown	West Coast	12	1.50	-0.02	0.44
398	Increasing	Sand and Gravel	West Coast	11	8.51	-0.22	0.00
424	Stable and/or Non-significant	Sand and Gravel	West Coast	11	20.29	0.13	0.37
425	Stable and/or Non-significant	Sand and Gravel	West Coast	11	51.09	0.05	0.21
428	Stable and/or Non-significant	Bedrock	West Coast	11	44.05	0.00	1.00
429	Stable and/or Non-significant	Sand and Gravel	West Coast	10	38.37	0.01	0.37
430	Stable and/or Non-significant	Bedrock	West Coast	10	19.93	0.06	0.28
431	Stable and/or Non-significant	Sand and Gravel	West Coast	11	19.76	0.01	1.00
433	Increasing	Sand and Gravel	West Coast	10	41.98	-0.28	0.00
434	Increasing	Sand and Gravel	West Coast	11	34.38	-0.11	0.02

(continued)

Well No	Result	Aquifer Type	Region Name	Years	Intercept	Slope	p-value
435	Stable and/or Non-significant	Bedrock	West Coast	10	33.67	-0.02	1.00
438	Stable and/or Non-significant	Bedrock	West Coast	10	24.05	-0.10	0.75

Table 2: Summary of 10-year (2013 - 2023) results of trend analysis of groundwater levels

Wells with 10 complete years of data for trend analysis are included.

Well No	Result	Aquifer Type	Region Name	Intercept	Slope	p-value
080	Stable and/or Non-significant	Sand and Gravel	Cariboo	4.74	-0.01	0.59
081	Stable and/or Non-significant	Bedrock	Cariboo	4.85	-0.12	0.25
082	Stable and/or Non-significant	Bedrock	Cariboo	6.18	0.08	0.72
088	Stable and/or Non-significant	Sand and Gravel	Cariboo	16.08	-0.09	0.72
260	Stable and/or Non-significant	Sand and Gravel	Cariboo	63.92	0.05	0.59
261	Increasing	Sand and Gravel	Cariboo	27.13	-0.38	0.02
364	Increasing	Sand and Gravel	Cariboo	53.20	-0.07	0.03
374	Increasing	Sand and Gravel	Cariboo	39.16	-0.31	0.00
376	Stable and/or Non-significant	Bedrock	Cariboo	5.52	-0.06	0.47
217	Stable and/or Non-significant	Sand and Gravel	Kootenay / Boundary	2.93	0.02	0.12
291	Large Rate of Decline	Bedrock	Kootenay / Boundary	4.96	0.64	0.01
306	Stable and/or Non-significant	Sand and Gravel	Kootenay / Boundary	5.39	0.00	0.72
309	Stable and/or Non-significant	Sand and Gravel	Kootenay / Boundary	23.87	-0.01	0.15
363	Stable and/or Non-significant	Unknown	Kootenay / Boundary	8.07	0.01	0.44
124	Stable and/or Non-significant	Bedrock	Northeast	18.97	0.02	0.37
286	Increasing	Sand and Gravel	Northeast	14.09	-0.15	0.00
416	Stable and/or Non-significant	Bedrock	Northeast	19.46	0.16	0.37
420	Stable and/or Non-significant	Bedrock	Northeast	34.34	-0.01	0.59
445	Stable and/or Non-significant	Sand and Gravel	Northeast	25.65	0.00	0.92
002	Stable and/or Non-significant	Sand and Gravel	South Coast	11.93	0.09	0.28
008	Stable and/or Non-significant	Sand and Gravel	South Coast	18.11	0.06	0.28
255	Stable and/or Non-significant	Bedrock	South Coast	2.69	-0.02	0.05
259	Stable and/or Non-significant	Sand and Gravel	South Coast	1.13	0.02	0.06
272	Moderate Rate of Decline	Sand and Gravel	South Coast	4.79	0.09	0.02
275	Stable and/or Non-significant	Sand and Gravel	South Coast	5.44	-0.04	0.21
299	Stable and/or Non-significant	Sand and Gravel	South Coast	2.81	0.00	0.76
301	Stable and/or Non-significant	Sand and Gravel	South Coast	17.52	-0.01	0.53
352	Stable and/or Non-significant	Sand and Gravel	South Coast	2.65	0.02	0.47
353	Stable and/or Non-significant	Sand and Gravel	South Coast	4.86	-0.05	0.11
354	Stable and/or Non-significant	Sand and Gravel	South Coast	11.33	-0.01	0.88
357	Stable and/or Non-significant	Sand and Gravel	South Coast	10.07	0.05	0.15
359	Large Rate of Decline	Sand and Gravel	South Coast	29.45	0.13	0.03
360	Stable and/or Non-significant	Sand and Gravel	South Coast	5.01	0.00	1.00
361	Increasing	Sand and Gravel	South Coast	7.83	-0.37	0.01
406	Moderate Rate of Decline	Sand and Gravel	South Coast	2.62	0.07	0.05
408	Stable and/or Non-significant	Sand and Gravel	South Coast	21.90	0.01	0.21
414	Large Rate of Decline	Sand and Gravel	South Coast	32.76	0.14	0.00
415	Moderate Rate of Decline	Sand and Gravel	South Coast	41.37	0.10	0.03
441	Stable and/or Non-significant	Sand and Gravel	South Coast	14.32	0.13	0.16
446	Stable and/or Non-significant	Sand and Gravel	South Coast	14.22	0.01	0.64
447	Stable and/or Non-significant	Sand and Gravel	South Coast	8.62	-0.02	0.12
448	Stable and/or Non-significant	Sand and Gravel	South Coast	2.69	0.02	0.35
449	Stable and/or Non-significant	Sand and Gravel	South Coast	4.00	0.02	0.21
450	Stable and/or Non-significant	Sand and Gravel	South Coast	2.84	0.02	0.25
451	Stable and/or Non-significant	Sand and Gravel	South Coast	8.78	0.09	0.35
460	Stable and/or Non-significant	Sand and Gravel	South Coast	83.13	0.08	0.47
035	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	2.56	0.07	0.59
045	Increasing	Sand and Gravel	Thompson / Okanagan	9.61	-0.07	0.01
075	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	2.54	-0.01	0.64
117	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	16.55	0.06	0.37

(continued)

Well No	Result	Aquifer Type	Region Name	Intercept	Slope	p-value
118	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	15.94	-0.13	0.15
122	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	2.28	-0.10	0.37
172	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	13.99	0.17	0.47
180	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	9.01	0.06	0.47
185	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	4.41	0.03	0.07
203	Moderate Rate of Decline	Sand and Gravel	Thompson / Okanagan	24.51	0.06	0.05
236	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	25.77	-0.34	0.11
262	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	58.26	-0.27	0.15
282	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	7.30	0.15	0.86
294	Moderate Rate of Decline	Sand and Gravel	Thompson / Okanagan	8.75	0.04	0.03
296	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	4.18	0.00	0.88
302	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	7.98	0.02	0.09
344	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	3.57	-0.01	0.88
356	Moderate Rate of Decline	Sand and Gravel	Thompson / Okanagan	7.01	0.07	0.05
365	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	6.33	0.01	0.64
375	Stable and/or Non-significant	Bedrock	Thompson / Okanagan	7.48	-0.01	0.64
381	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	5.14	0.09	0.07
384	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	80.47	0.02	0.47
387	Large Rate of Decline	Bedrock	Thompson / Okanagan	2.87	0.56	0.01
399	Stable and/or Non-significant	Bedrock	Thompson / Okanagan	1.49	0.06	0.59
400	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	3.88	-0.01	0.47
401	Stable and/or Non-significant	Bedrock	Thompson / Okanagan	4.06	0.02	0.88
402	Stable and/or Non-significant	Bedrock	Thompson / Okanagan	11.59	0.07	0.21
403	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	37.61	0.05	0.59
404	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	22.83	0.01	0.64
407	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	11.47	0.01	0.53
409	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	10.44	0.27	0.11
410	Stable and/or Non-significant	Bedrock	Thompson / Okanagan	4.64	-0.02	0.07
411	Increasing	Bedrock	Thompson / Okanagan	8.63	-0.68	0.03
412	Stable and/or Non-significant	Bedrock	Thompson / Okanagan	9.58	-0.01	0.88
422	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	9.58	-0.07	0.28
423	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	5.26	0.00	0.86
464	Stable and/or Non-significant	Sand and Gravel	Thompson / Okanagan	4.01	0.14	0.11
058	Stable and/or Non-significant	Sand and Gravel	West Coast	7.95	0.01	0.12
060	Stable and/or Non-significant	Sand and Gravel	West Coast	9.78	-0.04	0.11
071	Stable and/or Non-significant	Bedrock	West Coast	6.13	-0.02	0.03
125	Stable and/or Non-significant	Bedrock	West Coast	0.41	0.01	0.16
128	Stable and/or Non-significant	Bedrock	West Coast	1.19	-0.02	0.15
196	Stable and/or Non-significant	Bedrock	West Coast	2.17	0.00	1.00
197	Stable and/or Non-significant	Bedrock	West Coast	5.98	0.03	0.15
201	Stable and/or Non-significant	Sand and Gravel	West Coast	6.13	0.05	0.21
204	Stable and/or Non-significant	Sand and Gravel	West Coast	2.26	-0.01	0.72
232	Stable and/or Non-significant	Sand and Gravel	West Coast	4.30	0.00	1.00
233	Stable and/or Non-significant	Sand and Gravel	West Coast	29.86	0.01	1.00
240	Stable and/or Non-significant	Bedrock	West Coast	5.72	0.07	0.15
265	Stable and/or Non-significant	Bedrock	West Coast	7.19	-0.01	1.00
268	Stable and/or Non-significant	Bedrock	West Coast	0.16	0.01	0.28
281	Stable and/or Non-significant	Bedrock	West Coast	6.16	-0.04	0.21
283	Stable and/or Non-significant	Bedrock	West Coast	5.15	0.02	0.53
287	Large Rate of Decline	Bedrock	West Coast	5.79	0.27	0.00
288	Moderate Rate of Decline	Bedrock	West Coast	14.34	0.10	0.01
290	Stable and/or Non-significant	Bedrock	West Coast	0.83	0.04	0.07
295	Stable and/or Non-significant	Sand and Gravel	West Coast	9.71	-0.02	0.53

(continued)

Well No	Result	Aquifer Type	Region Name	Intercept	Slope	p-value
303	Increasing	Sand and Gravel	West Coast	25.06	-0.22	0.01
304	Increasing	Sand and Gravel	West Coast	12.28	-0.72	0.00
310	Stable and/or Non-significant	Sand and Gravel	West Coast	6.80	0.25	0.21
316	Stable and/or Non-significant	Unknown	West Coast	1.79	0.00	0.86
320	Stable and/or Non-significant	Sand and Gravel	West Coast	24.11	-0.06	0.15
321	Increasing	Sand and Gravel	West Coast	13.77	-0.46	0.00
327	Stable and/or Non-significant	Bedrock	West Coast	7.96	-0.10	0.53
329	Stable and/or Non-significant	Sand and Gravel	West Coast	5.85	0.02	0.76
337	Stable and/or Non-significant	Bedrock	West Coast	13.02	0.04	1.00
338	Increasing	Bedrock	West Coast	31.66	-0.09	0.00
340	Large Rate of Decline	Sand and Gravel	West Coast	20.95	0.19	0.02
343	Stable and/or Non-significant	Bedrock	West Coast	9.60	0.24	0.37
345	Increasing	Sand and Gravel	West Coast	55.15	-0.29	0.00
351	Increasing	Unknown	West Coast	8.86	-0.07	0.05
355	Increasing	Sand and Gravel	West Coast	4.56	-0.06	0.01
369	Stable and/or Non-significant	Sand and Gravel	West Coast	1.37	0.00	1.00
371	Stable and/or Non-significant	Sand and Gravel	West Coast	4.59	-0.01	0.53
372	Stable and/or Non-significant	Bedrock	West Coast	54.73	0.16	0.47
373	Stable and/or Non-significant	Bedrock	West Coast	3.06	0.02	0.64
383	Stable and/or Non-significant	Sand and Gravel	West Coast	49.63	-0.01	0.28
385	Stable and/or Non-significant	Bedrock	West Coast	12.80	0.04	0.28
389	Stable and/or Non-significant	Sand and Gravel	West Coast	3.04	0.00	0.86
391	Stable and/or Non-significant	Sand and Gravel	West Coast	36.29	0.22	0.47
393	Stable and/or Non-significant	Sand and Gravel	West Coast	8.34	-0.03	0.07
394	Stable and/or Non-significant	Sand and Gravel	West Coast	12.06	0.01	0.86
396	Stable and/or Non-significant	Unknown	West Coast	1.50	-0.02	0.59
398	Increasing	Sand and Gravel	West Coast	8.51	-0.22	0.00
424	Stable and/or Non-significant	Sand and Gravel	West Coast	20.29	0.13	0.37
425	Stable and/or Non-significant	Sand and Gravel	West Coast	51.09	0.05	0.21
428	Stable and/or Non-significant	Bedrock	West Coast	44.05	0.00	1.00
429	Stable and/or Non-significant	Sand and Gravel	West Coast	38.37	0.01	0.37
430	Stable and/or Non-significant	Bedrock	West Coast	19.93	0.06	0.28
431	Stable and/or Non-significant	Sand and Gravel	West Coast	19.76	0.01	1.00
433	Increasing	Sand and Gravel	West Coast	41.98	-0.28	0.00
434	Increasing	Sand and Gravel	West Coast	34.38	-0.11	0.02
435	Stable and/or Non-significant	Bedrock	West Coast	33.67	-0.02	1.00
438	Stable and/or Non-significant	Bedrock	West Coast	24.05	-0.10	0.75

Appendix 2: Detailed Graphs for Groundwater Observation Wells Included in the Analysis

Three plots were included for each groundwater observation well that met the data requirements for data analysis. The plots included for each well include a monthly hydrograph, all-data trends, and 10-year trends. Only wells that had both all-data and 10-yr trend options were included.

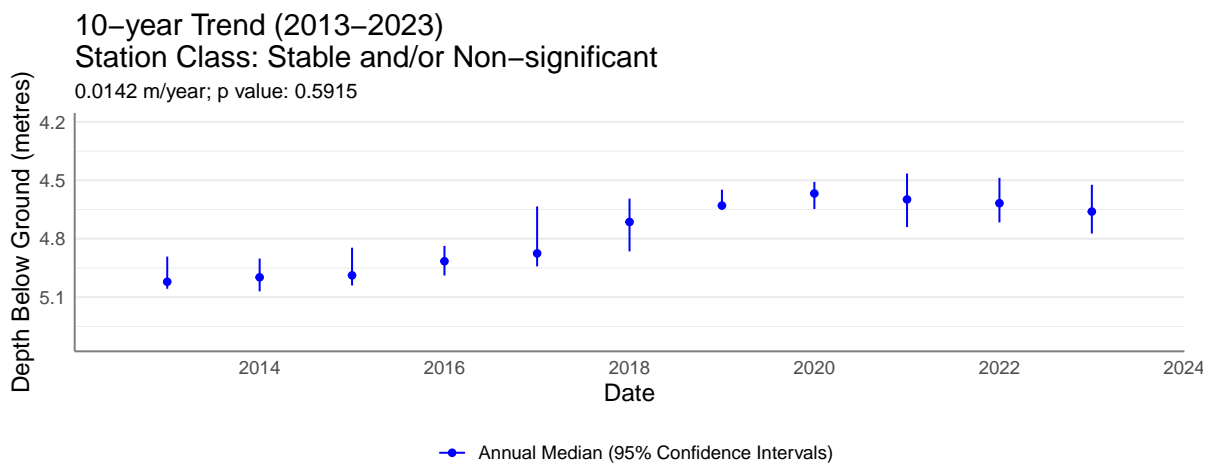
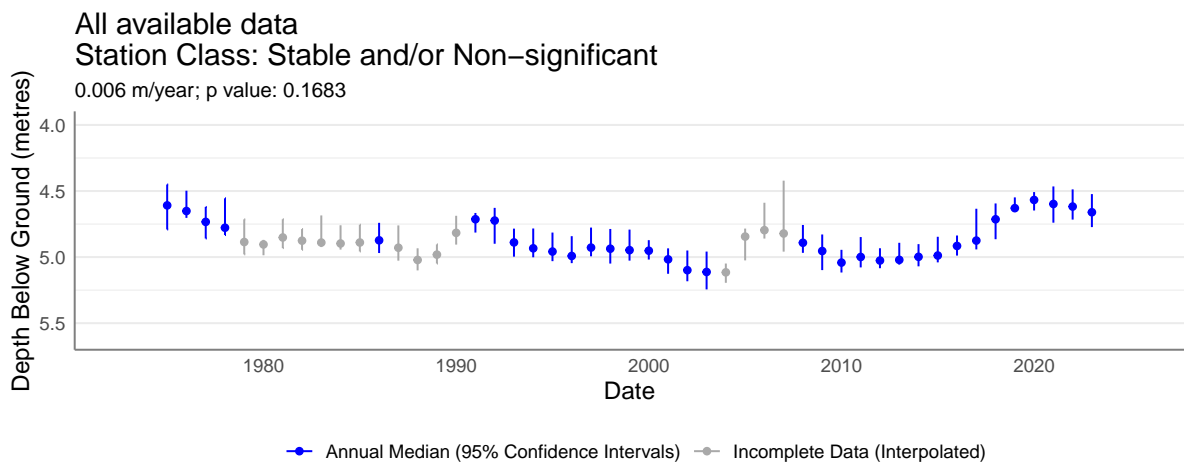
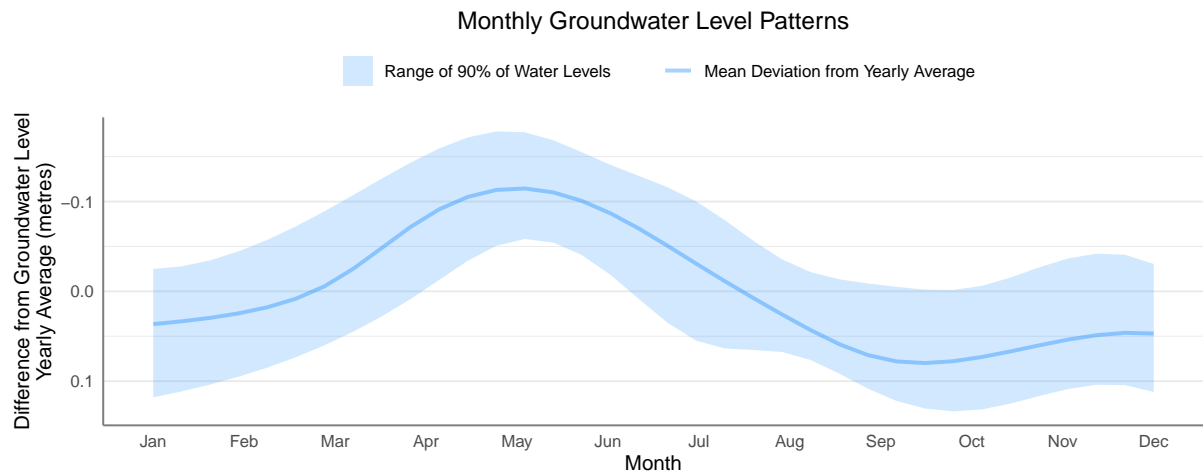
The first plot shows monthly groundwater levels relative to the annual average water level. This illustrates the seasonal nature of water levels recorded in that well—many wells will have higher than average water levels in the spring, and lower than average levels in the late summer and fall. The shaded blue area shows the range of variation within which 90% of water level observations in that month fall.

The all-data and 10-year plots show the history of the groundwater levels over the relevant time period. The blue line shows measured groundwater depth over time. The light grey dots show missing values which were interpolated (see Methods). The trend category is provided below the title—if the trend is significant, based on a combination of statistical and environmental significance criteria—the calculated change in annual average groundwater levels is provided (meters per year) and visually represented by an orange trend line.

Region: Cariboo

Observation Well Number: 080

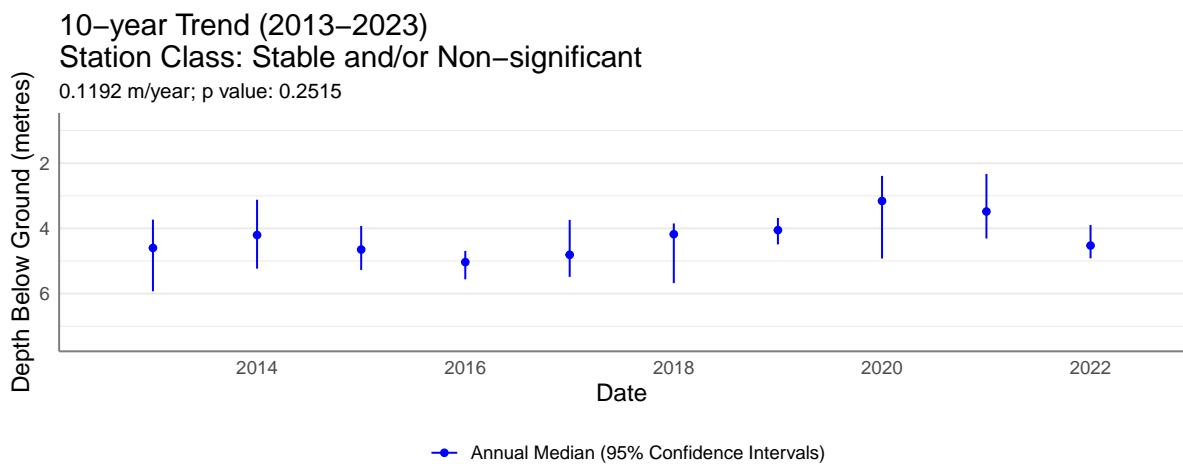
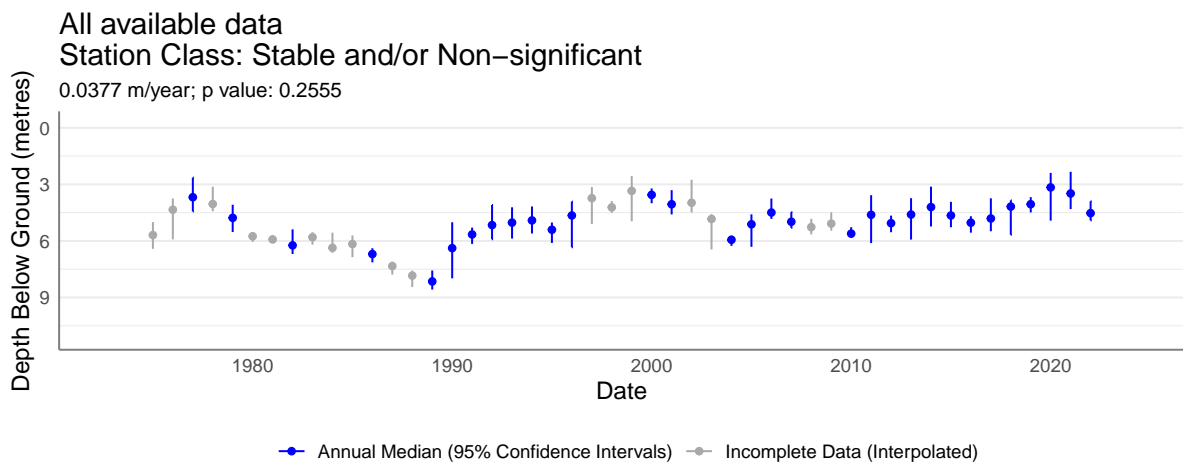
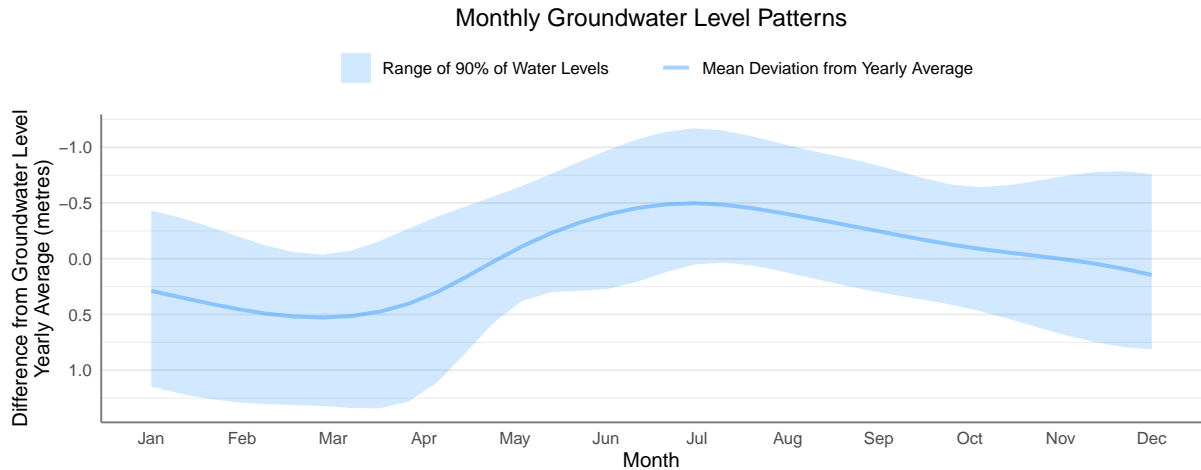
Aquifer Number: 921 **Aquifer Type:** Sand and Gravel



Region: Cariboo

Observation Well Number: 081

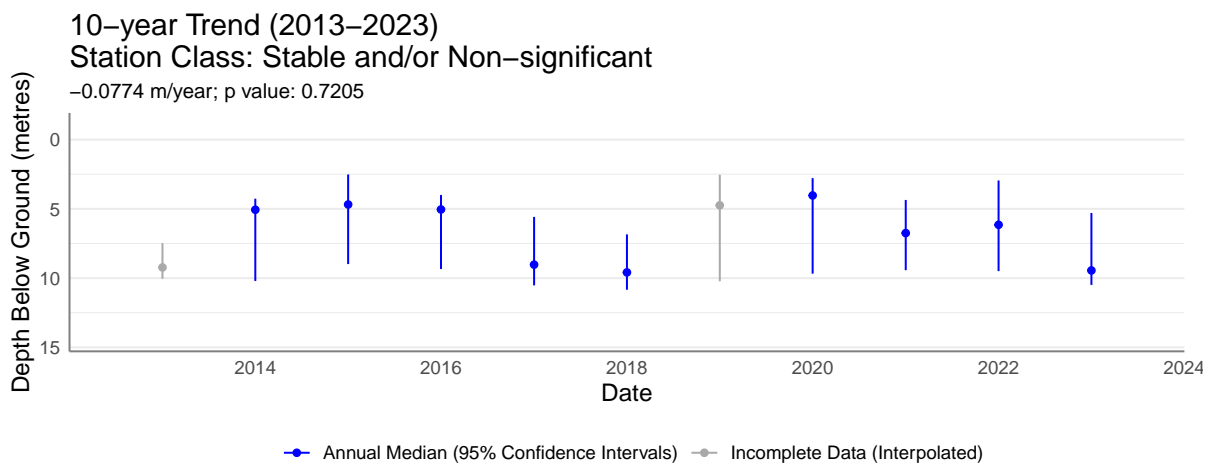
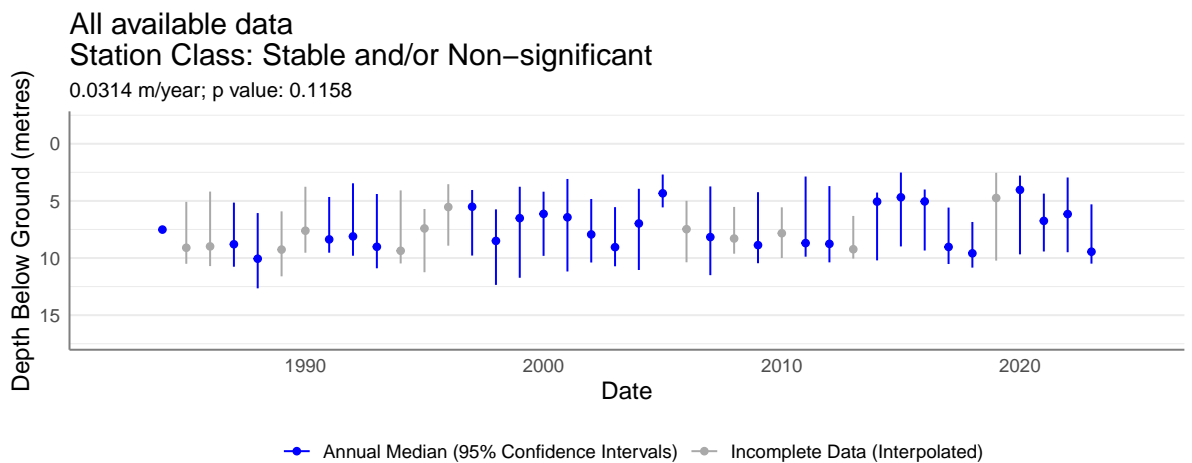
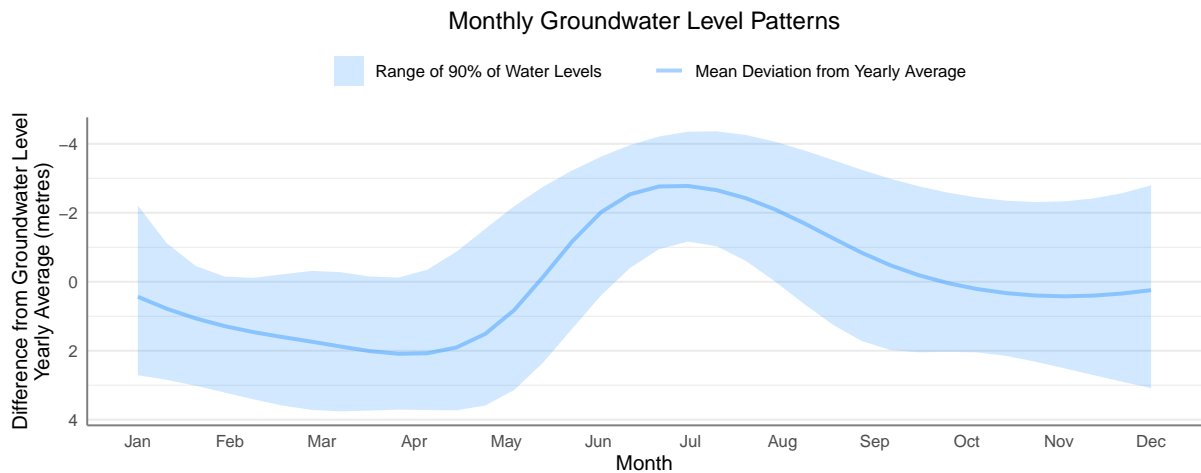
Aquifer Number: 124 Aquifer Type: Bedrock



Region: Cariboo

Observation Well Number: 082

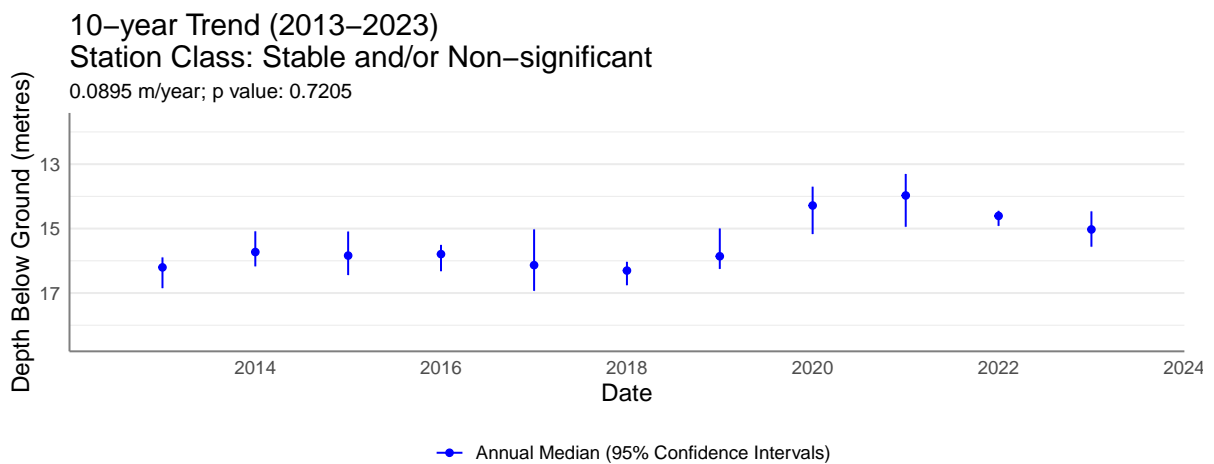
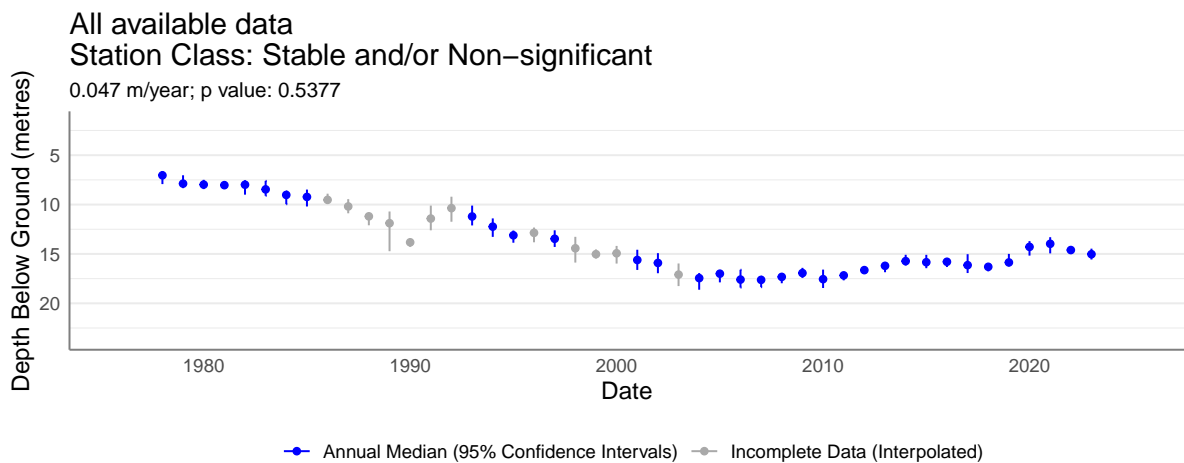
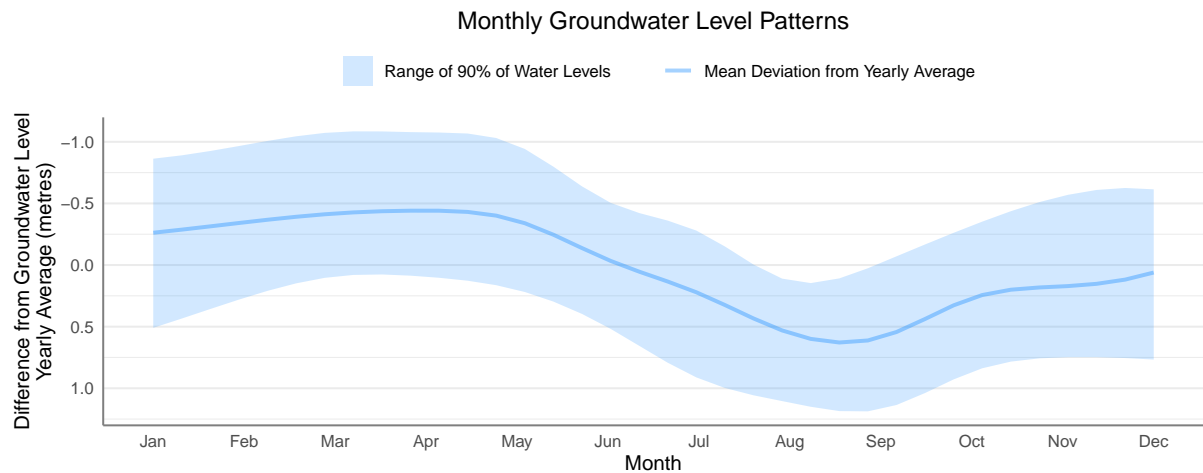
Aquifer Number: NA Aquifer Type: Bedrock



Region: Cariboo

Observation Well Number: 088

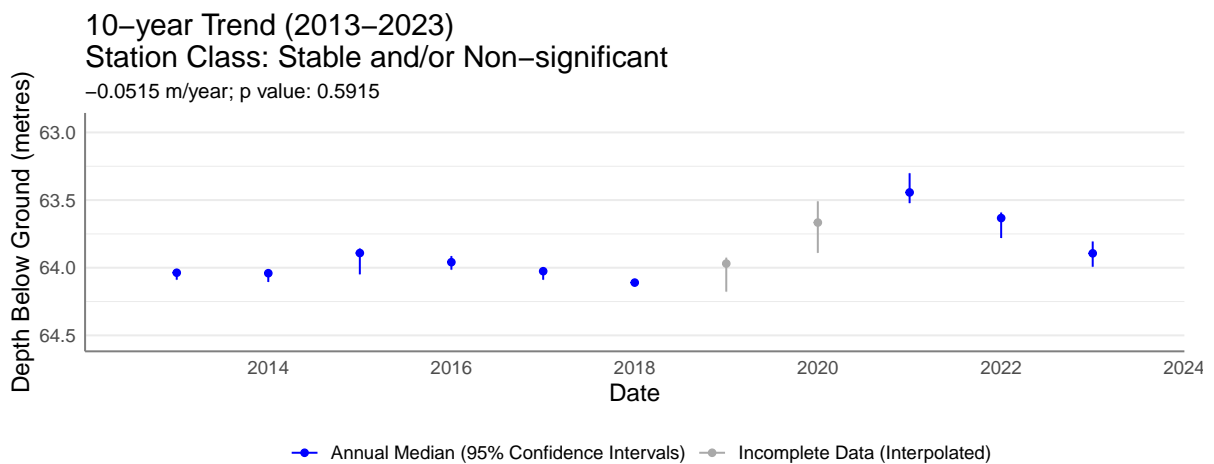
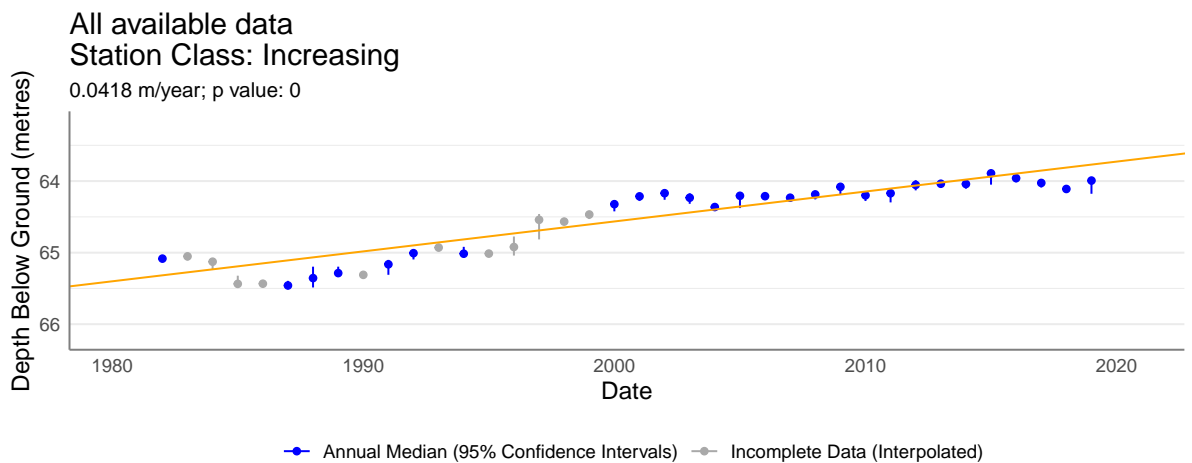
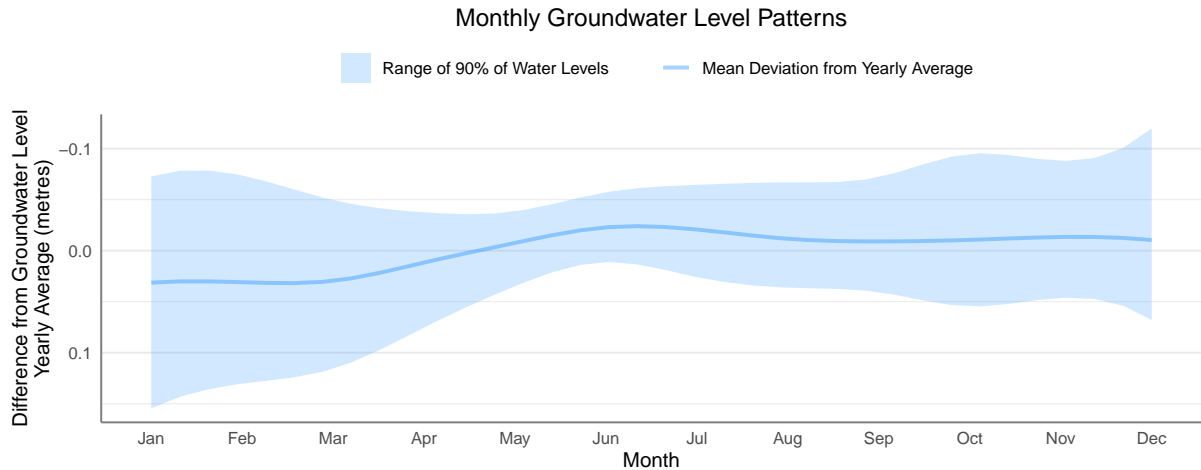
Aquifer Number: 146 **Aquifer Type:** Sand and Gravel



Region: Cariboo

Observation Well Number: 260

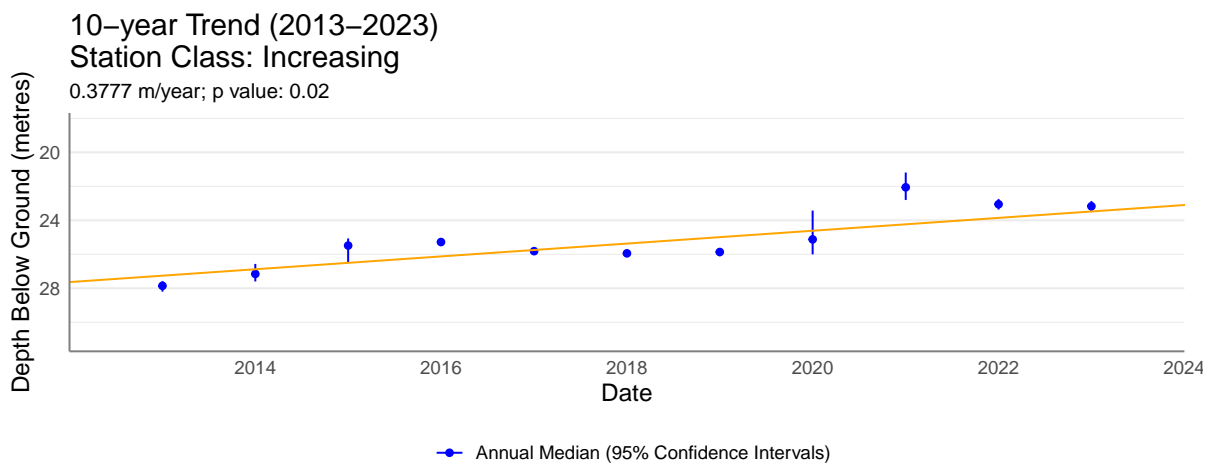
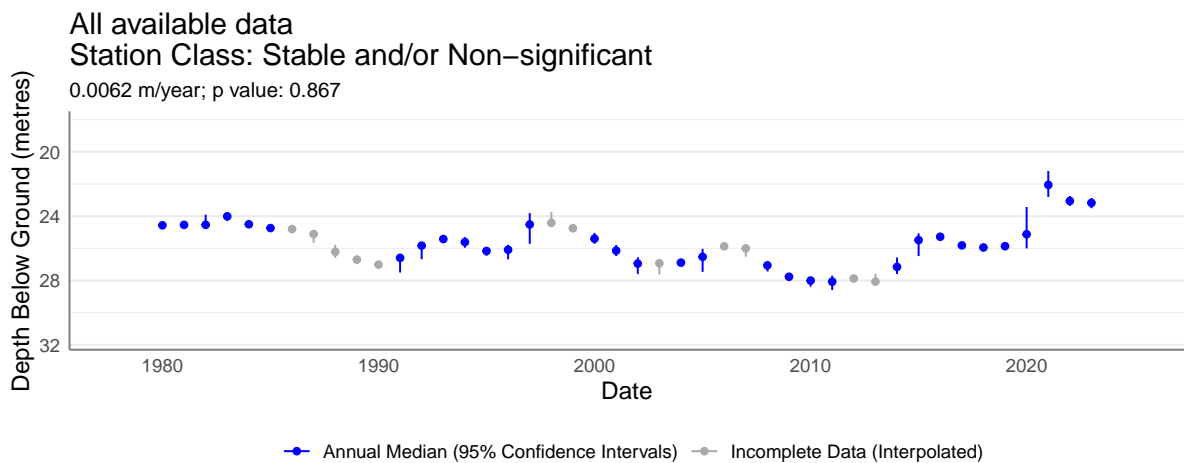
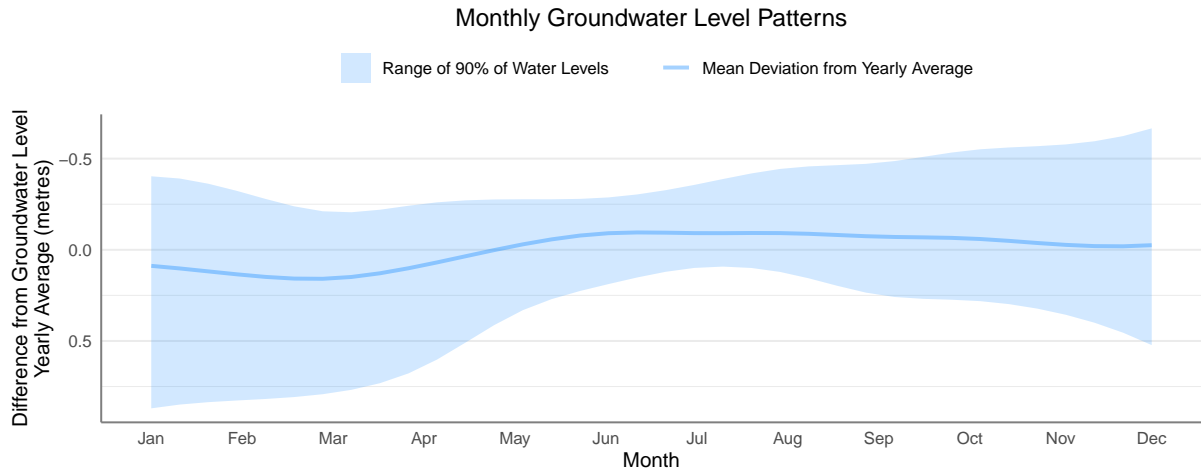
Aquifer Number: 115 **Aquifer Type:** Sand and Gravel



Region: Cariboo

Observation Well Number: 261

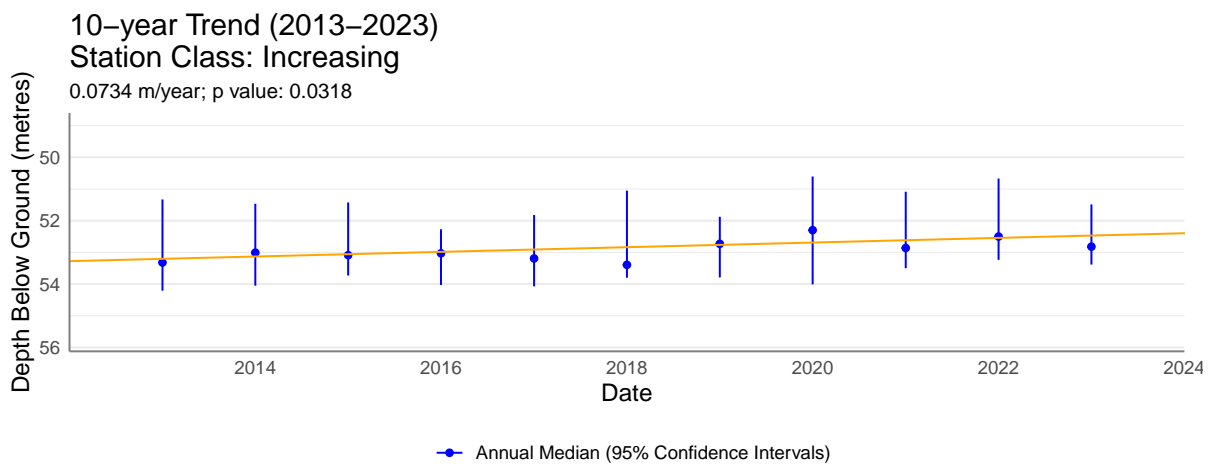
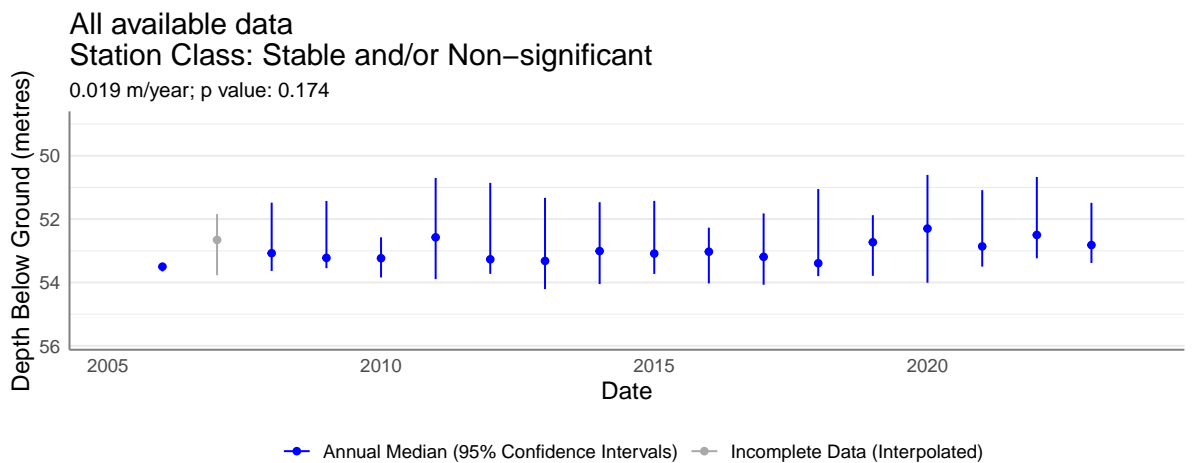
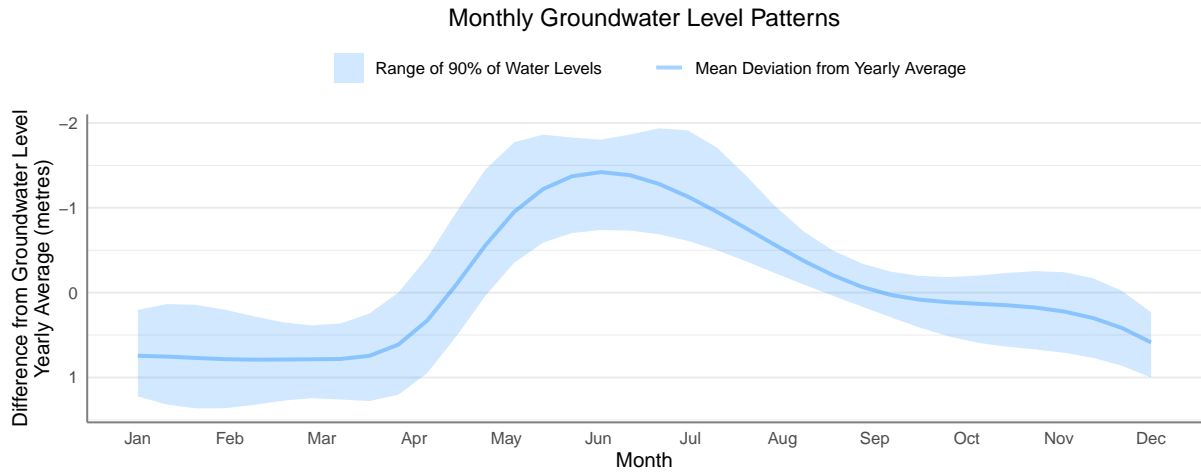
Aquifer Number: 148 **Aquifer Type:** Sand and Gravel



Region: Cariboo

Observation Well Number: 364

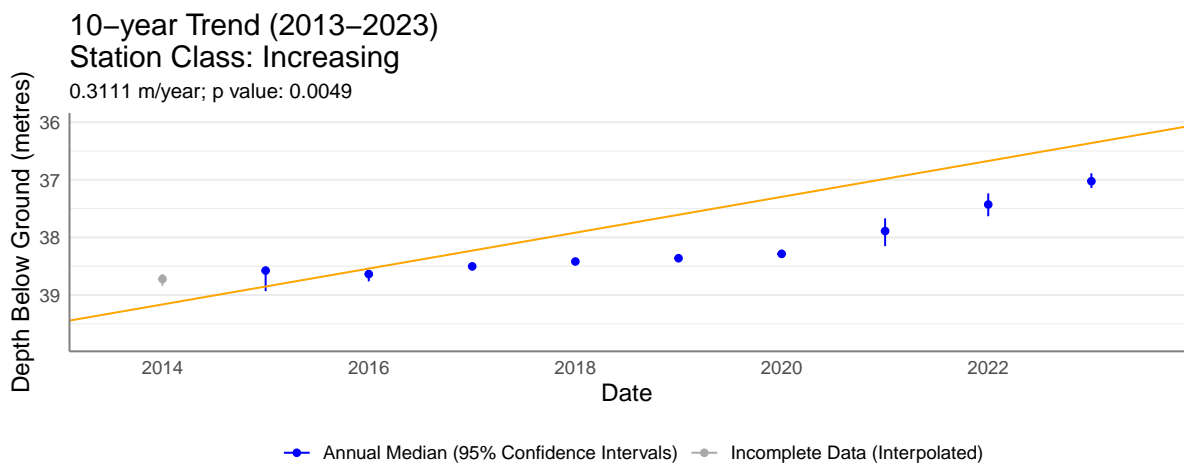
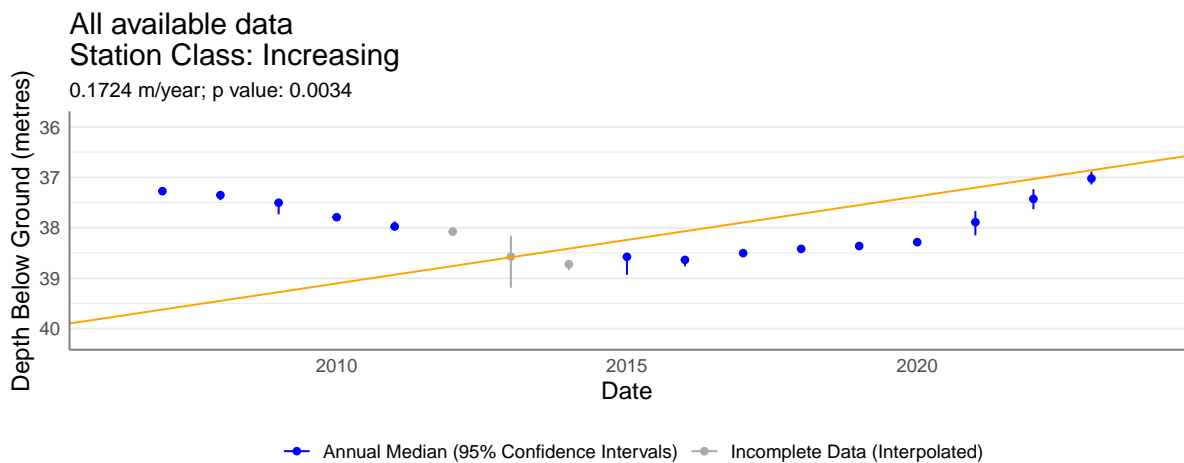
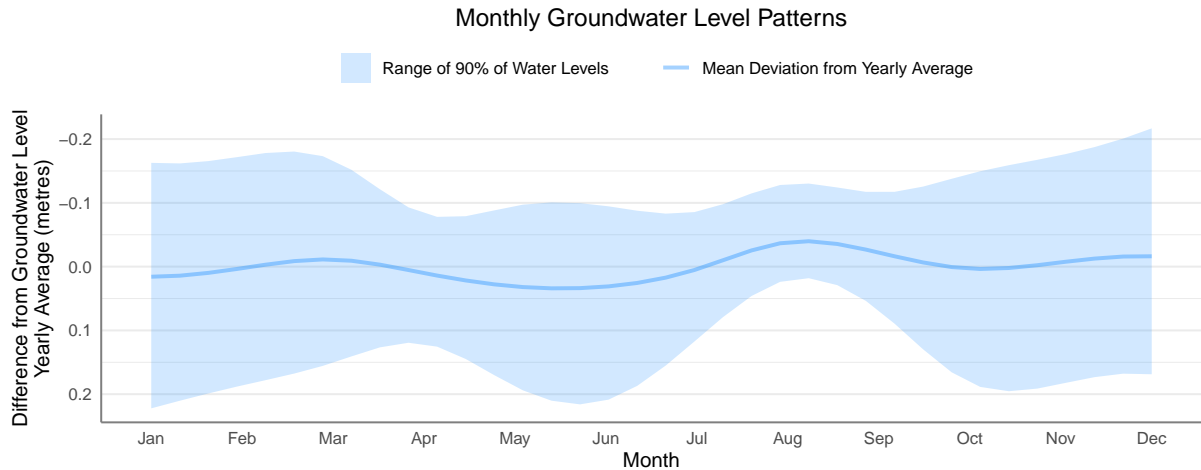
Aquifer Number: 370 Aquifer Type: Sand and Gravel



Region: Cariboo

Observation Well Number: 374

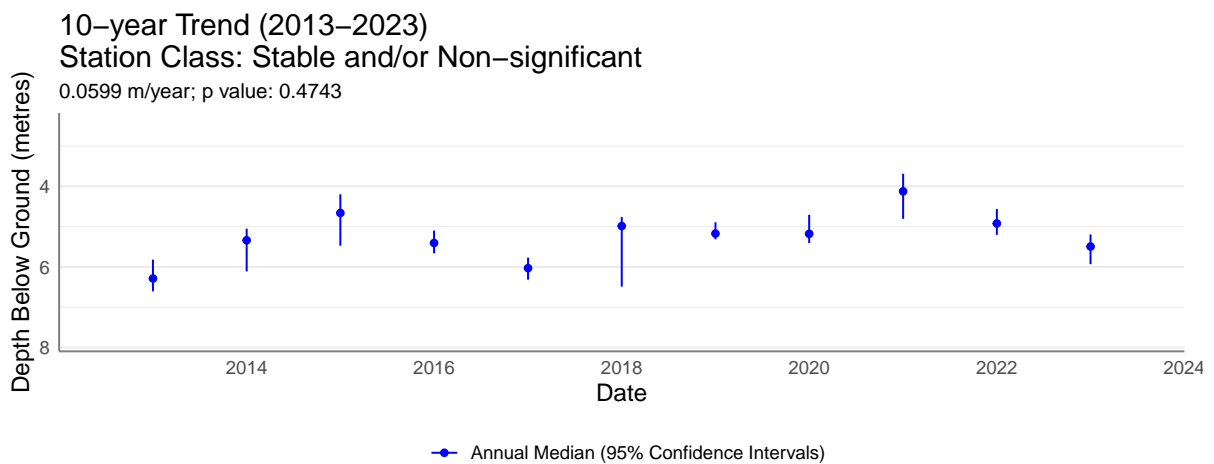
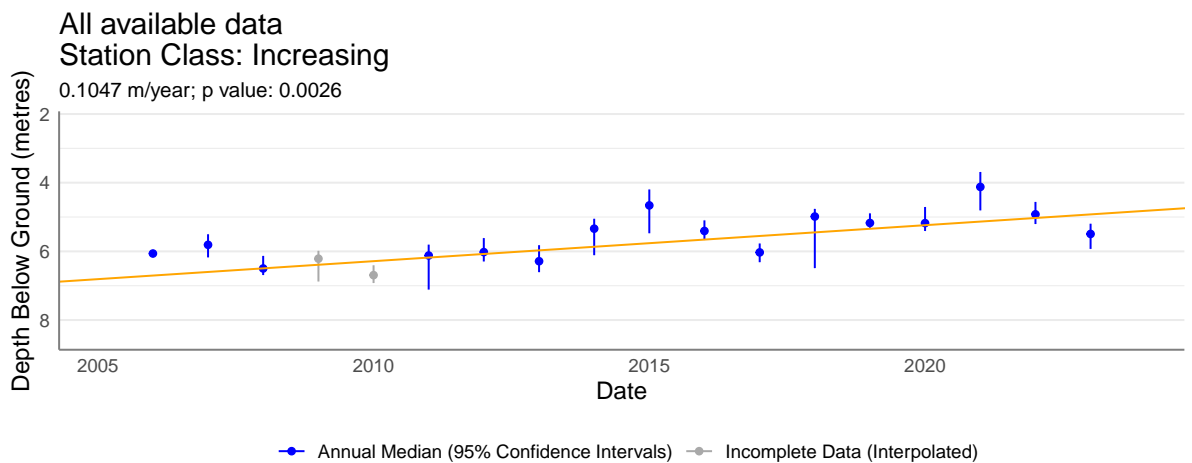
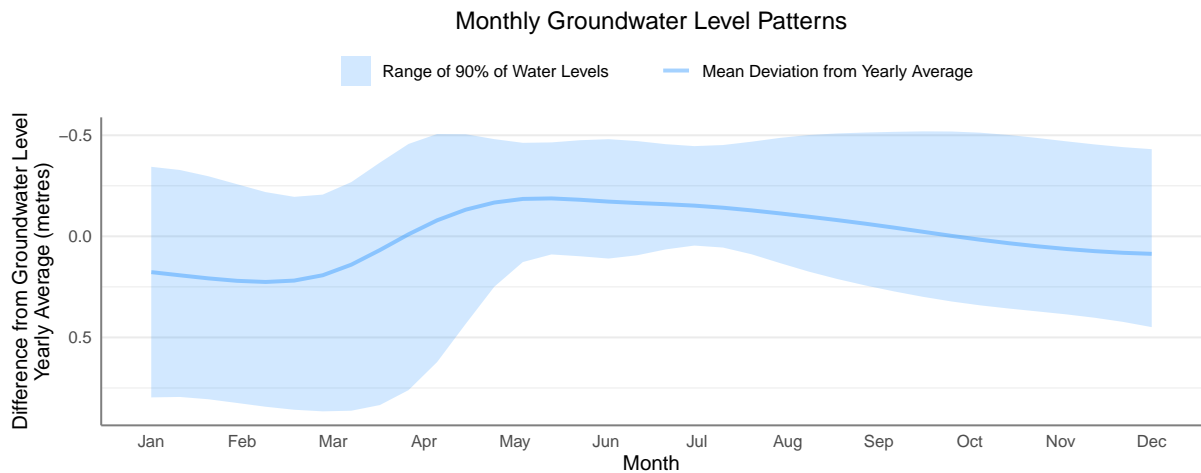
Aquifer Number: 131 **Aquifer Type:** Sand and Gravel



Region: Cariboo

Observation Well Number: 376

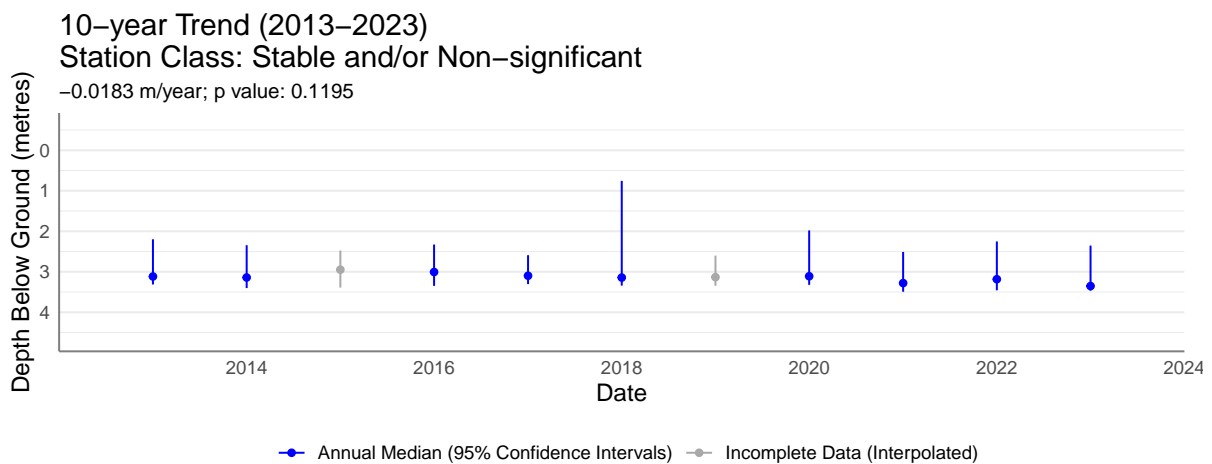
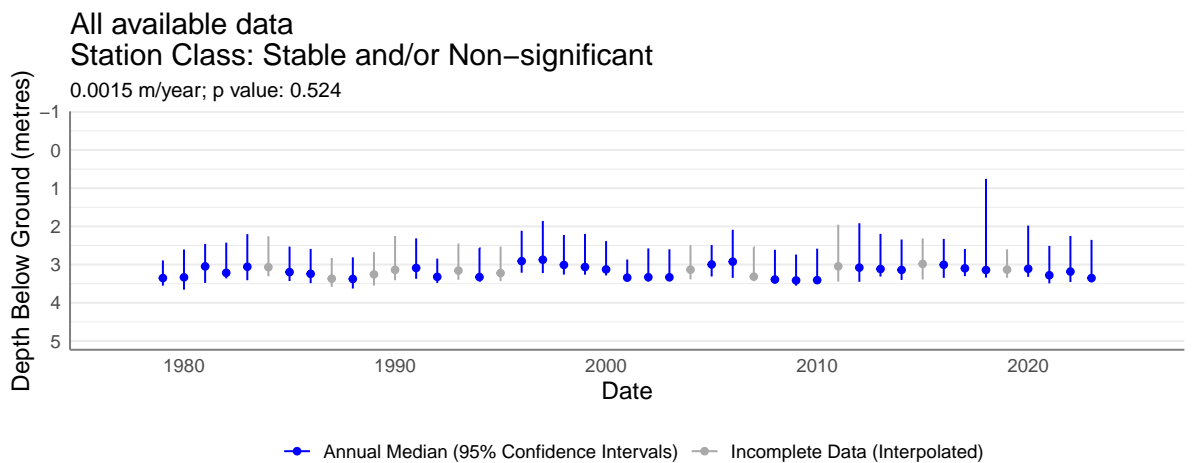
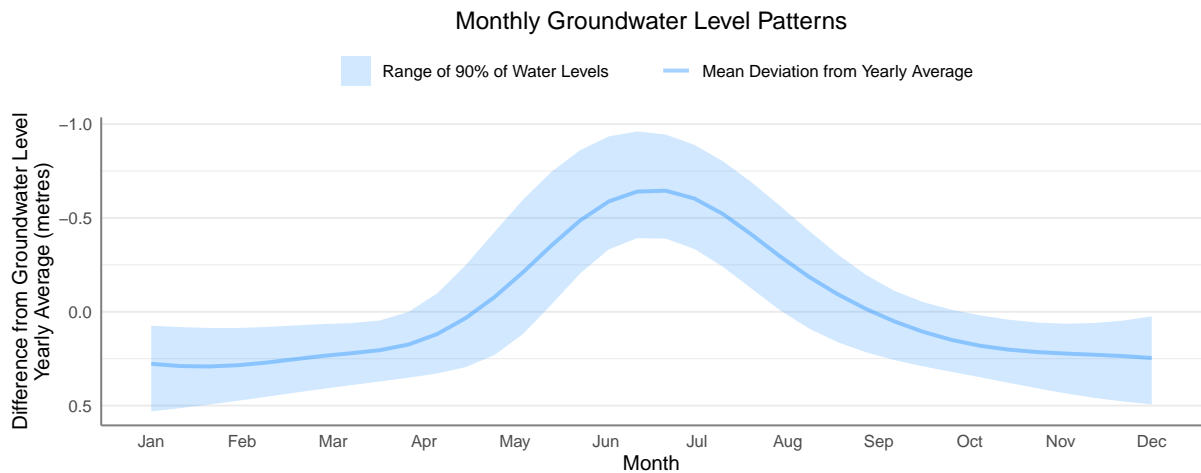
Aquifer Number: NA **Aquifer Type:** Bedrock



Region: Kootenay / Boundary

Observation Well Number: 217

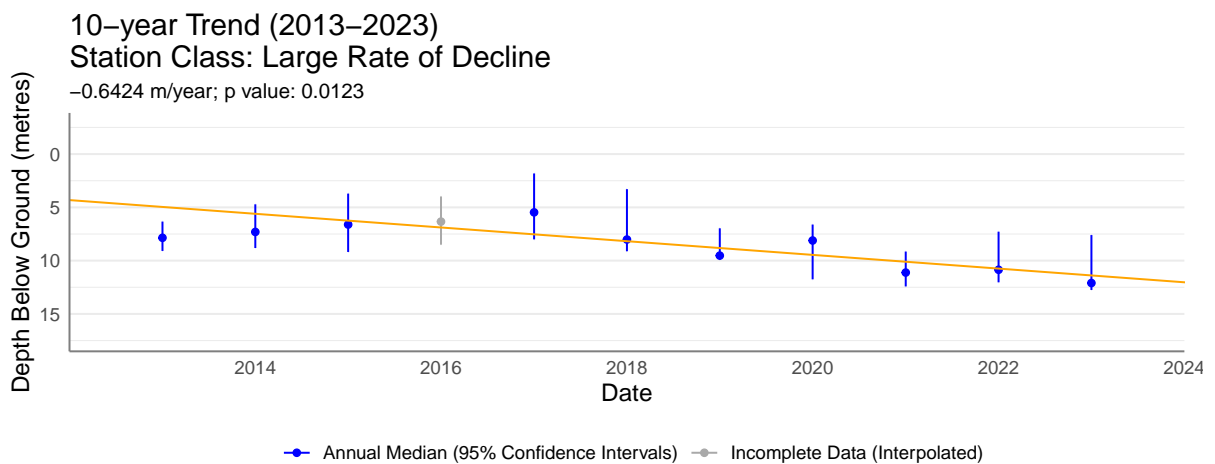
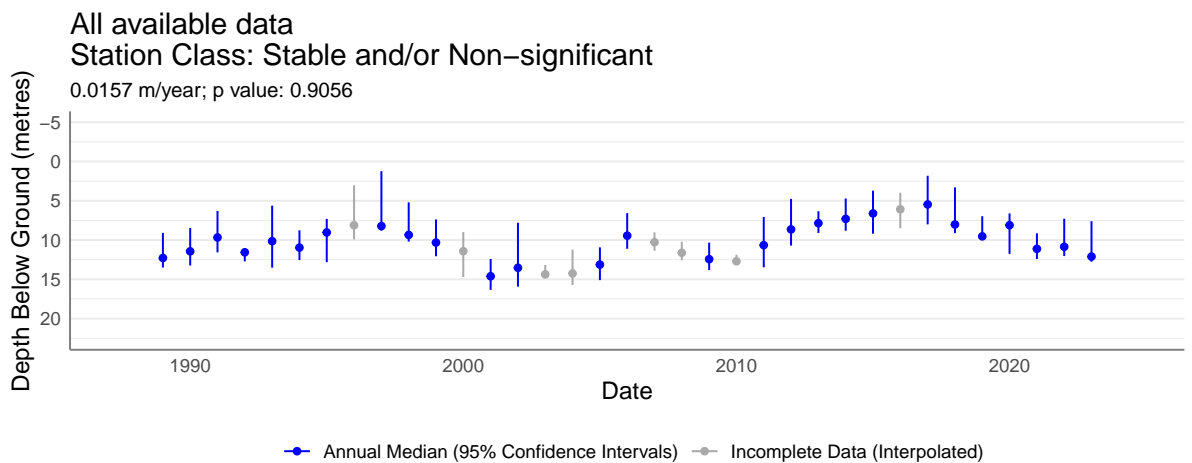
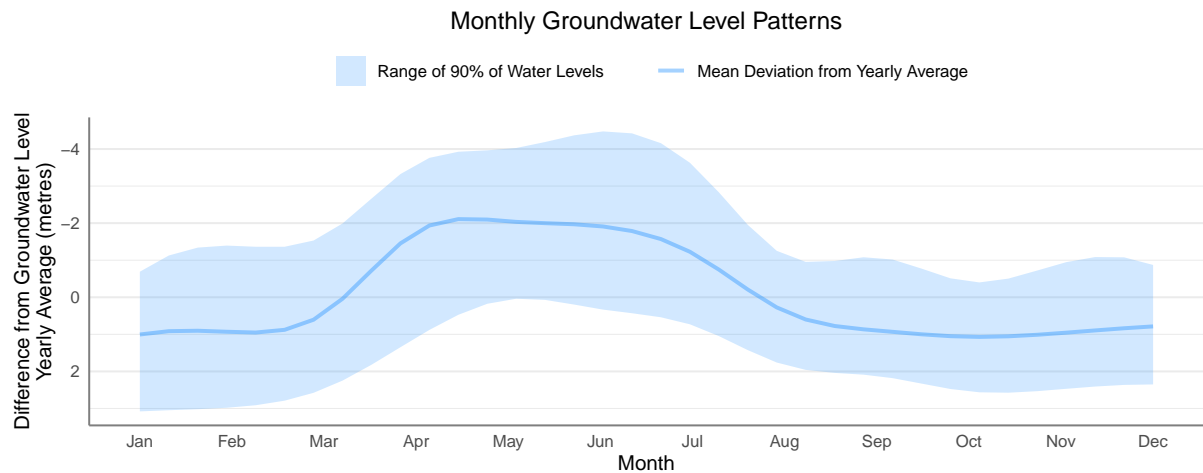
Aquifer Number: 158 Aquifer Type: Sand and Gravel



Region: Kootenay / Boundary

Observation Well Number: 291

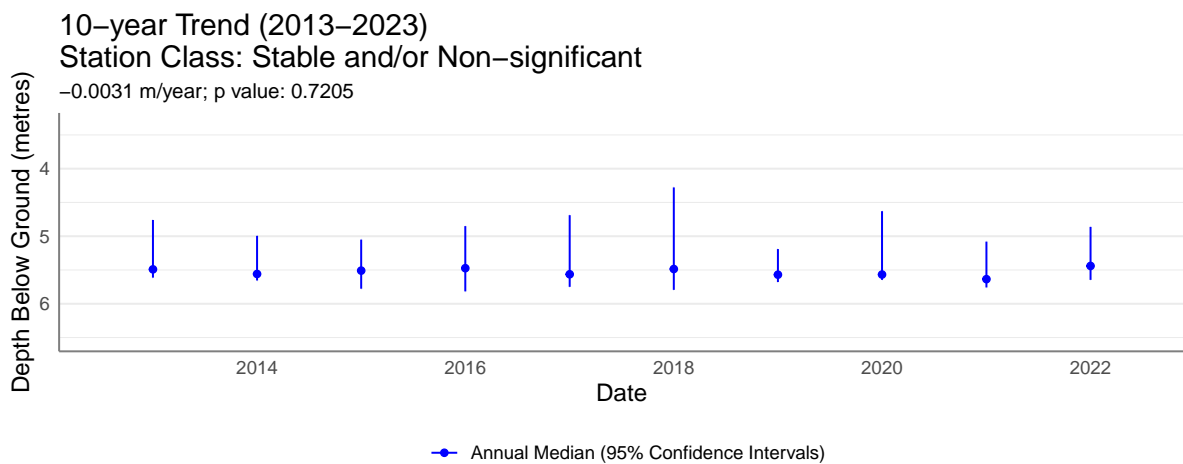
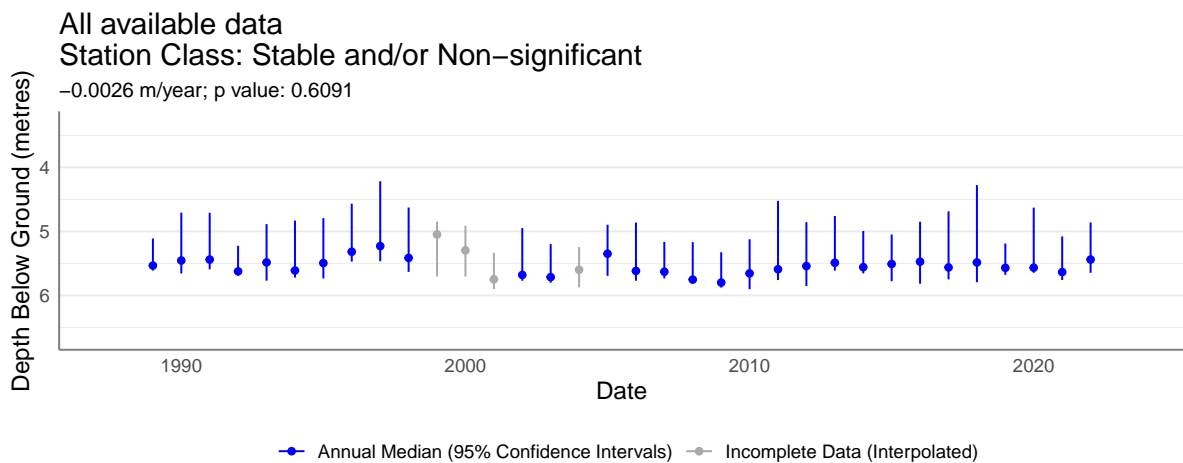
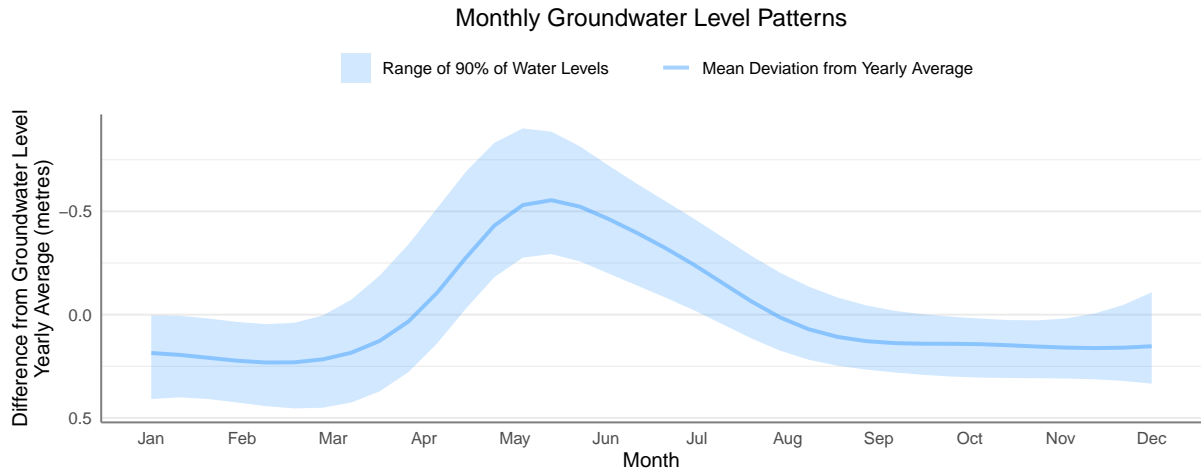
Aquifer Number: 523 **Aquifer Type:** Bedrock



Region: Kootenay / Boundary

Observation Well Number: 306

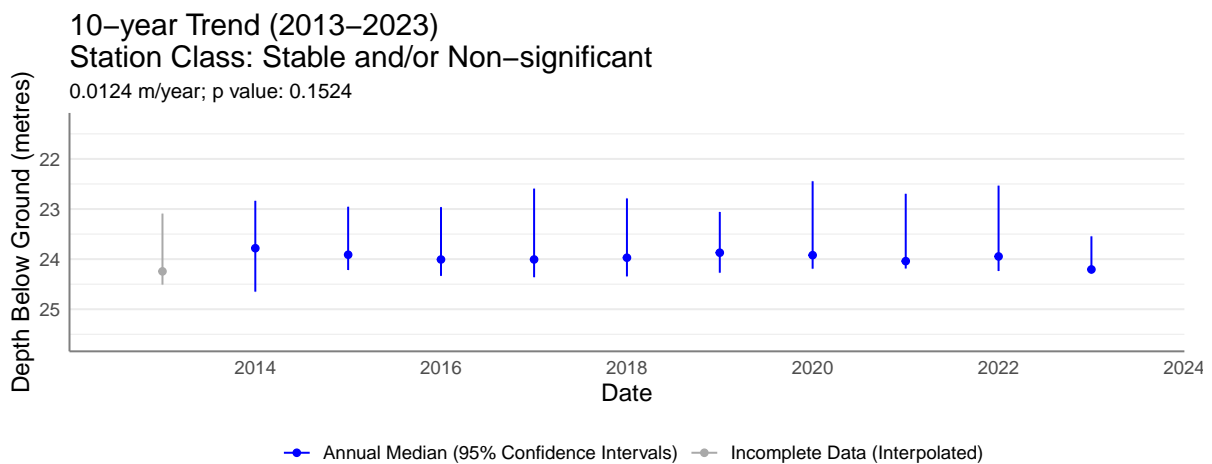
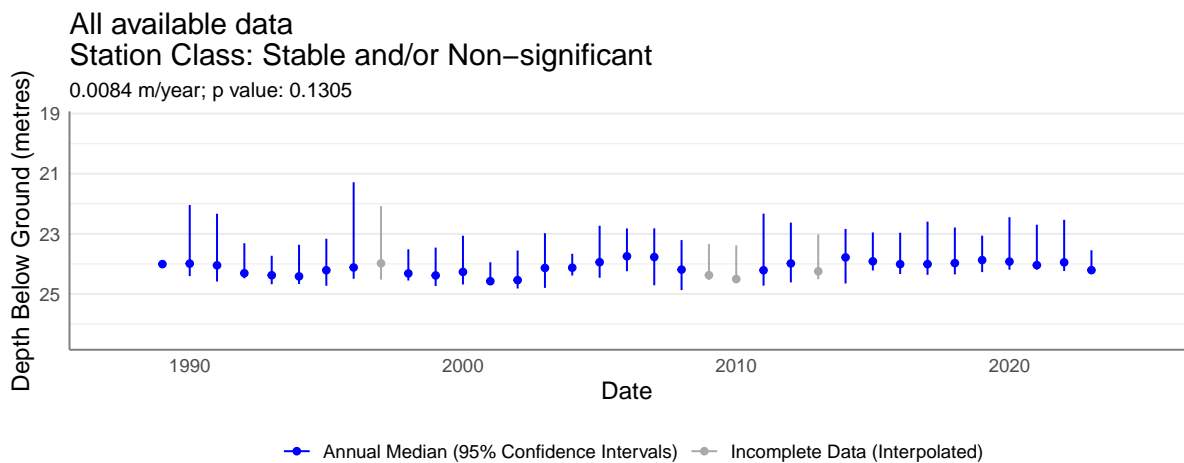
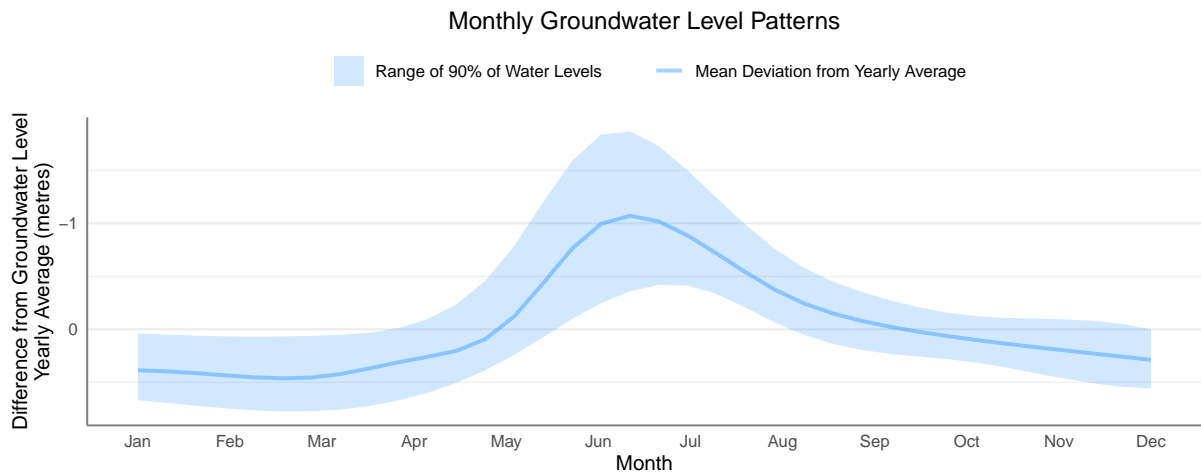
Aquifer Number: 482 **Aquifer Type:** Sand and Gravel



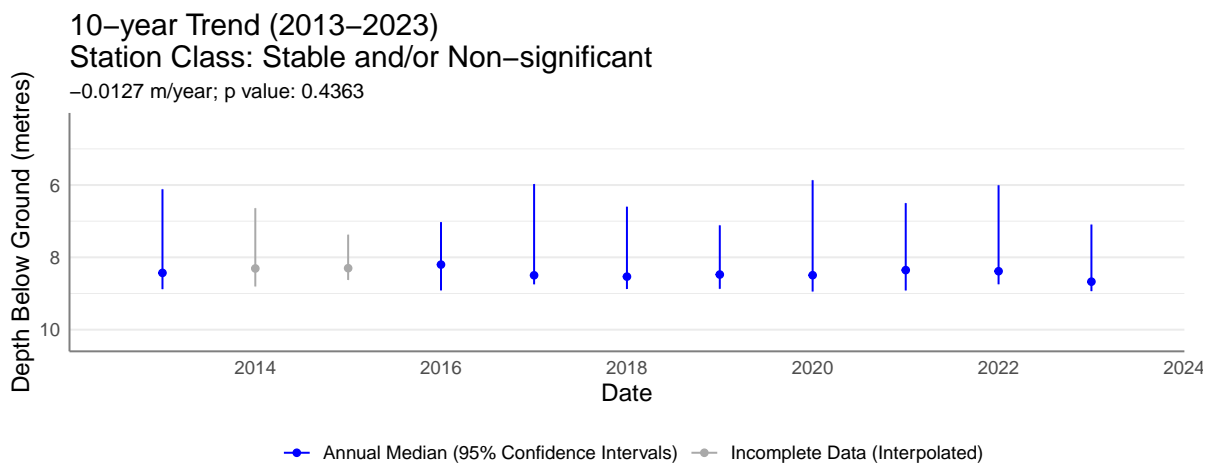
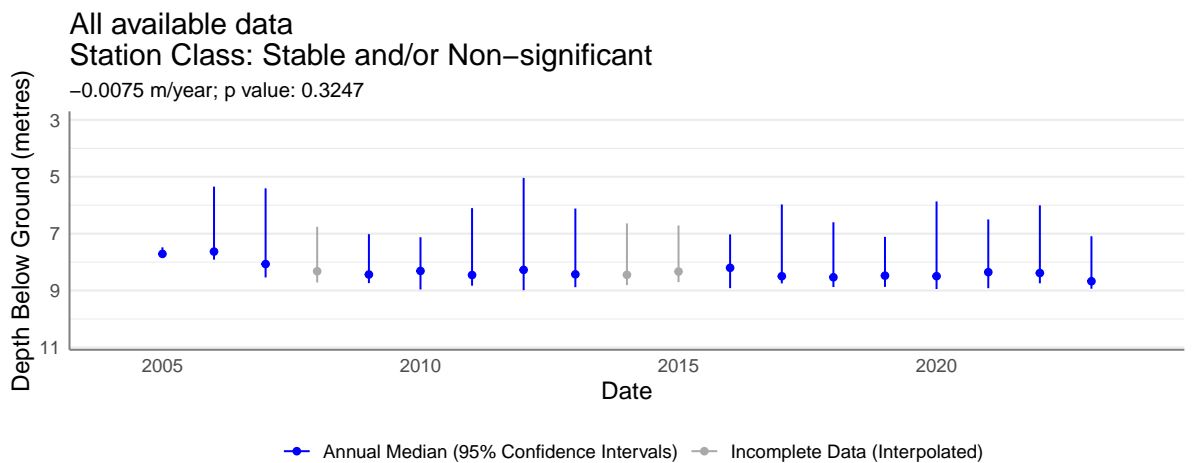
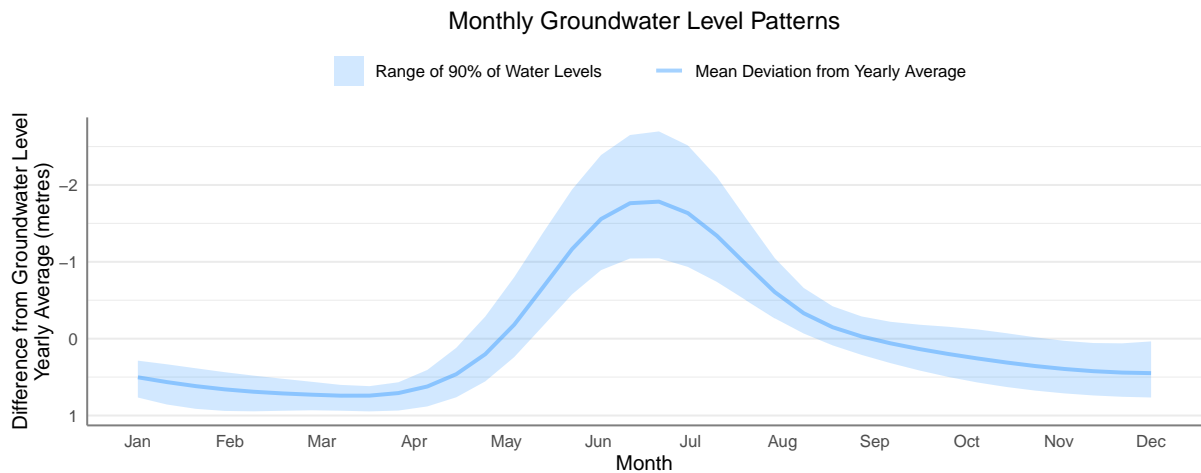
Region: Kootenay / Boundary

Observation Well Number: 309

Aquifer Number: 450 **Aquifer Type:** Sand and Gravel



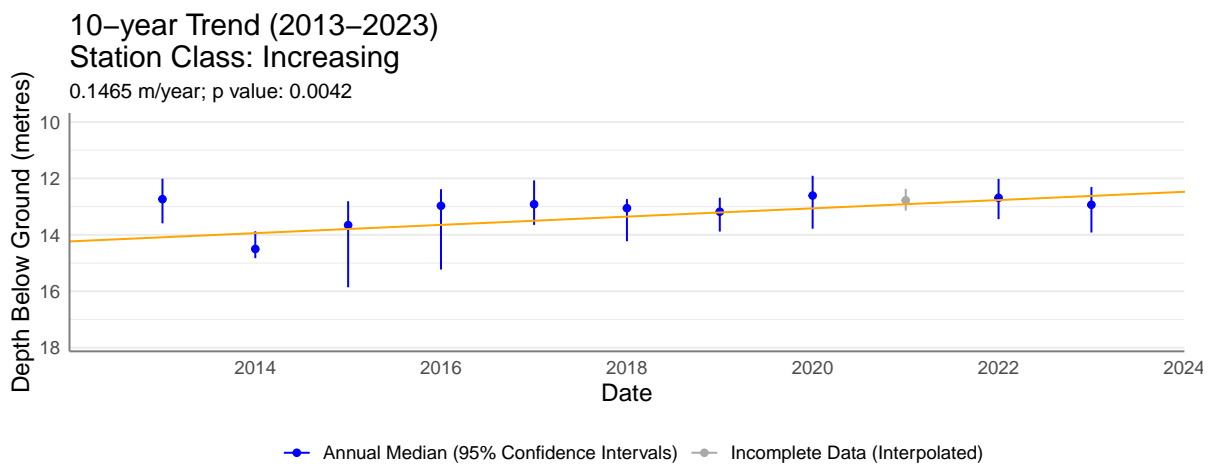
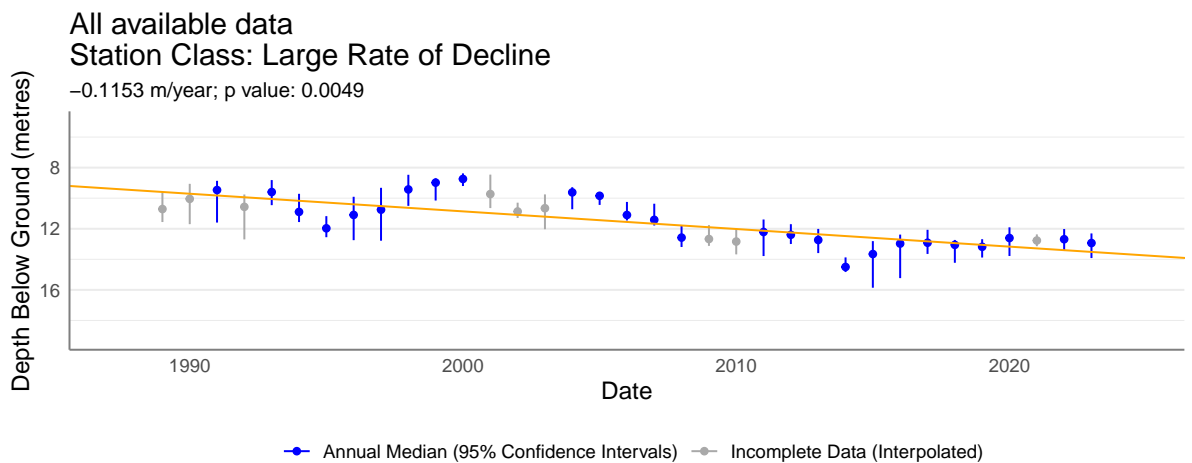
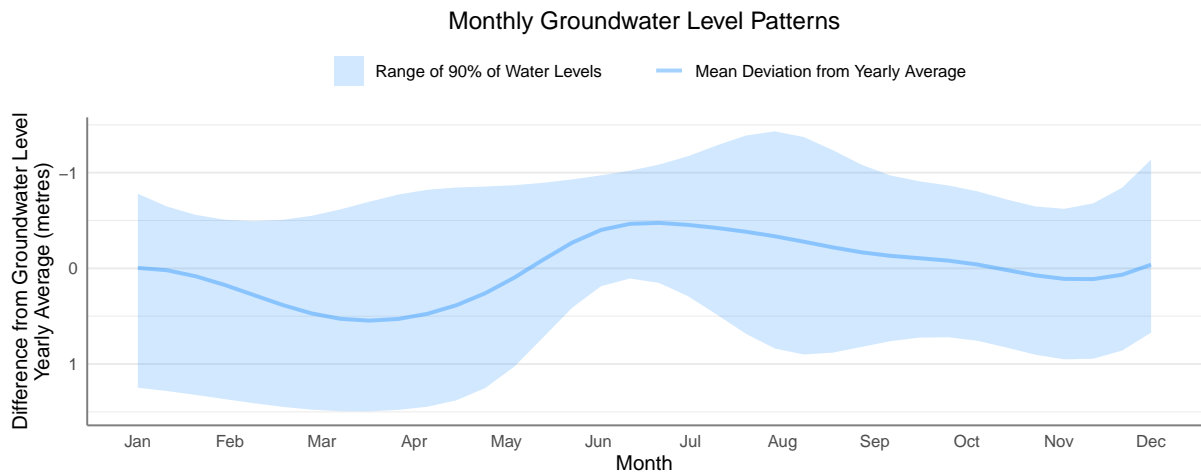
Region: Kootenay / Boundary
Observation Well Number: 363
Aquifer Number: 540 **Aquifer Type:** Unknown



Region: Northeast

Observation Well Number: 286

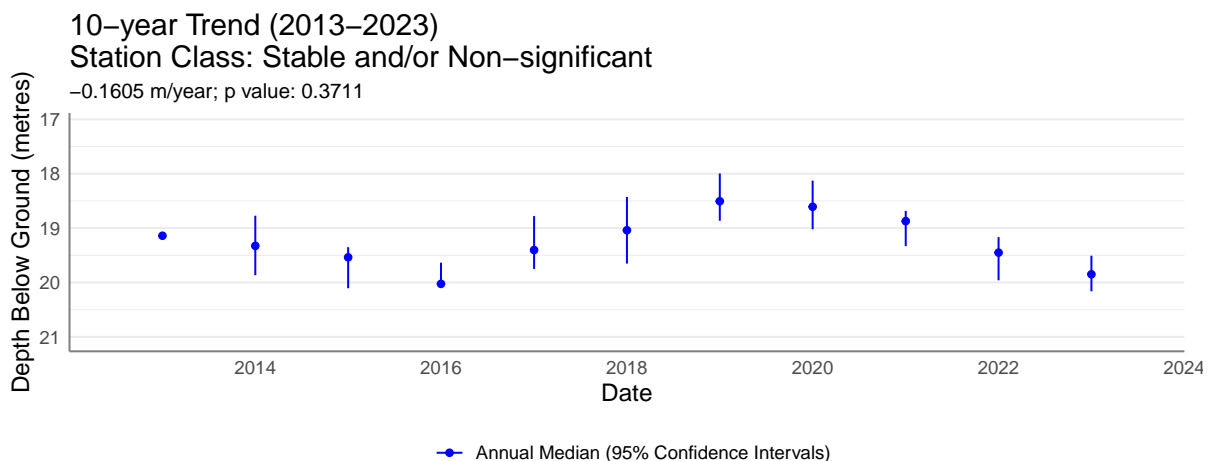
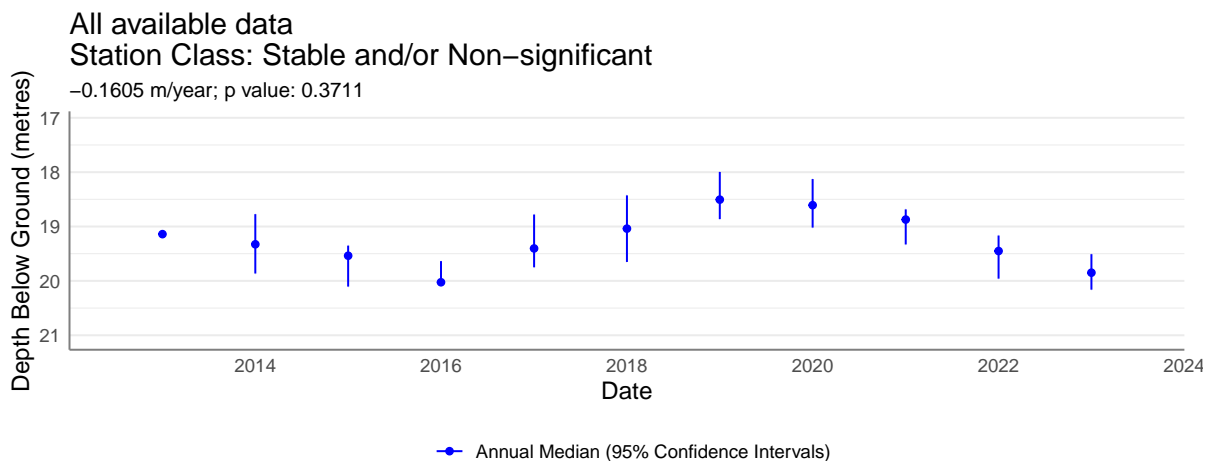
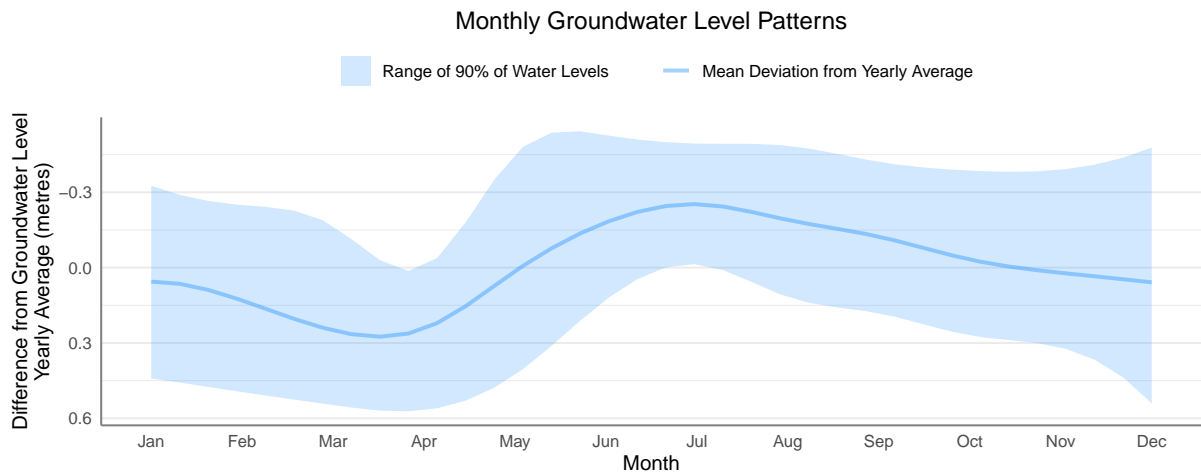
Aquifer Number: 635 **Aquifer Type:** Sand and Gravel



Region: Northeast

Observation Well Number: 416

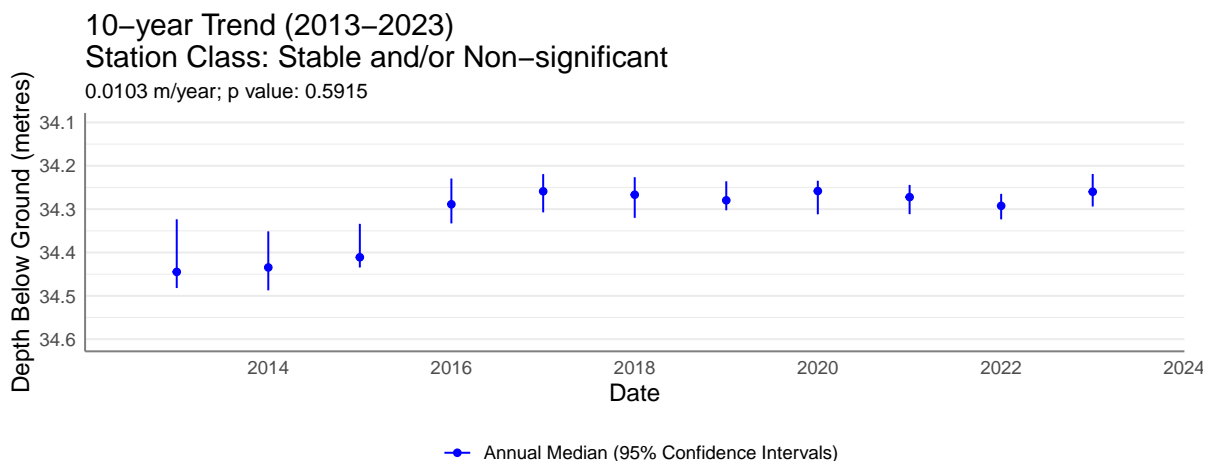
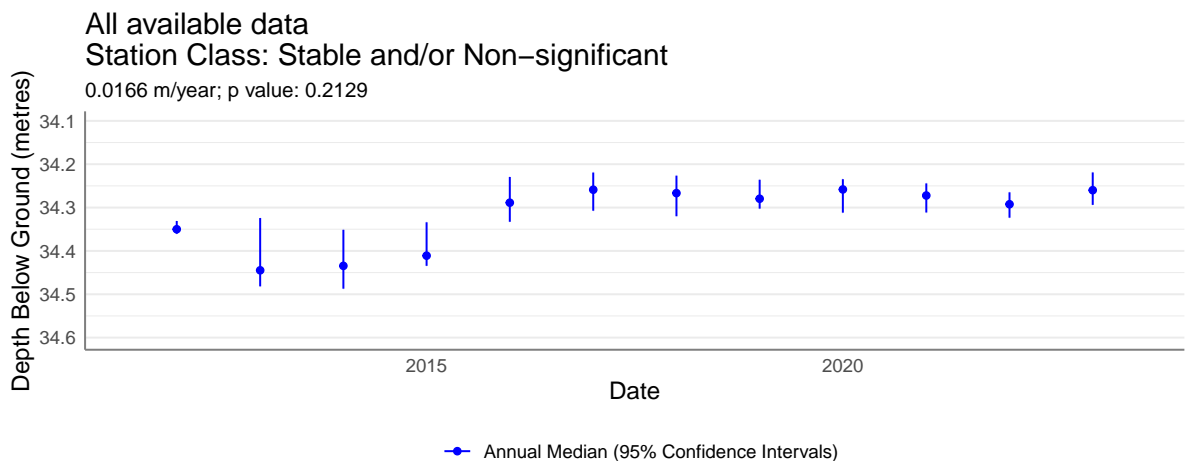
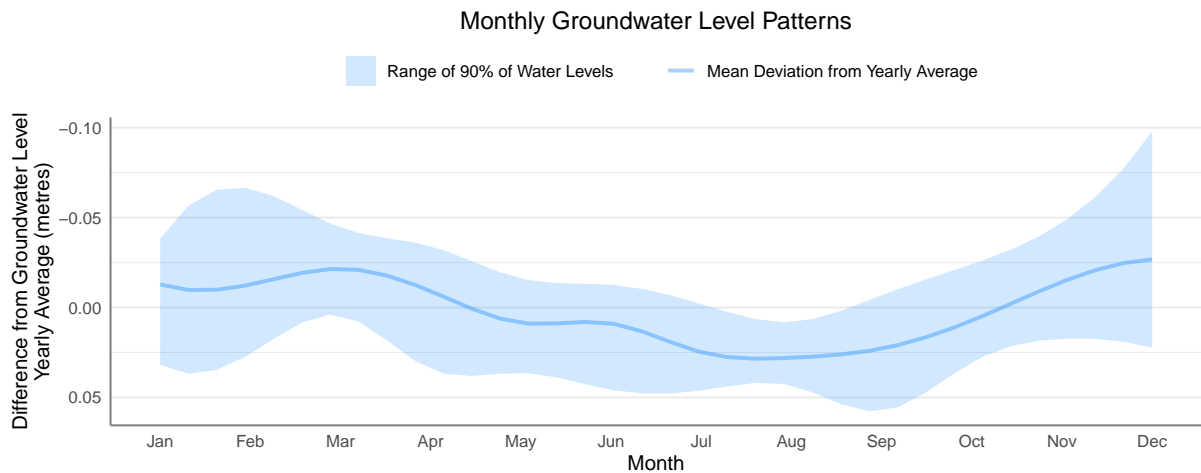
Aquifer Number: 595 **Aquifer Type:** Bedrock



Region: Northeast

Observation Well Number: 420

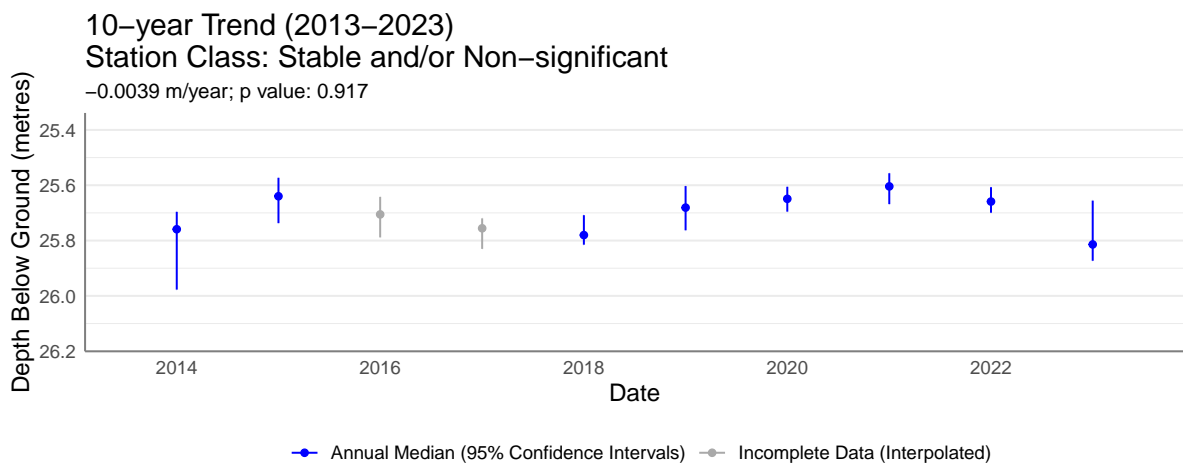
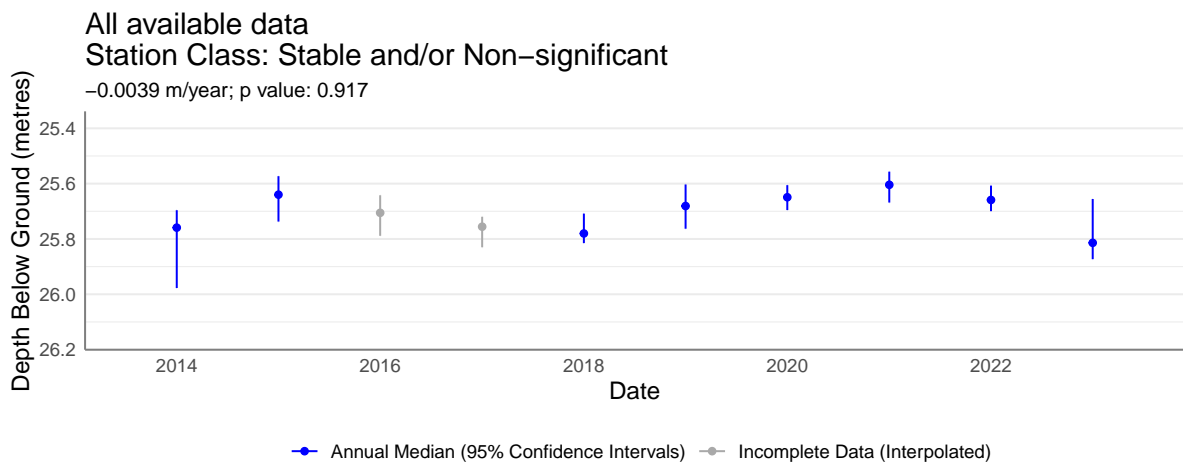
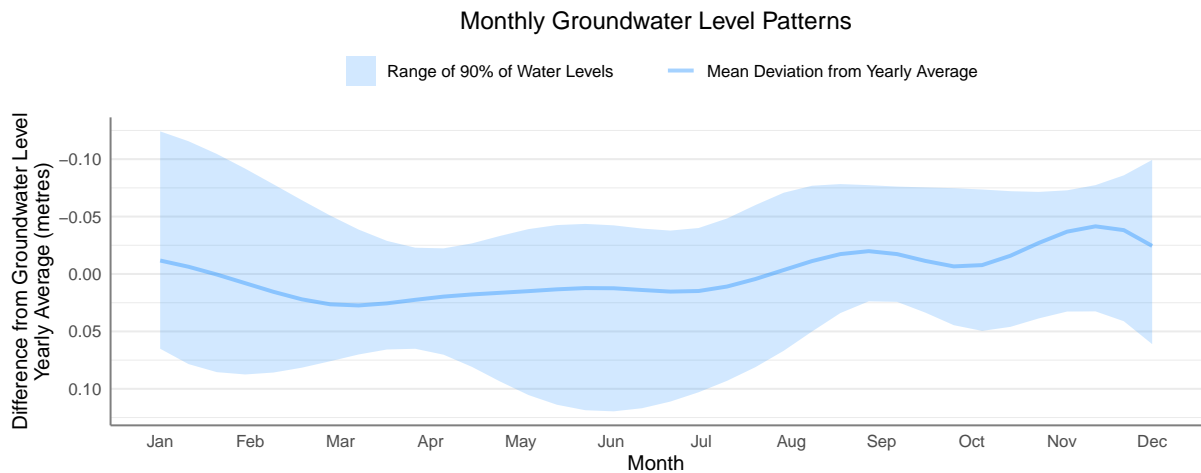
Aquifer Number: 593 **Aquifer Type:** Bedrock



Region: Northeast

Observation Well Number: 445

Aquifer Number: 590 Aquifer Type: Sand and Gravel

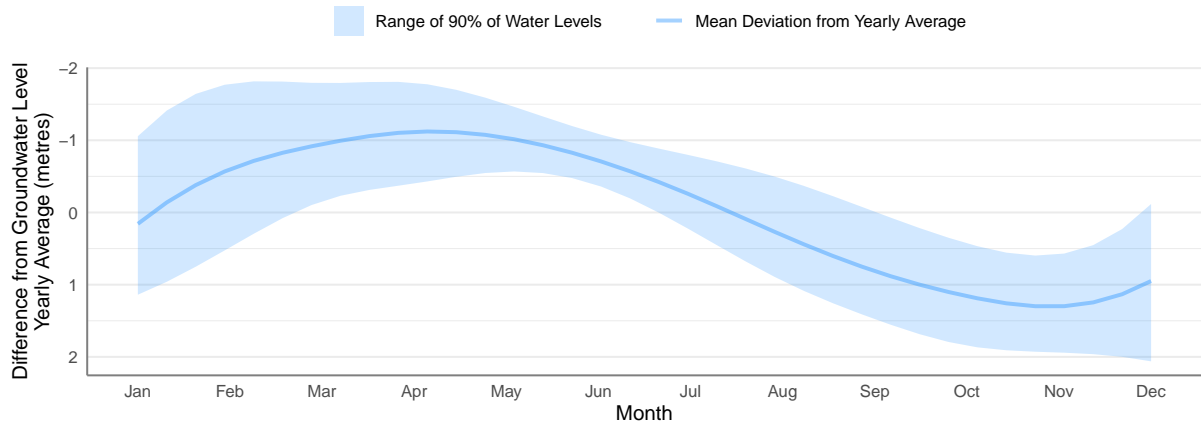


Region: South Coast

Observation Well Number: 002

Aquifer Number: 15 **Aquifer Type:** Sand and Gravel

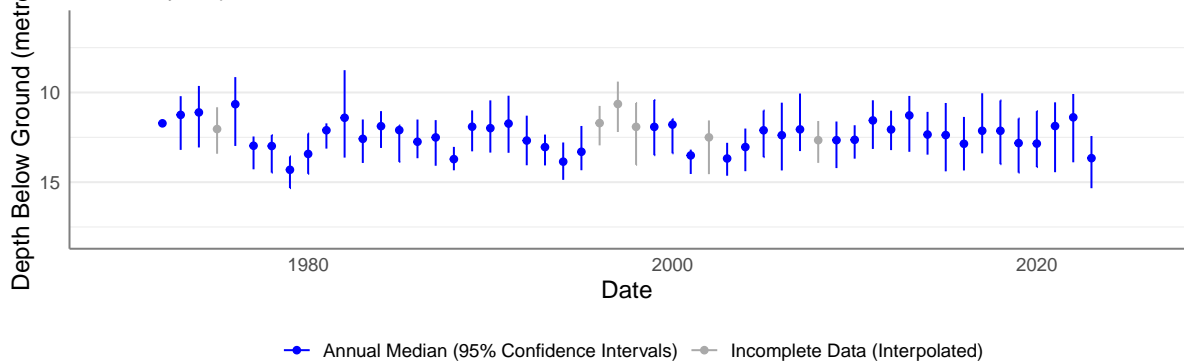
Monthly Groundwater Level Patterns



All available data

Station Class: Stable and/or Non-significant

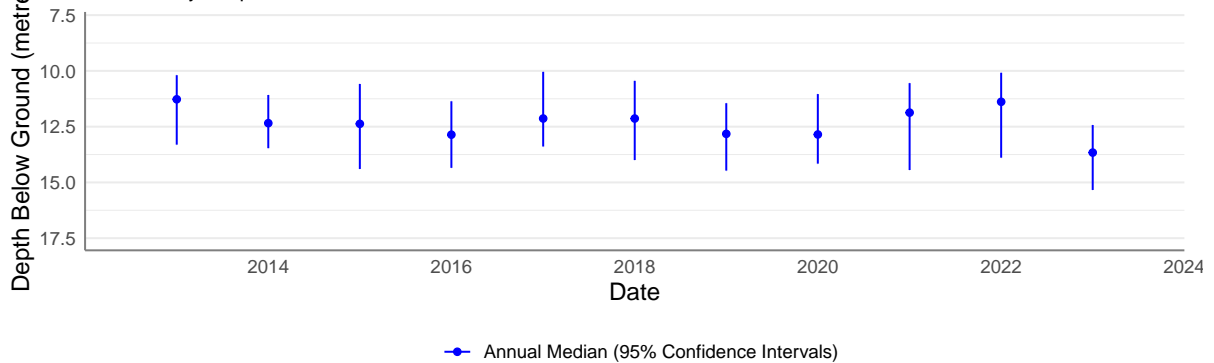
-3e-04 m/year; p value: 0.987



10-year Trend (2013–2023)

Station Class: Stable and/or Non-significant

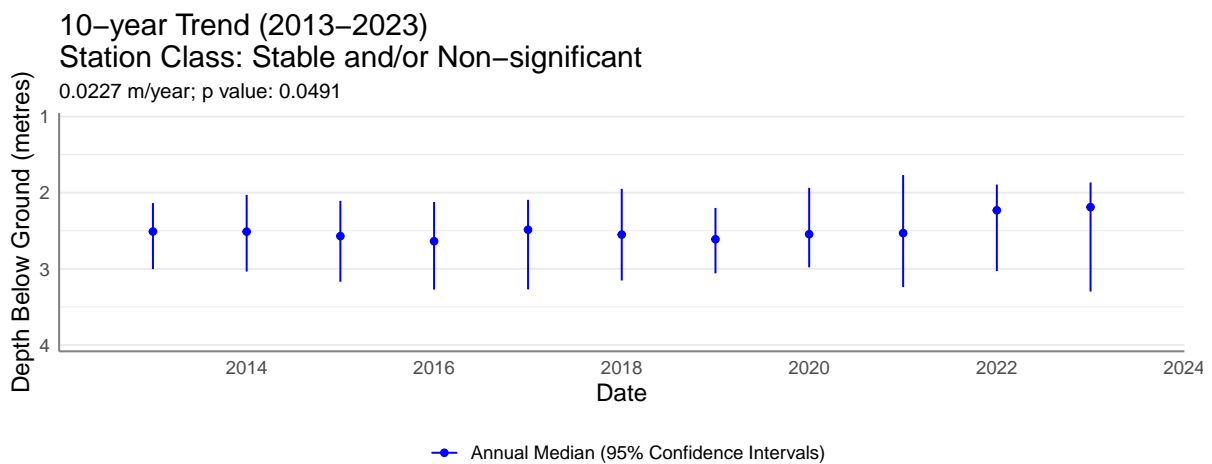
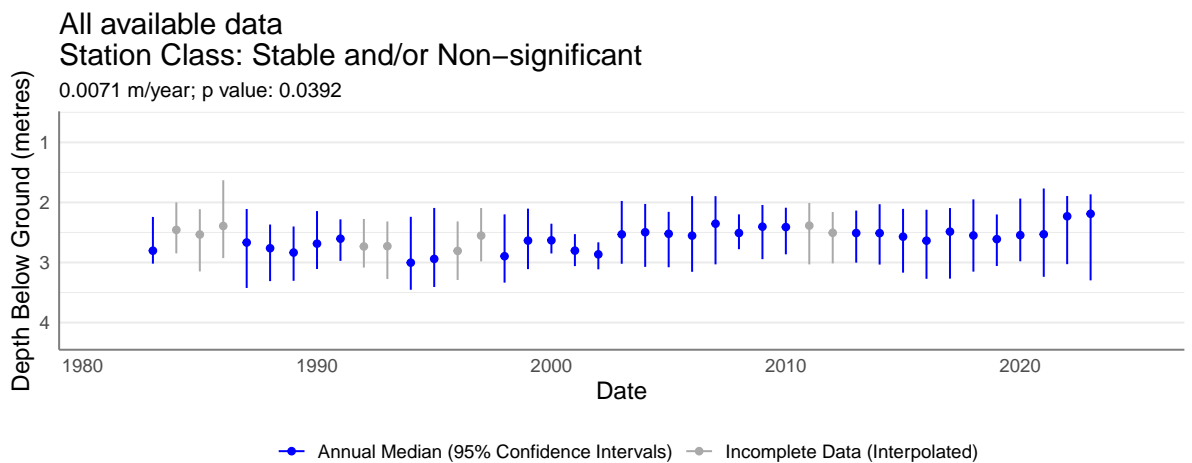
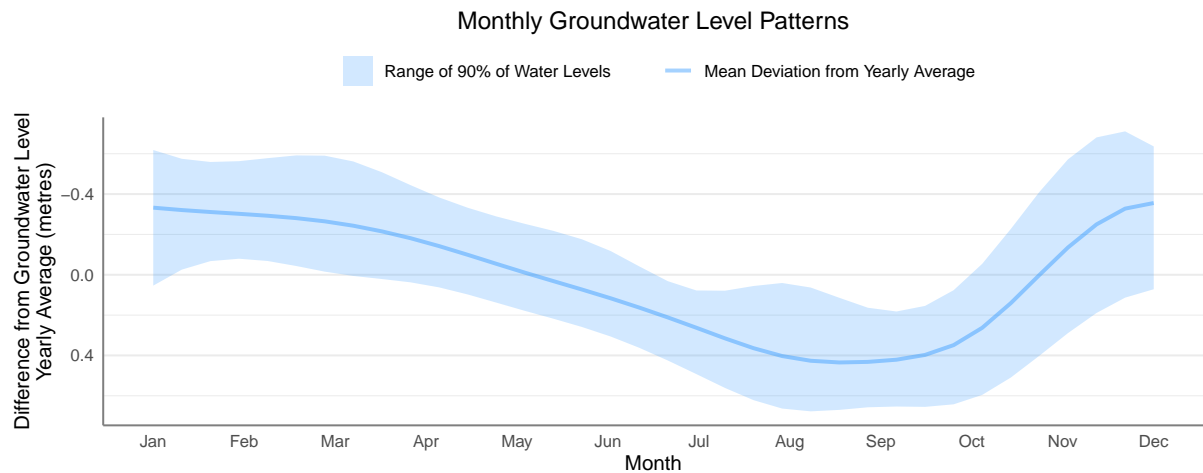
-0.0854 m/year; p value: 0.2758



Region: South Coast

Observation Well Number: 255

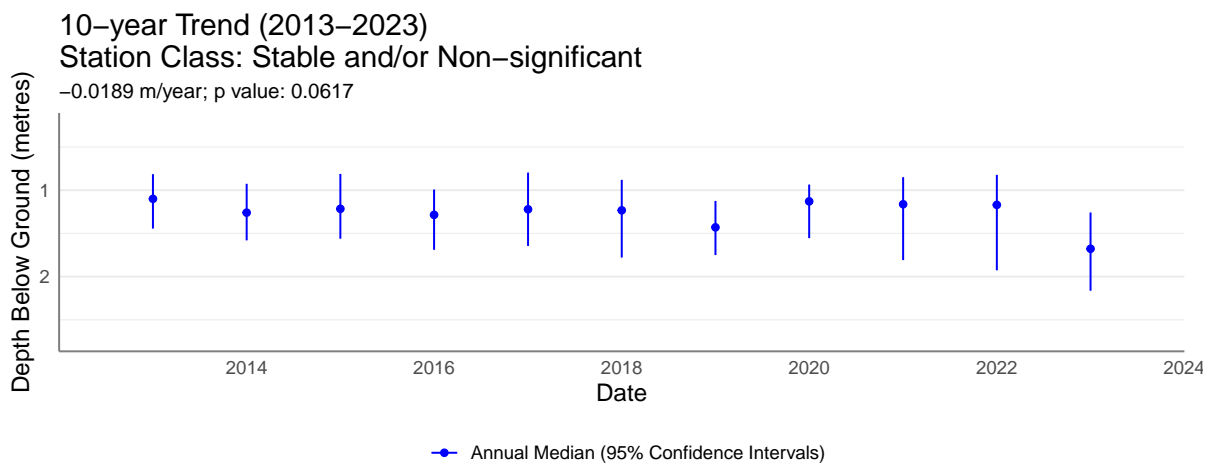
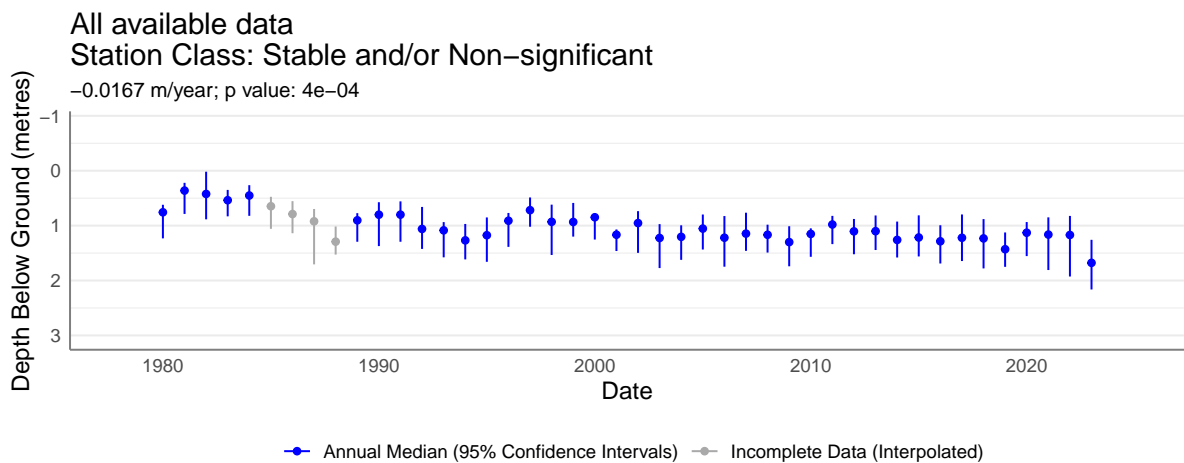
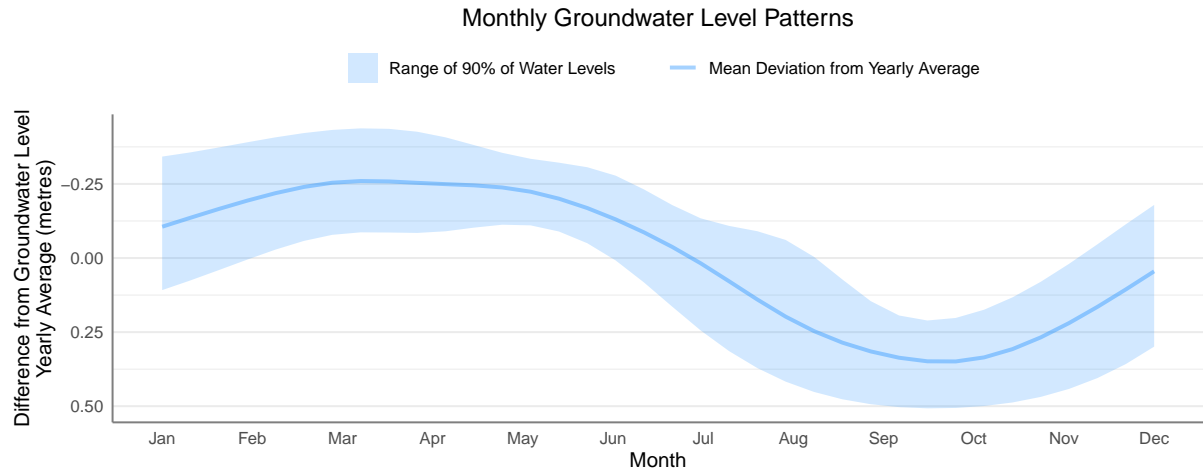
Aquifer Number: 1216 **Aquifer Type:** Bedrock



Region: South Coast

Observation Well Number: 259

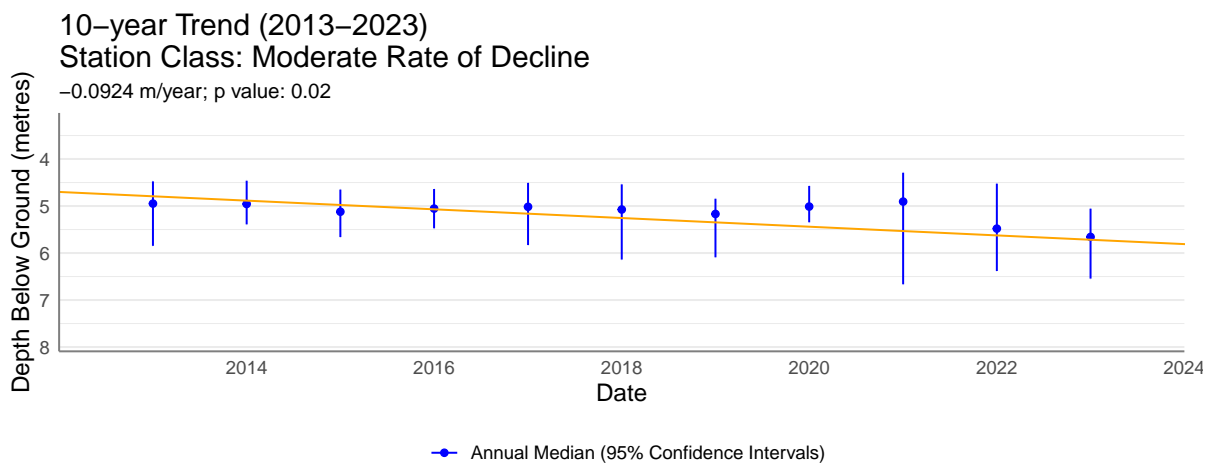
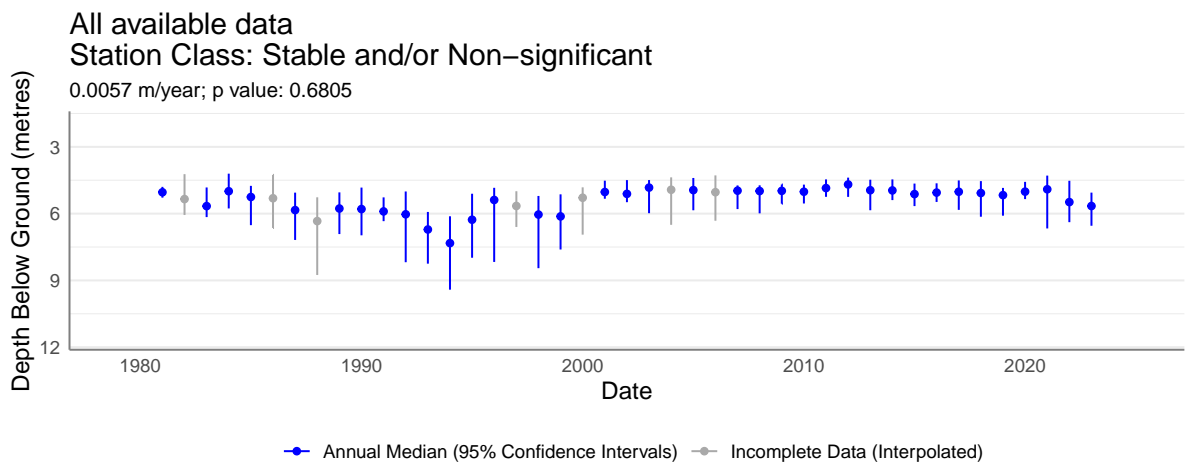
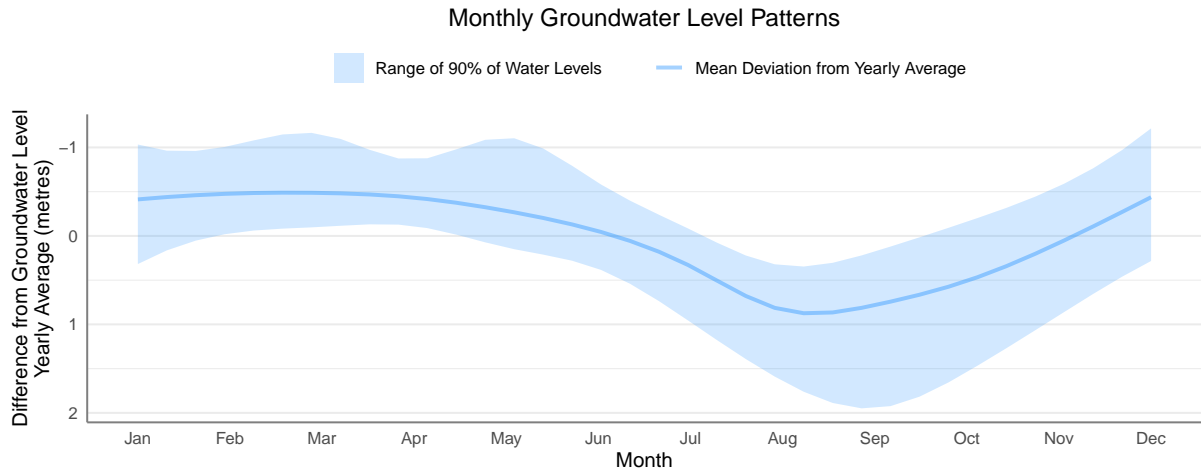
Aquifer Number: 26 **Aquifer Type:** Sand and Gravel



Region: South Coast

Observation Well Number: 272

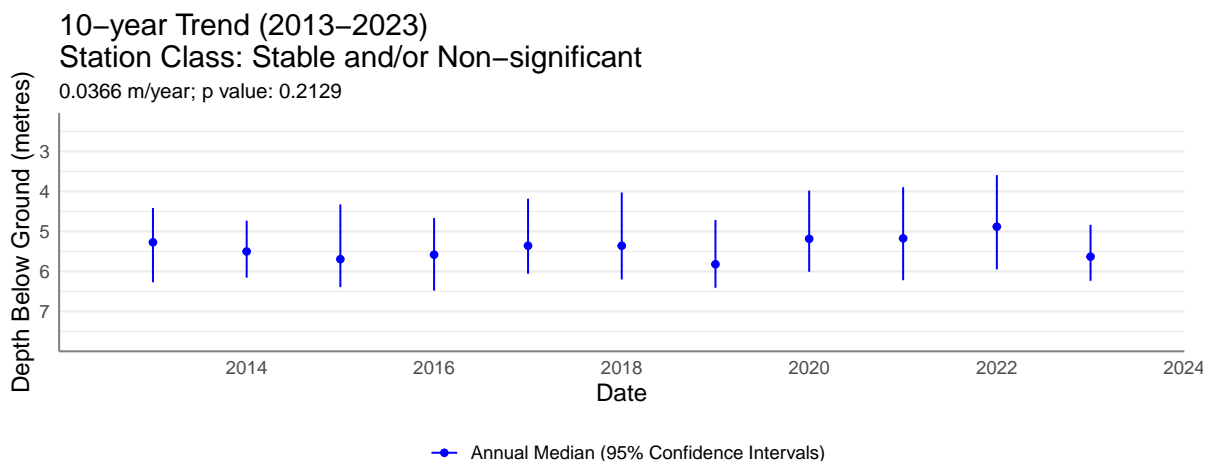
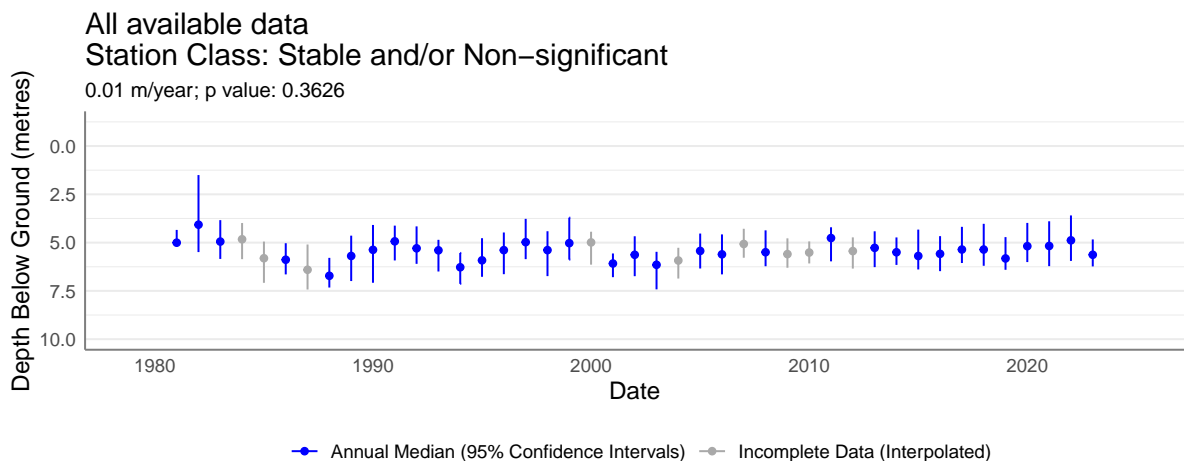
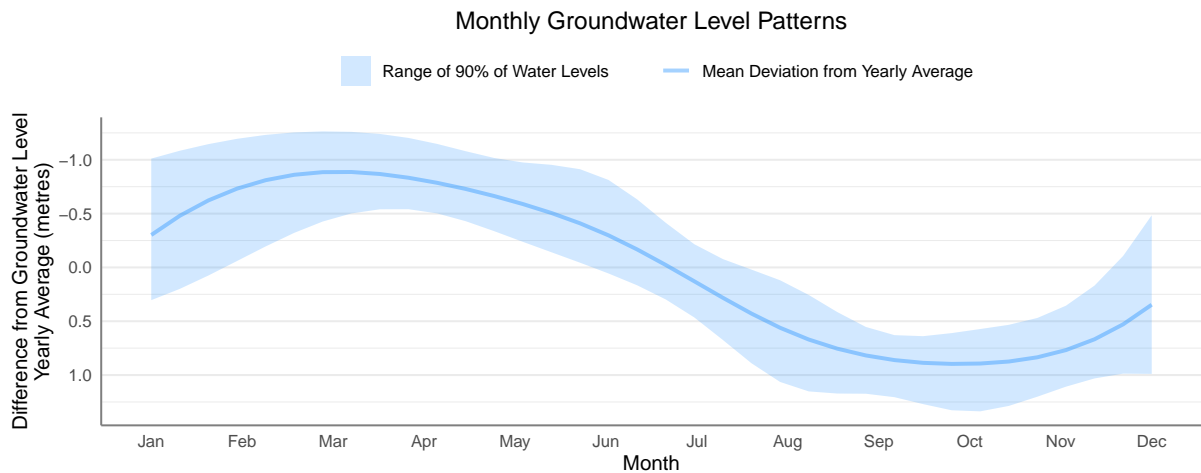
Aquifer Number: 15 **Aquifer Type:** Sand and Gravel



Region: South Coast

Observation Well Number: 275

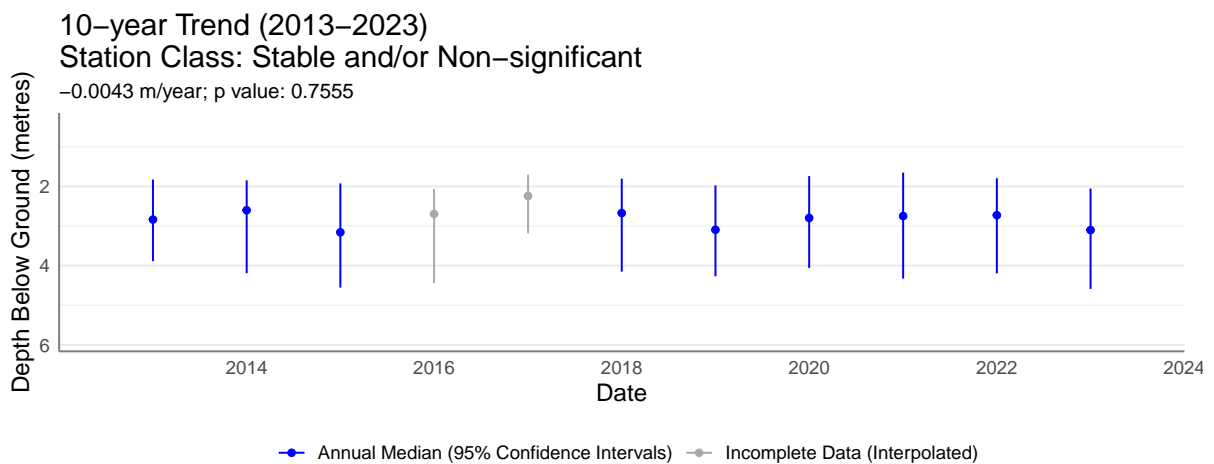
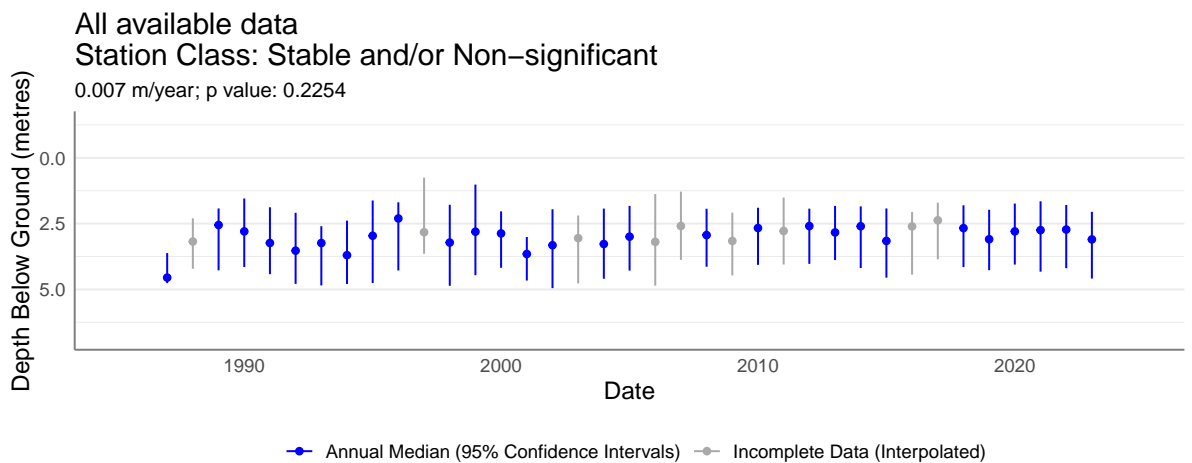
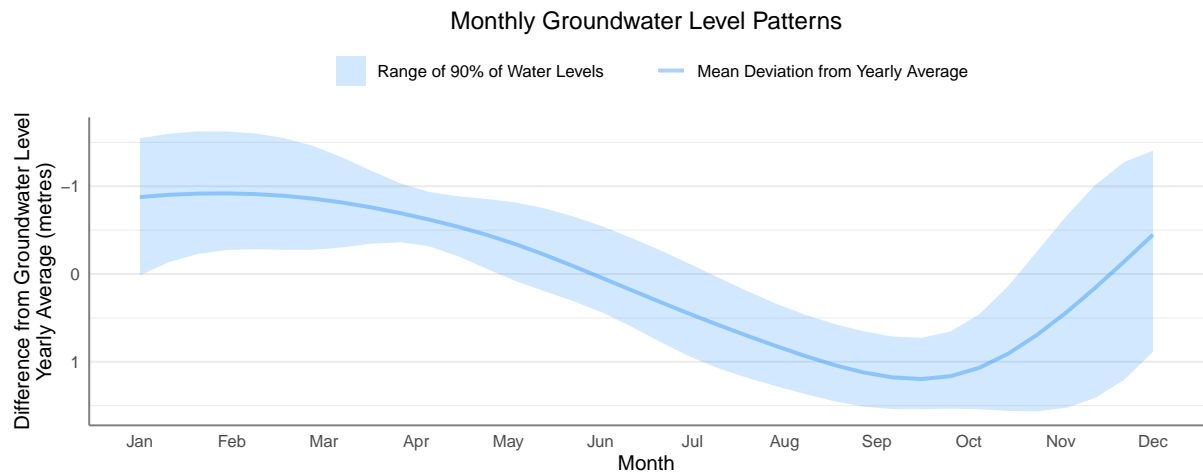
Aquifer Number: 41 **Aquifer Type:** Sand and Gravel



Region: South Coast

Observation Well Number: 299

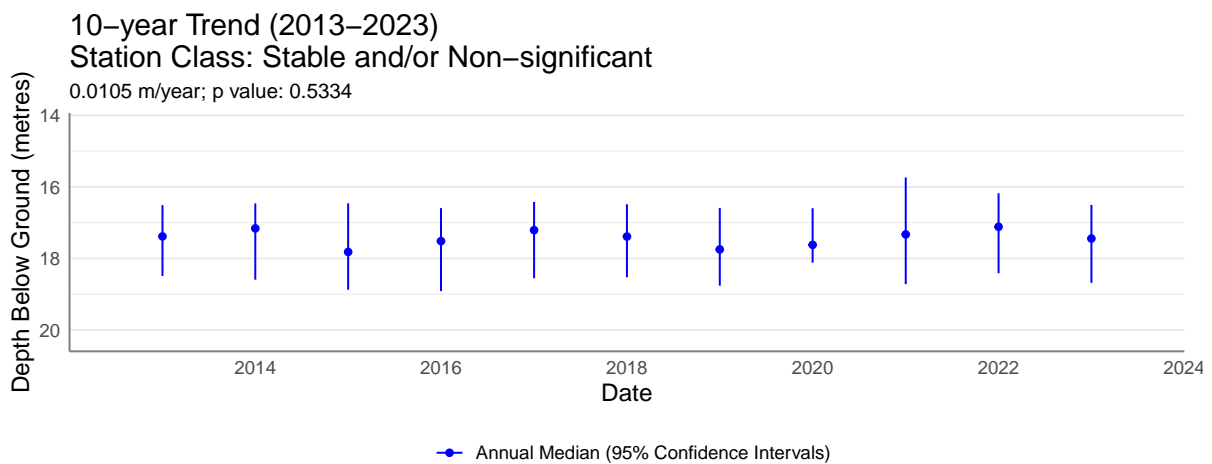
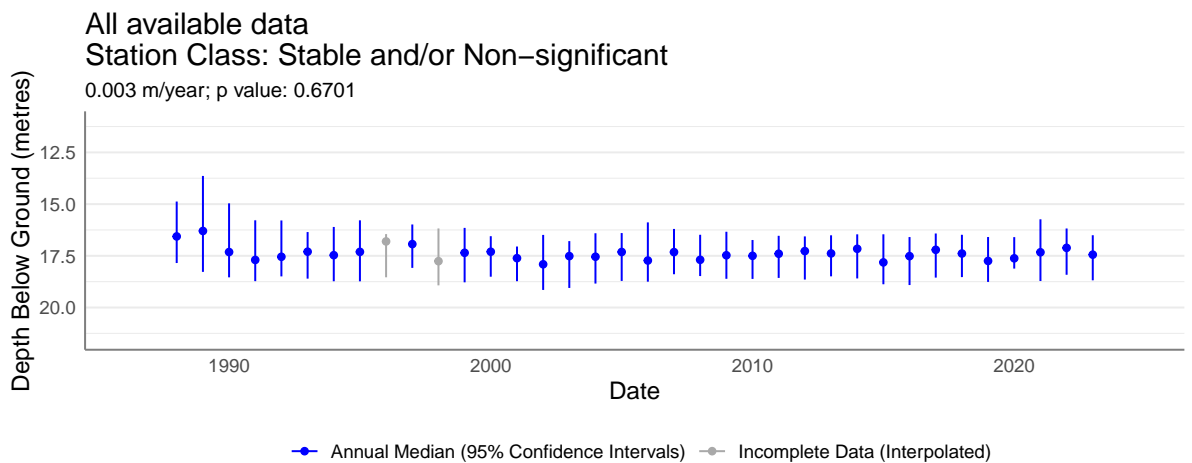
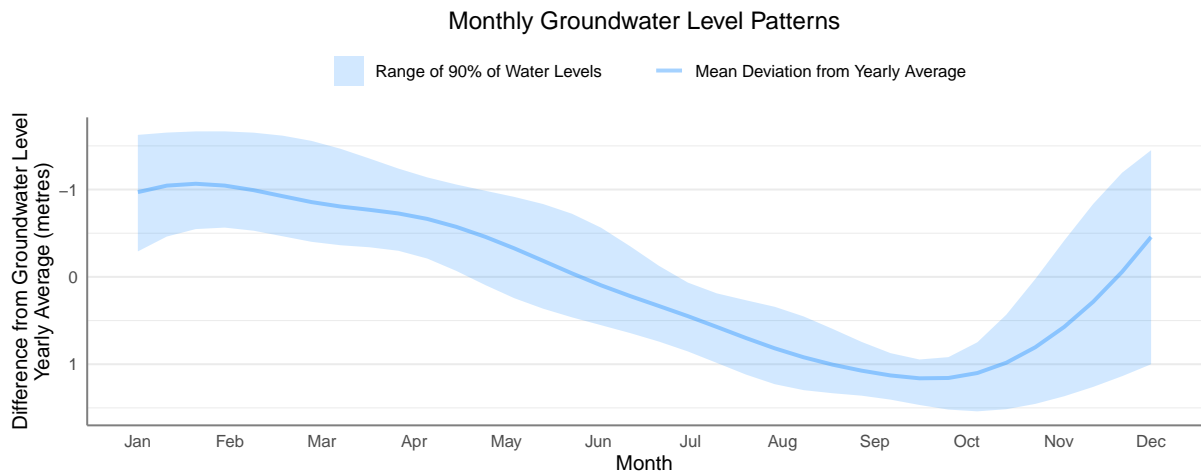
Aquifer Number: 15 **Aquifer Type:** Sand and Gravel



Region: South Coast

Observation Well Number: 301

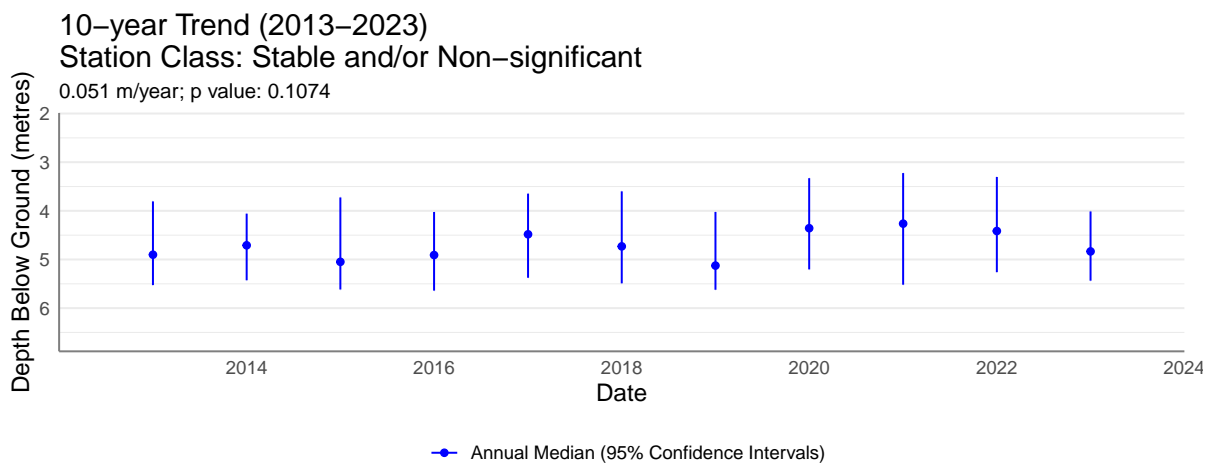
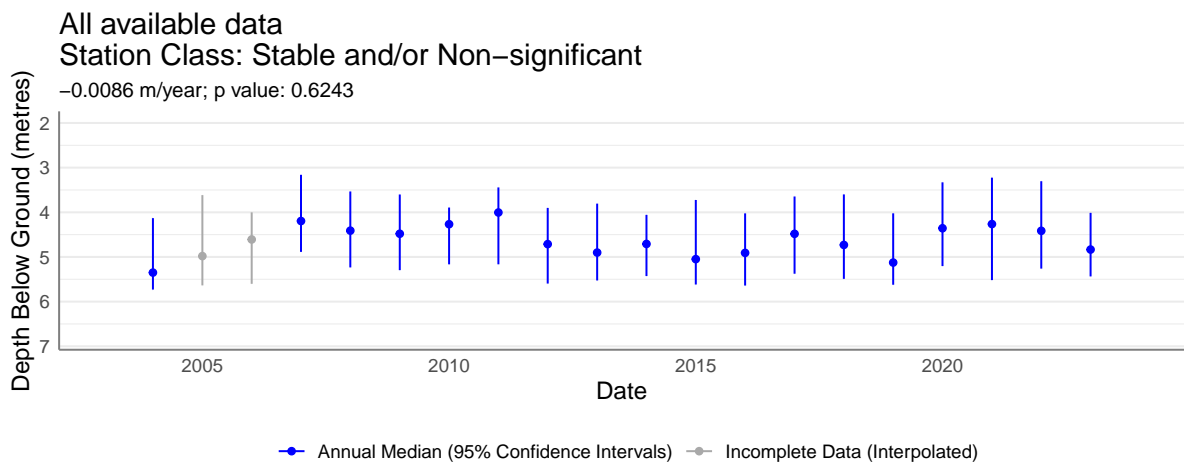
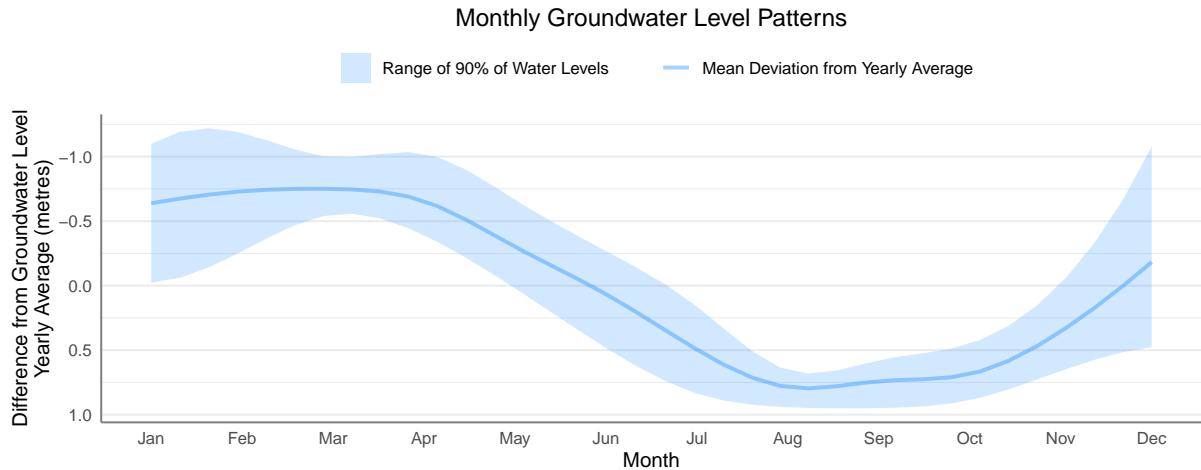
Aquifer Number: 15 **Aquifer Type:** Sand and Gravel



Region: South Coast

Observation Well Number: 353

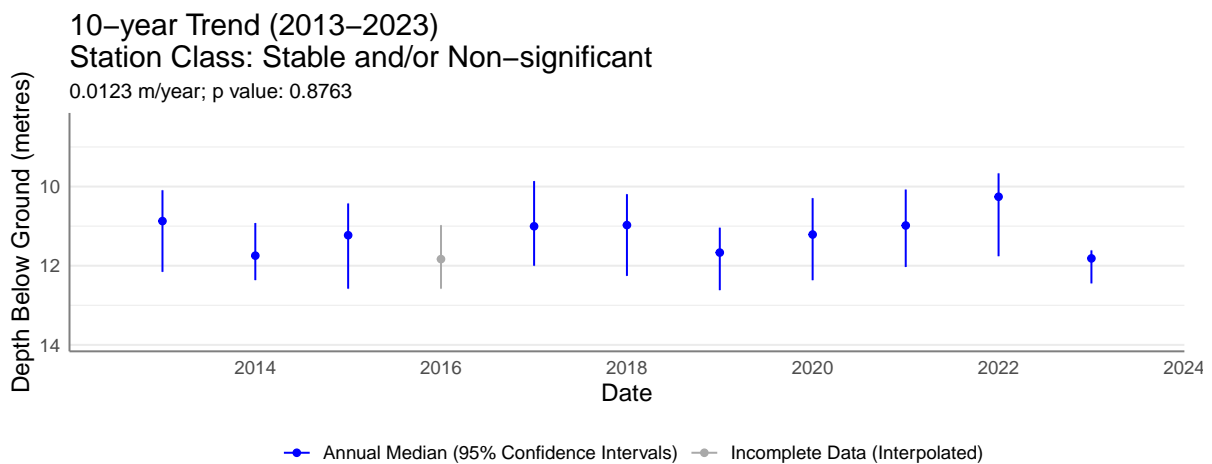
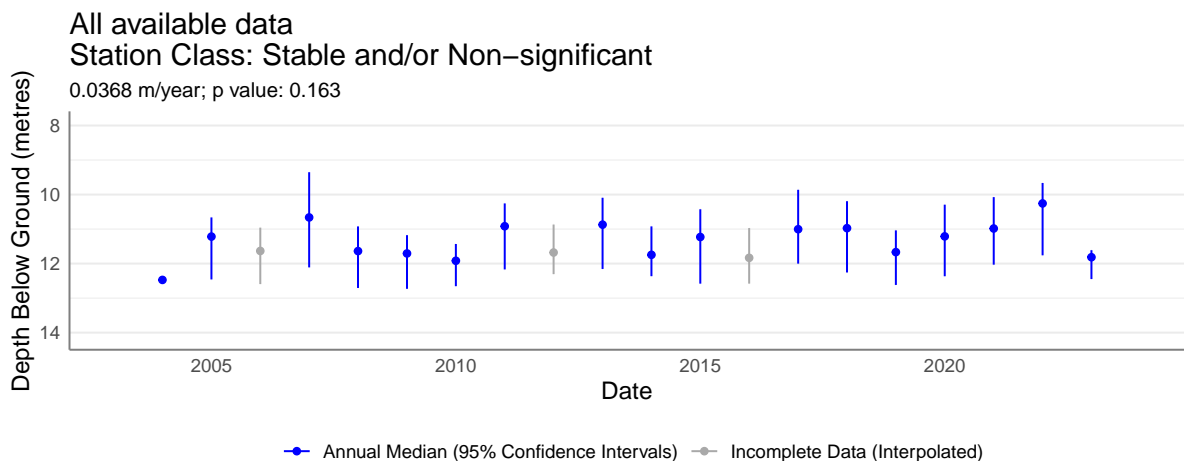
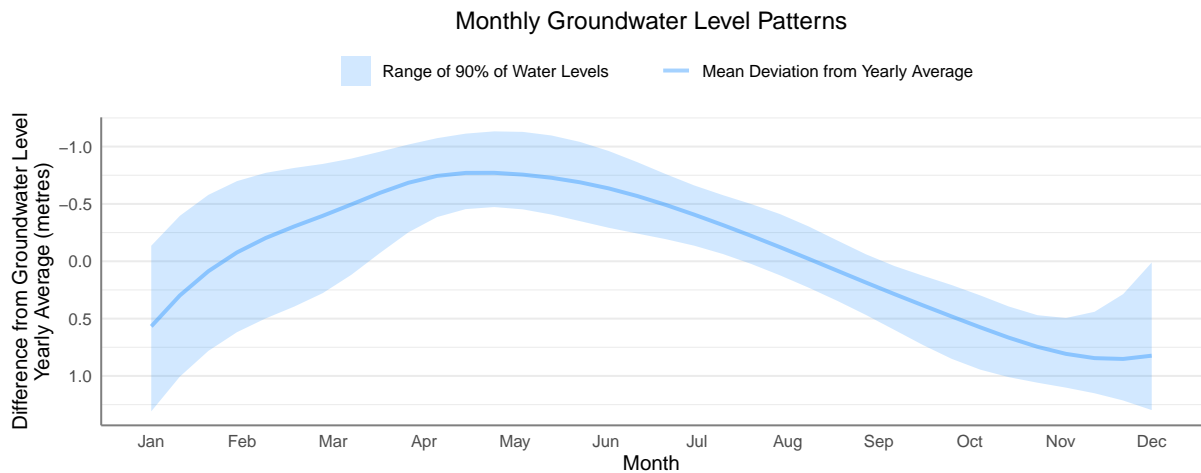
Aquifer Number: 41 Aquifer Type: Sand and Gravel



Region: South Coast

Observation Well Number: 354

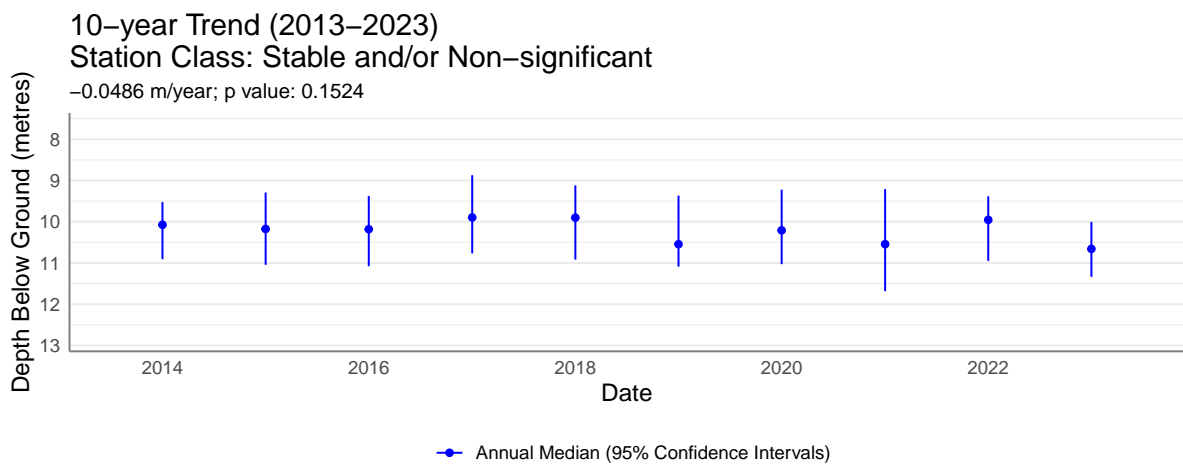
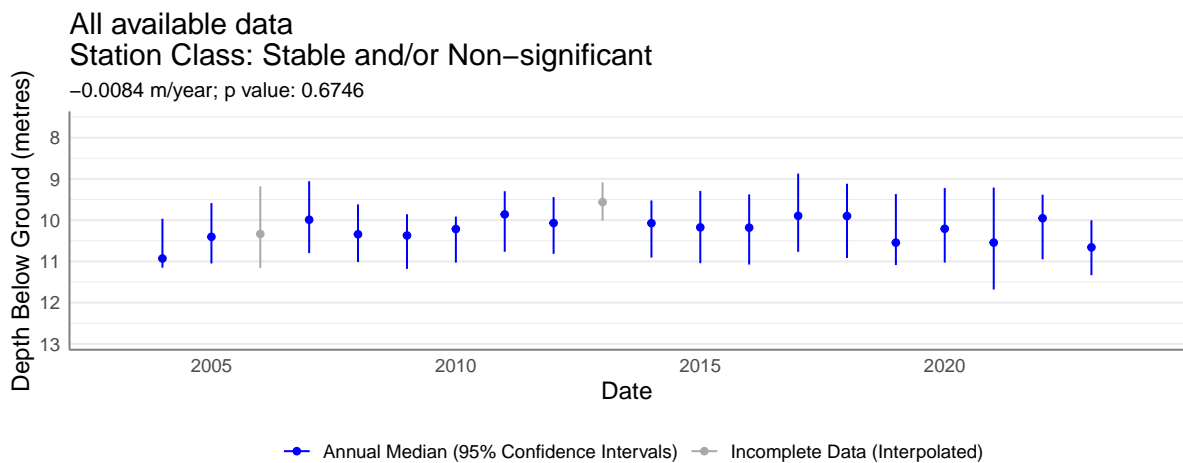
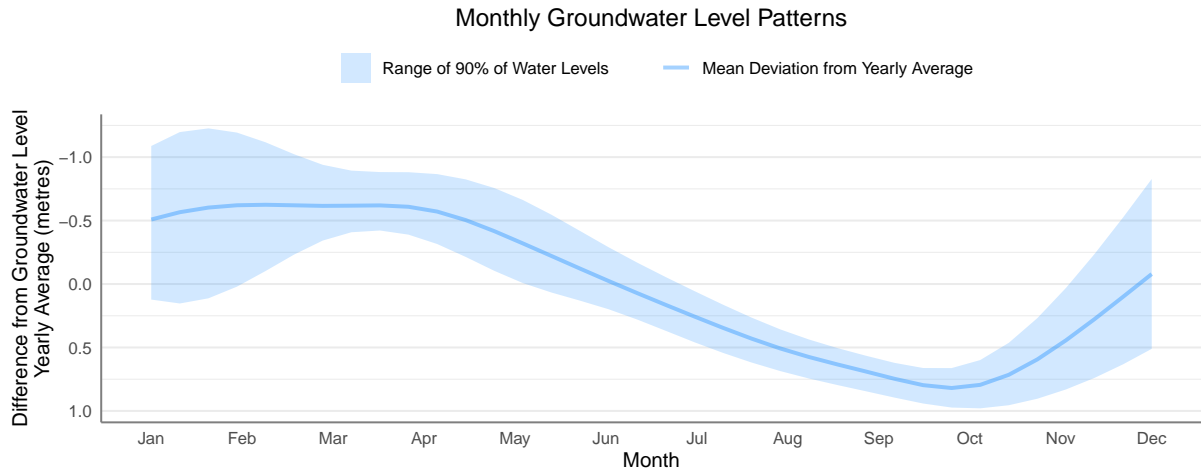
Aquifer Number: 35 **Aquifer Type:** Sand and Gravel



Region: South Coast

Observation Well Number: 357

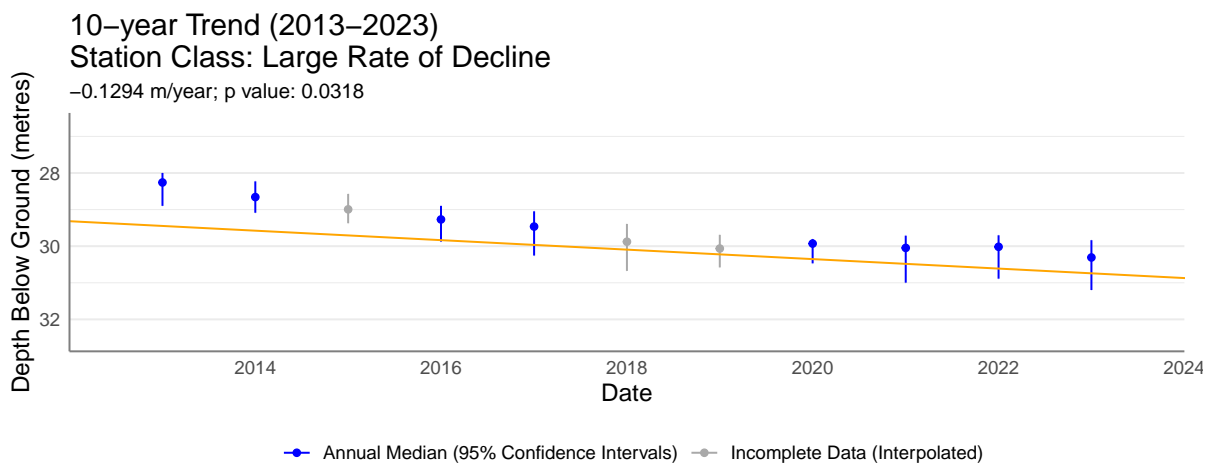
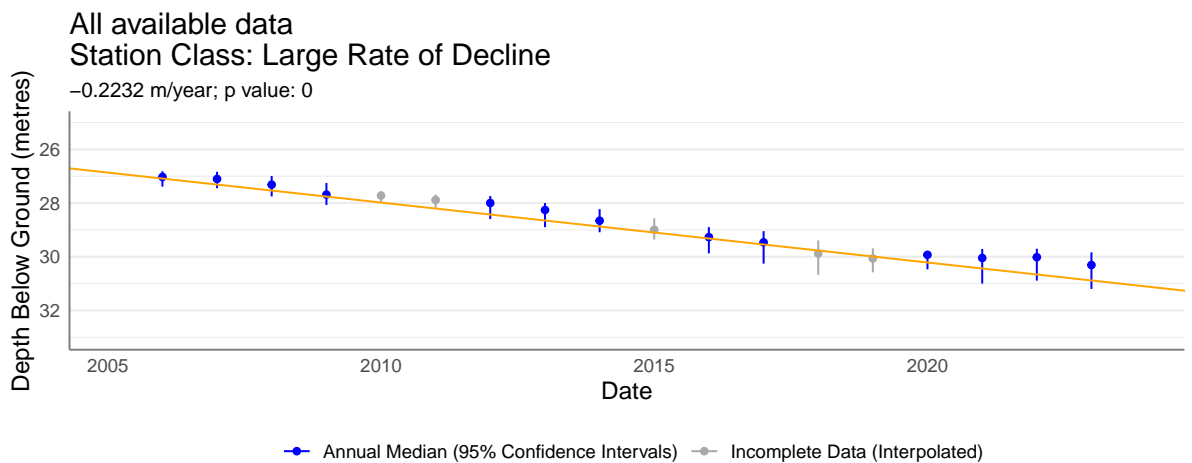
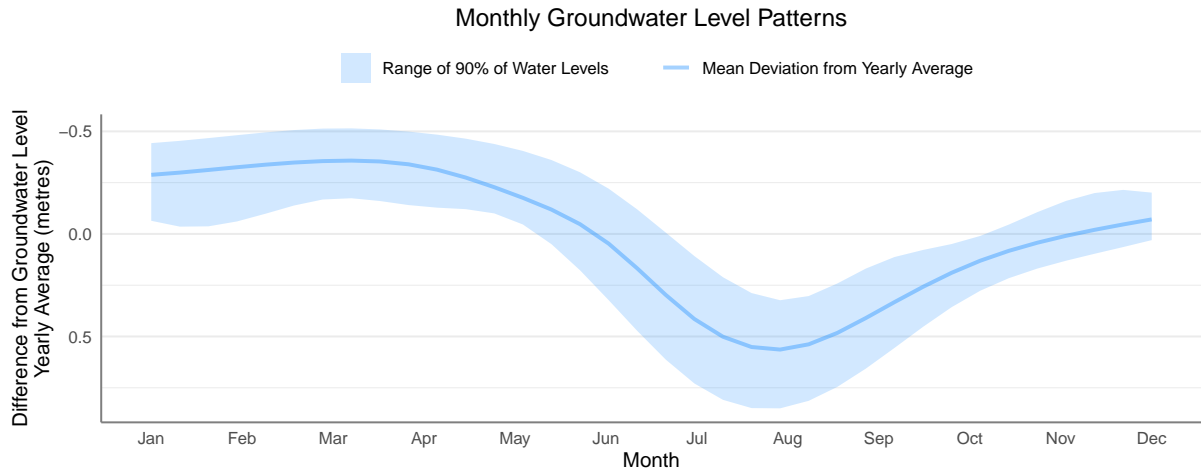
Aquifer Number: 29 Aquifer Type: Sand and Gravel



Region: South Coast

Observation Well Number: 359

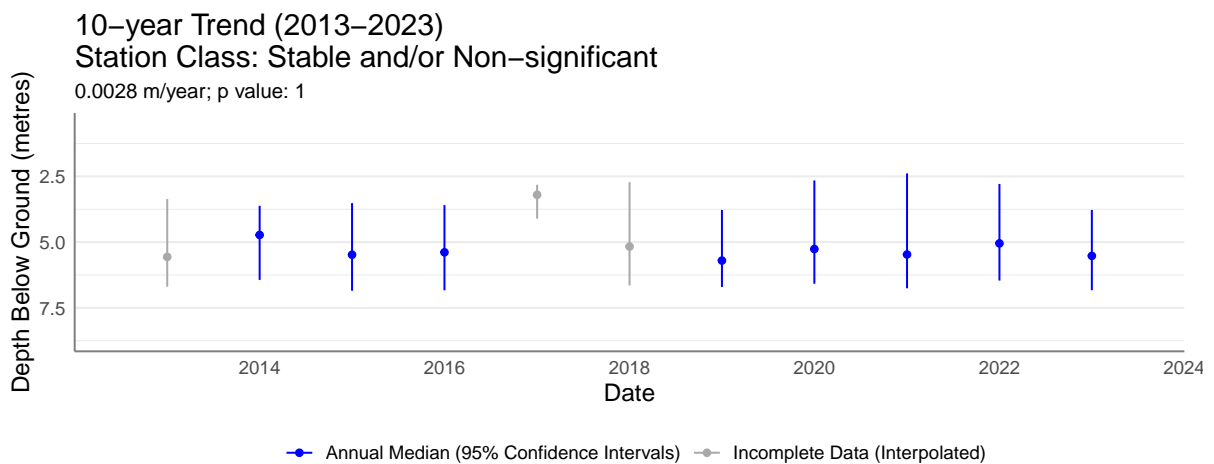
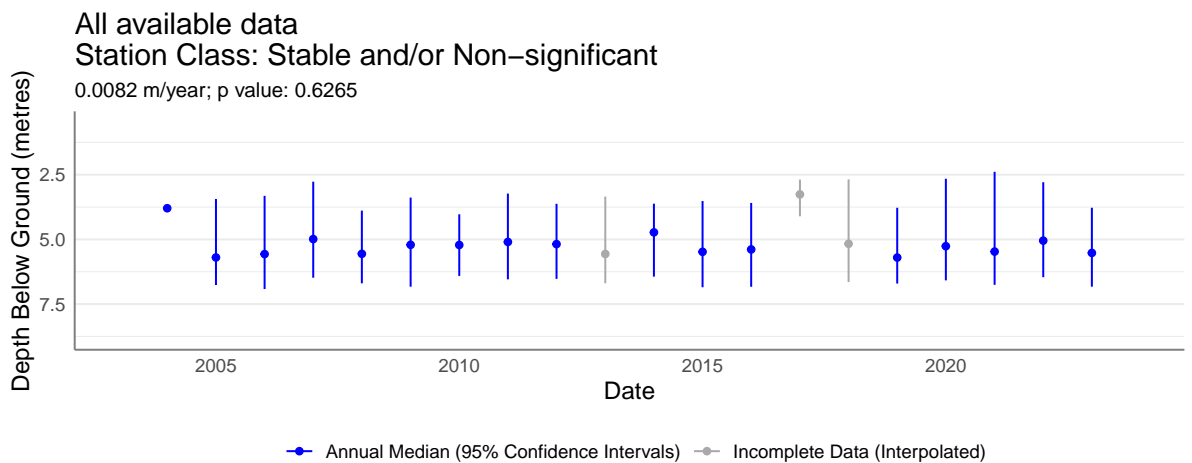
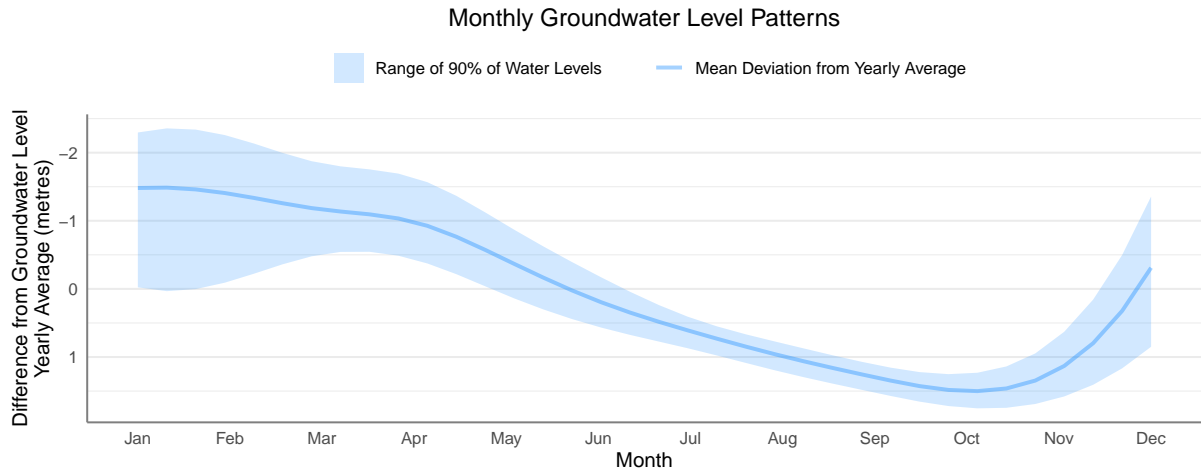
Aquifer Number: 33 **Aquifer Type:** Sand and Gravel



Region: South Coast

Observation Well Number: 360

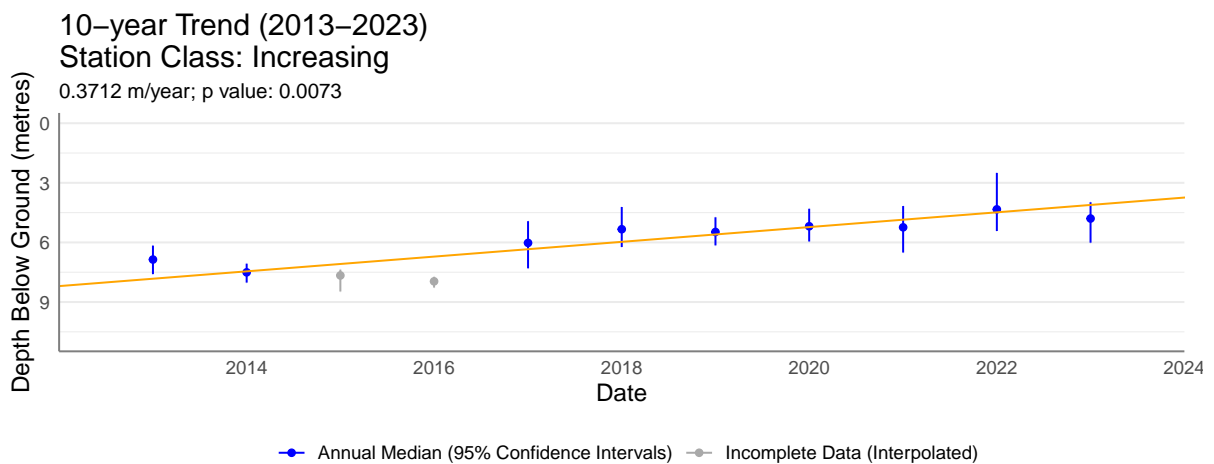
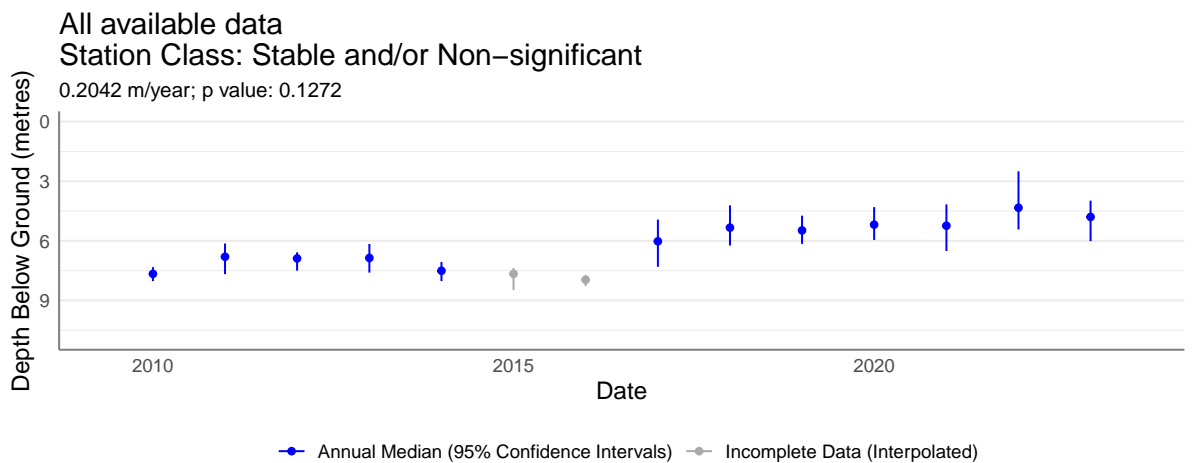
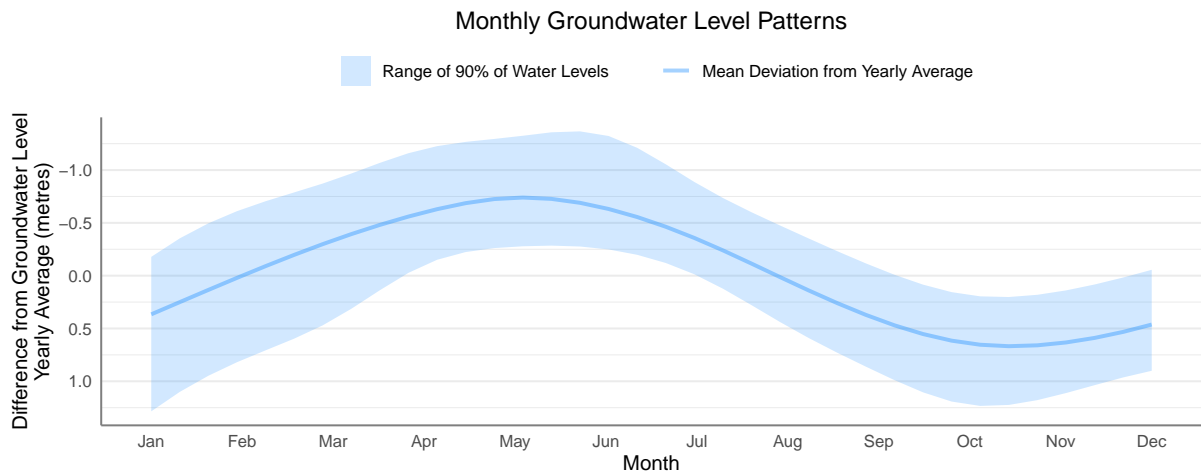
Aquifer Number: 41 Aquifer Type: Sand and Gravel



Region: South Coast

Observation Well Number: 361

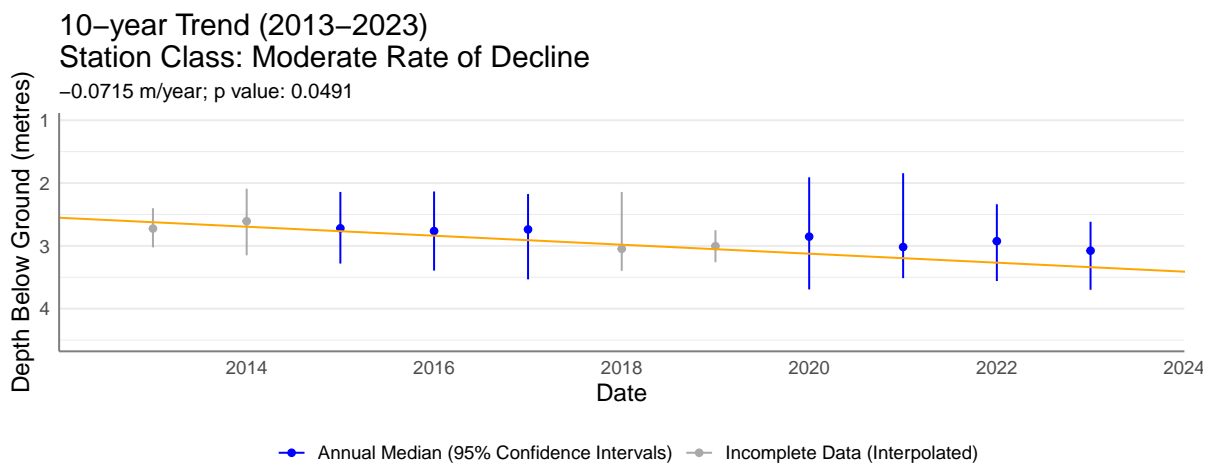
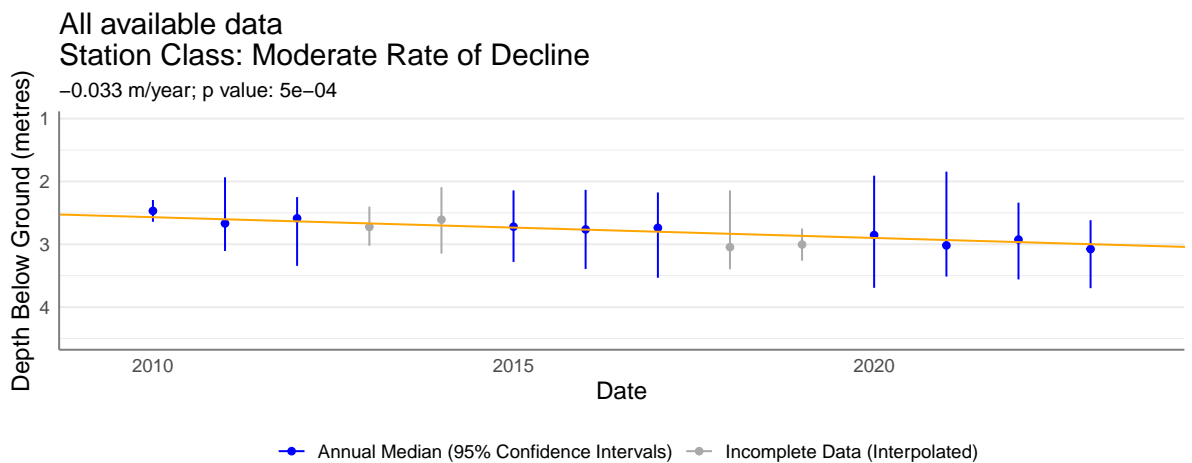
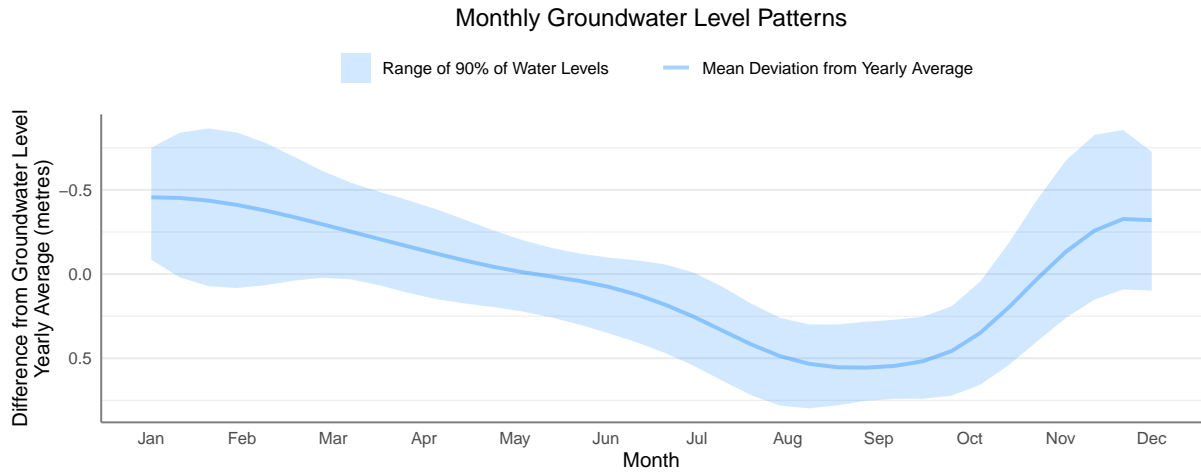
Aquifer Number: 27 **Aquifer Type:** Sand and Gravel



Region: South Coast

Observation Well Number: 406

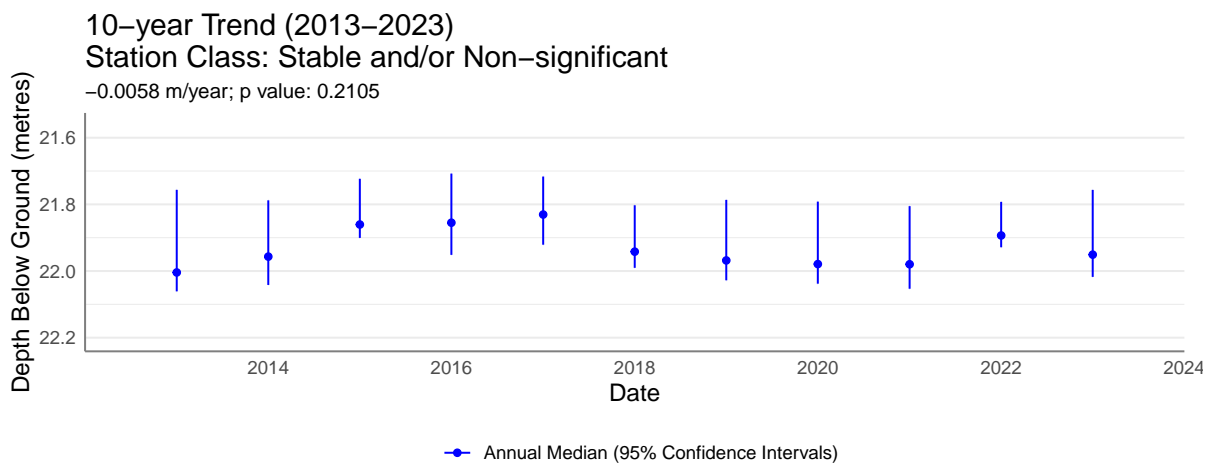
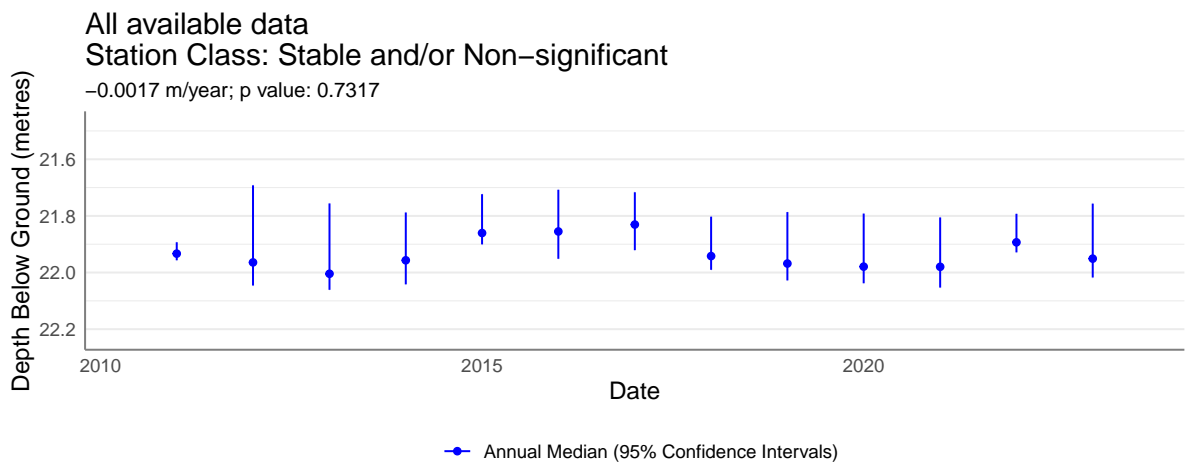
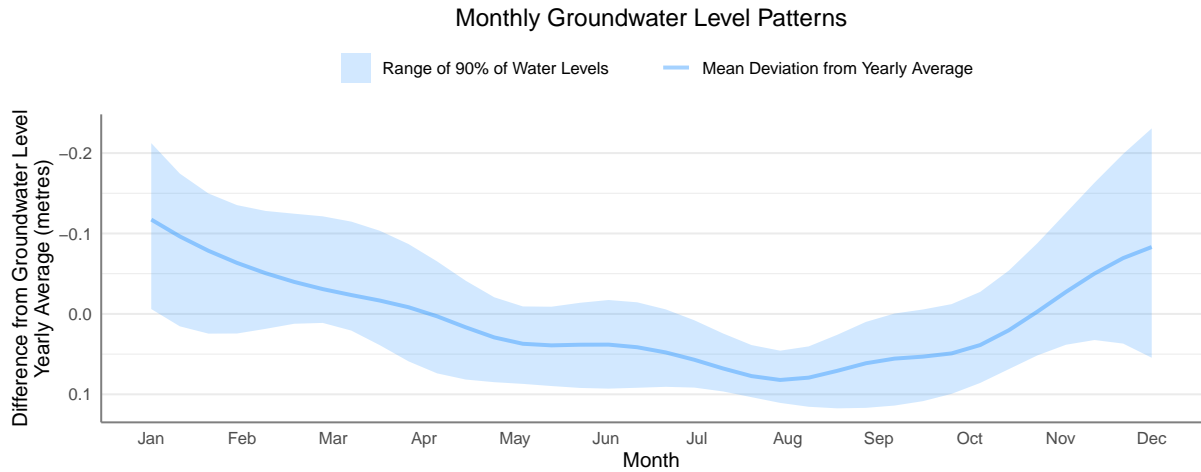
Aquifer Number: 8 Aquifer Type: Sand and Gravel



Region: South Coast

Observation Well Number: 408

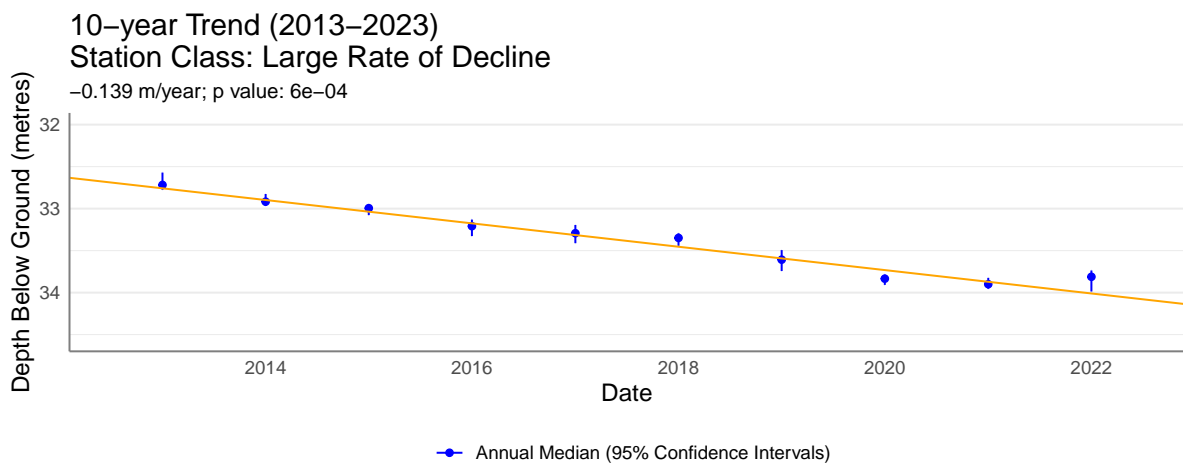
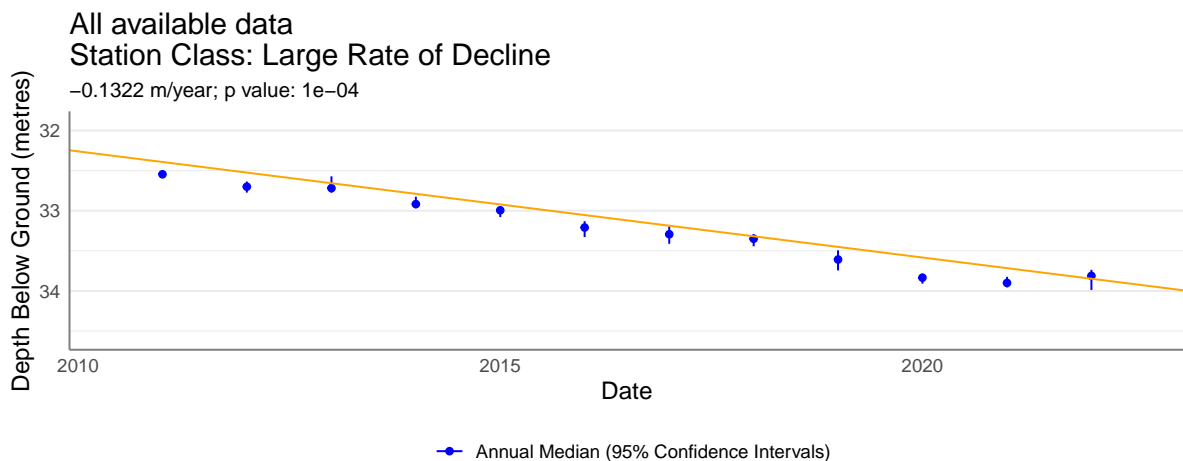
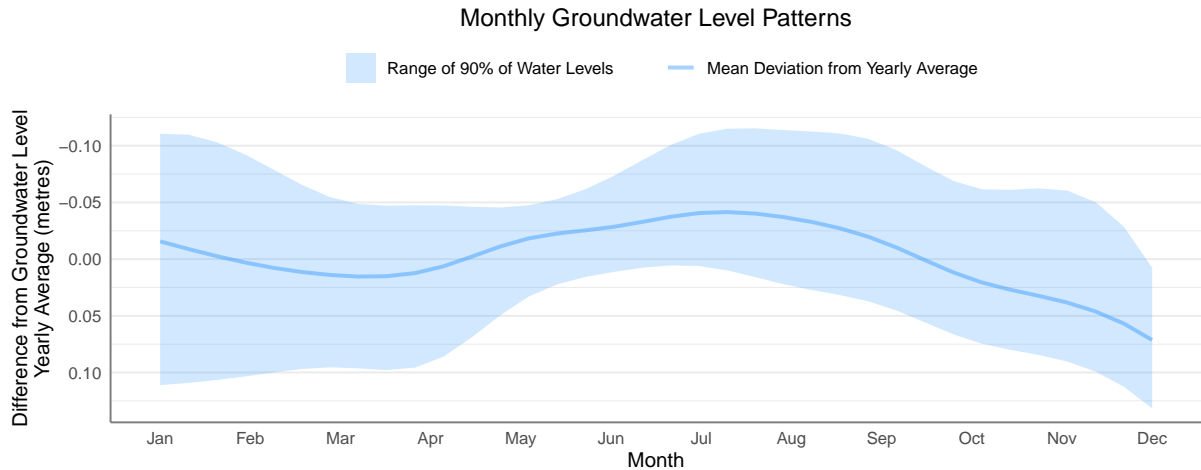
Aquifer Number: 834 **Aquifer Type:** Sand and Gravel



Region: South Coast

Observation Well Number: 414

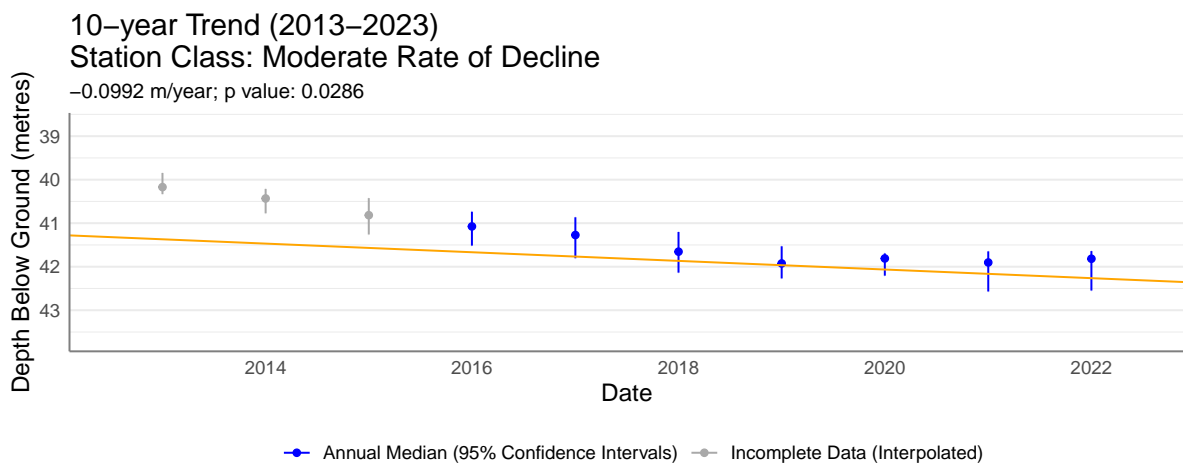
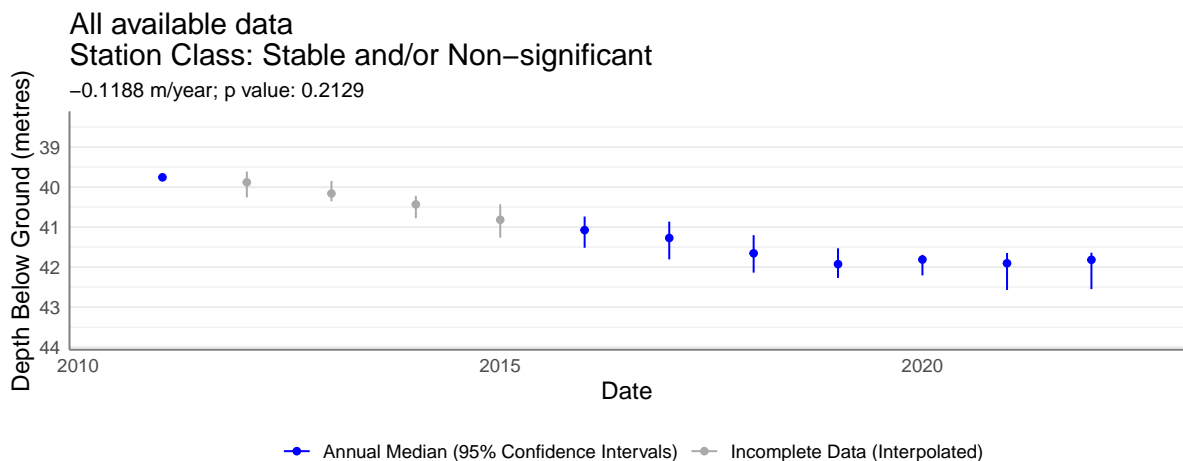
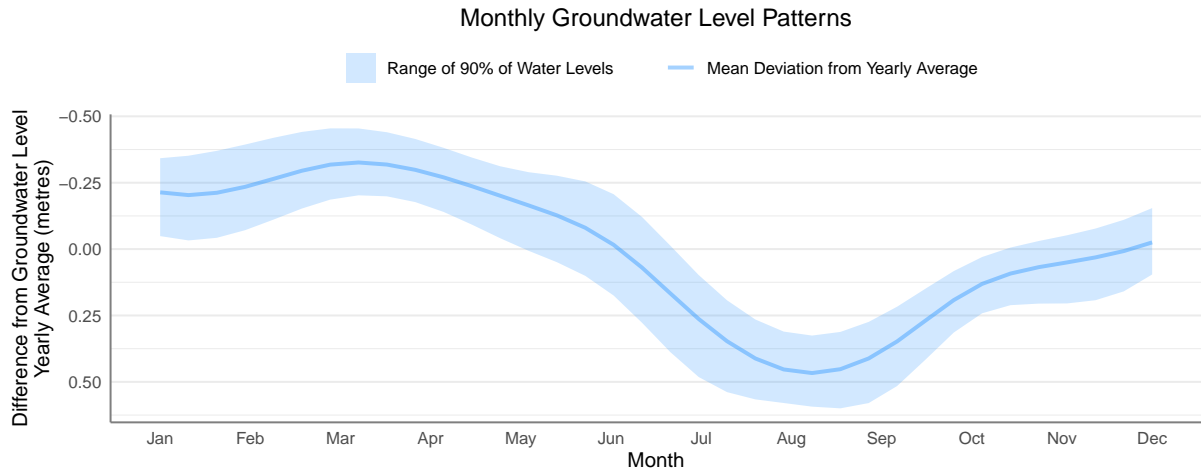
Aquifer Number: 1144 Aquifer Type: Sand and Gravel



Region: South Coast

Observation Well Number: 415

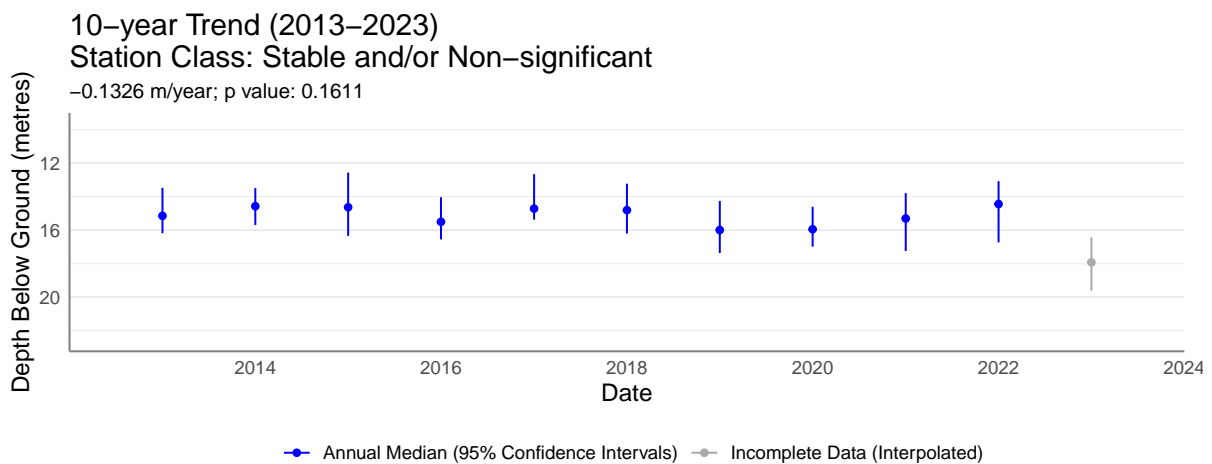
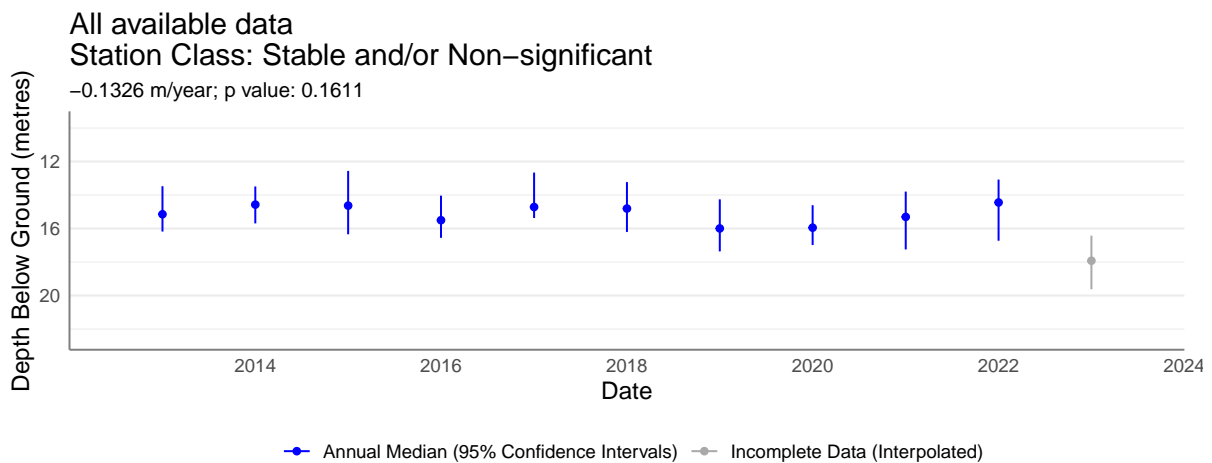
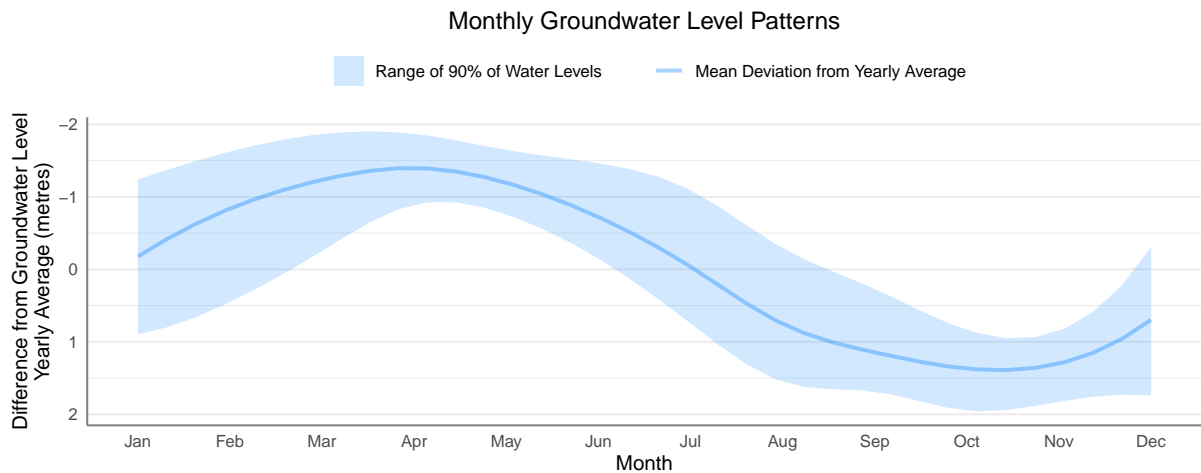
Aquifer Number: 33 Aquifer Type: Sand and Gravel



Region: South Coast

Observation Well Number: 441

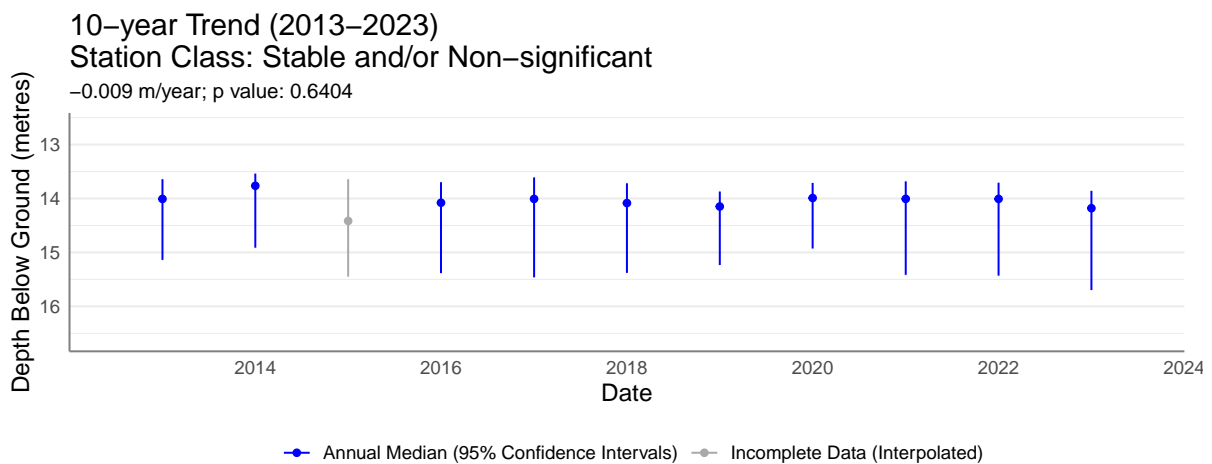
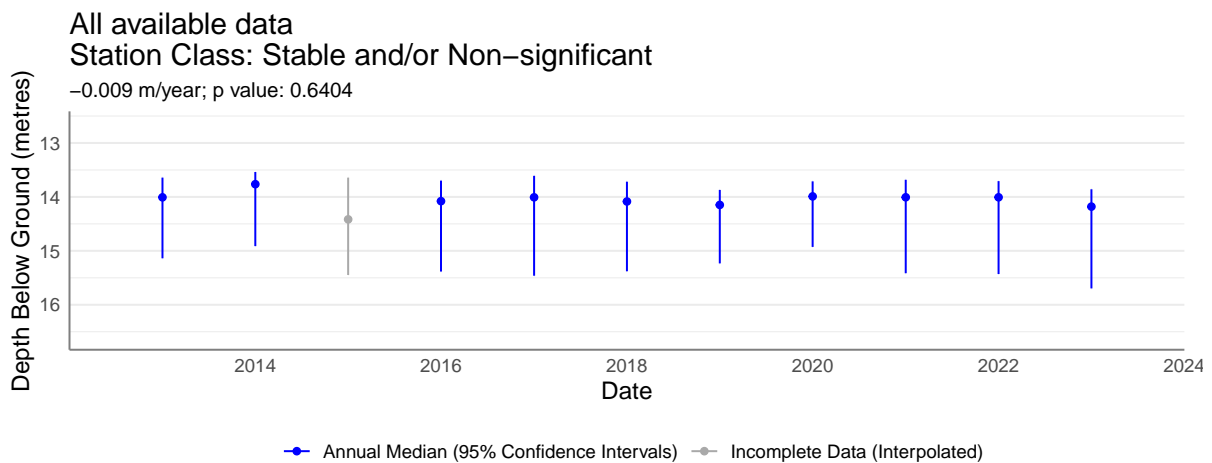
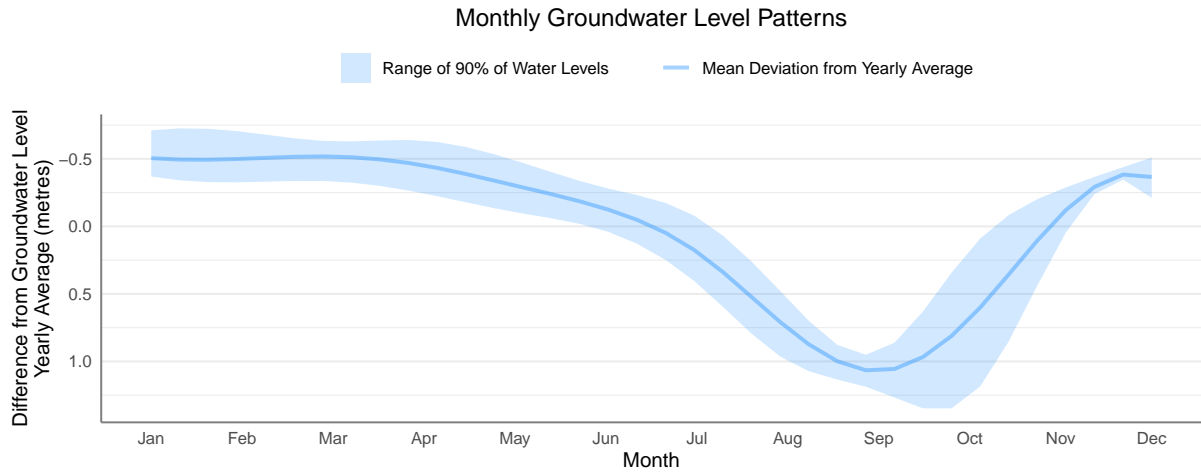
Aquifer Number: 28 **Aquifer Type:** Sand and Gravel



Region: South Coast

Observation Well Number: 446

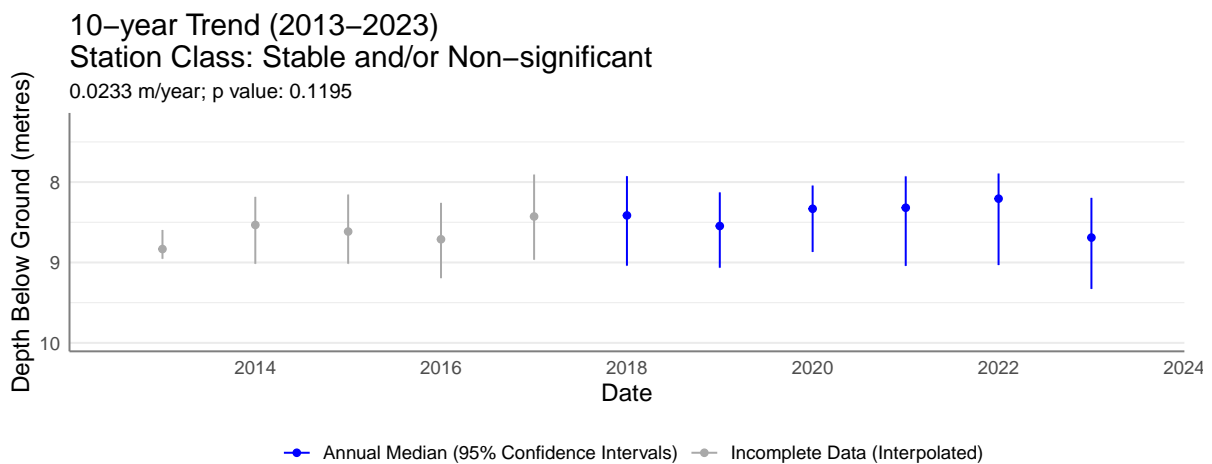
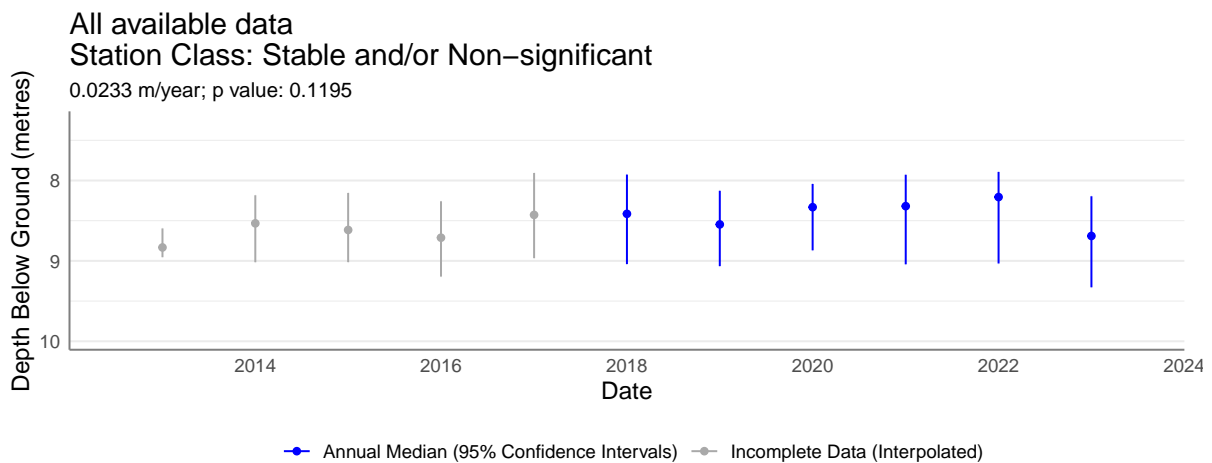
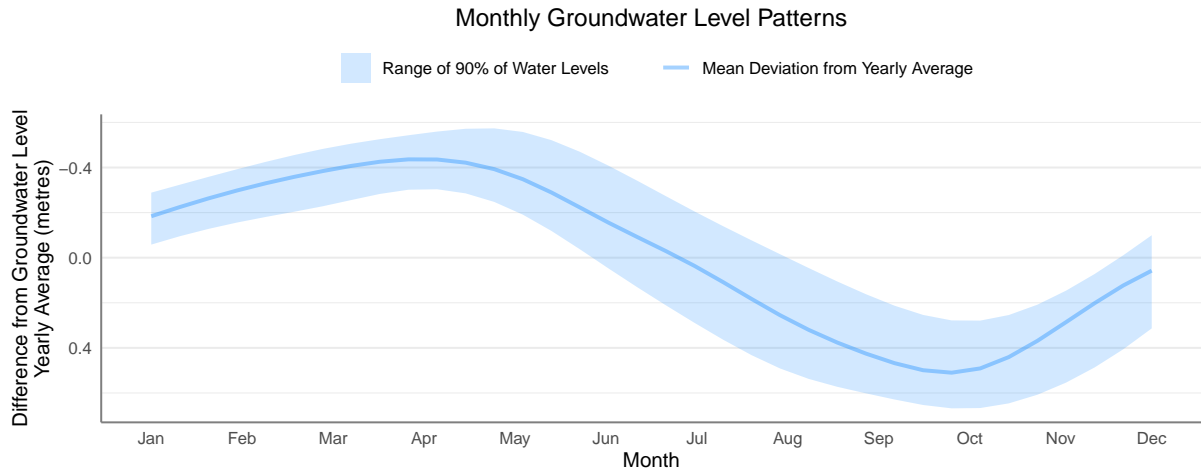
Aquifer Number: 52 **Aquifer Type:** Sand and Gravel



Region: South Coast

Observation Well Number: 447

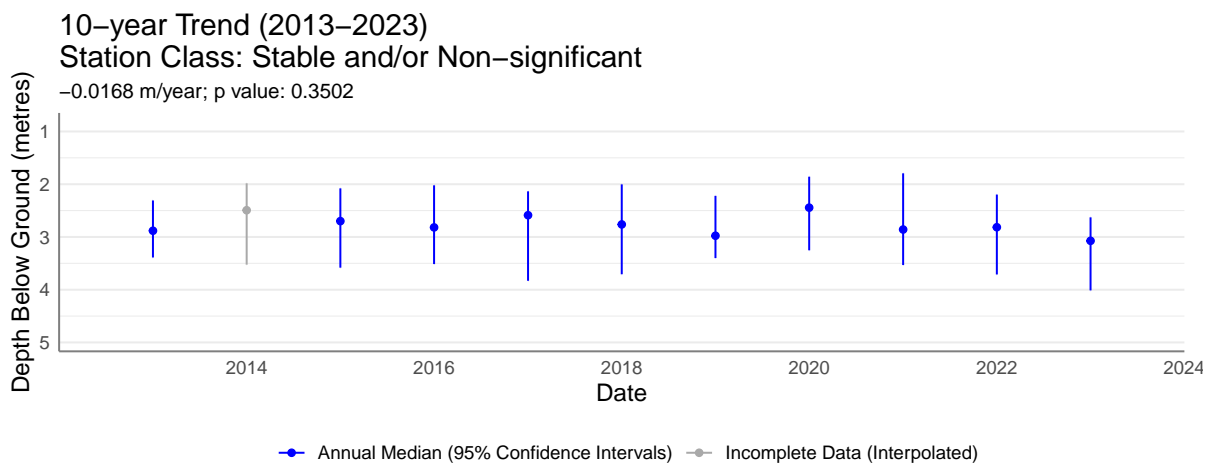
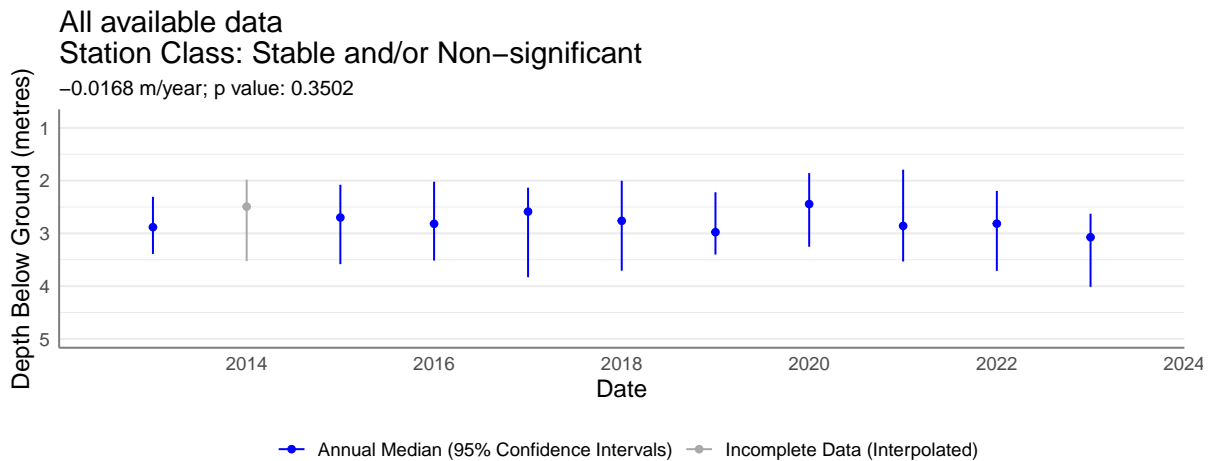
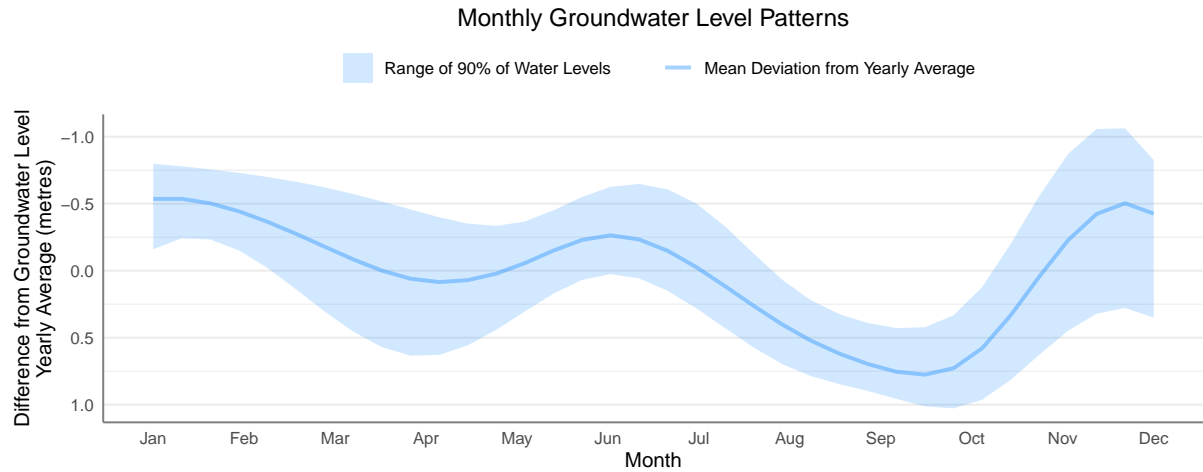
Aquifer Number: 61 Aquifer Type: Sand and Gravel



Region: South Coast

Observation Well Number: 448

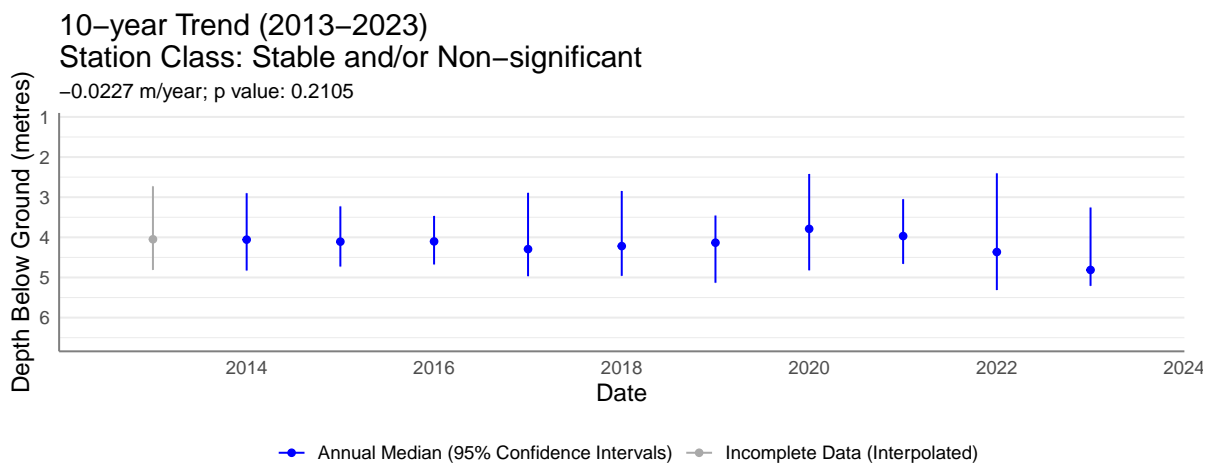
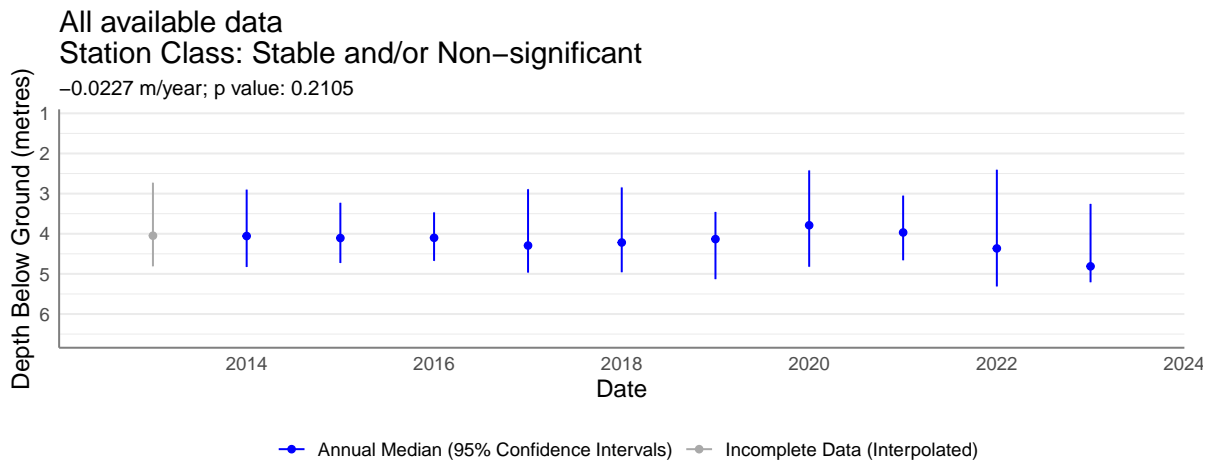
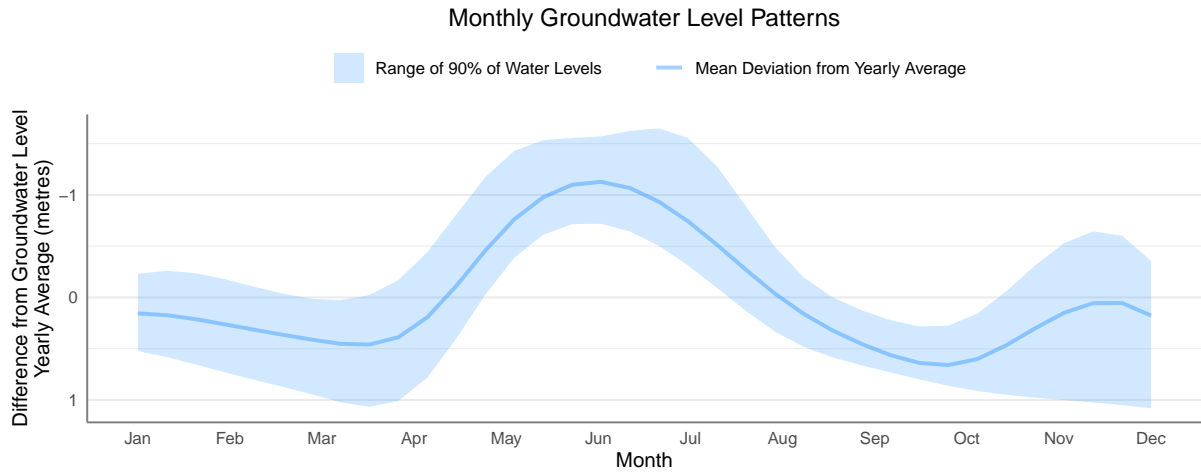
Aquifer Number: 4 Aquifer Type: Sand and Gravel



Region: South Coast

Observation Well Number: 449

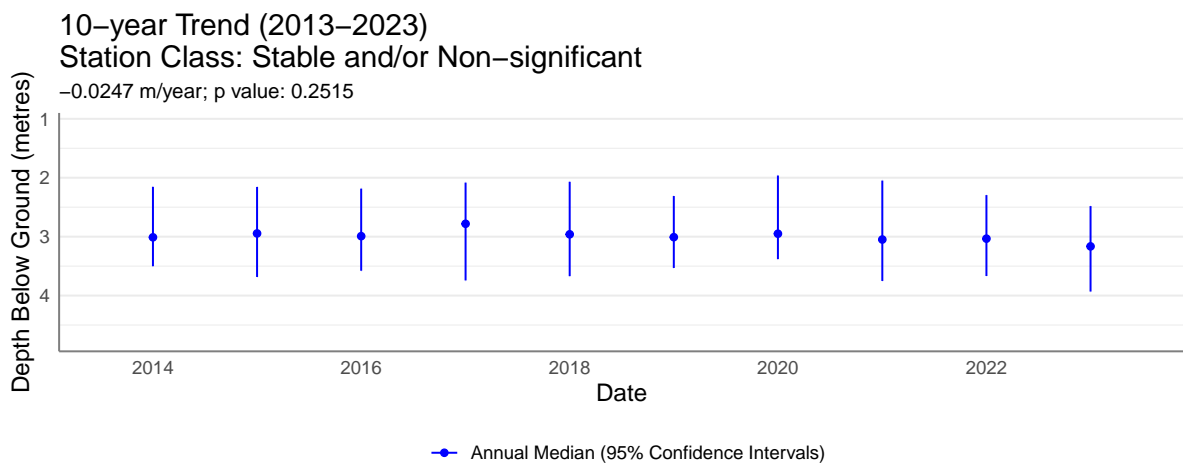
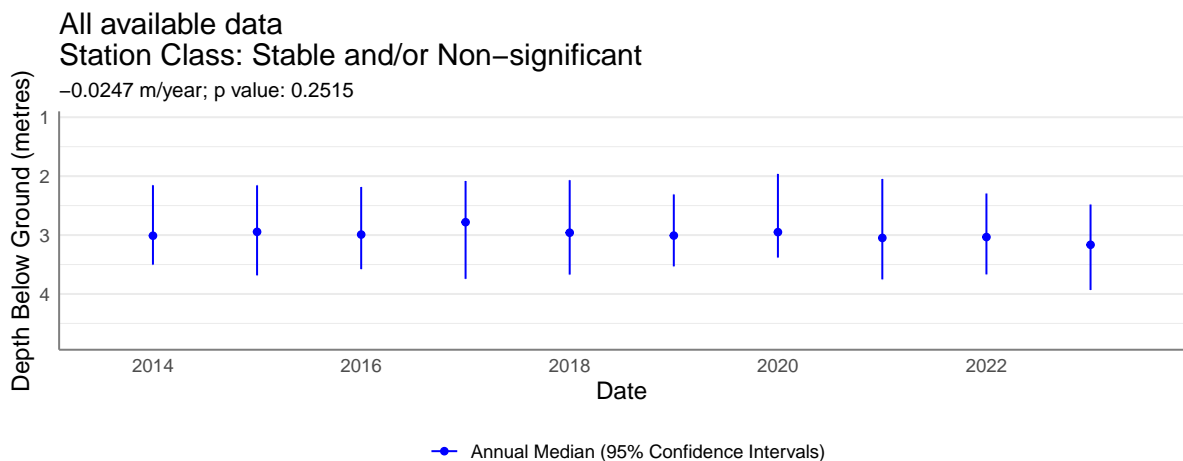
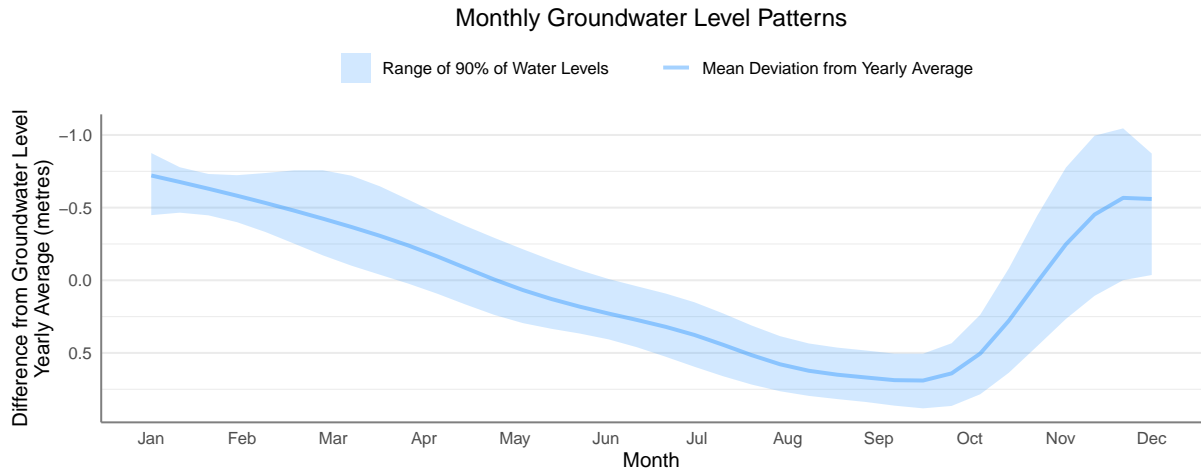
Aquifer Number: 4 Aquifer Type: Sand and Gravel



Region: South Coast

Observation Well Number: 450

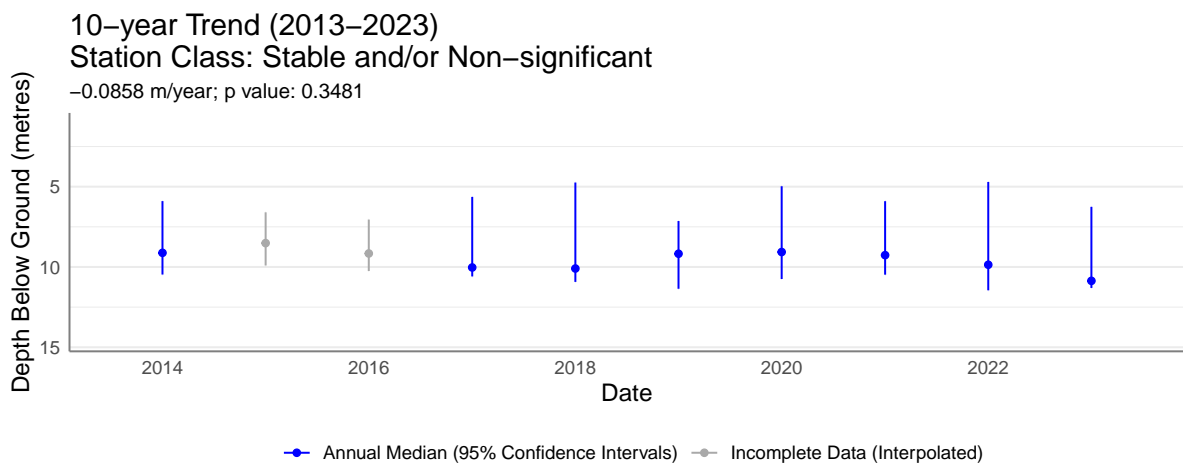
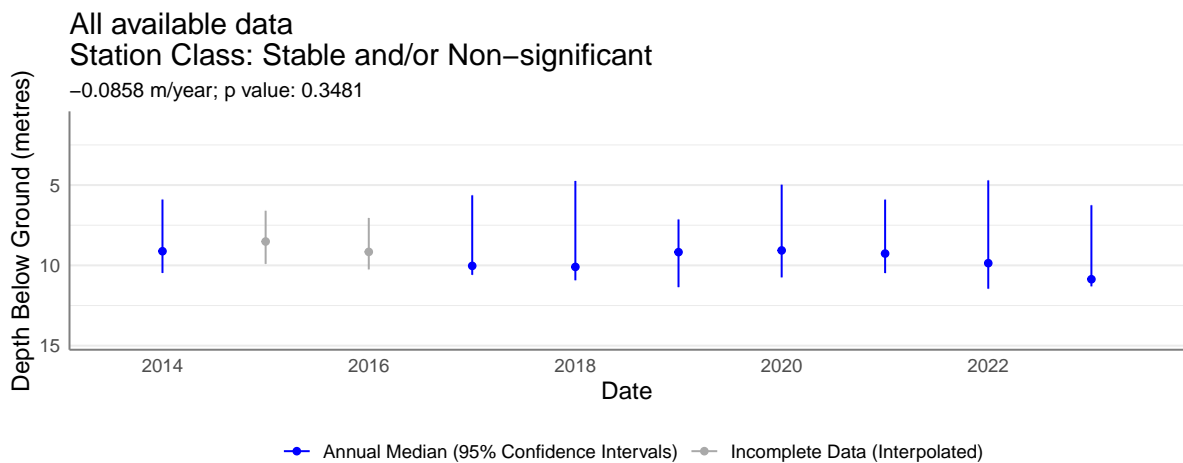
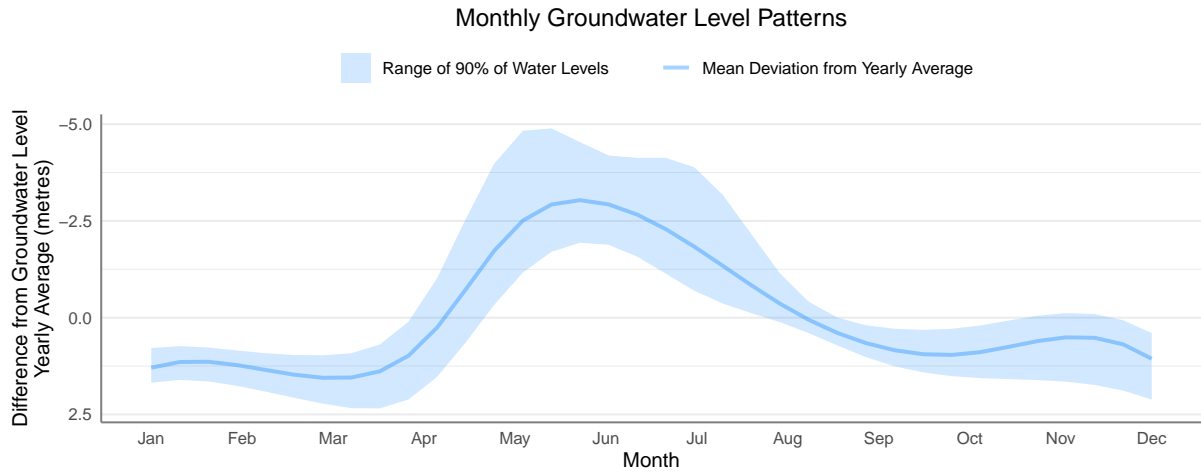
Aquifer Number: 6 Aquifer Type: Sand and Gravel



Region: South Coast

Observation Well Number: 451

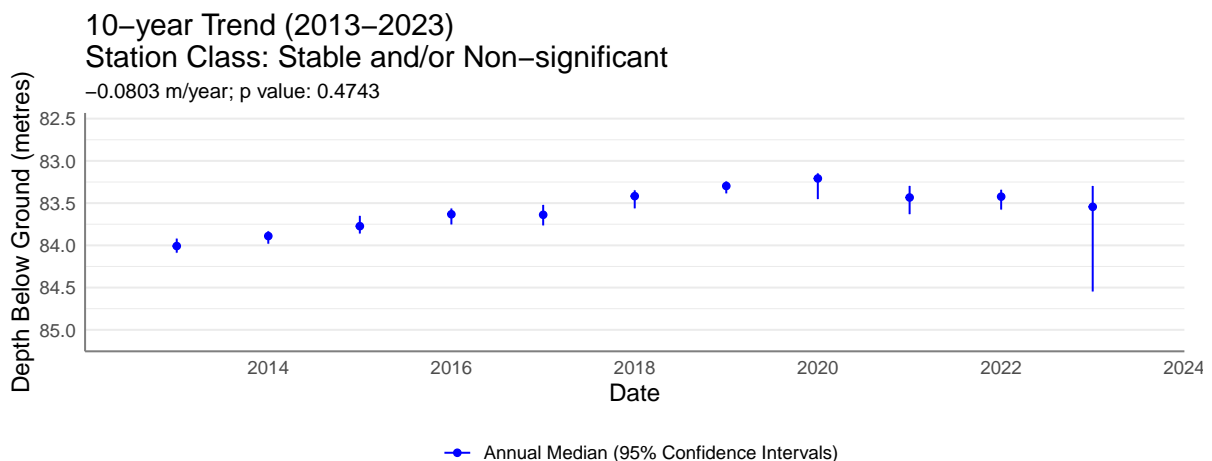
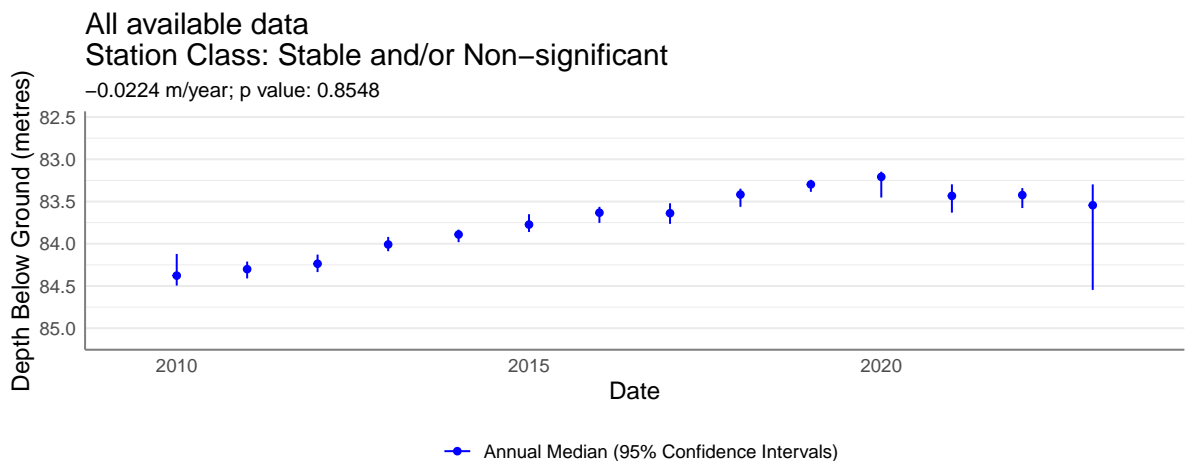
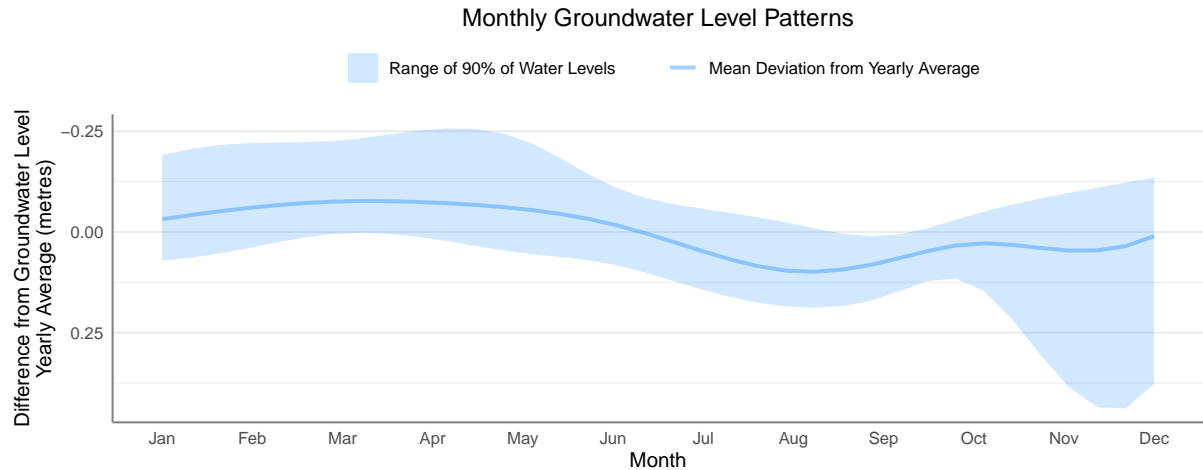
Aquifer Number: 1 Aquifer Type: Sand and Gravel



Region: South Coast

Observation Well Number: 460

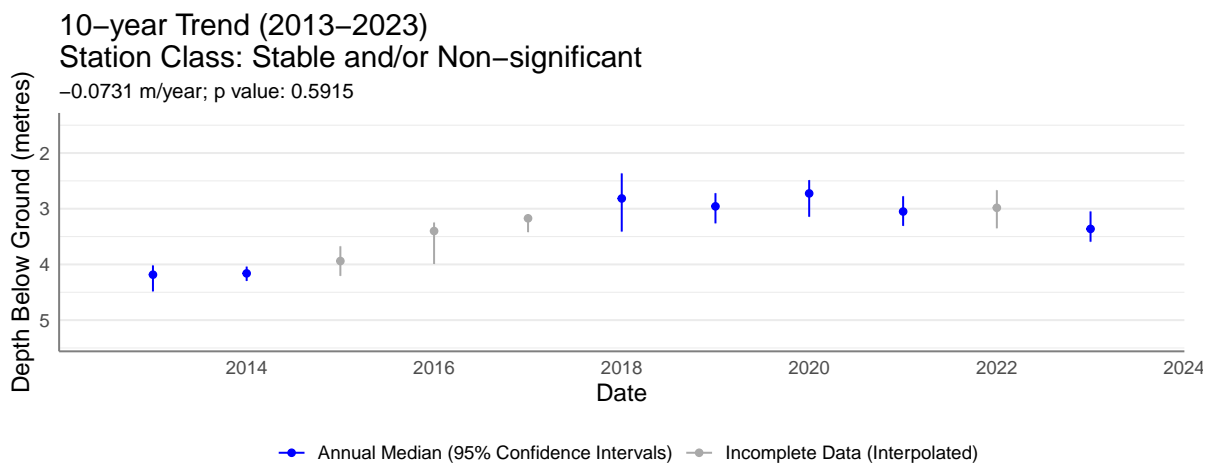
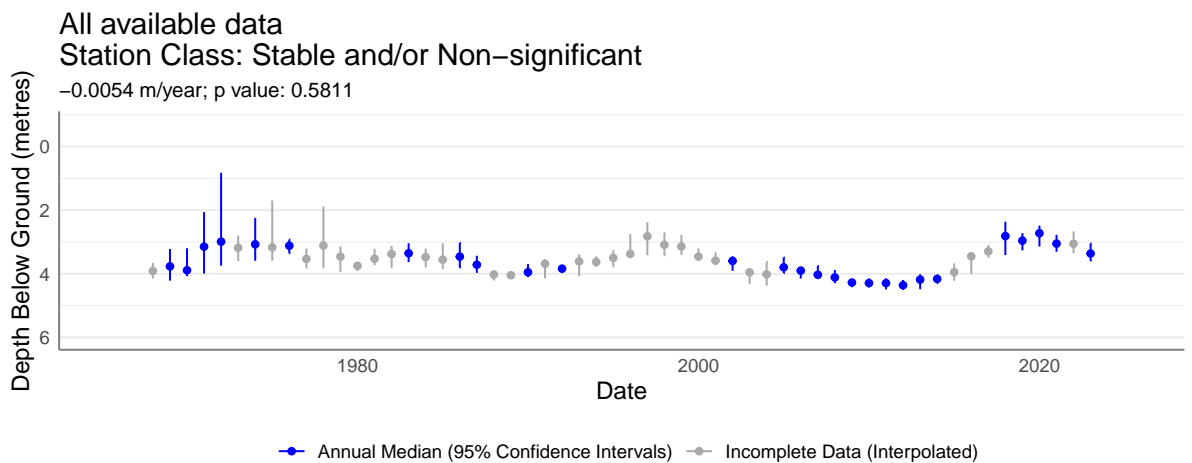
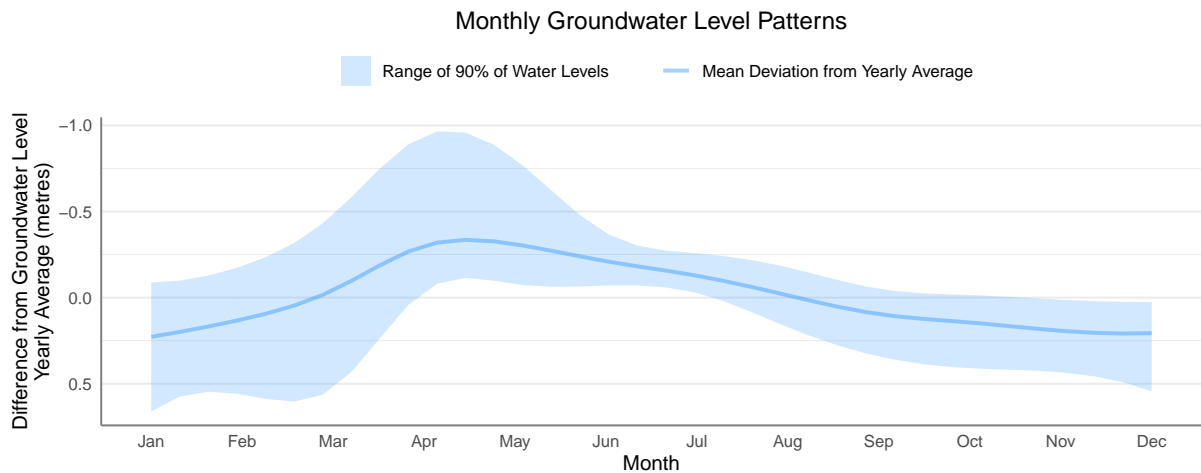
Aquifer Number: 560 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 035

Aquifer Number: 1174 Aquifer Type: Sand and Gravel

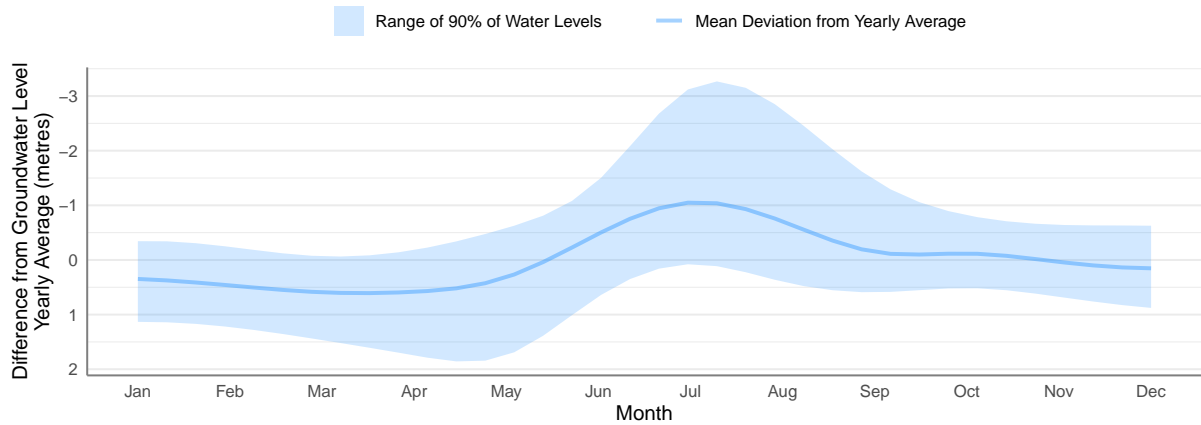


Region: Thompson / Okanagan

Observation Well Number: 045

Aquifer Number: 289 **Aquifer Type:** Sand and Gravel

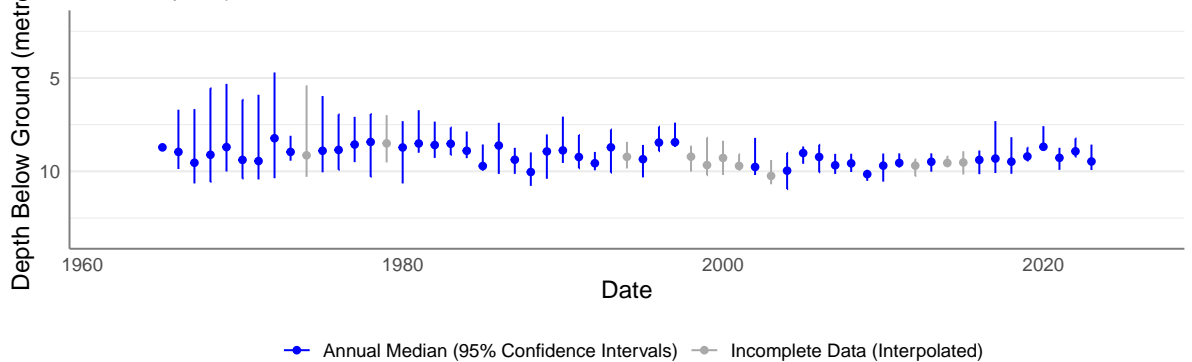
Monthly Groundwater Level Patterns



All available data

Station Class: Stable and/or Non-significant

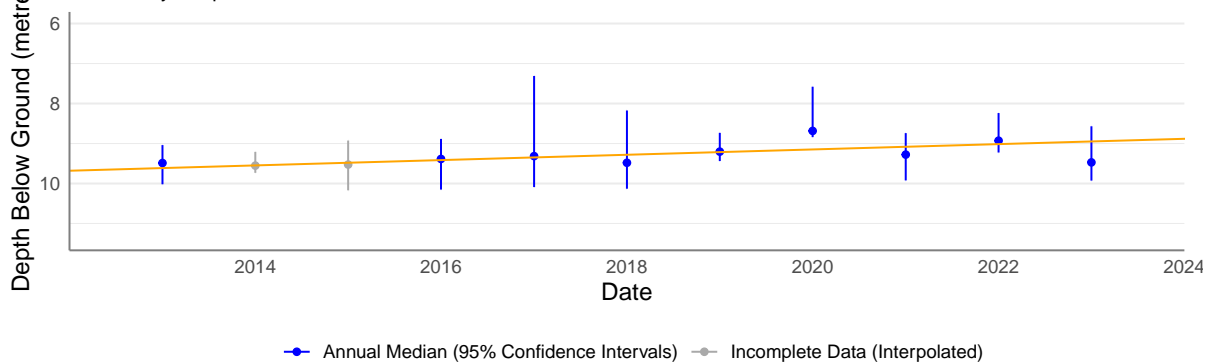
-0.0163 m/year; p value: 0.0022



10-year Trend (2013–2023)

Station Class: Increasing

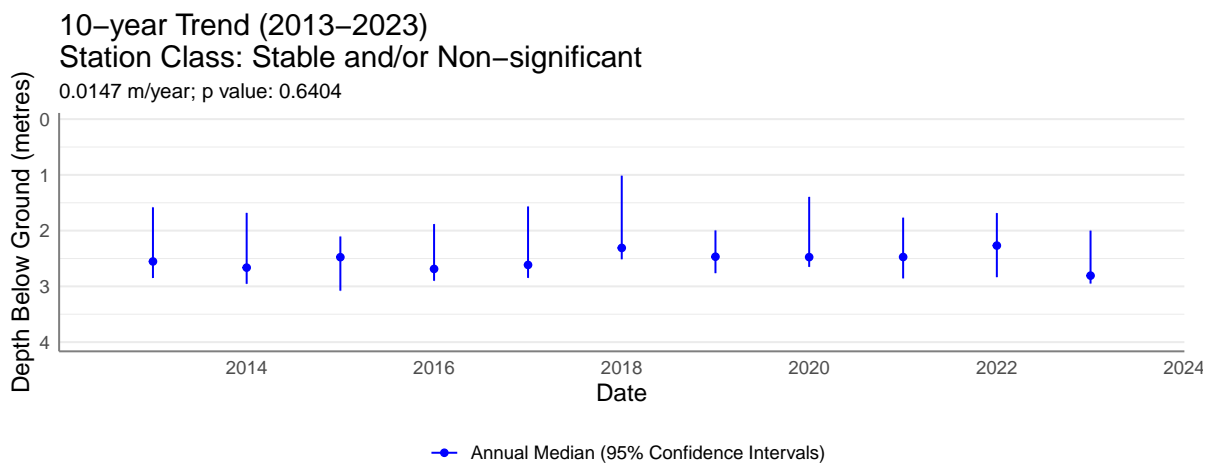
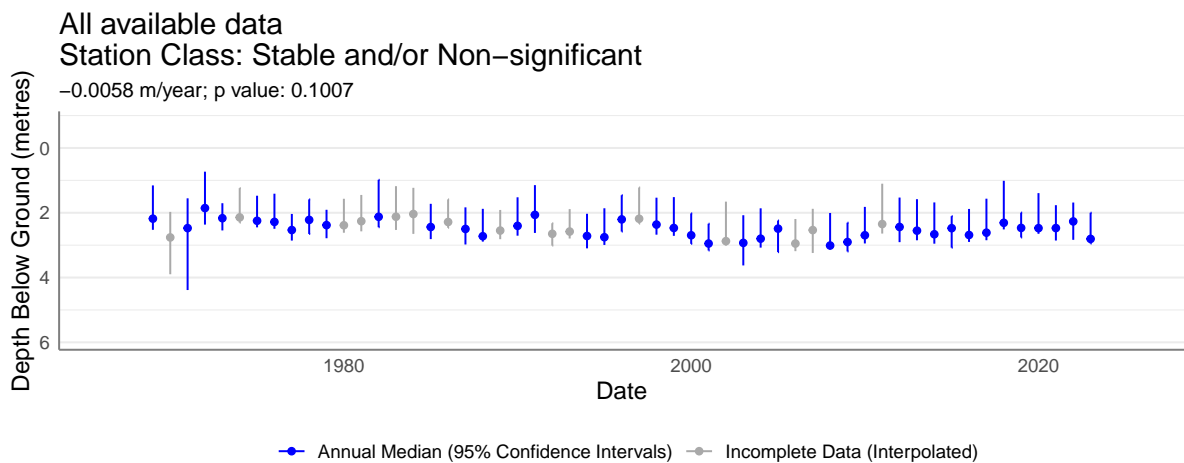
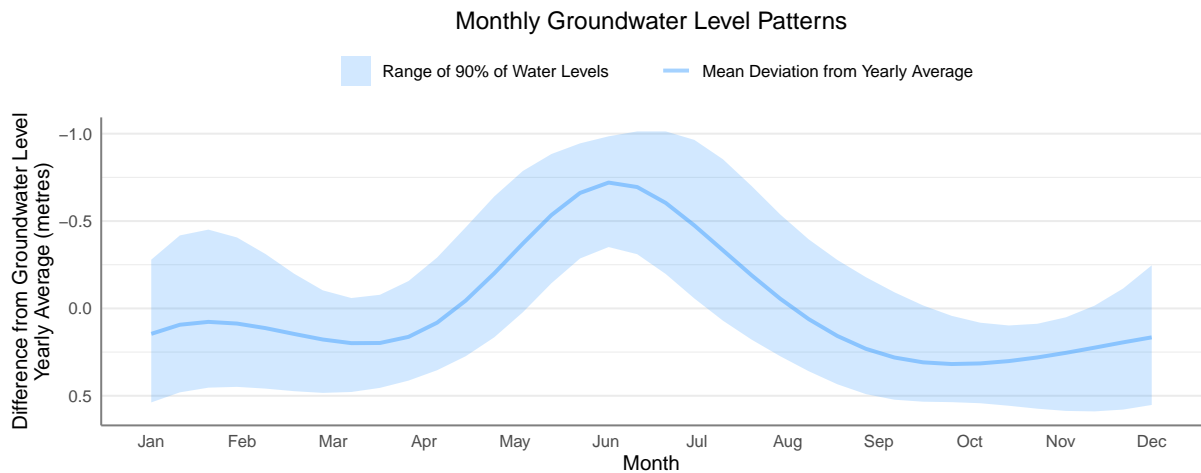
0.0665 m/year; p value: 0.0123



Region: Thompson / Okanagan

Observation Well Number: 075

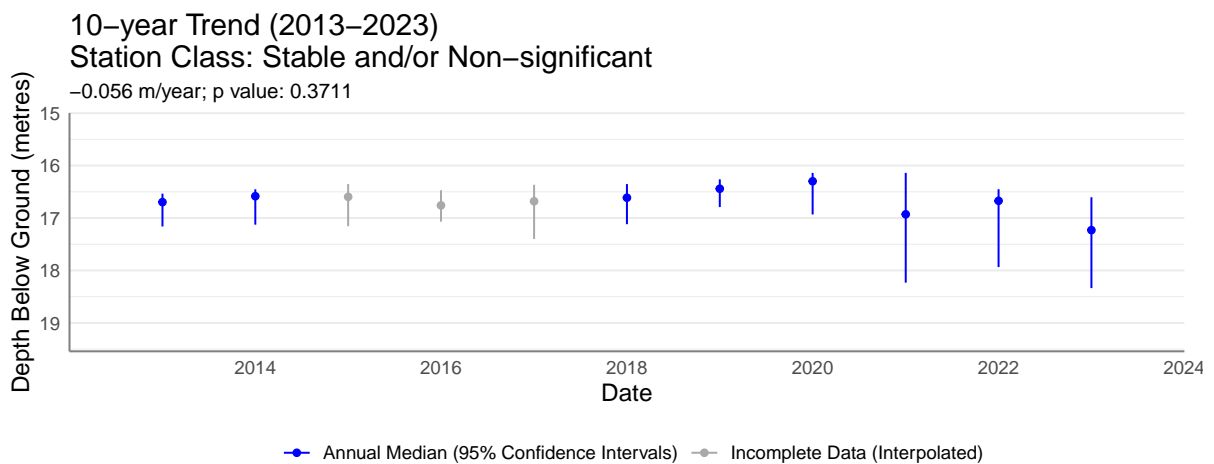
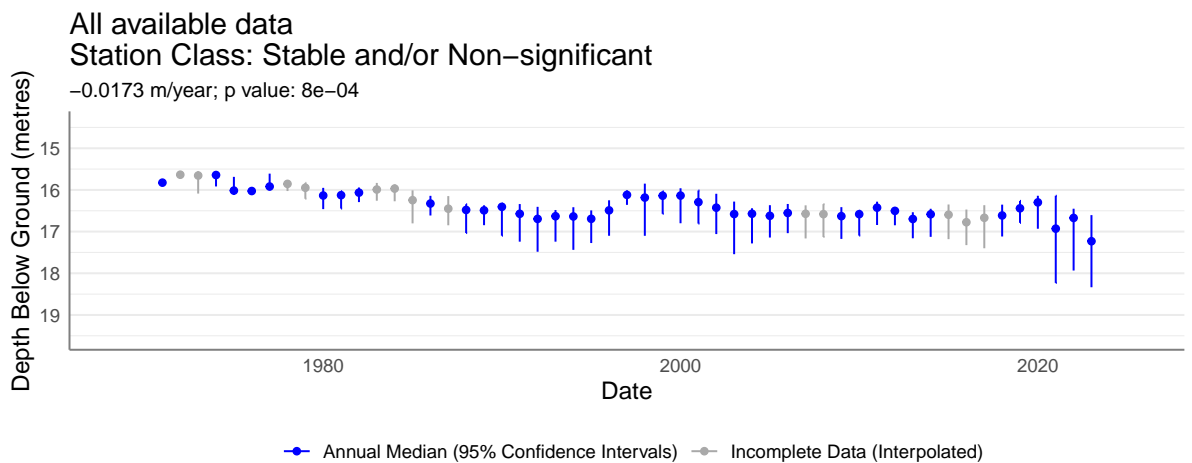
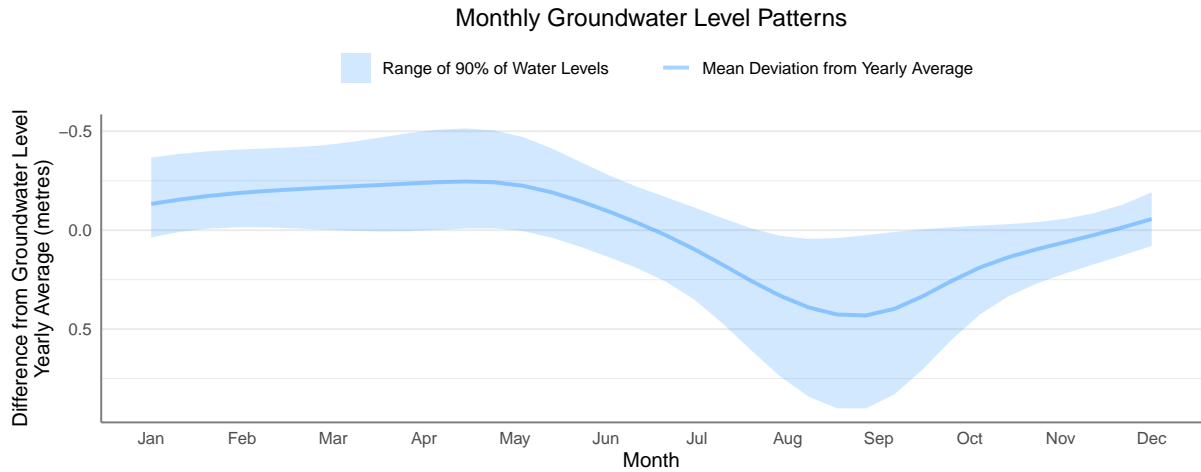
Aquifer Number: 259 Aquifer Type: Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 117

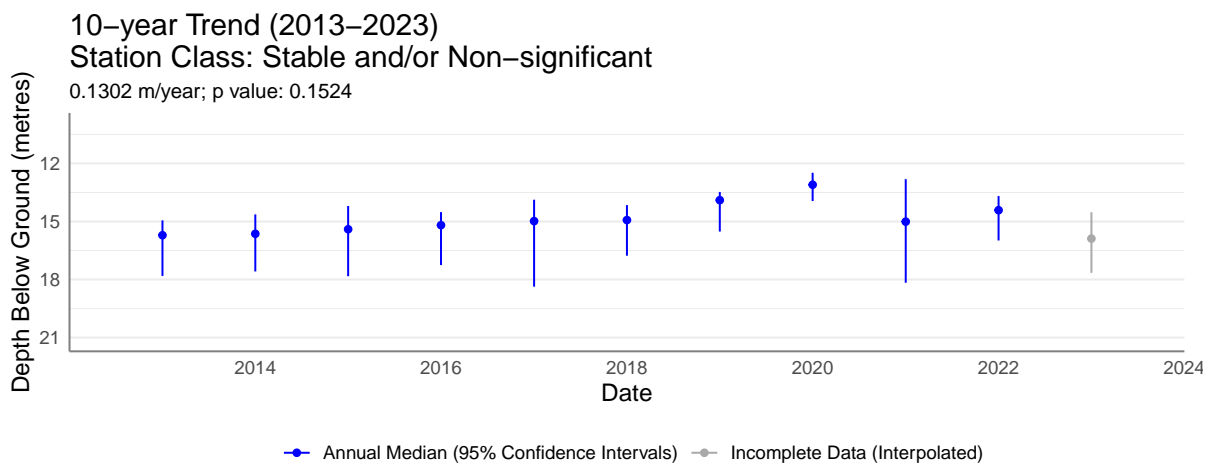
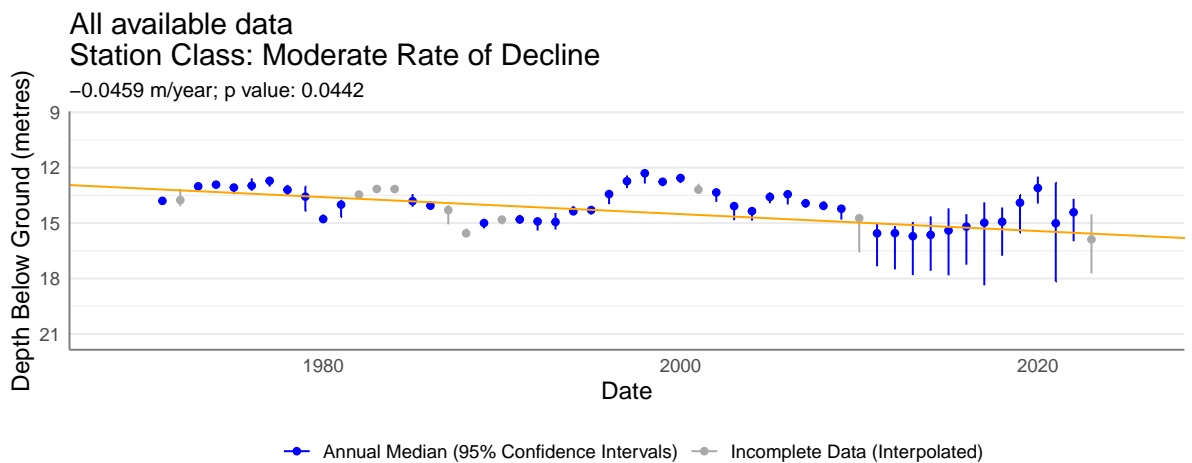
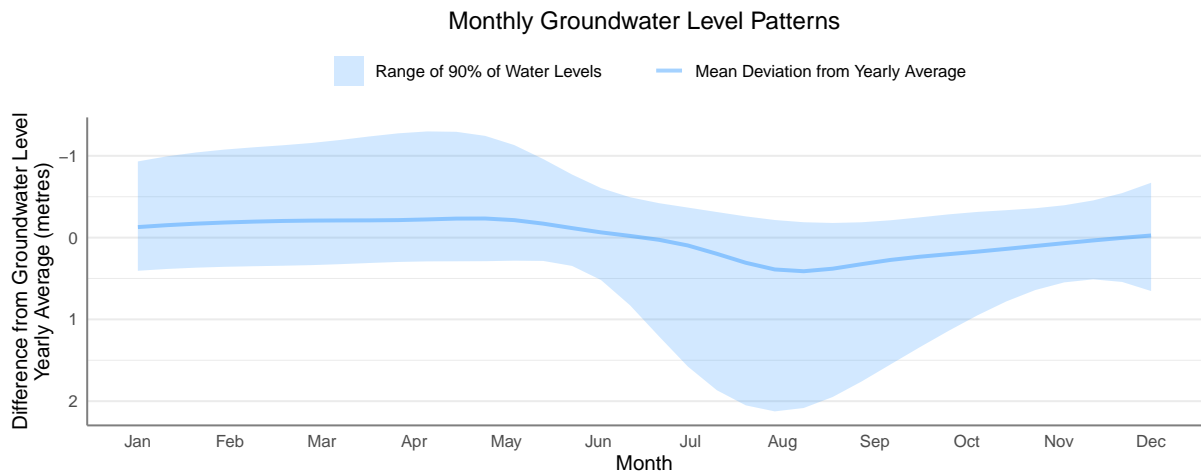
Aquifer Number: 1155 Aquifer Type: Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 118

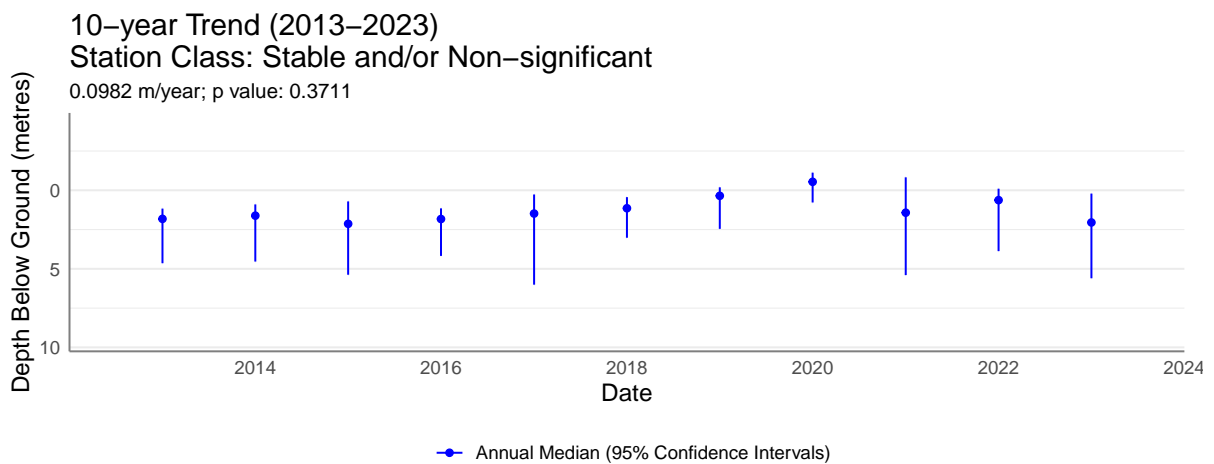
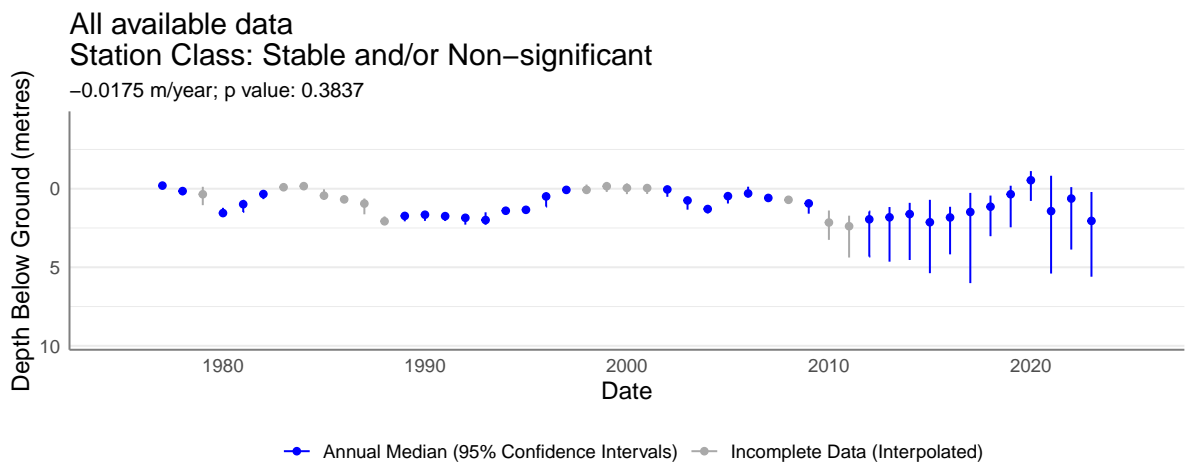
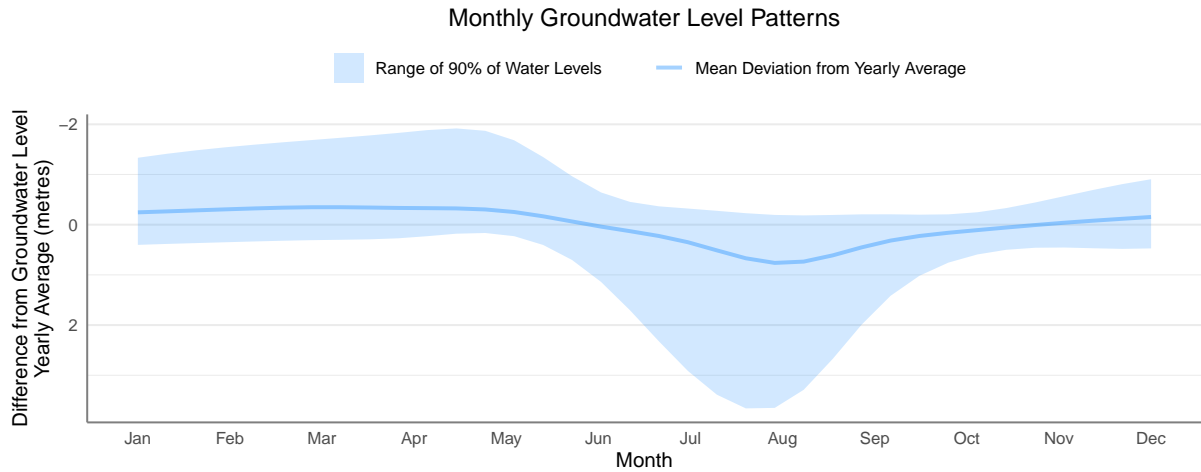
Aquifer Number: 1155 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 122

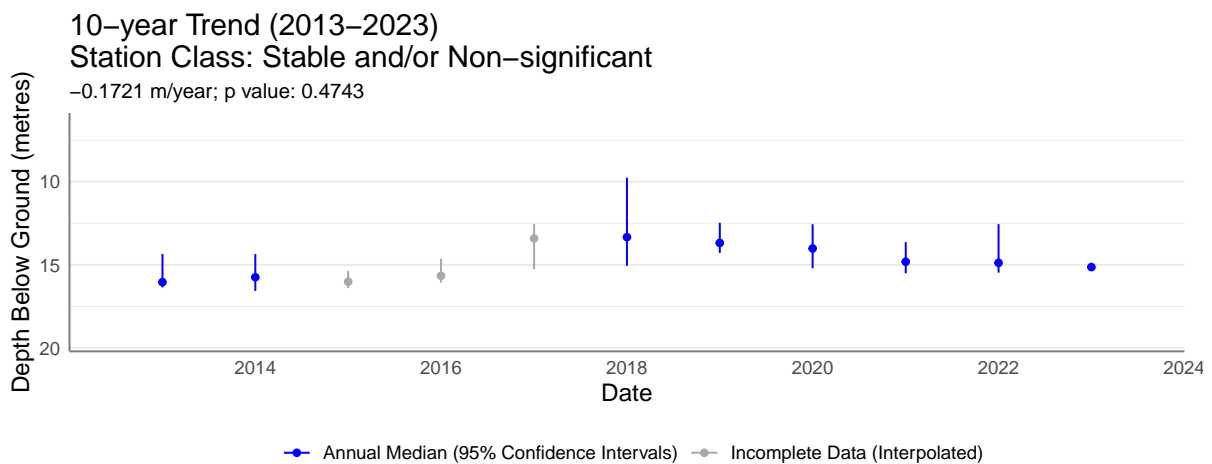
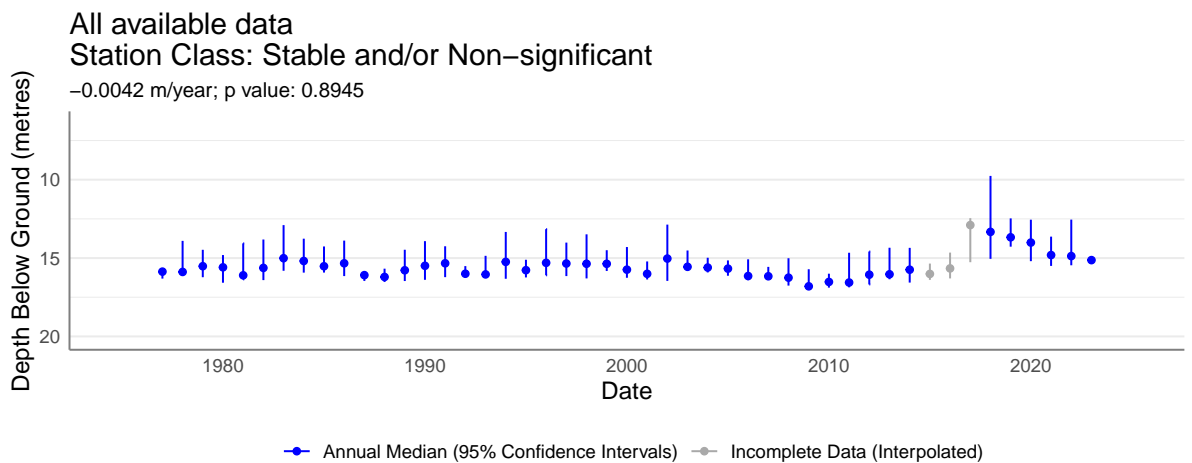
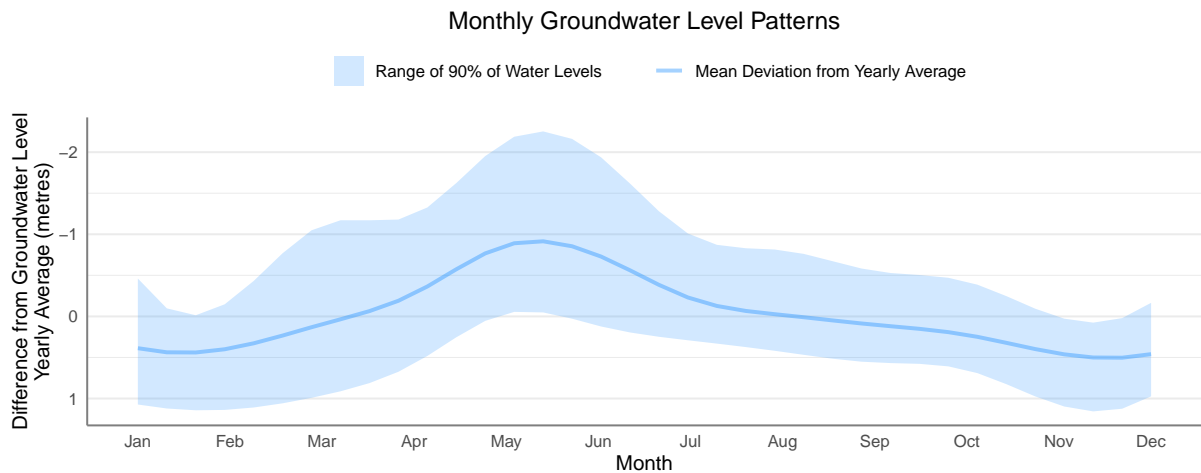
Aquifer Number: 1155 Aquifer Type: Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 172

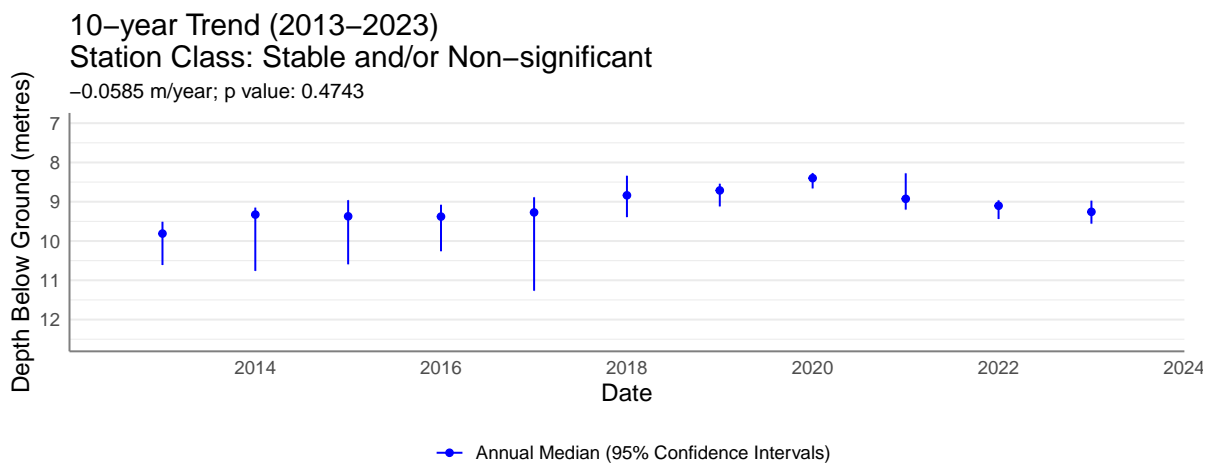
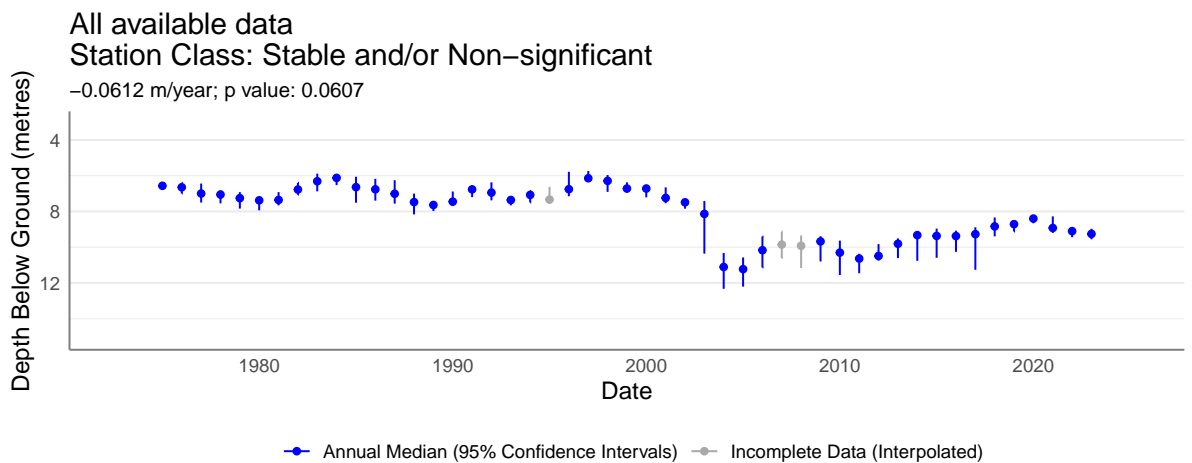
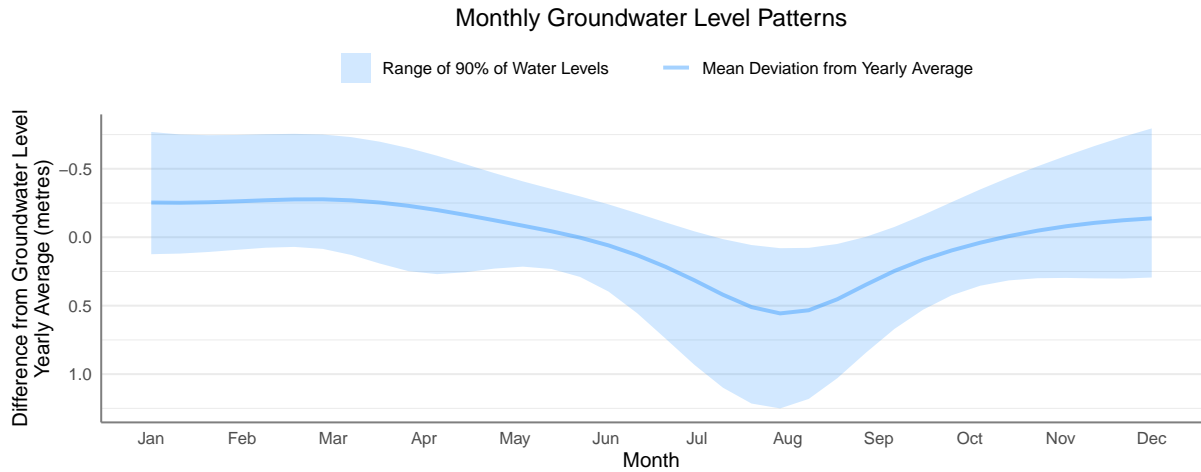
Aquifer Number: 1238 Aquifer Type: Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 180

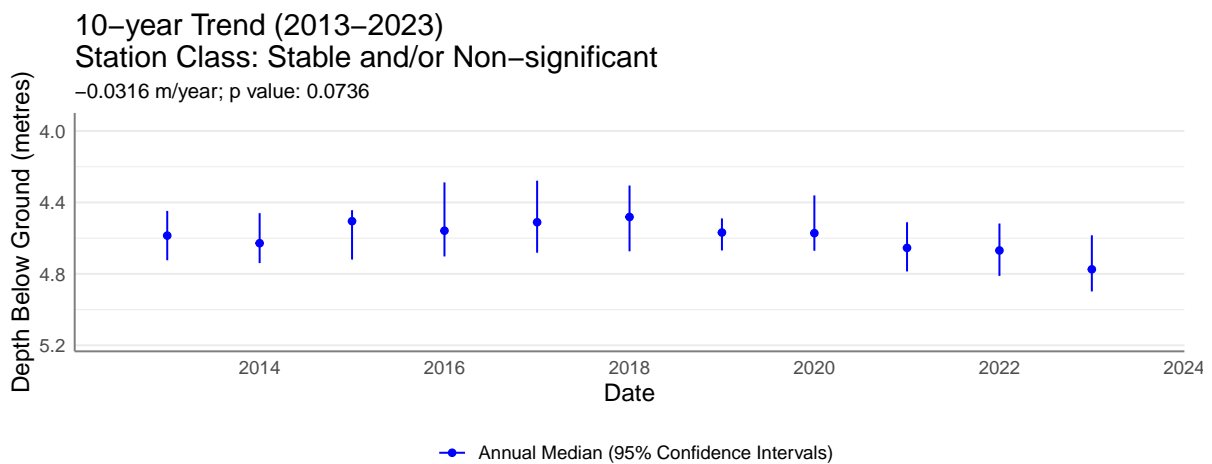
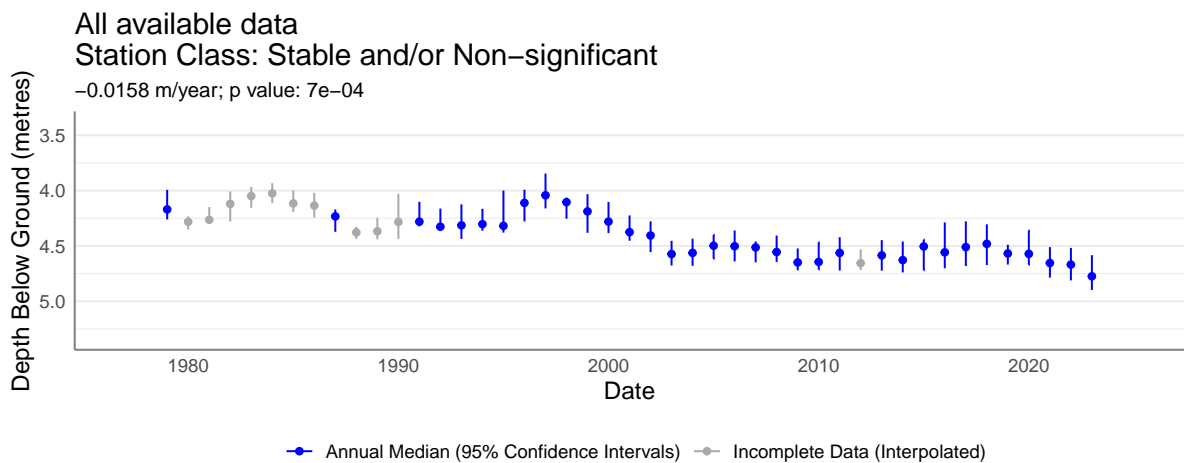
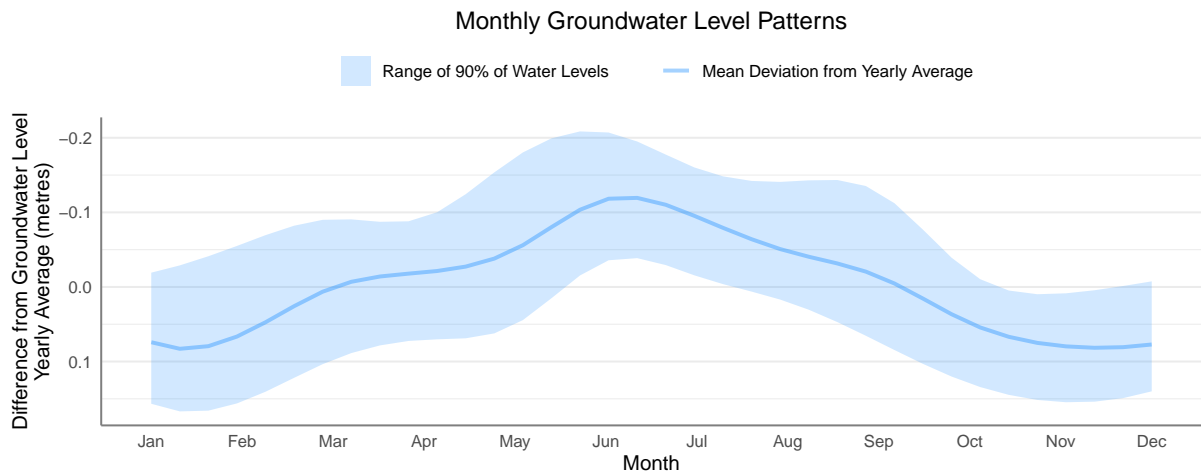
Aquifer Number: 353 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 185

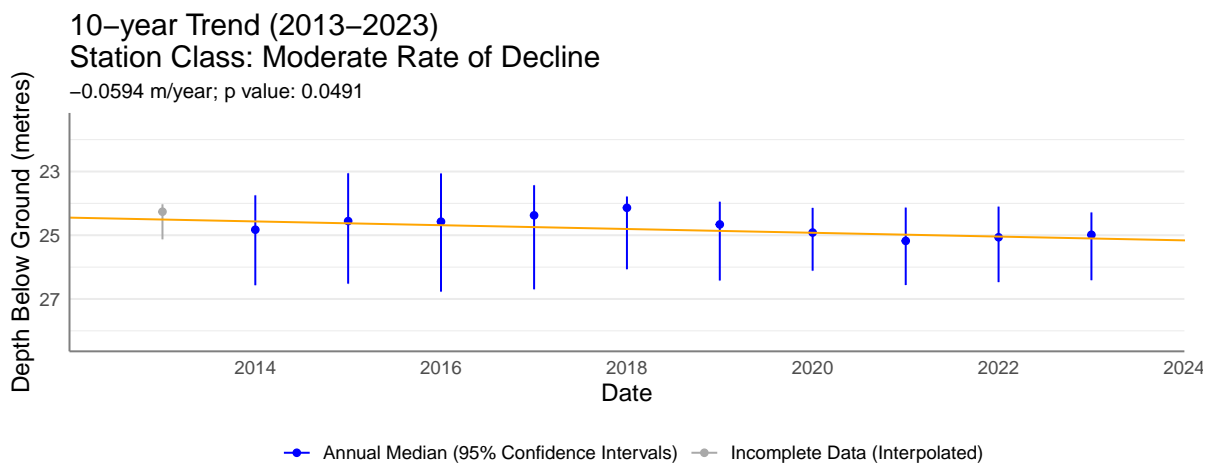
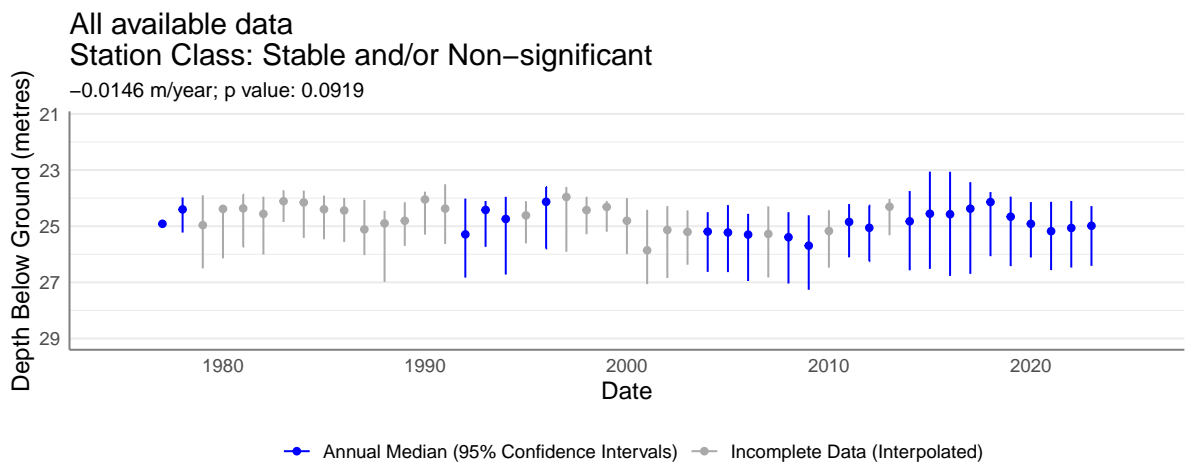
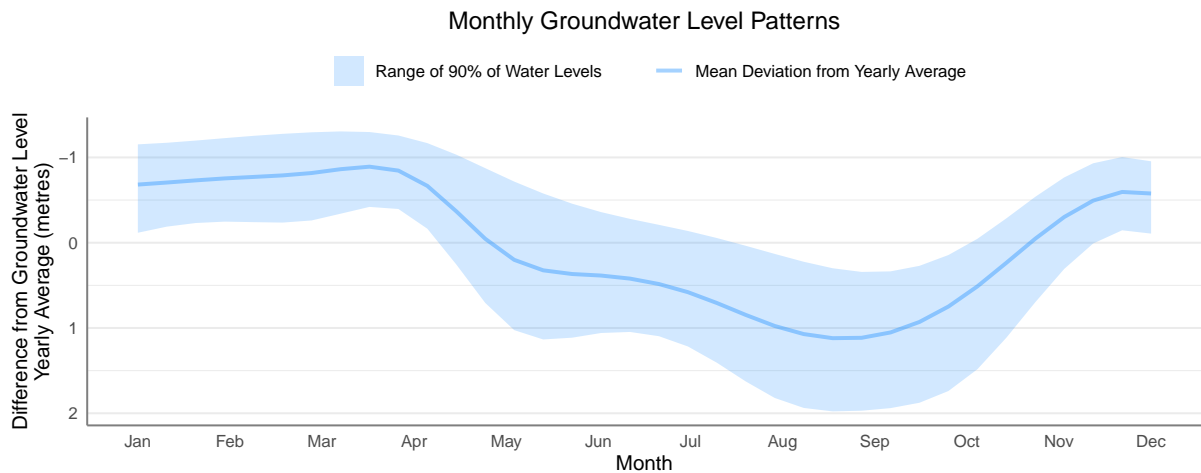
Aquifer Number: 97 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 203

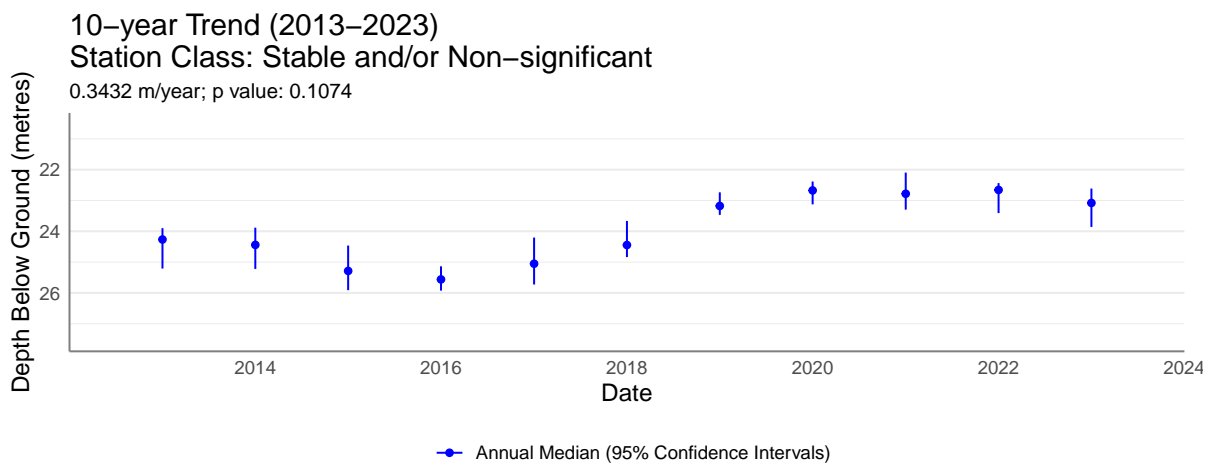
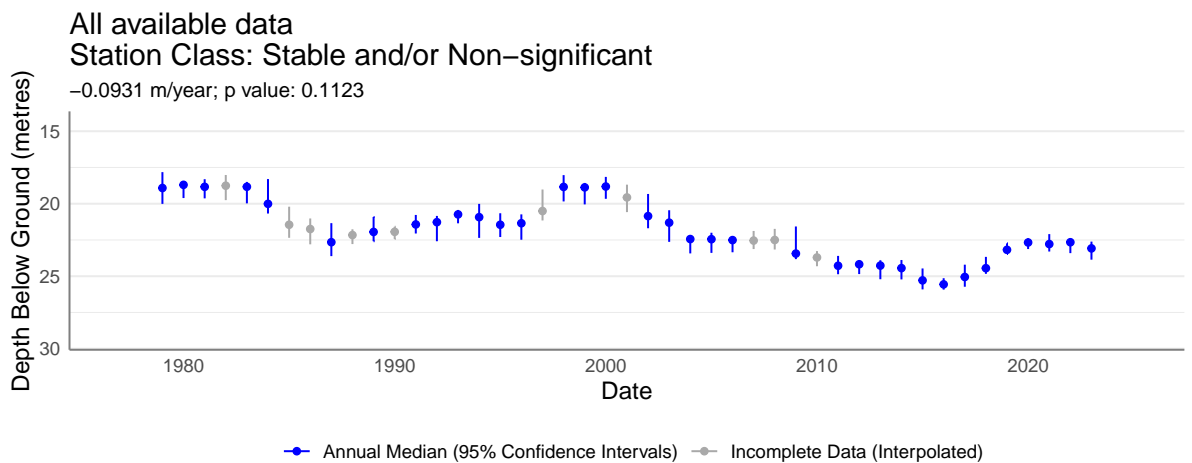
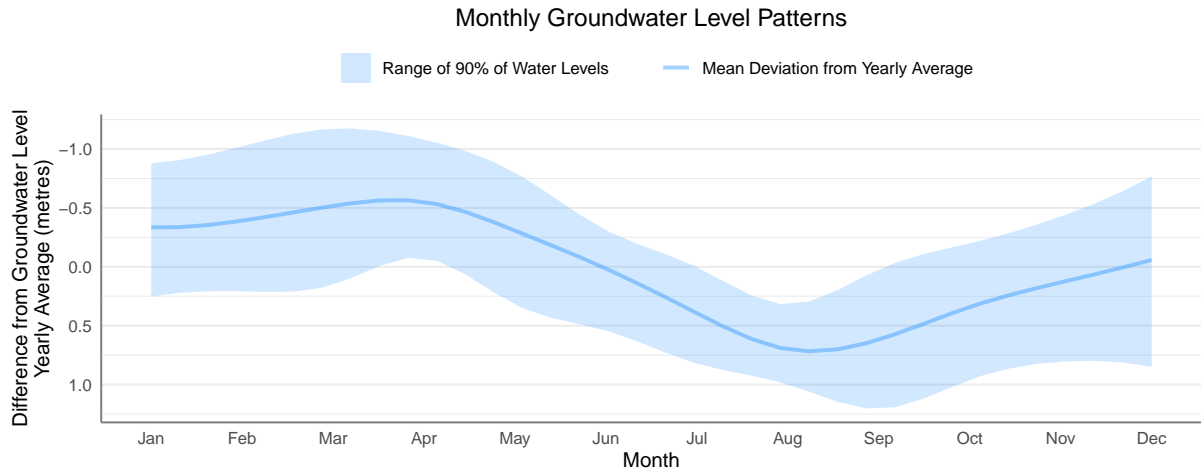
Aquifer Number: 259 Aquifer Type: Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 236

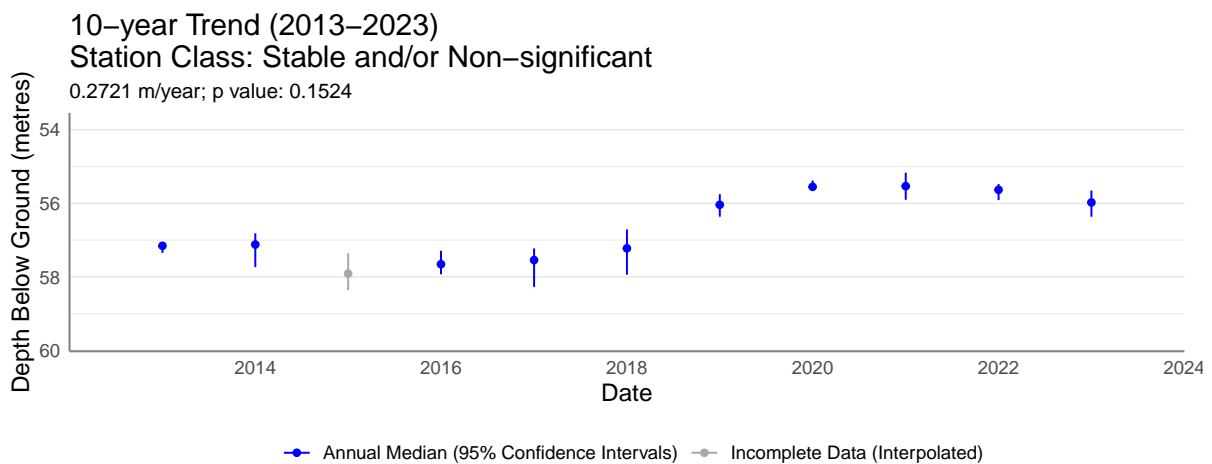
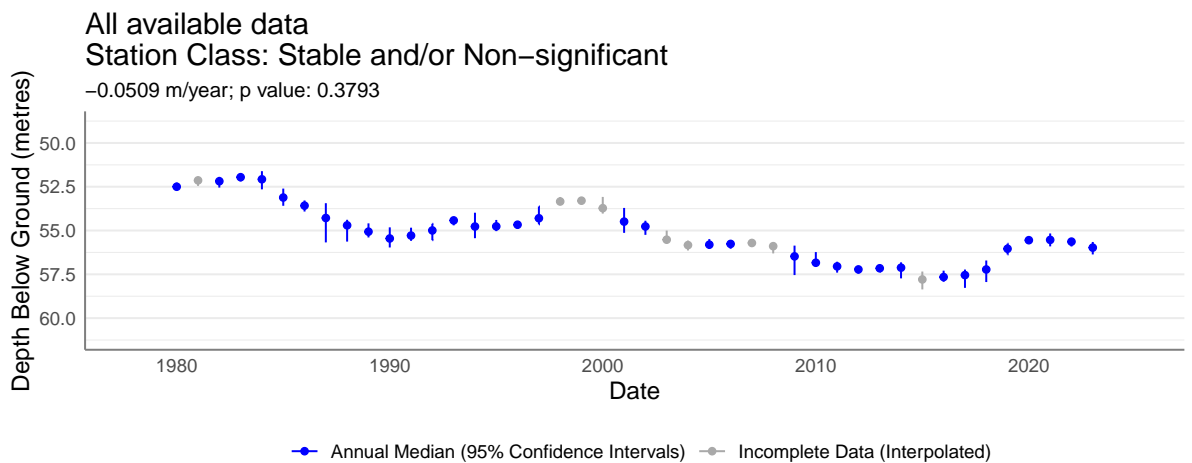
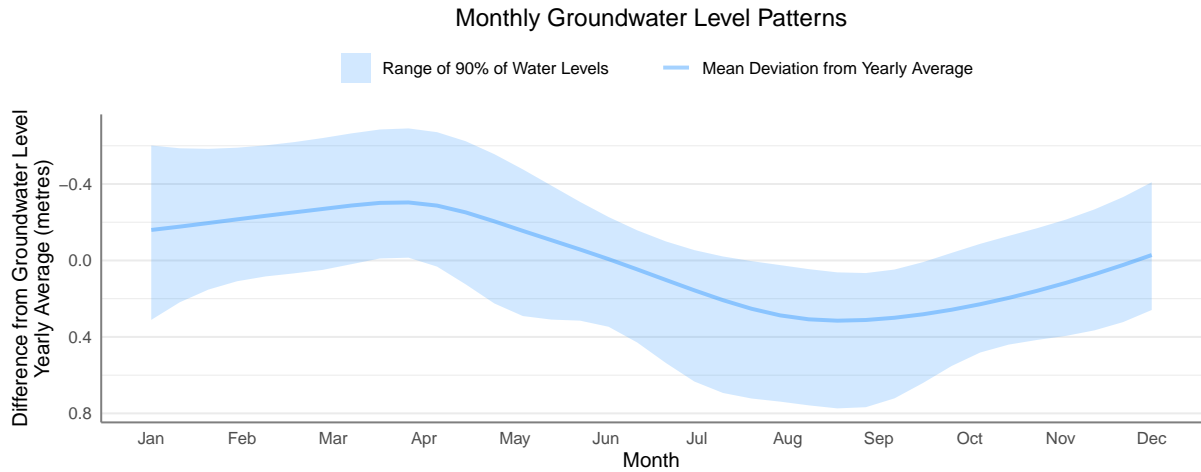
Aquifer Number: 464 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 262

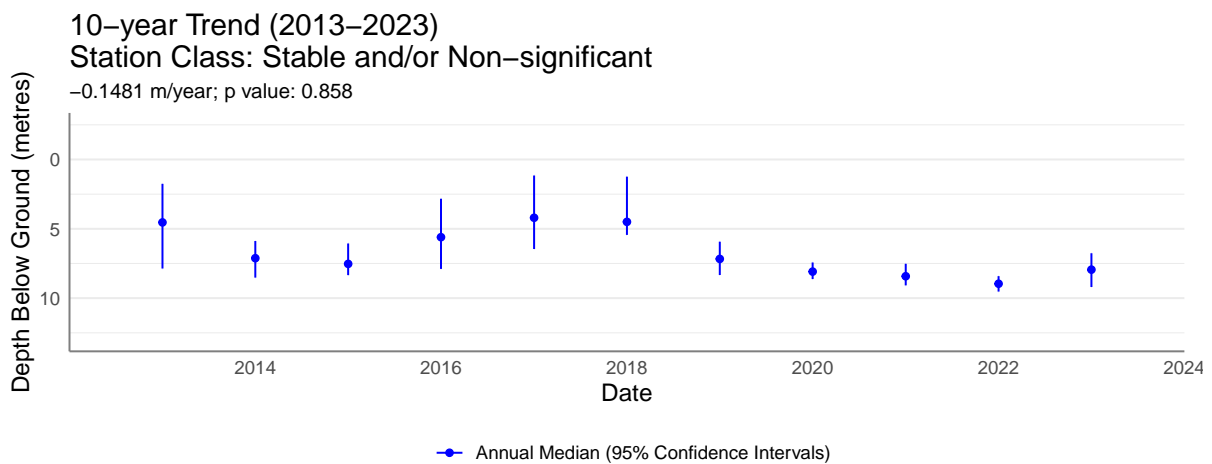
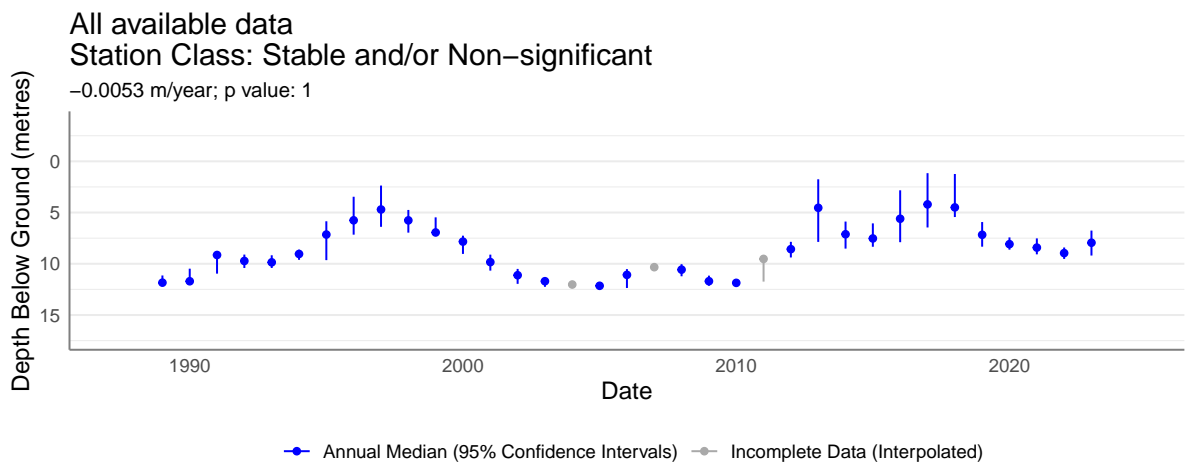
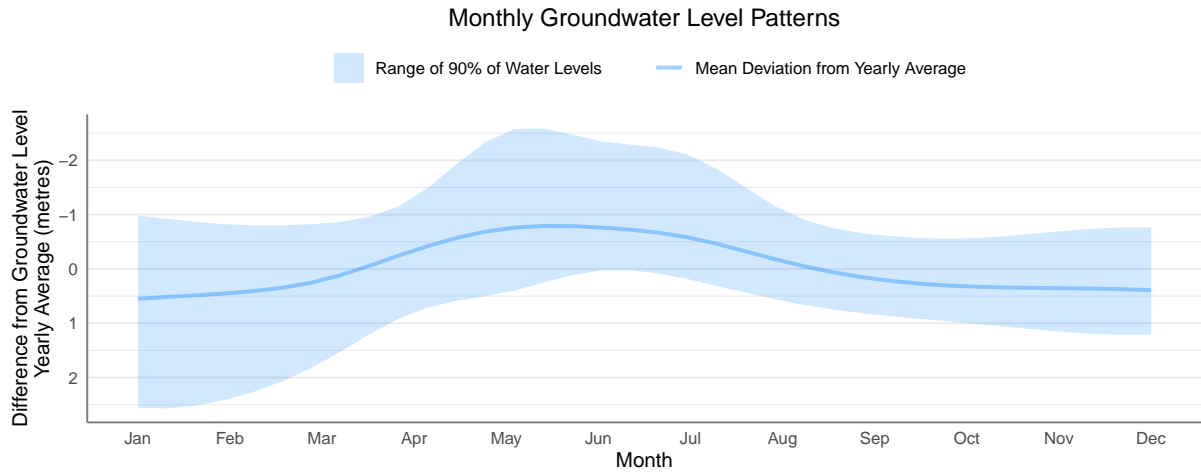
Aquifer Number: 464 Aquifer Type: Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 282

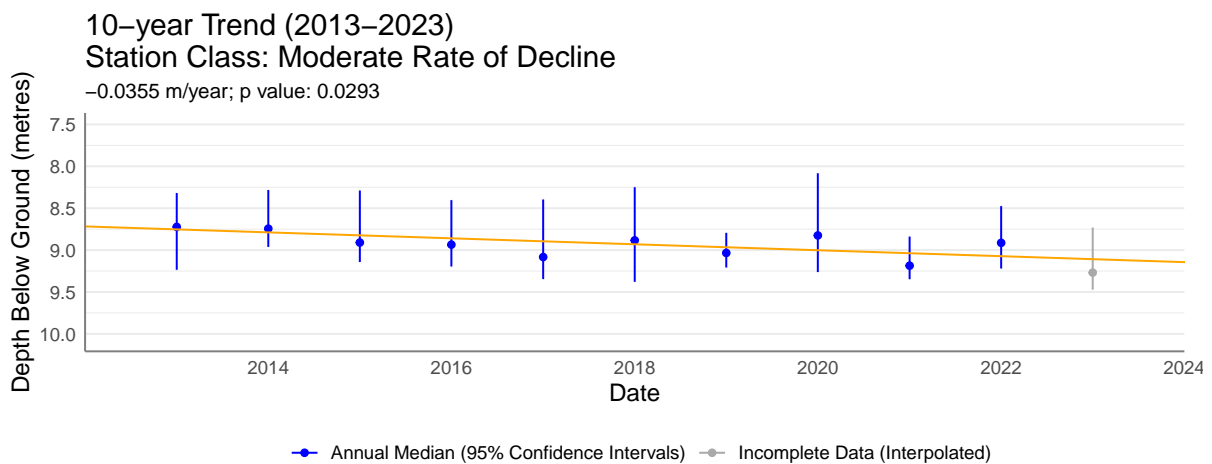
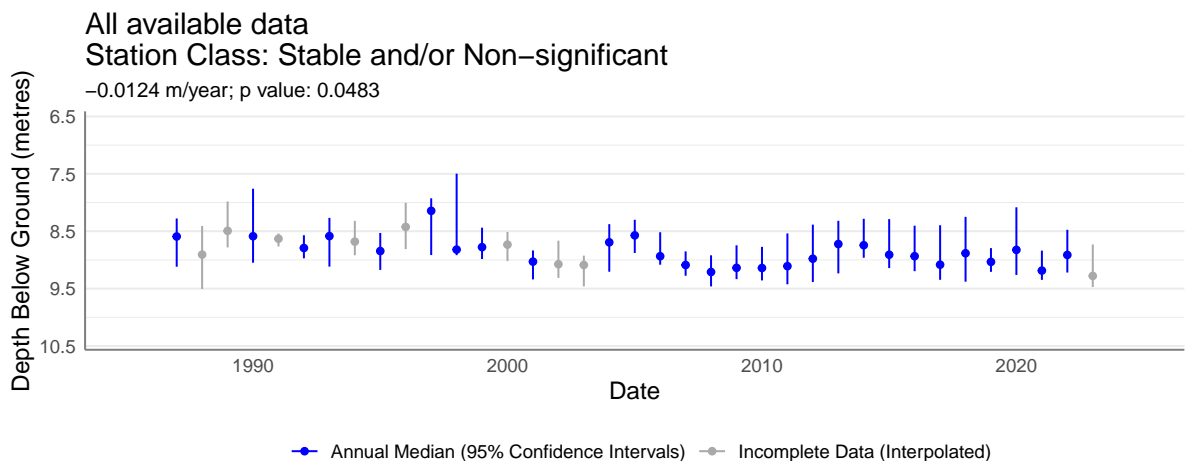
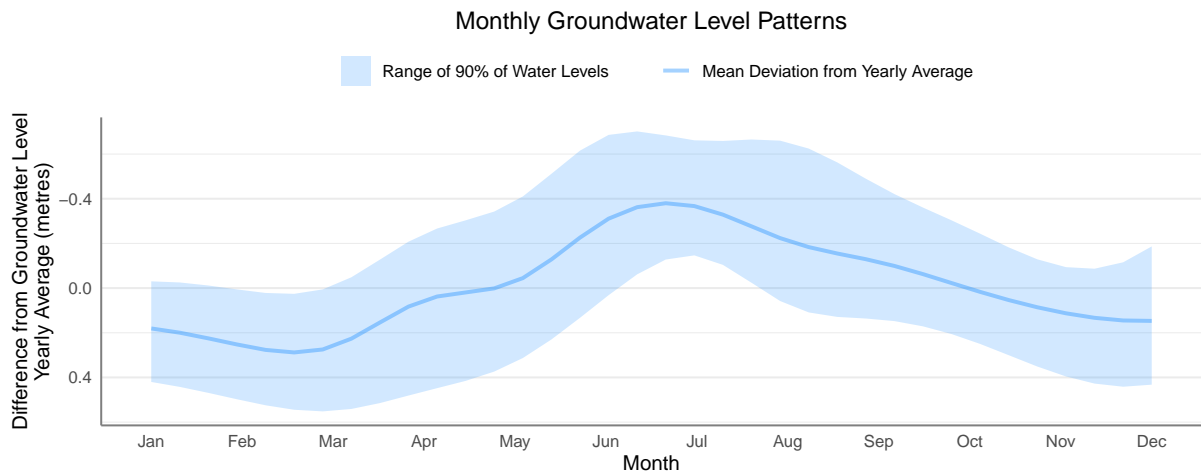
Aquifer Number: 257 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 294

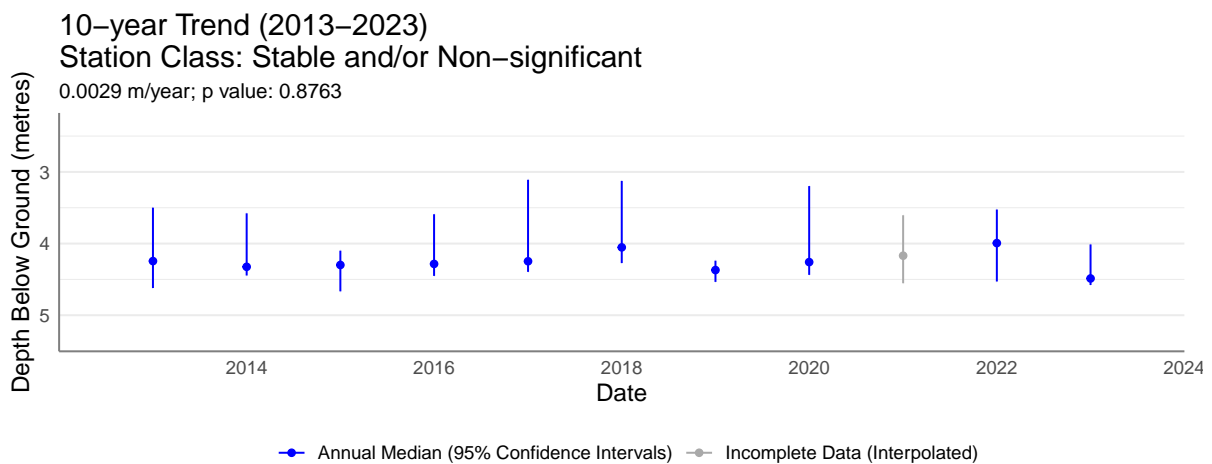
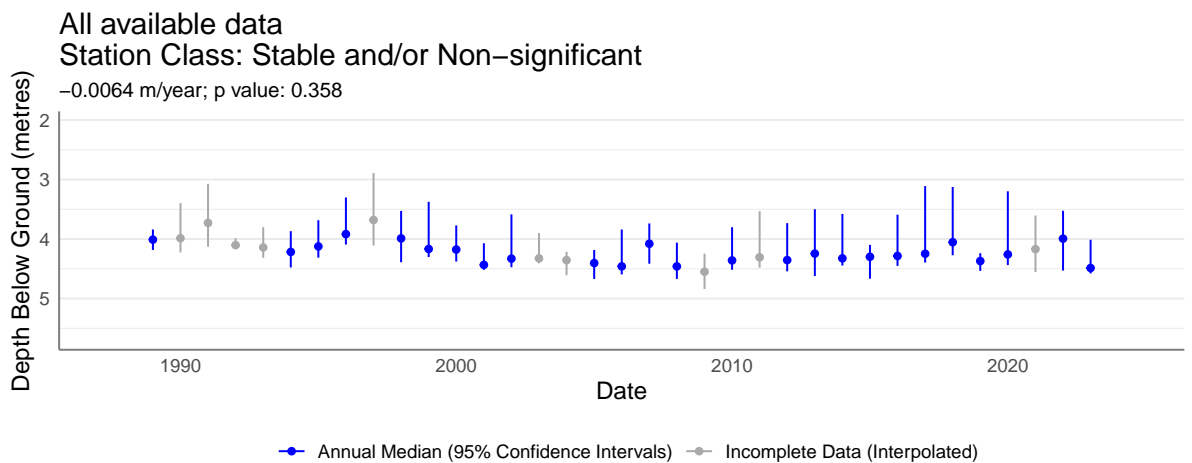
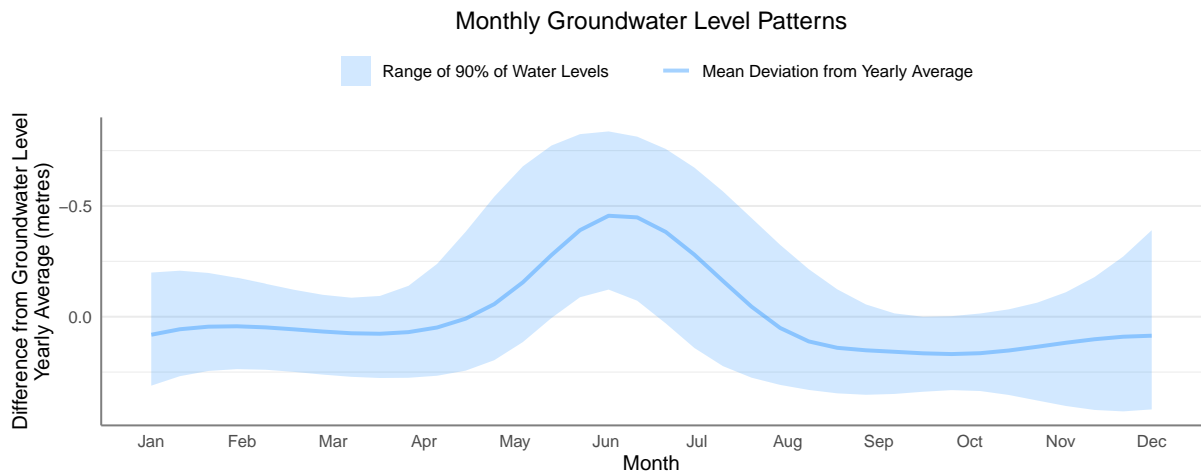
Aquifer Number: 316 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 296

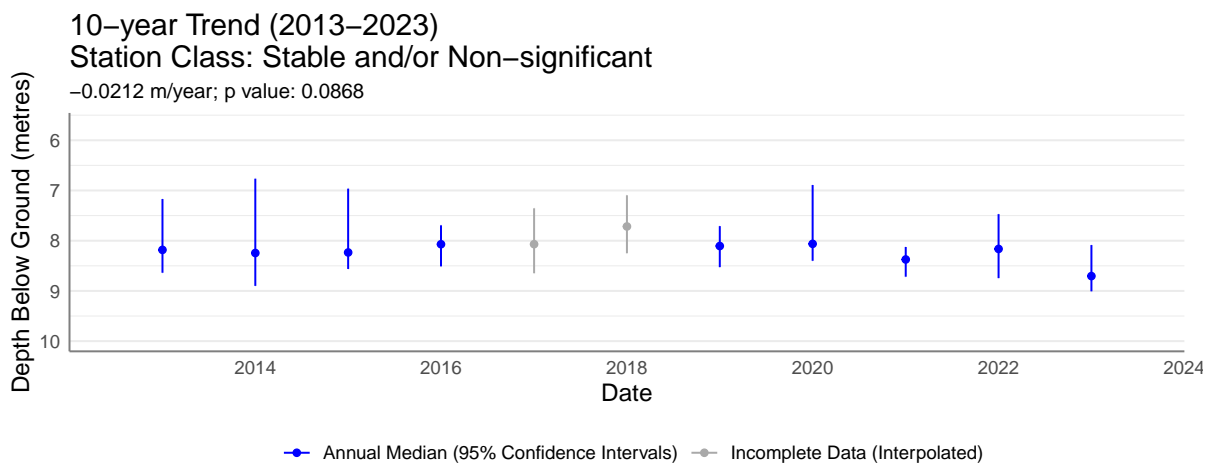
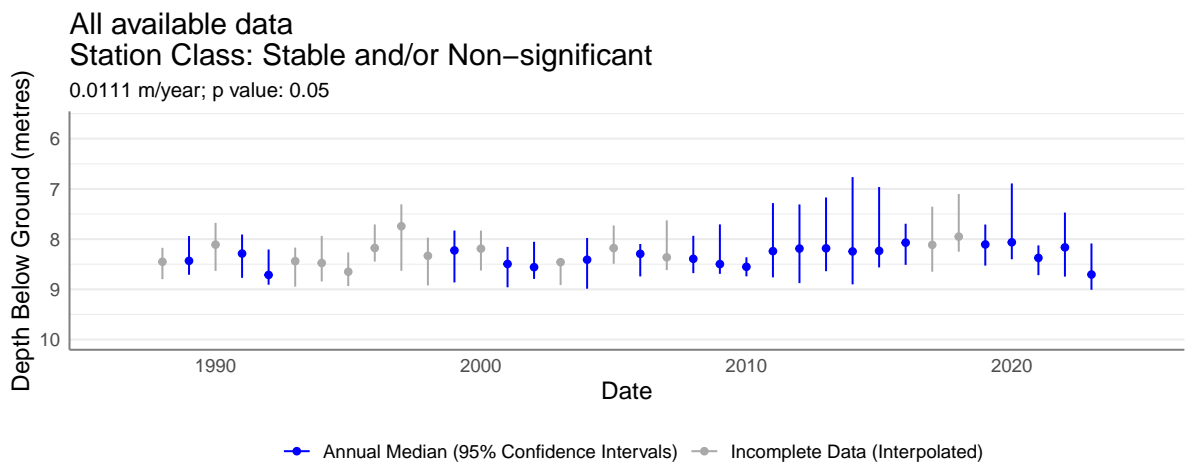
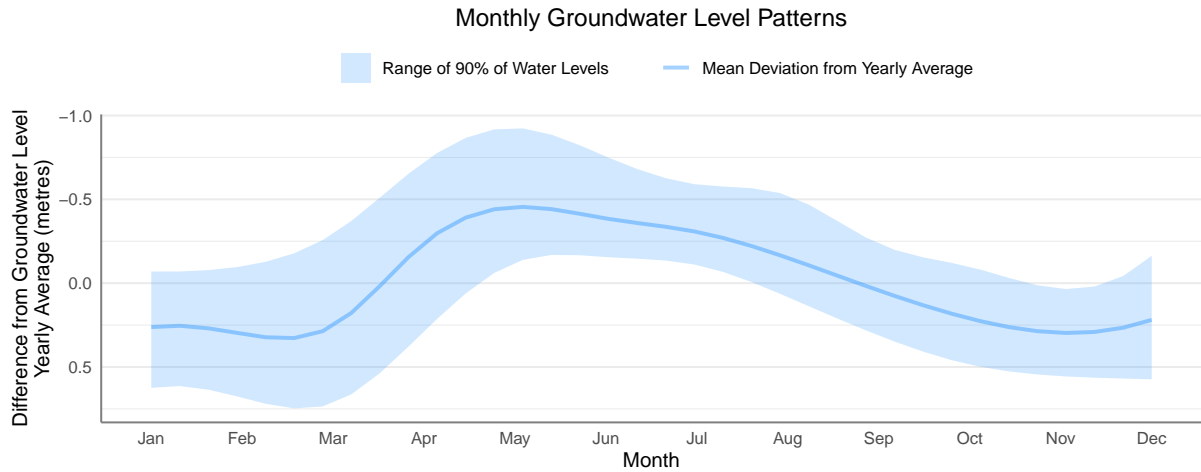
Aquifer Number: 74 Aquifer Type: Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 302

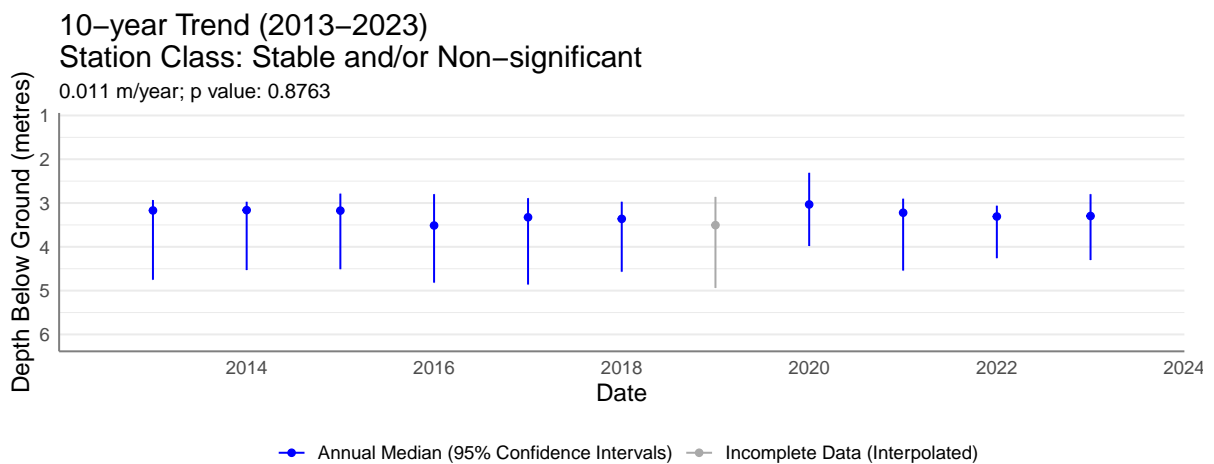
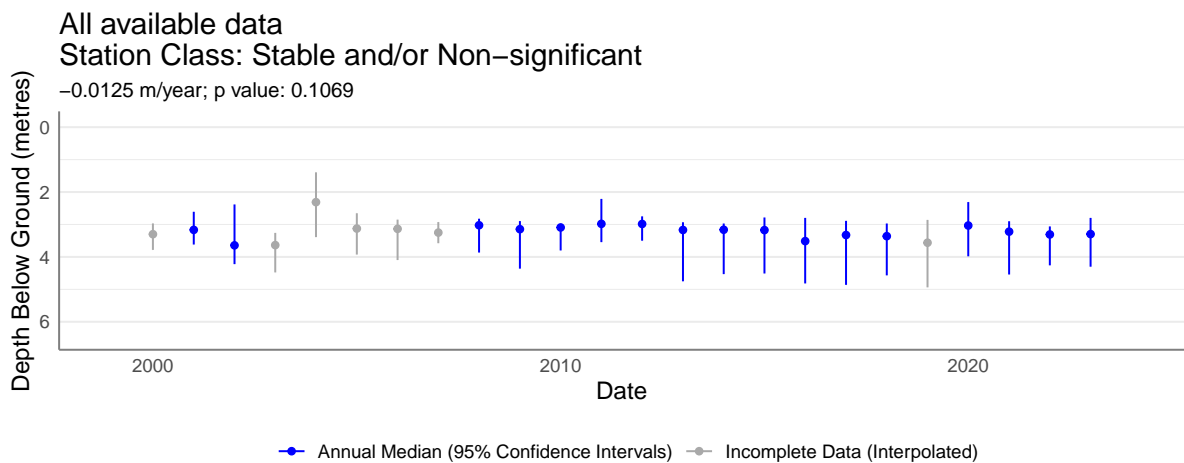
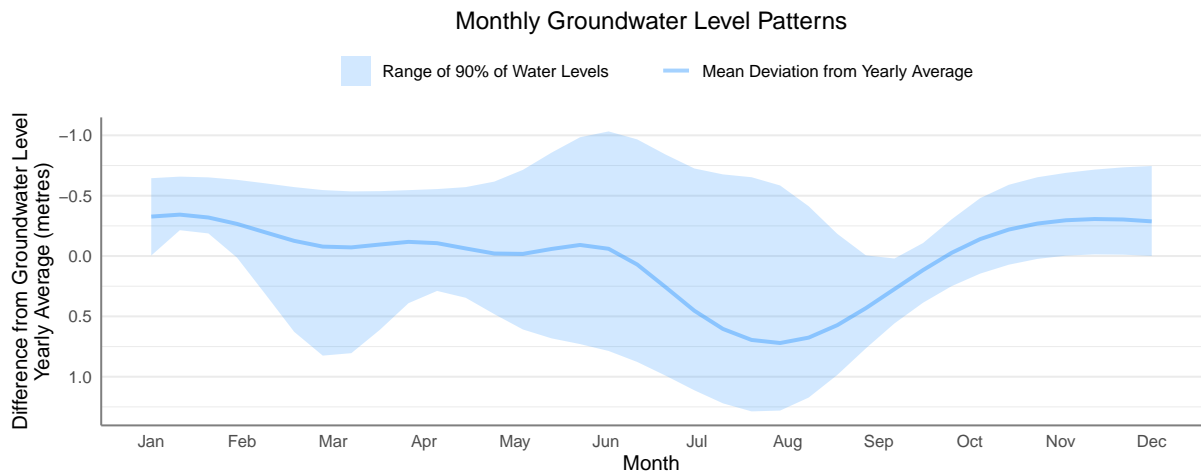
Aquifer Number: 307 Aquifer Type: Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 344

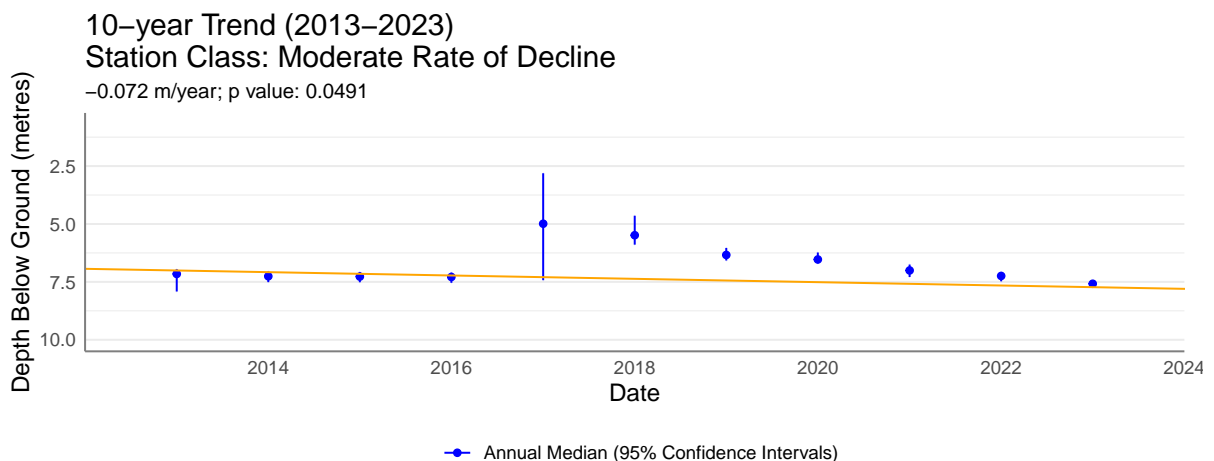
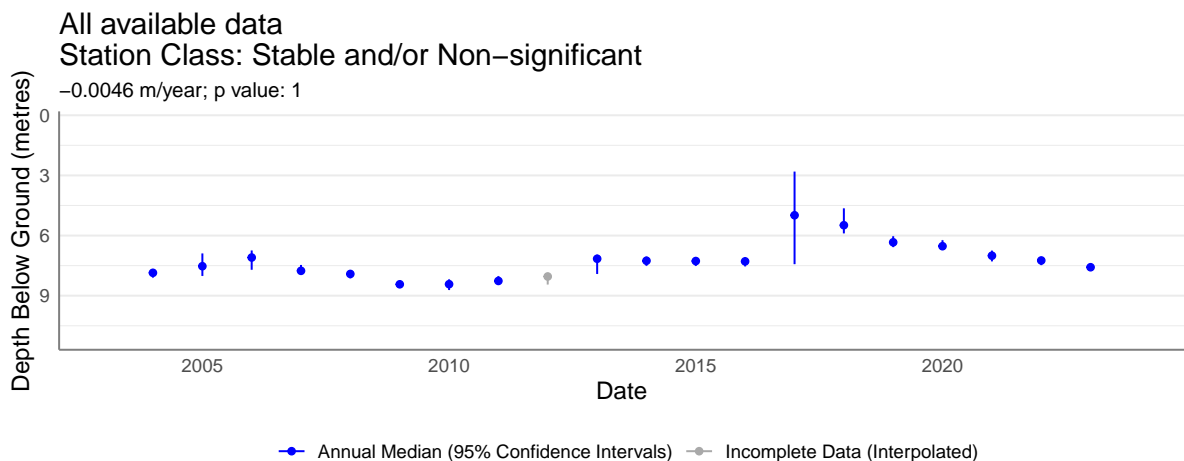
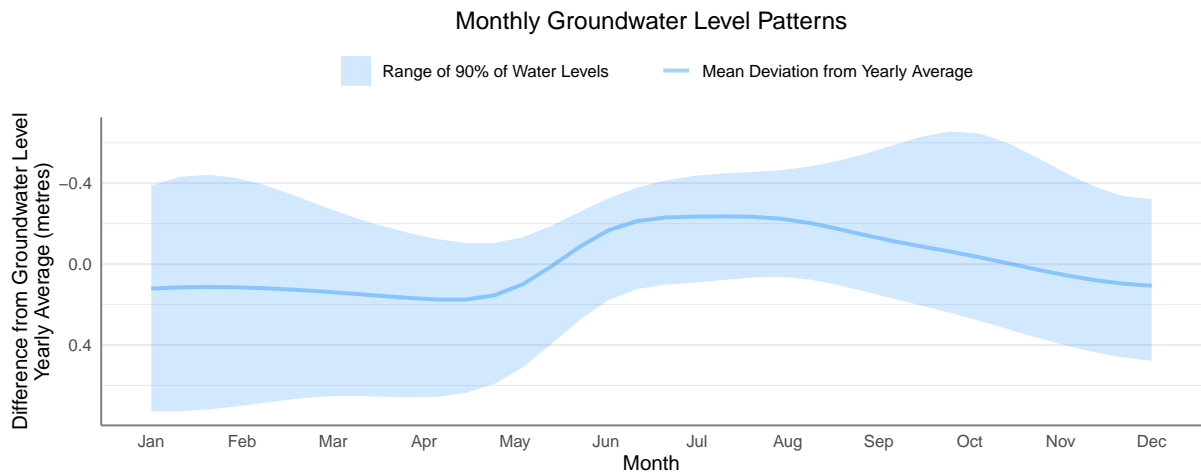
Aquifer Number: 133 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 356

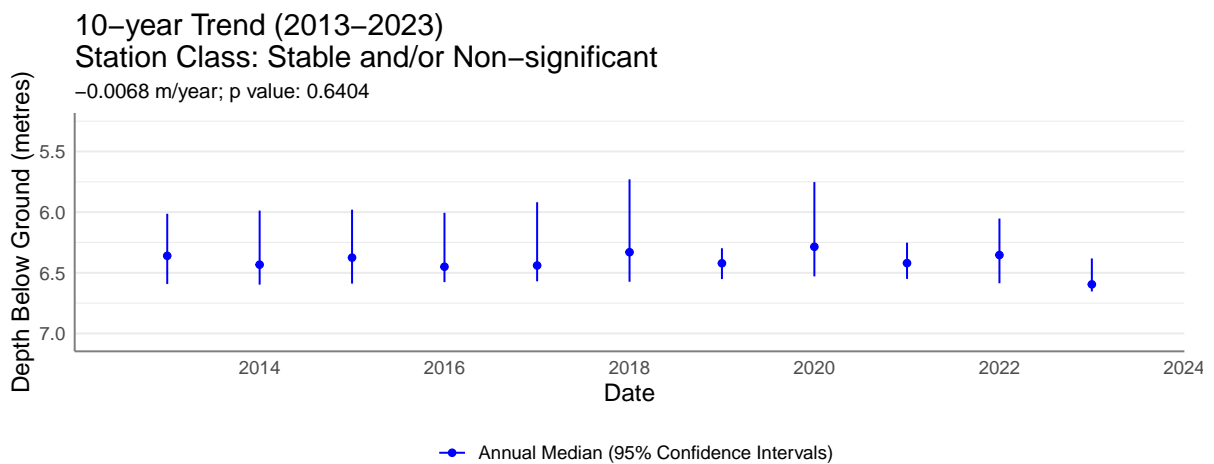
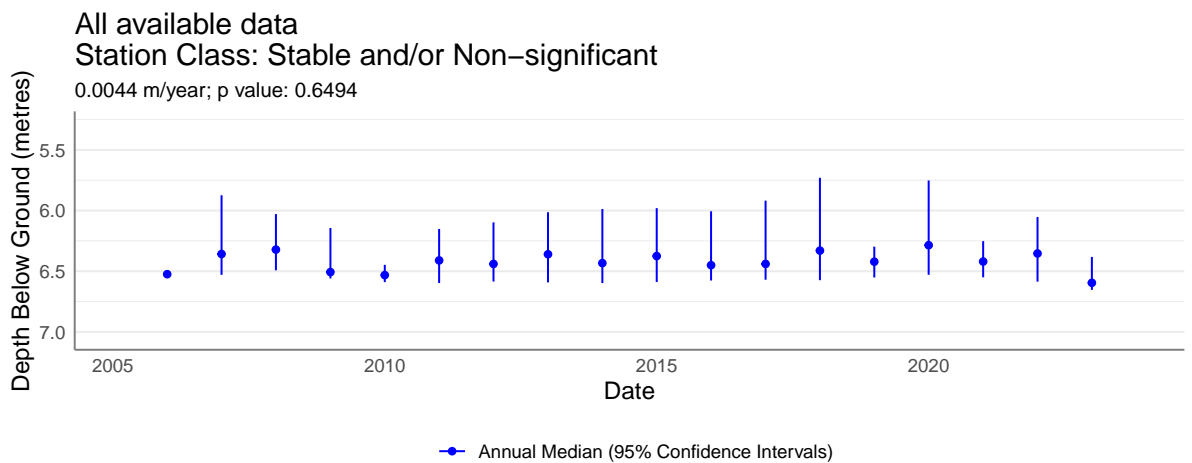
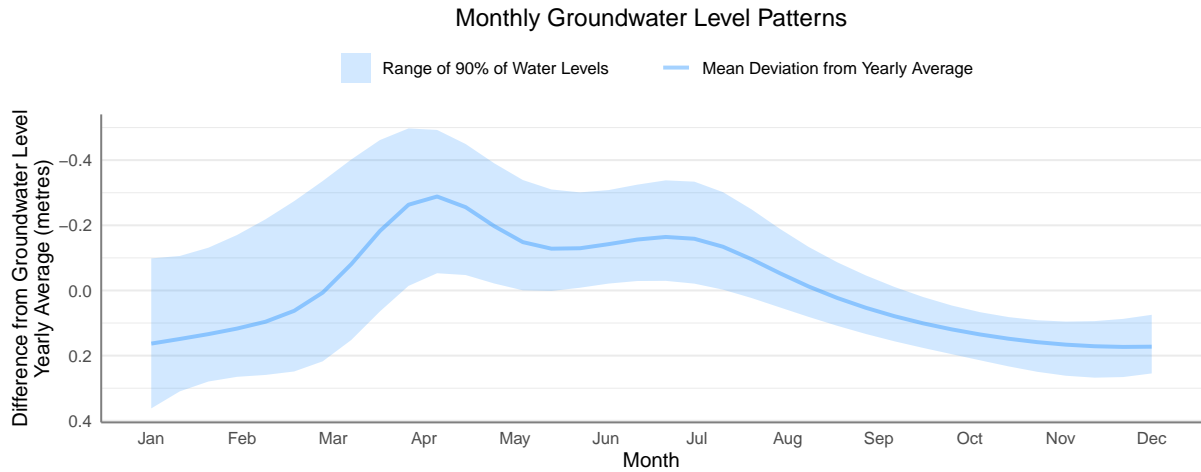
Aquifer Number: 344 Aquifer Type: Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 365

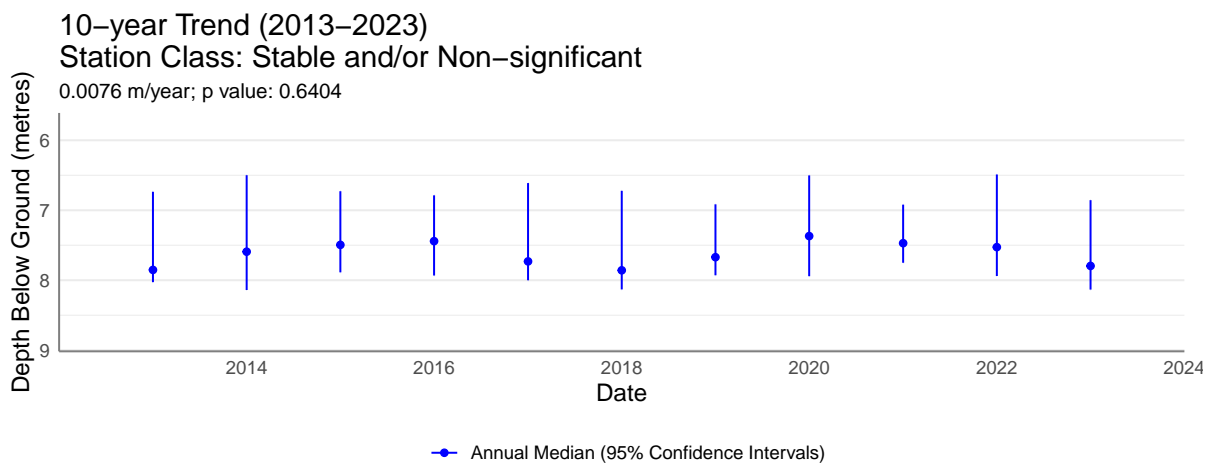
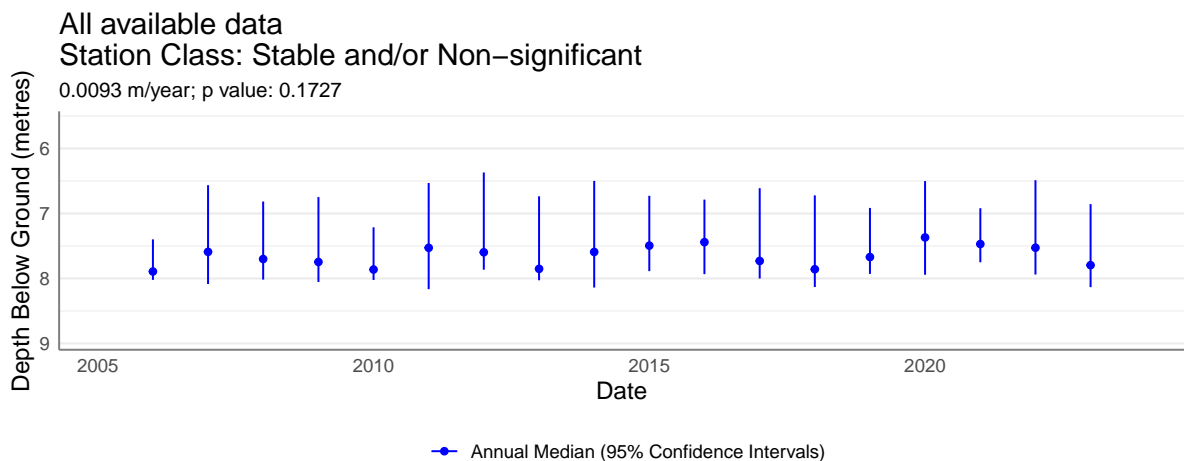
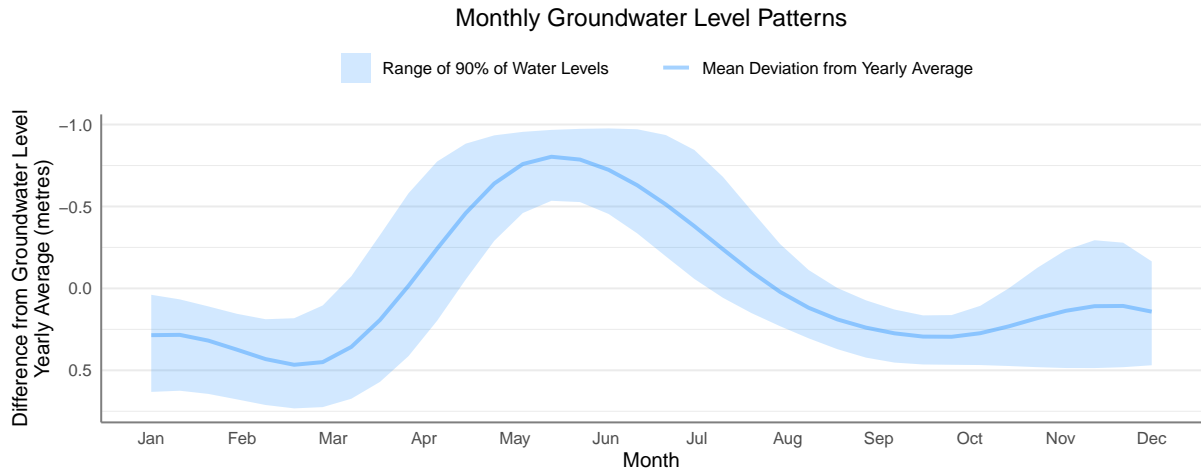
Aquifer Number: 229 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 375

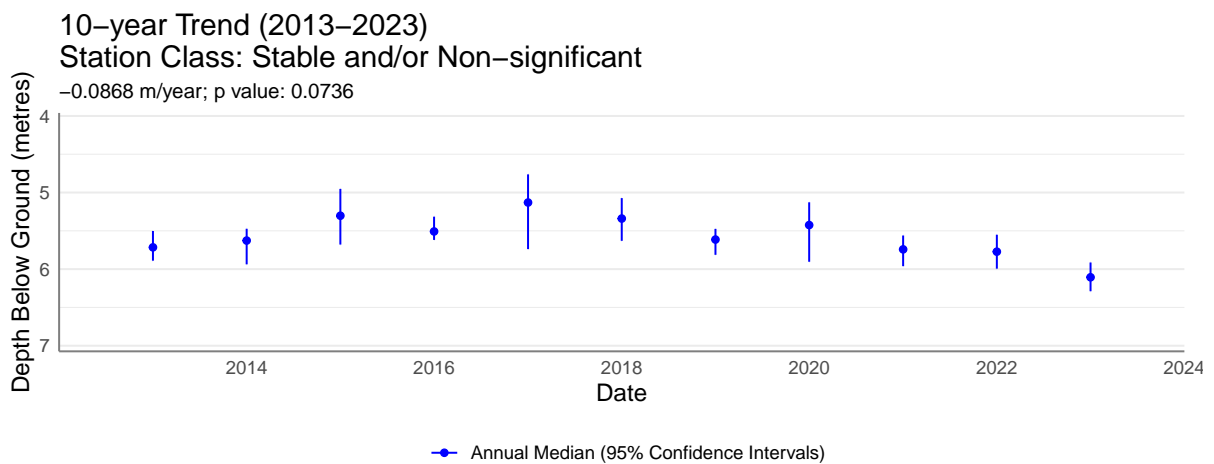
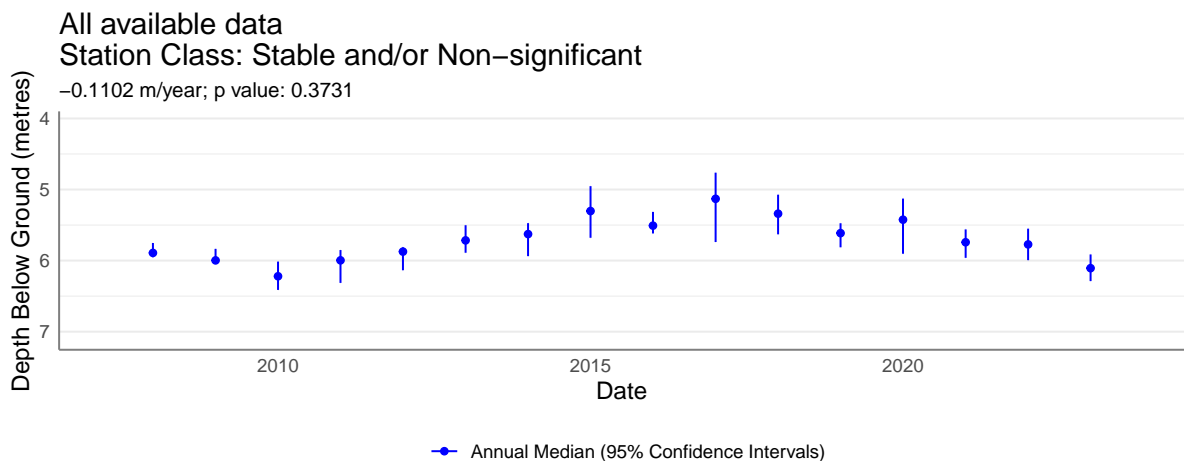
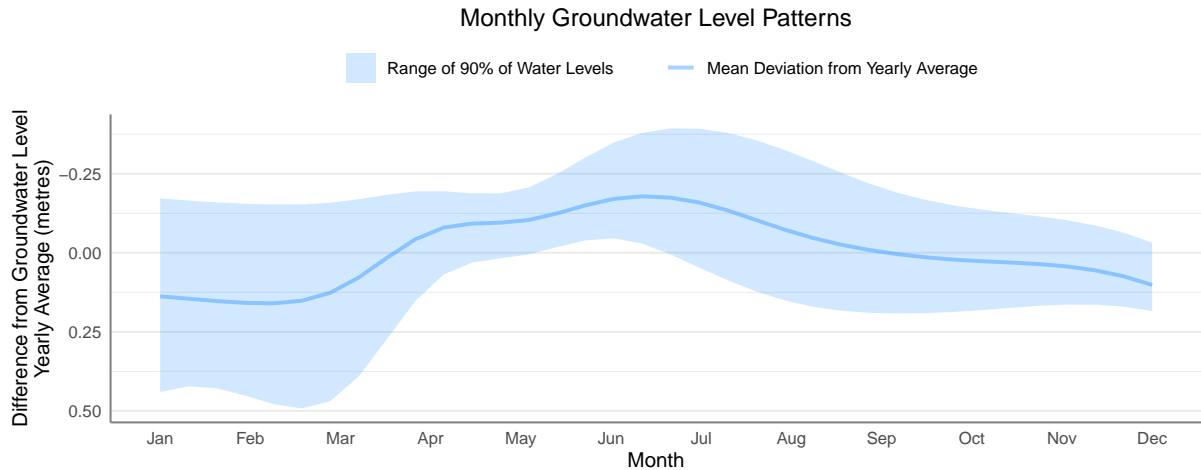
Aquifer Number: 825 **Aquifer Type:** Bedrock



Region: Thompson / Okanagan

Observation Well Number: 381

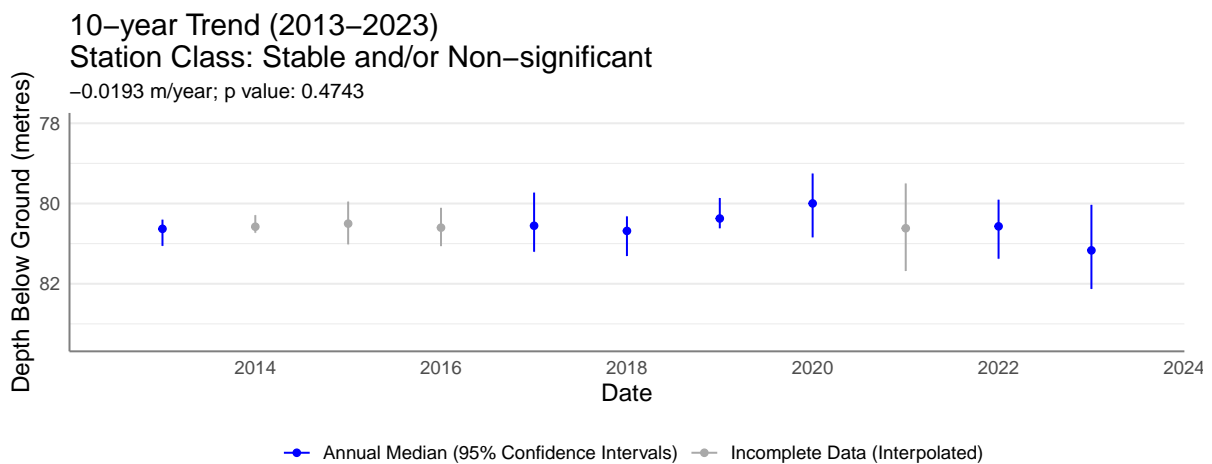
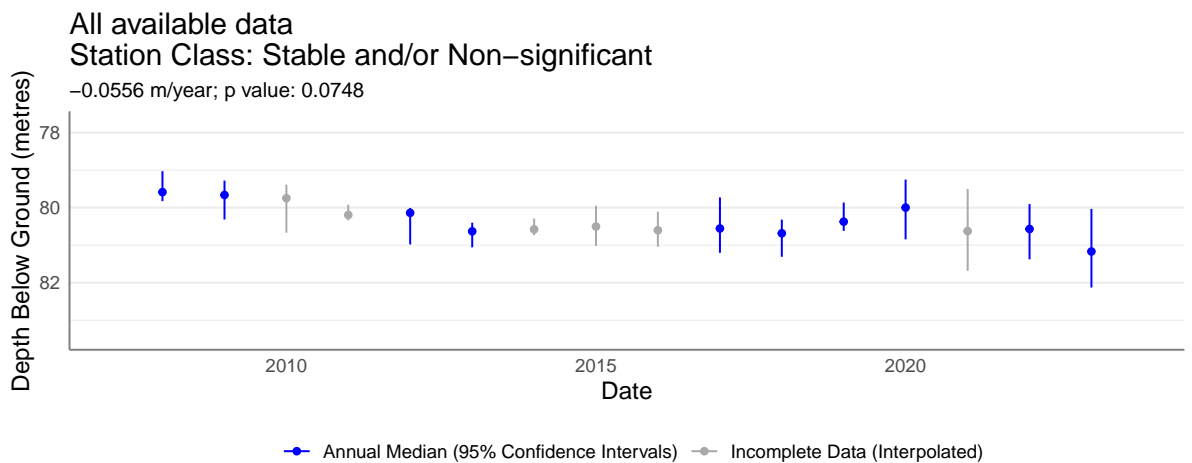
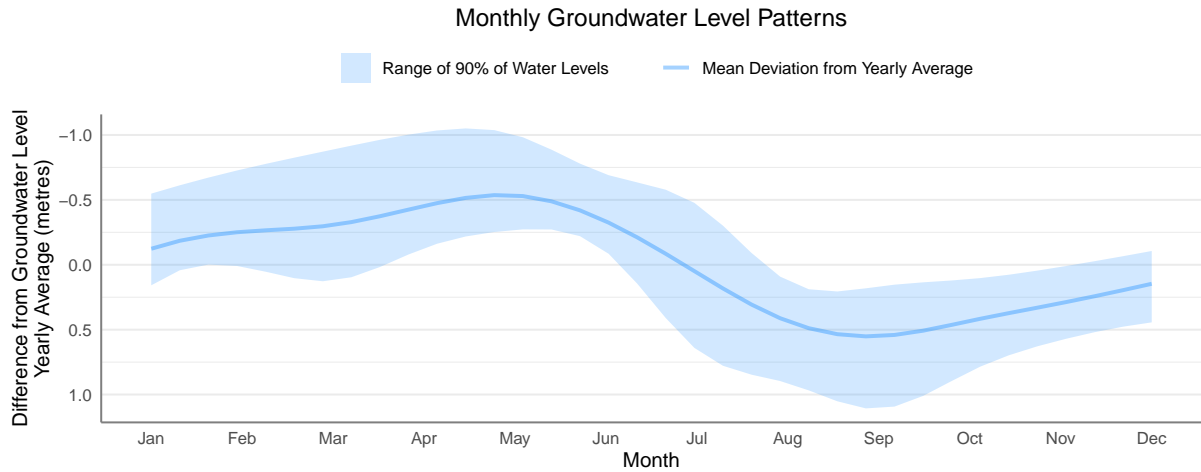
Aquifer Number: 108 Aquifer Type: Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 384

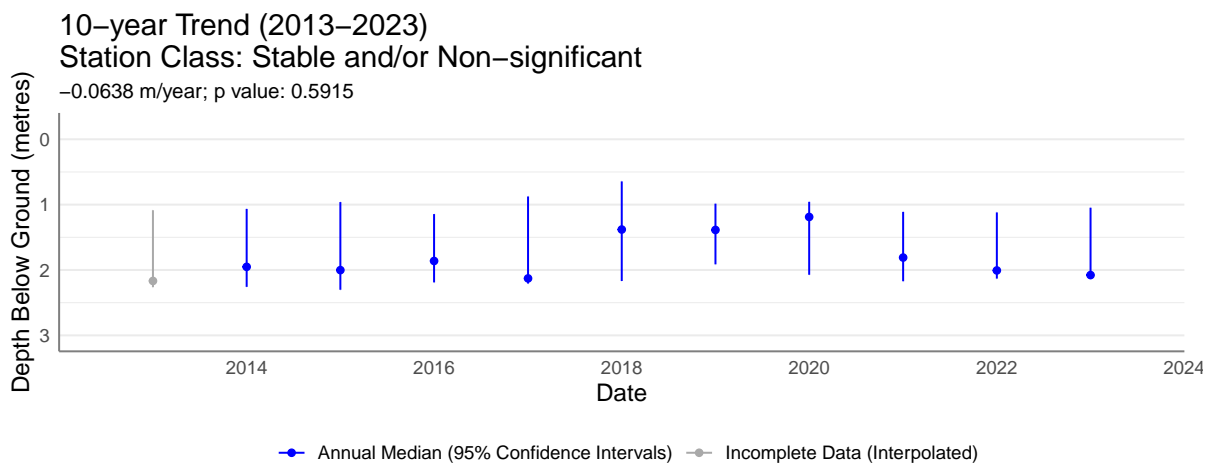
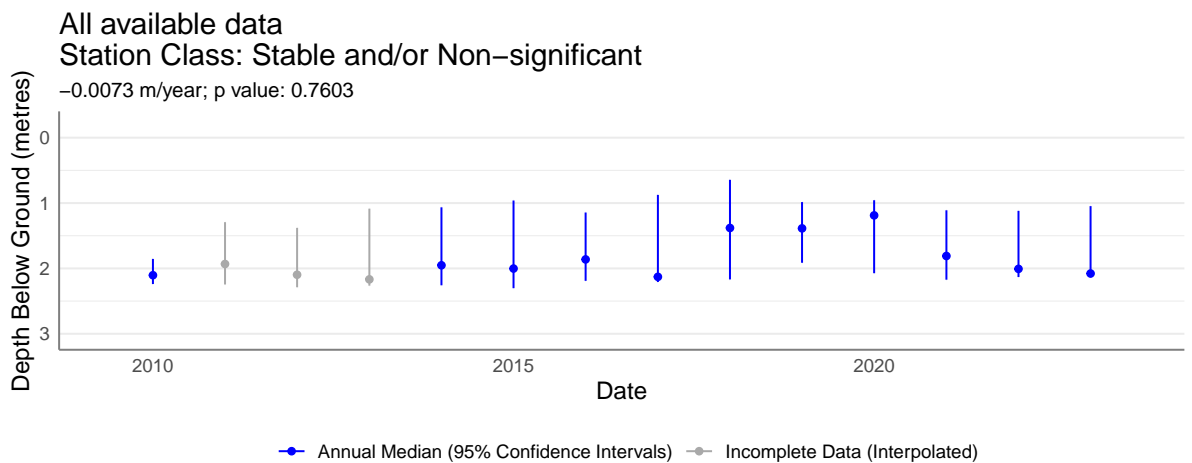
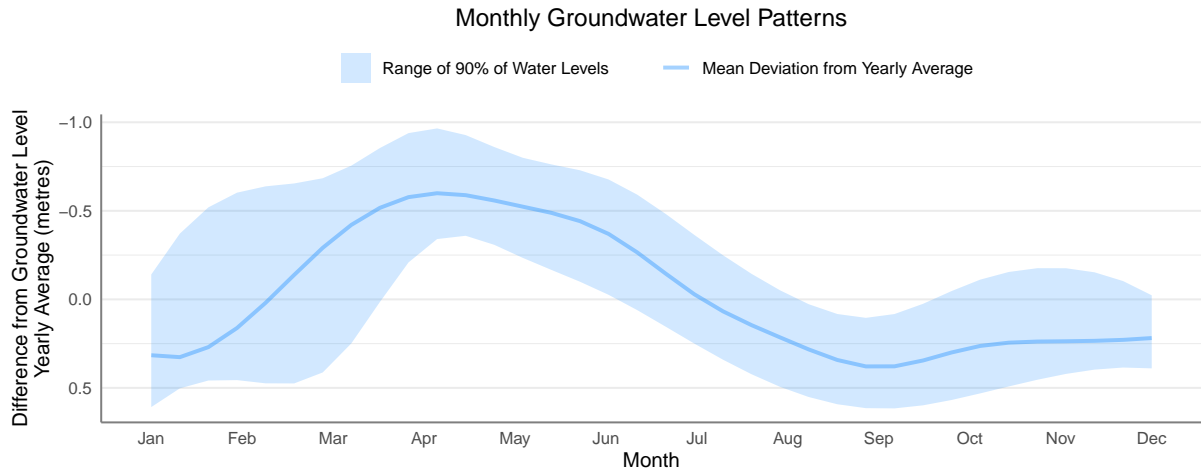
Aquifer Number: 102 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 399

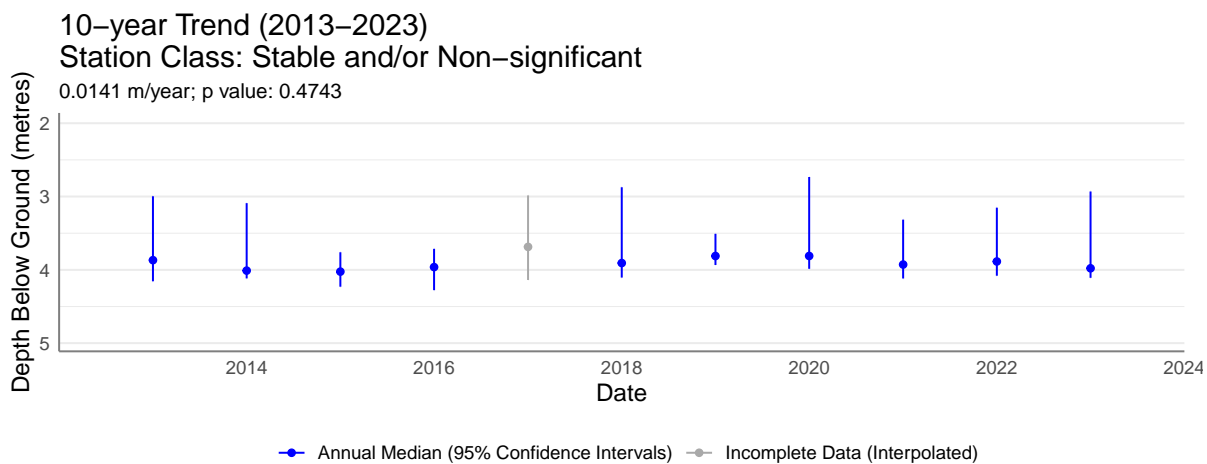
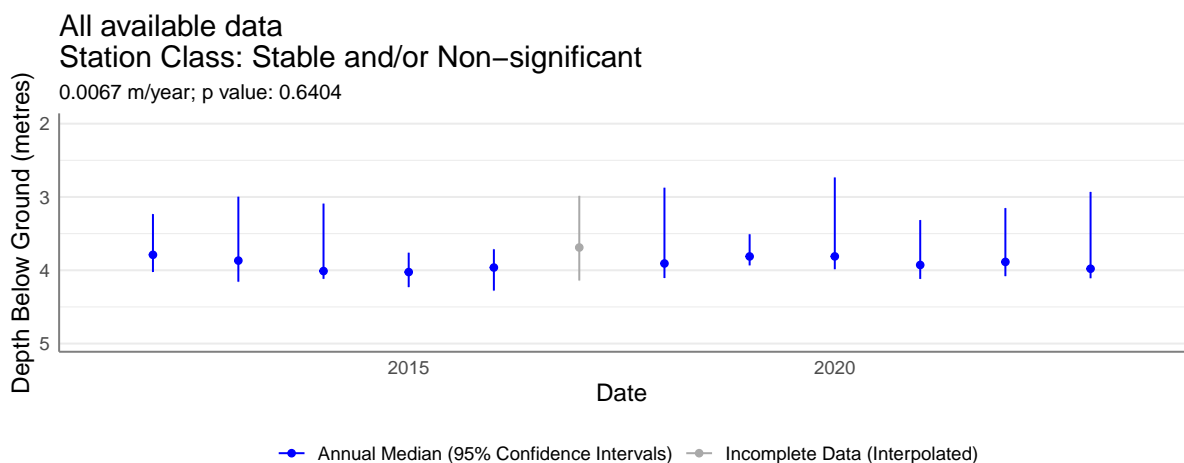
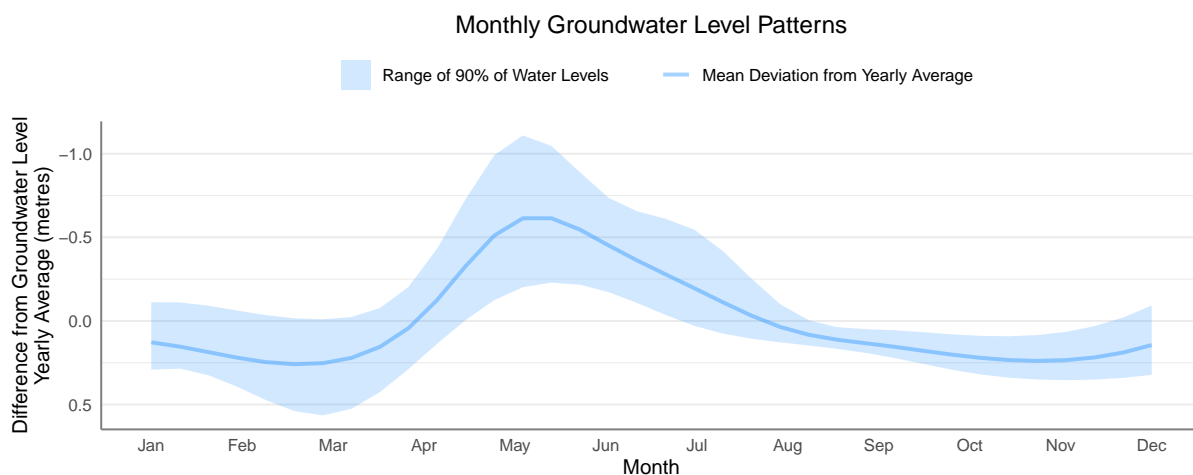
Aquifer Number: 276 **Aquifer Type:** Bedrock



Region: Thompson / Okanagan

Observation Well Number: 400

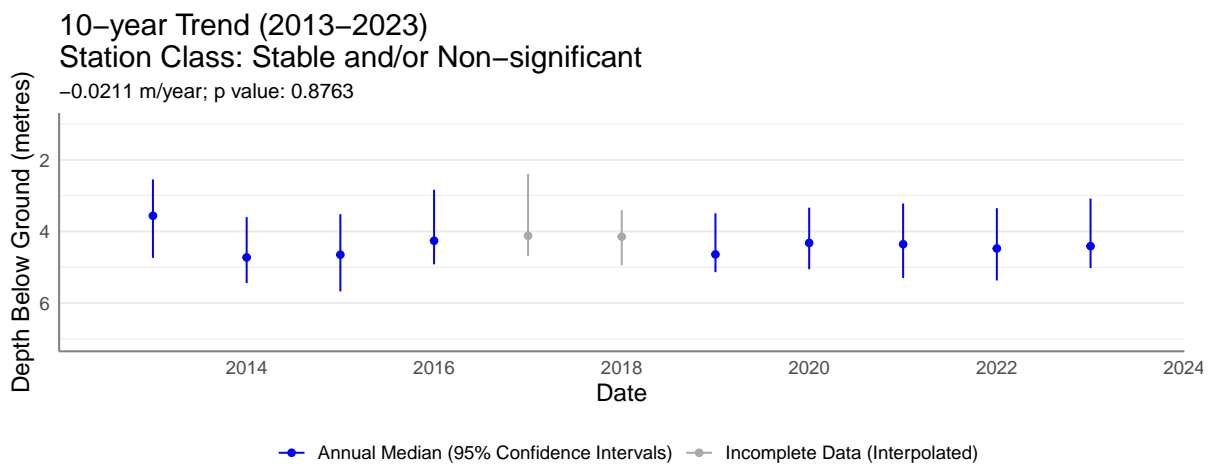
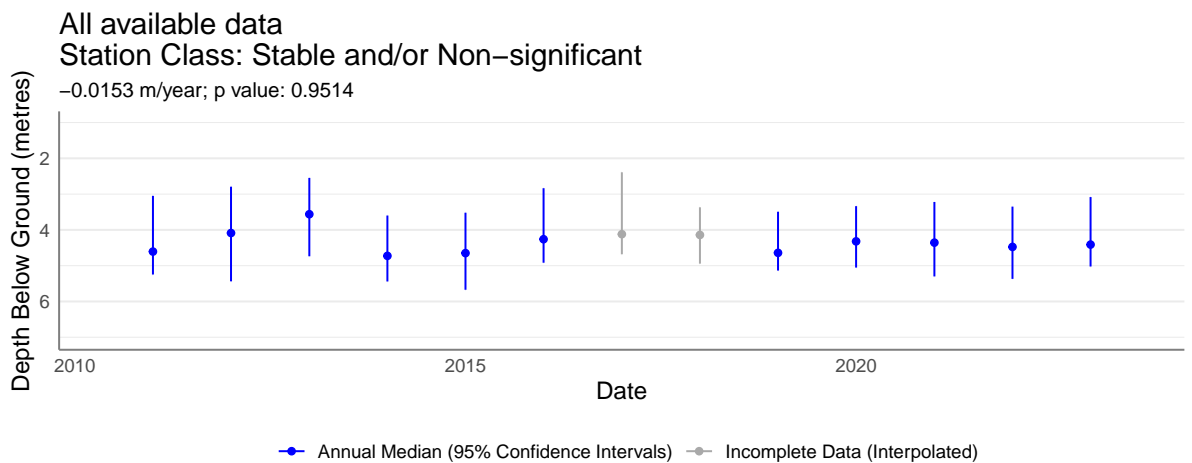
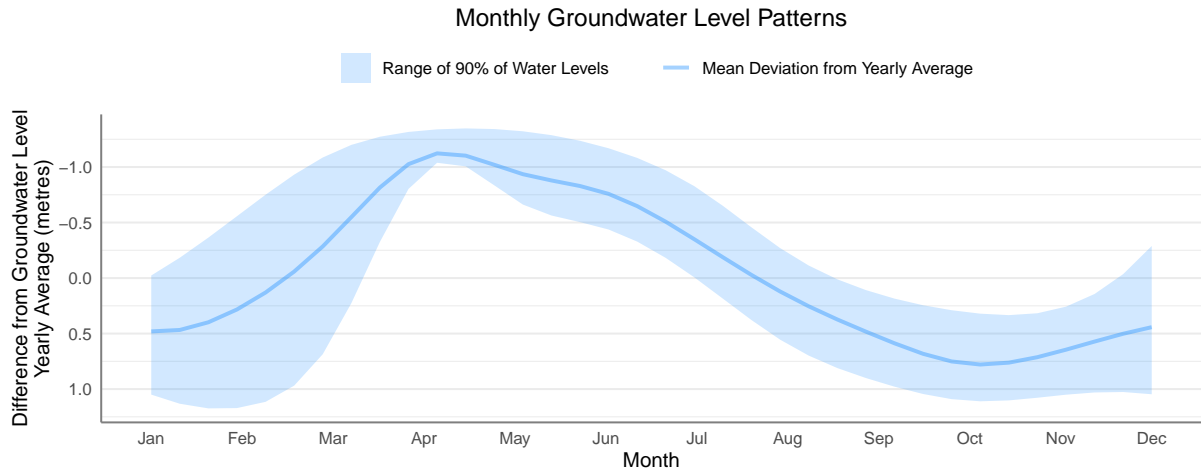
Aquifer Number: 134 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 401

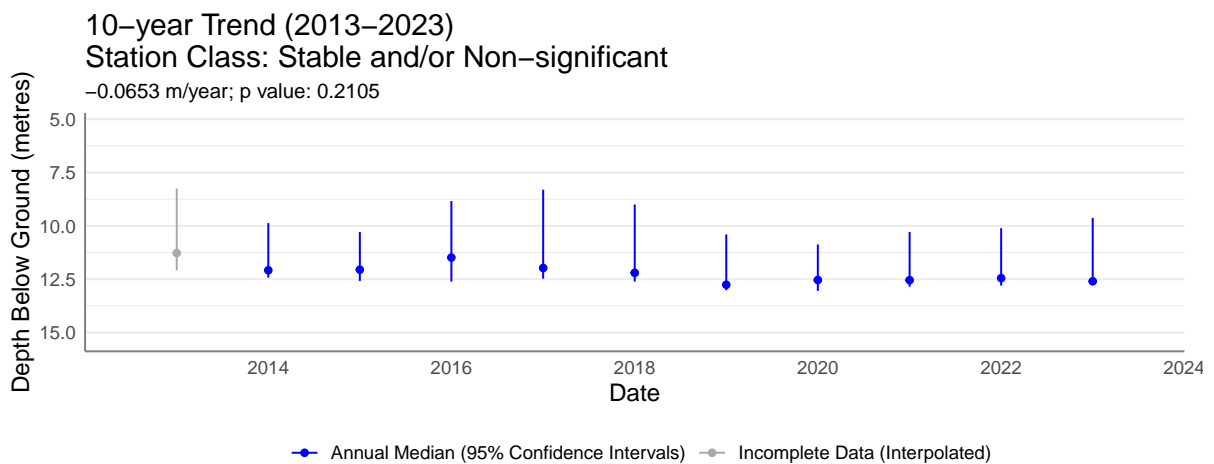
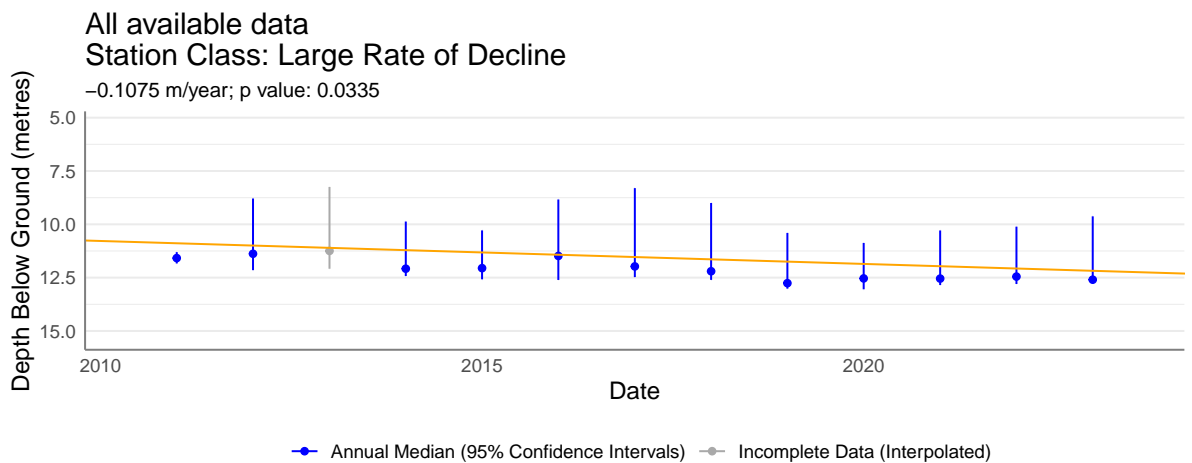
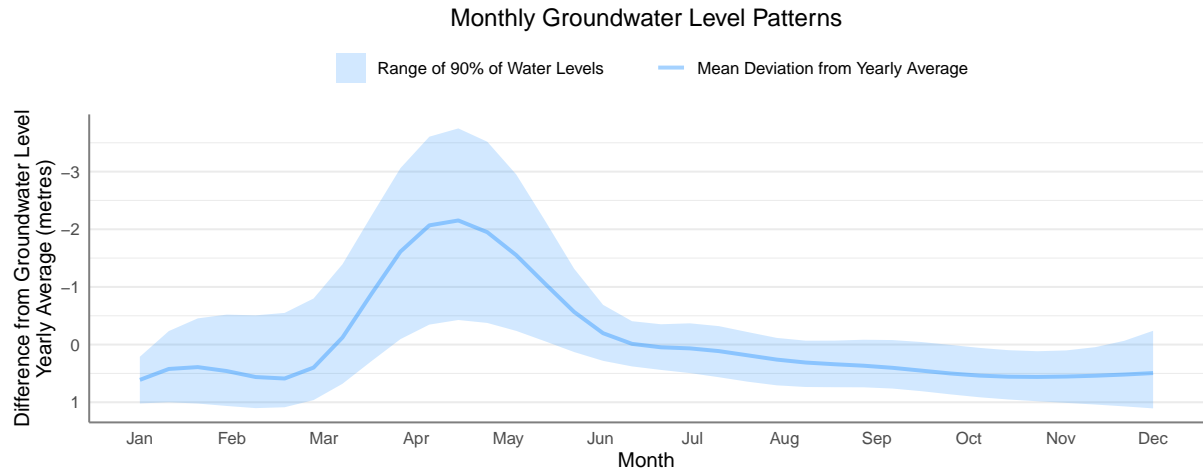
Aquifer Number: 808 Aquifer Type: Bedrock



Region: Thompson / Okanagan

Observation Well Number: 402

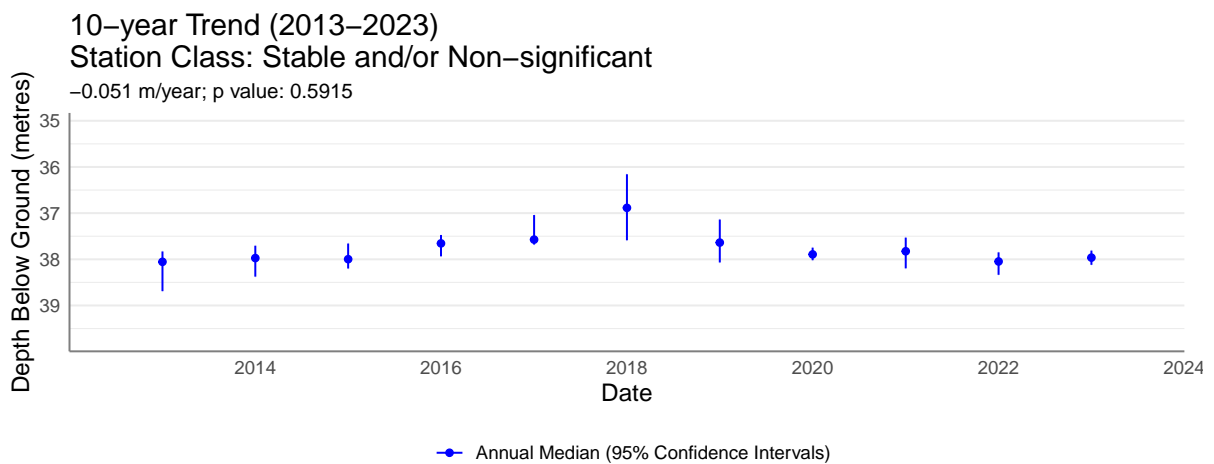
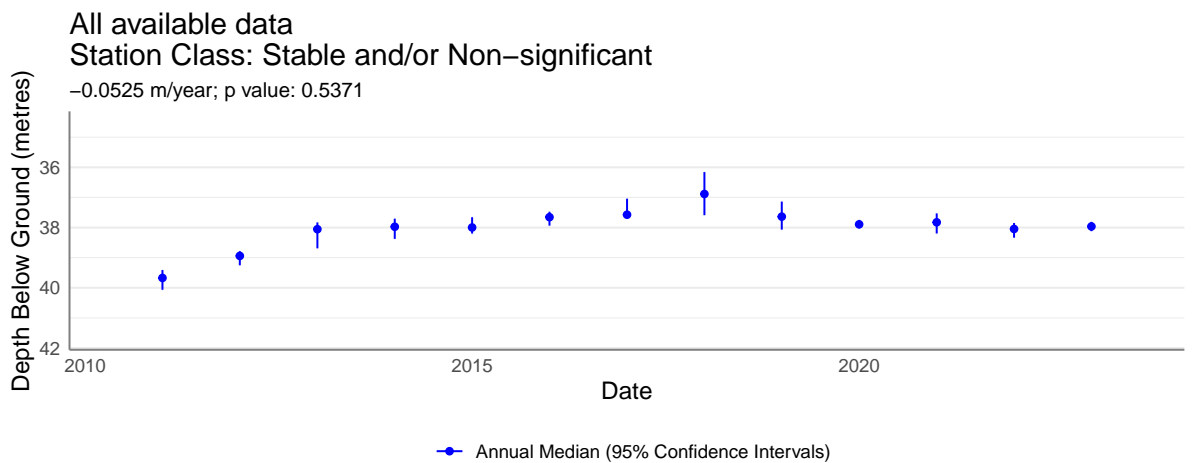
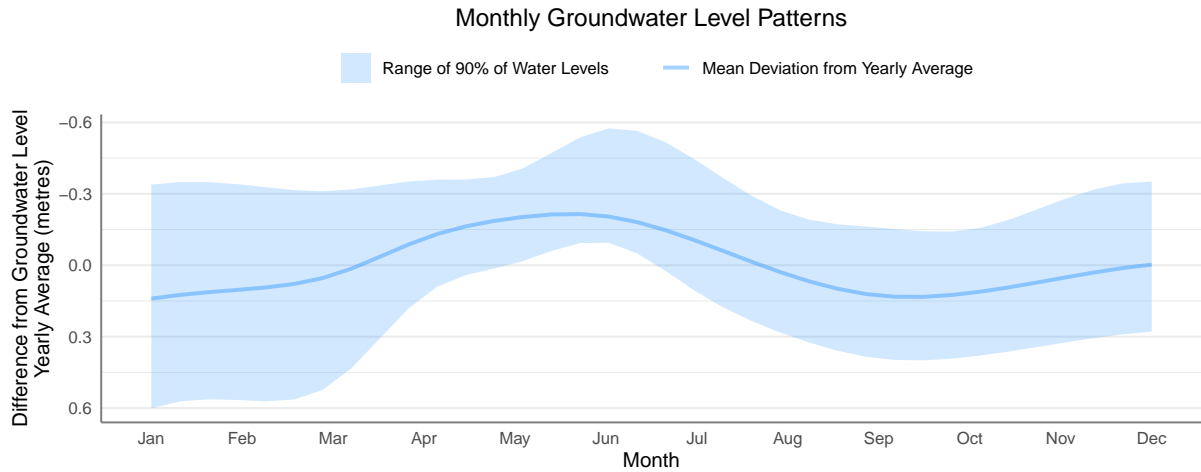
Aquifer Number: 936 **Aquifer Type:** Bedrock



Region: Thompson / Okanagan

Observation Well Number: 403

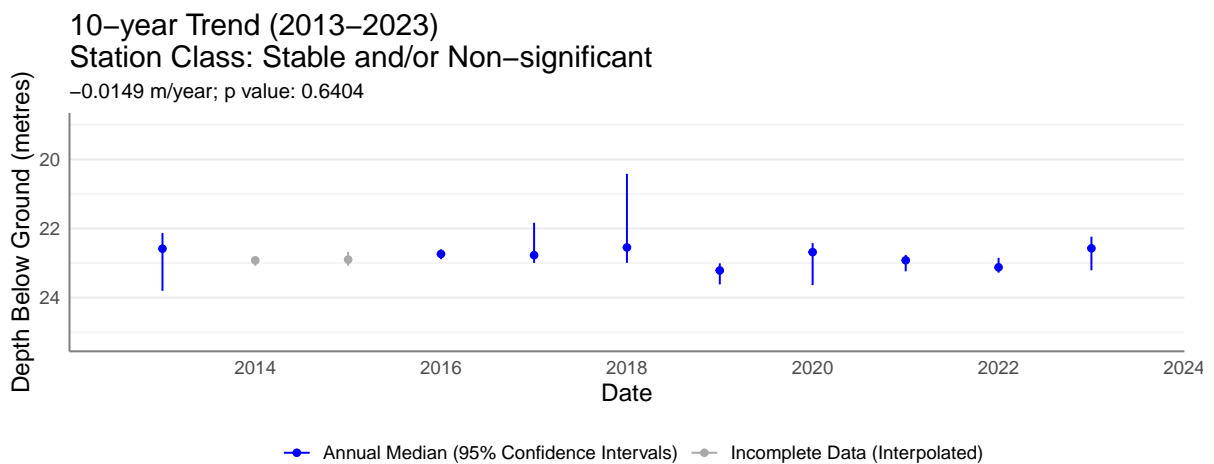
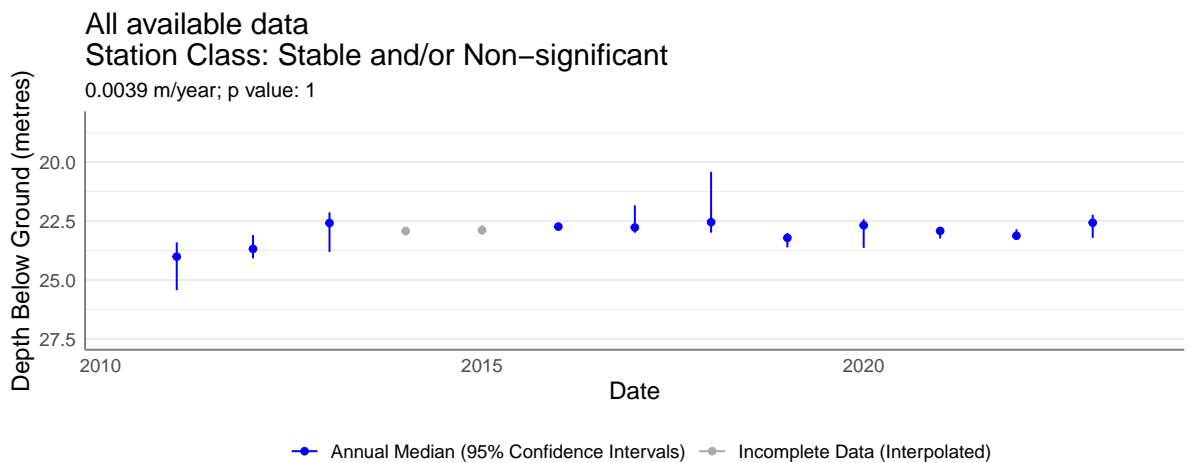
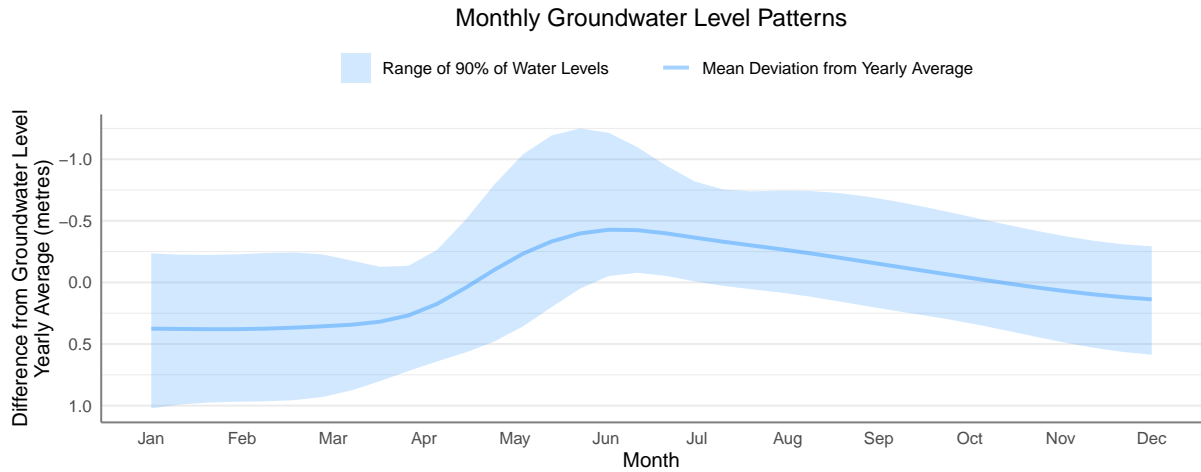
Aquifer Number: 261 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 404

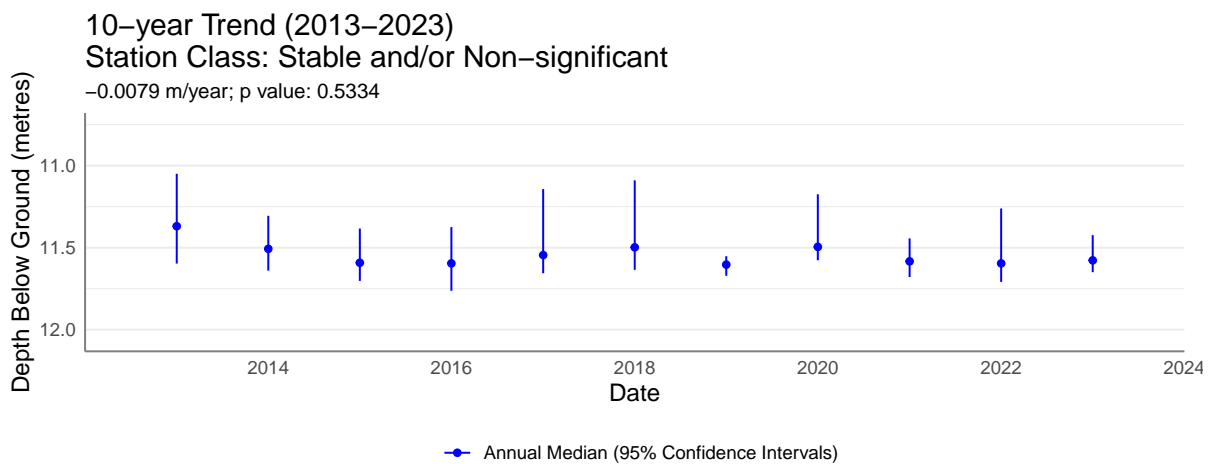
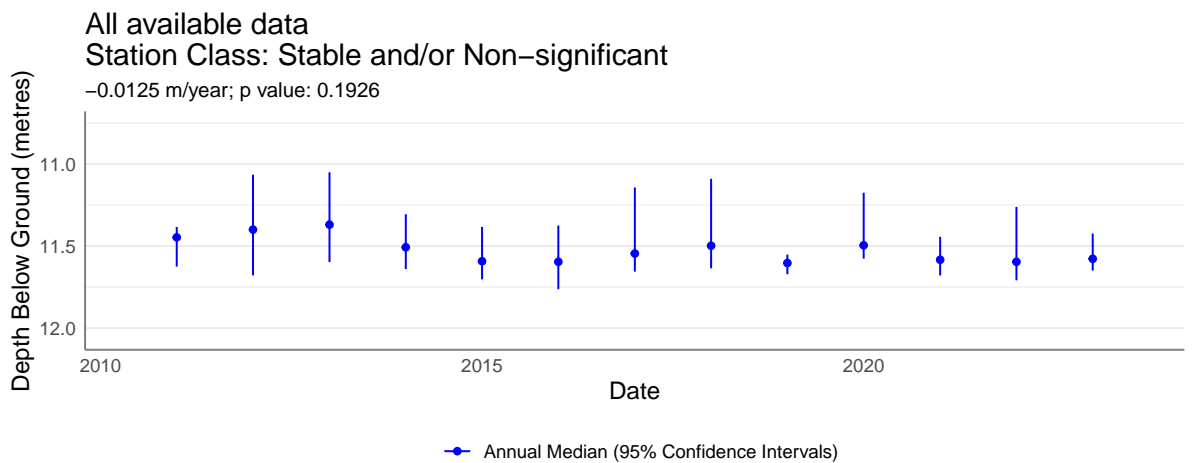
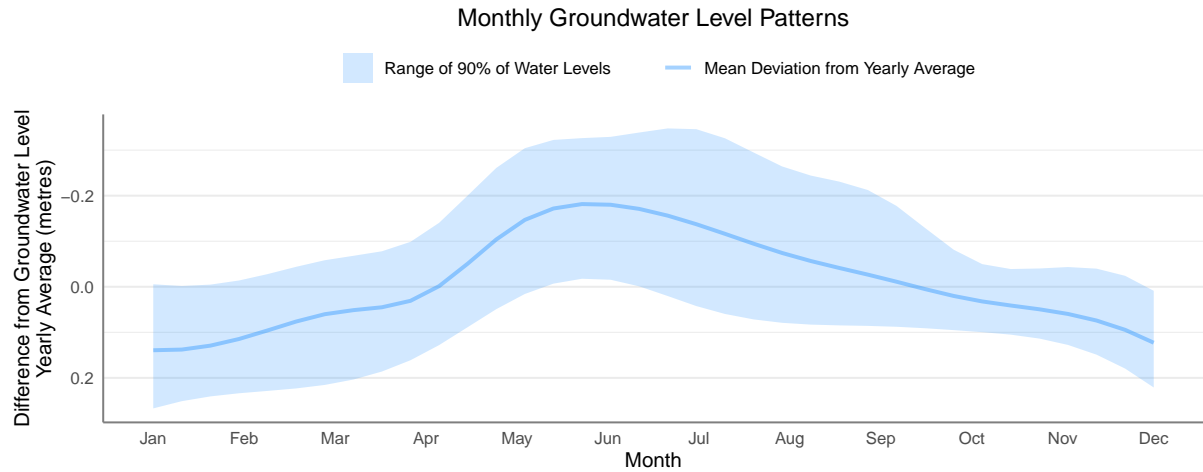
Aquifer Number: 260 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 407

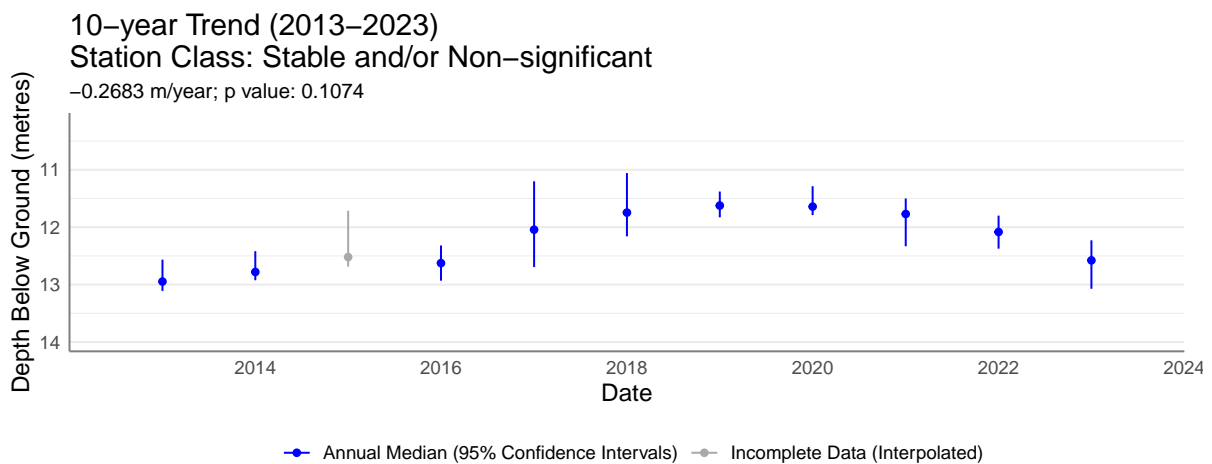
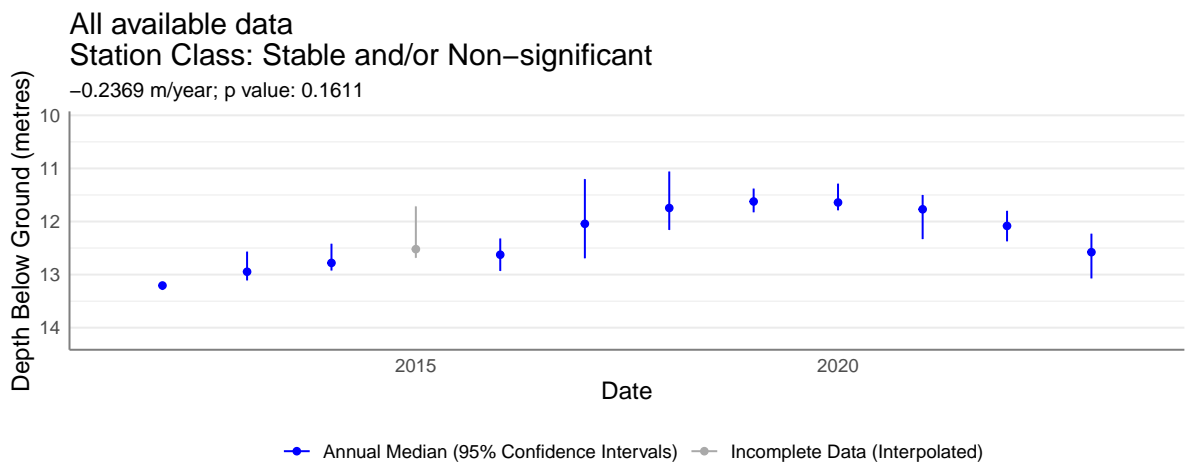
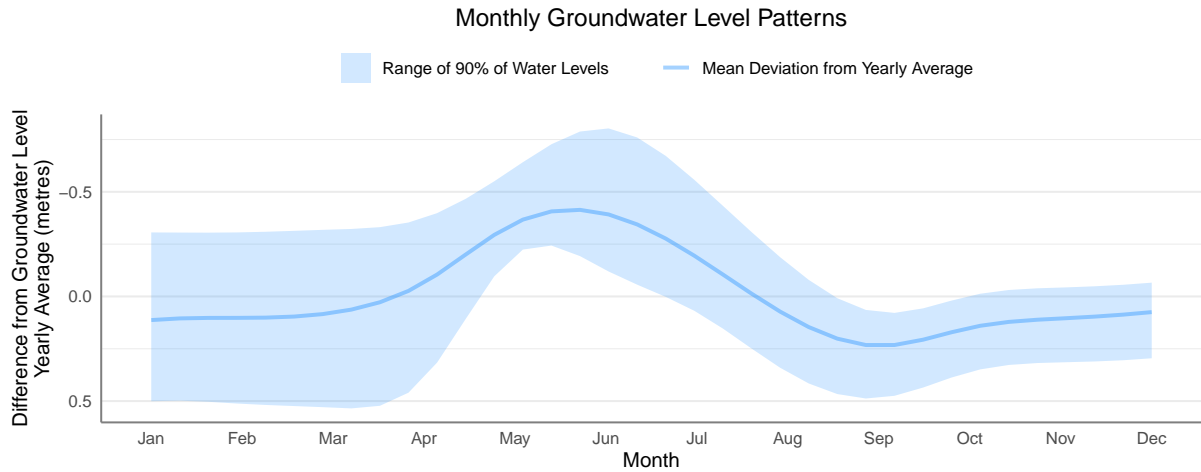
Aquifer Number: 255 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 409

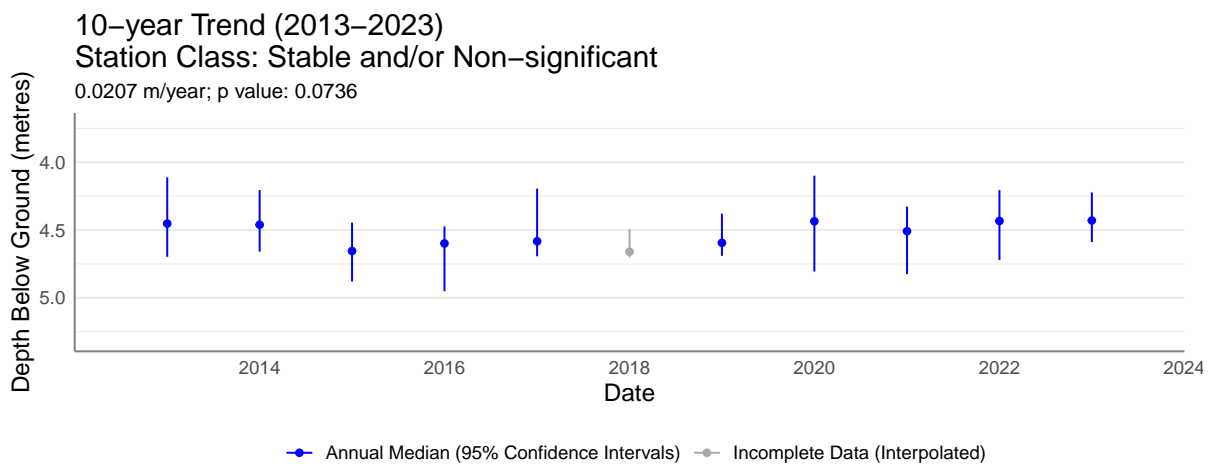
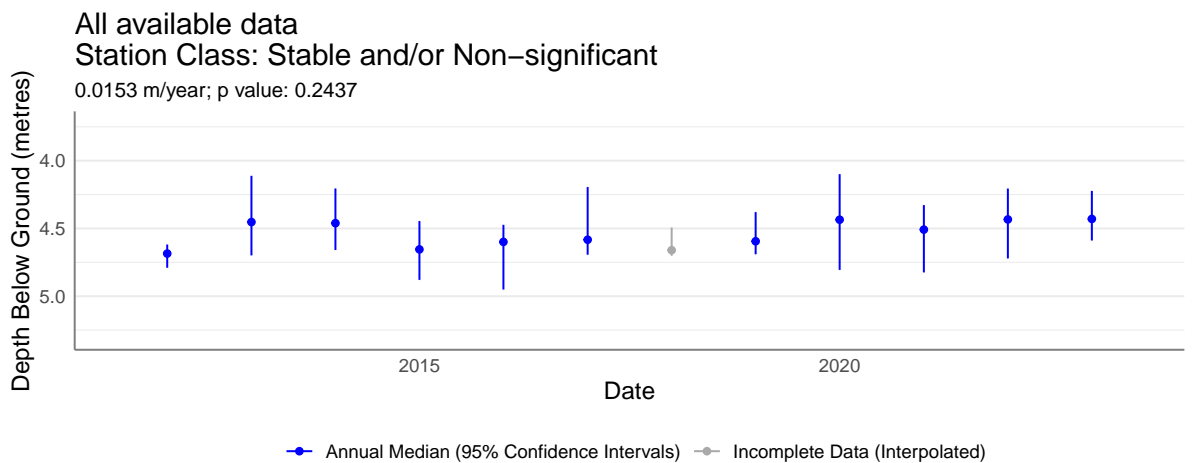
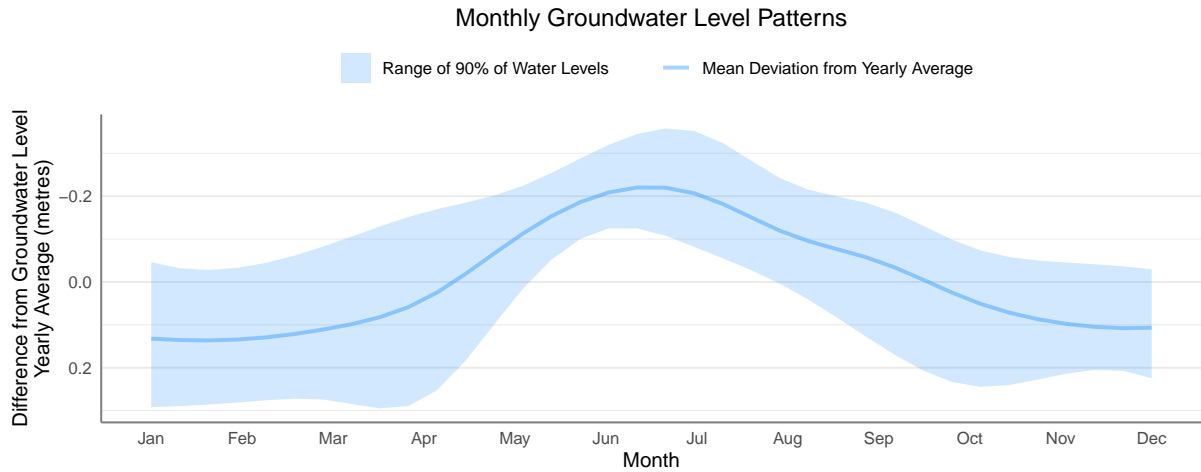
Aquifer Number: 103 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 410

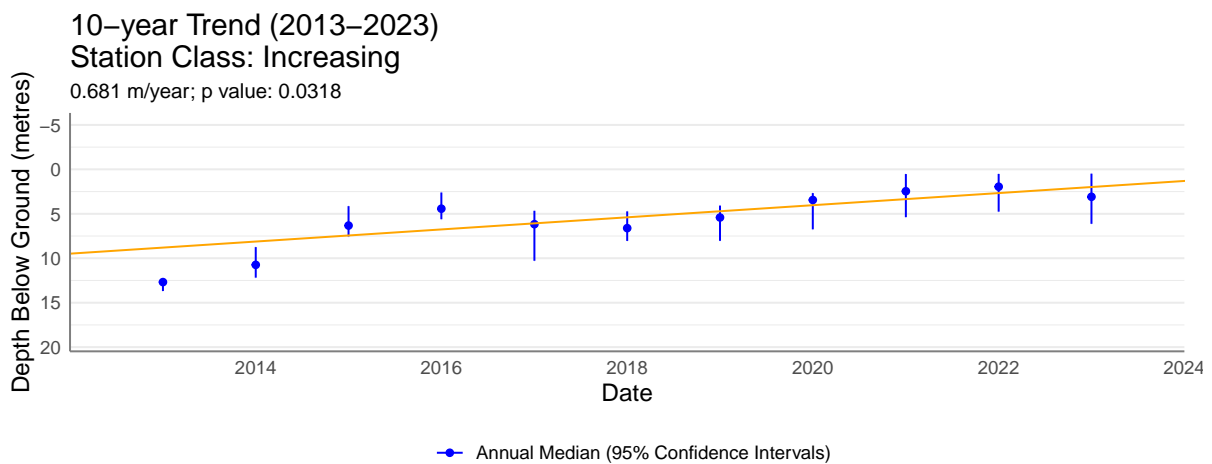
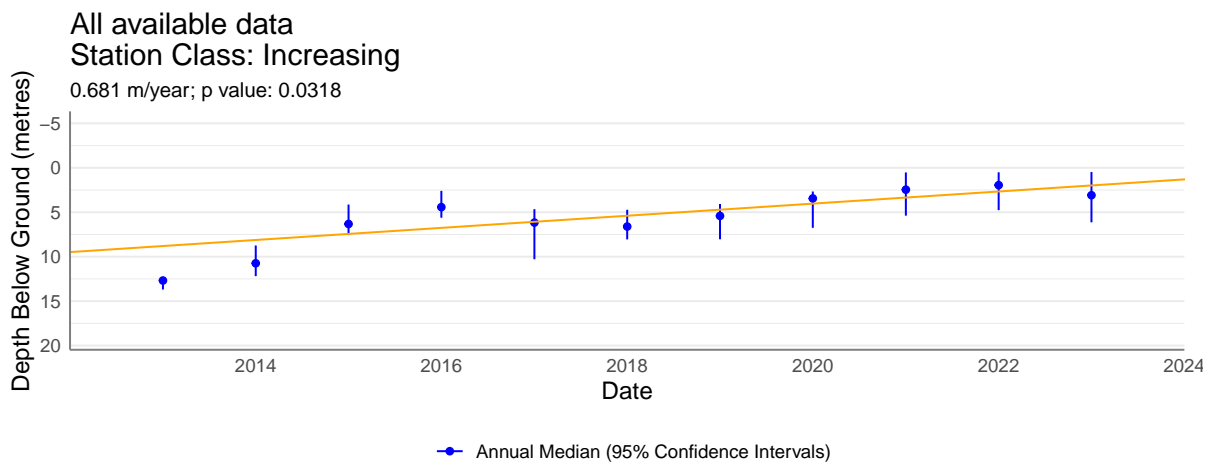
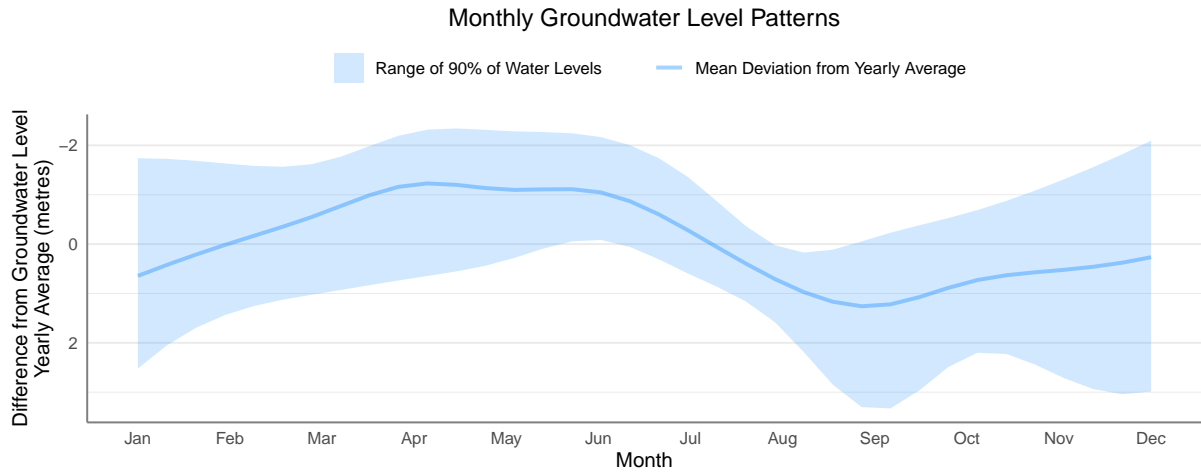
Aquifer Number: 473 **Aquifer Type:** Bedrock



Region: Thompson / Okanagan

Observation Well Number: 411

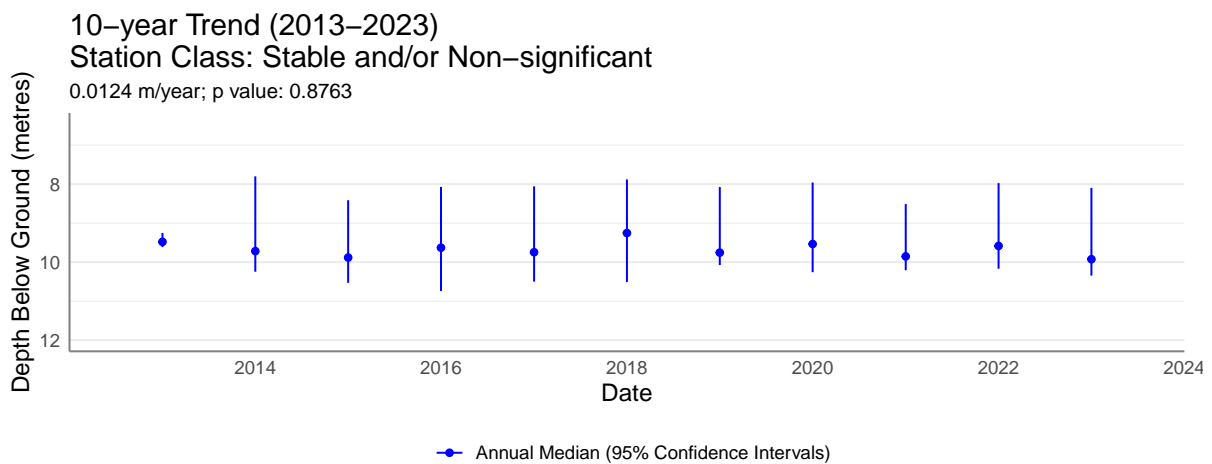
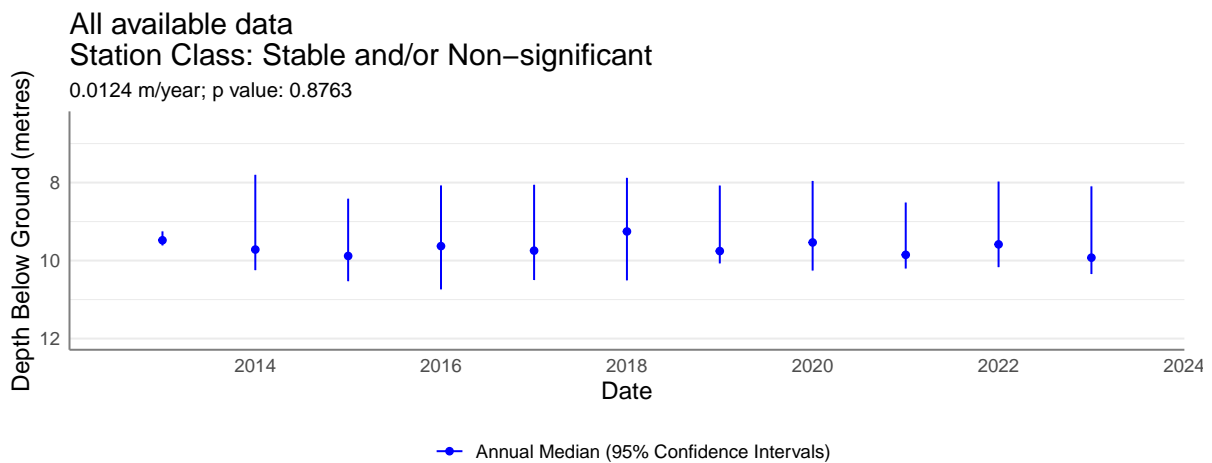
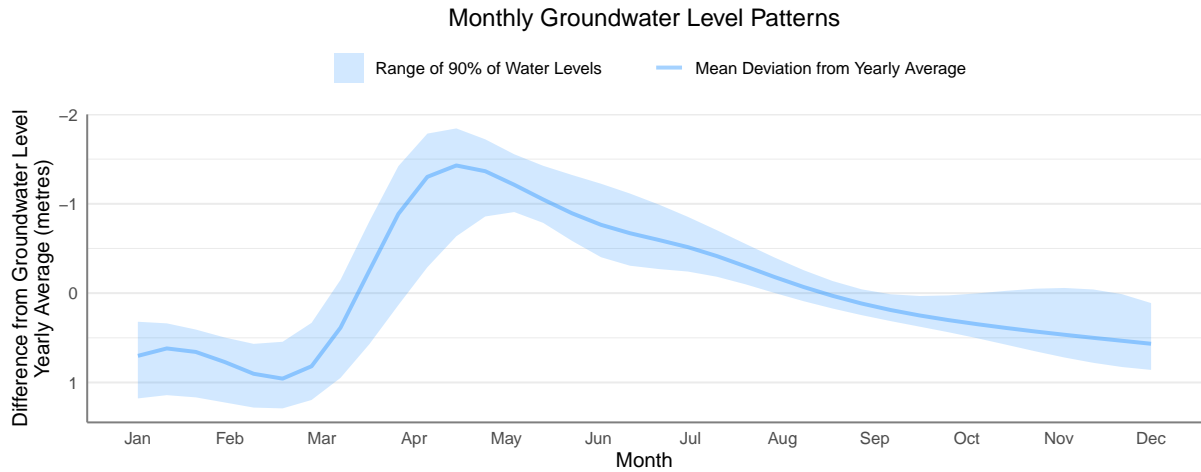
Aquifer Number: 304 **Aquifer Type:** Bedrock



Region: Thompson / Okanagan

Observation Well Number: 412

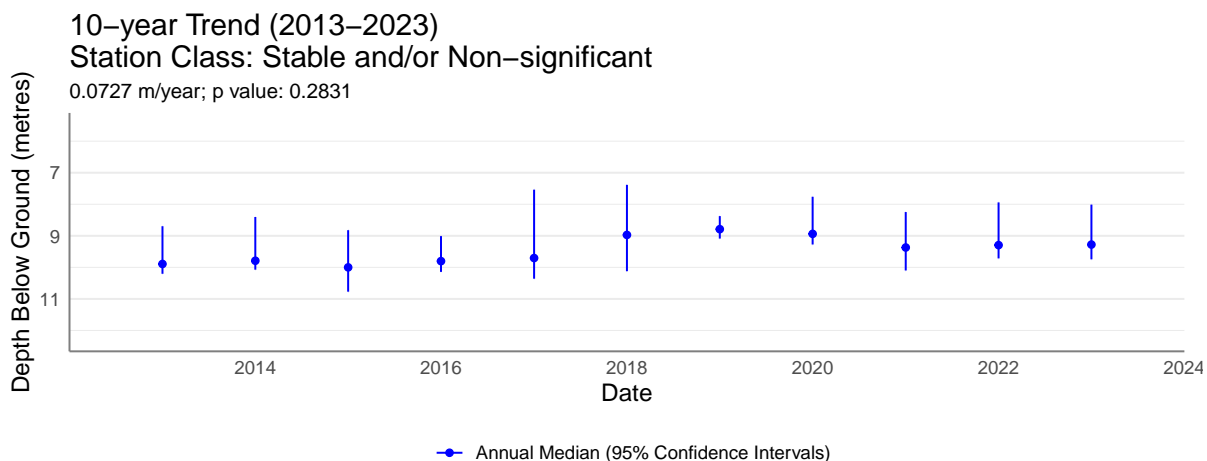
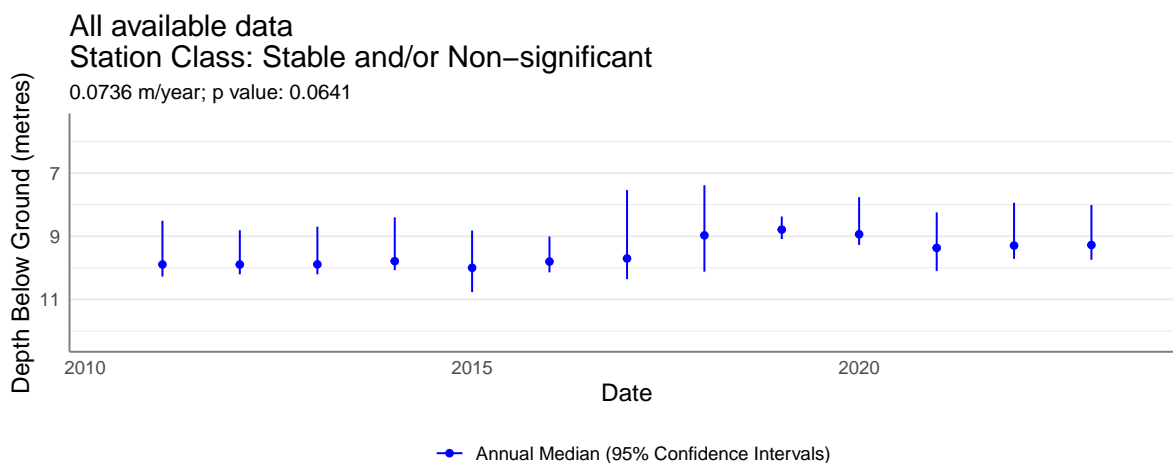
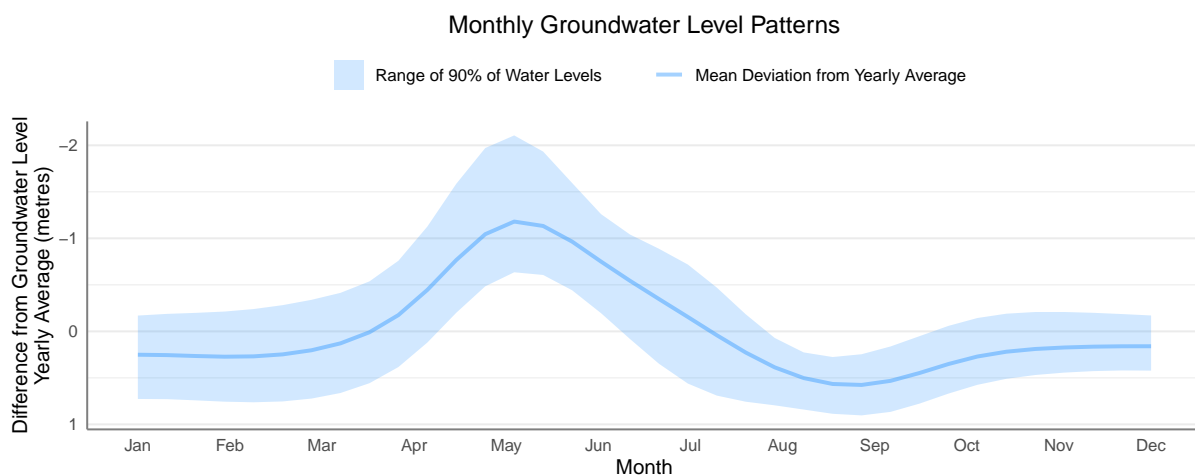
Aquifer Number: 1264 Aquifer Type: Bedrock



Region: Thompson / Okanagan

Observation Well Number: 422

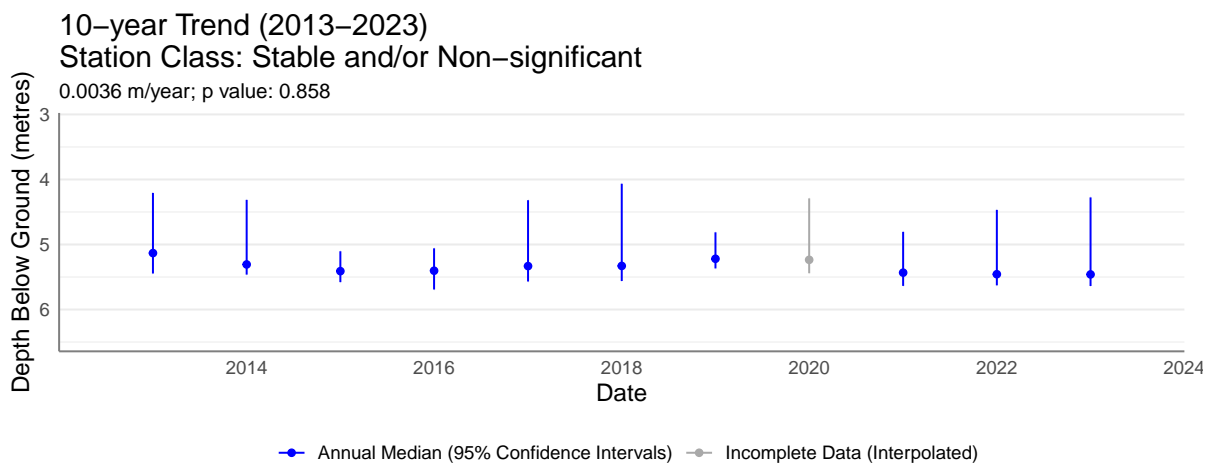
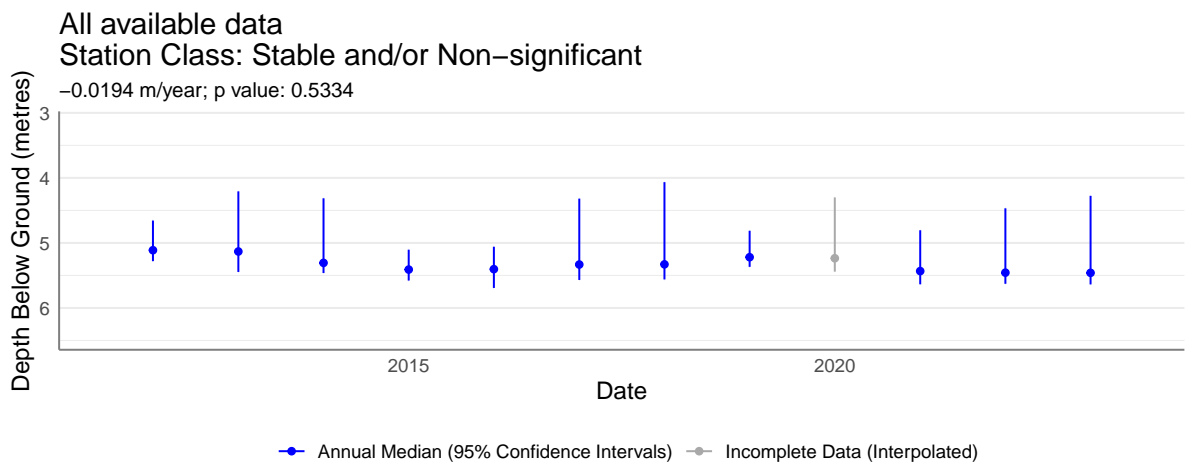
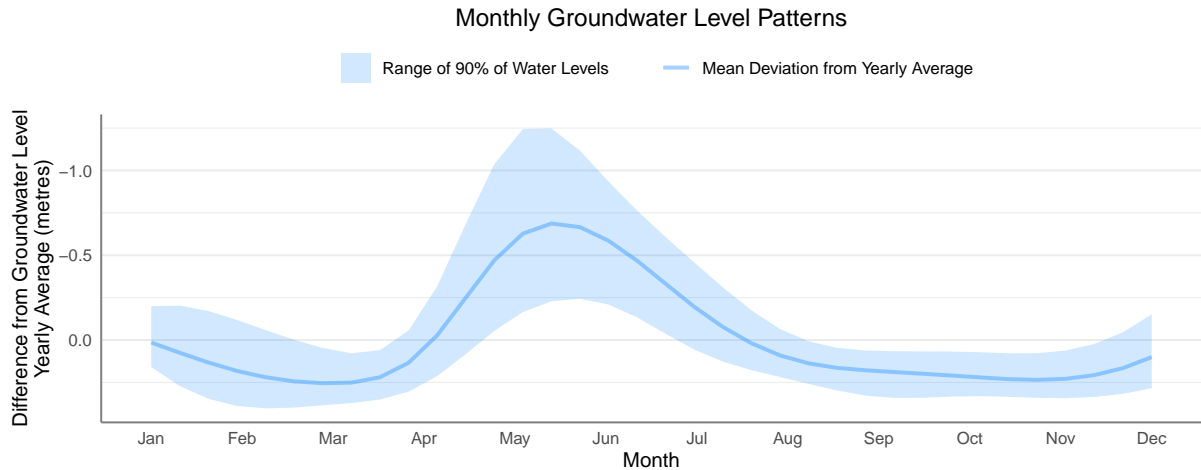
Aquifer Number: 822 **Aquifer Type:** Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 423

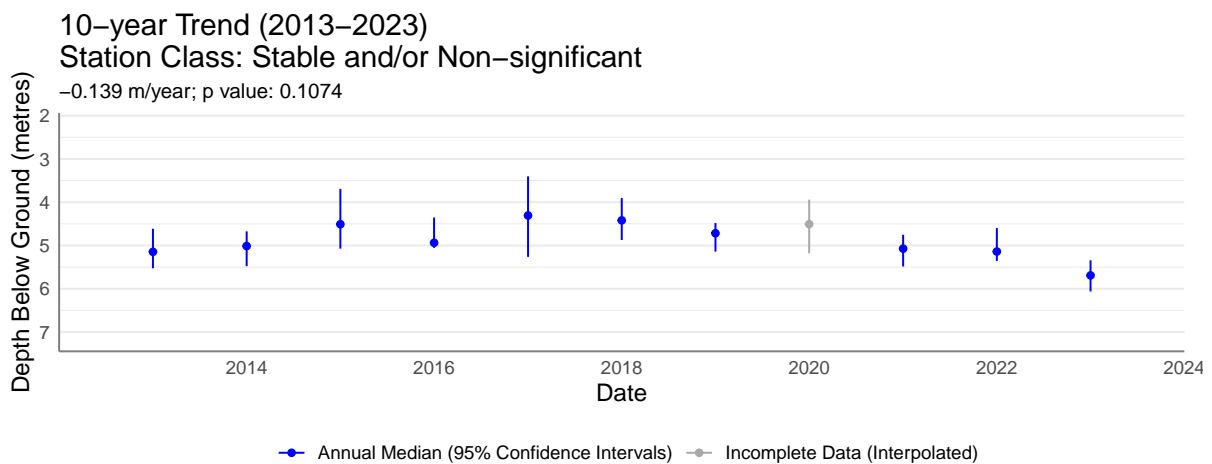
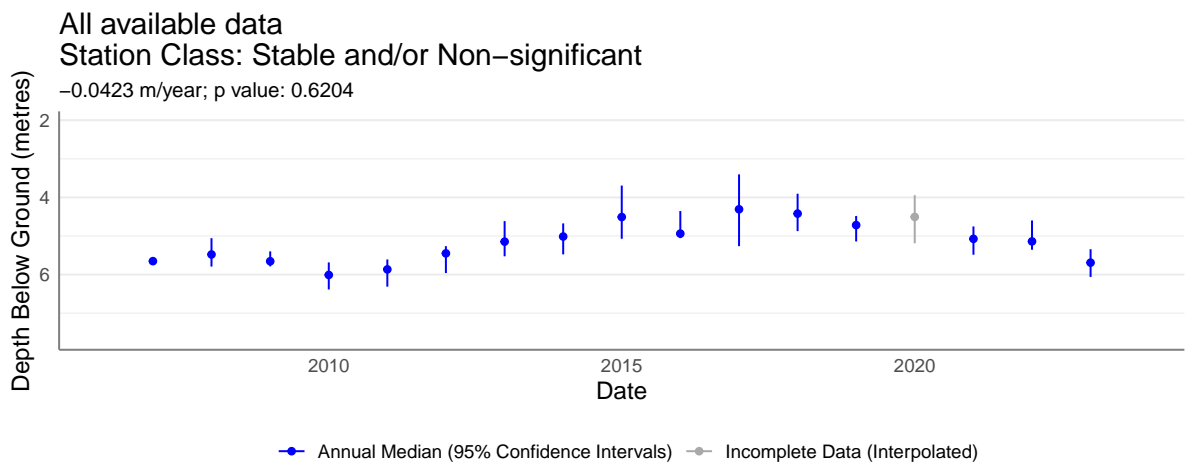
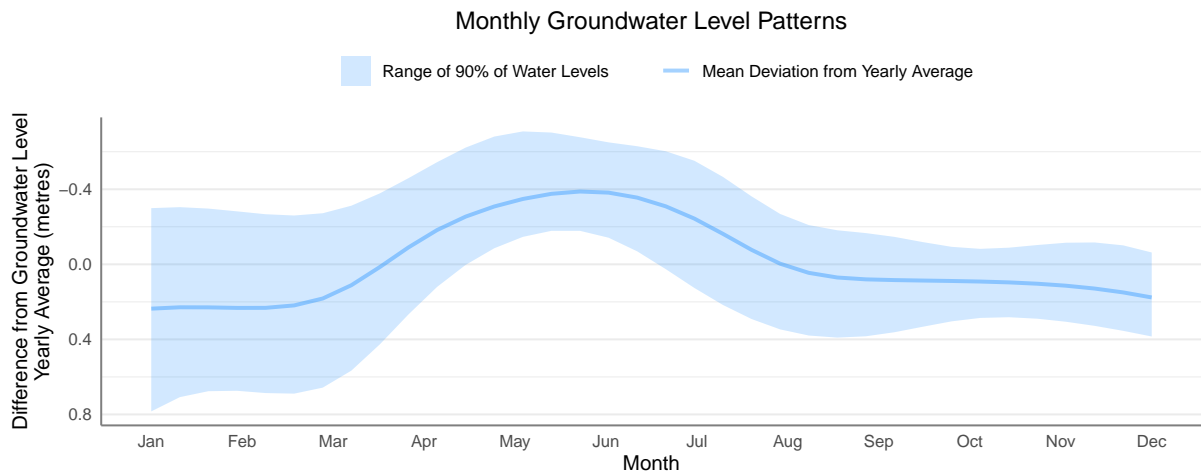
Aquifer Number: 133 Aquifer Type: Sand and Gravel



Region: Thompson / Okanagan

Observation Well Number: 464

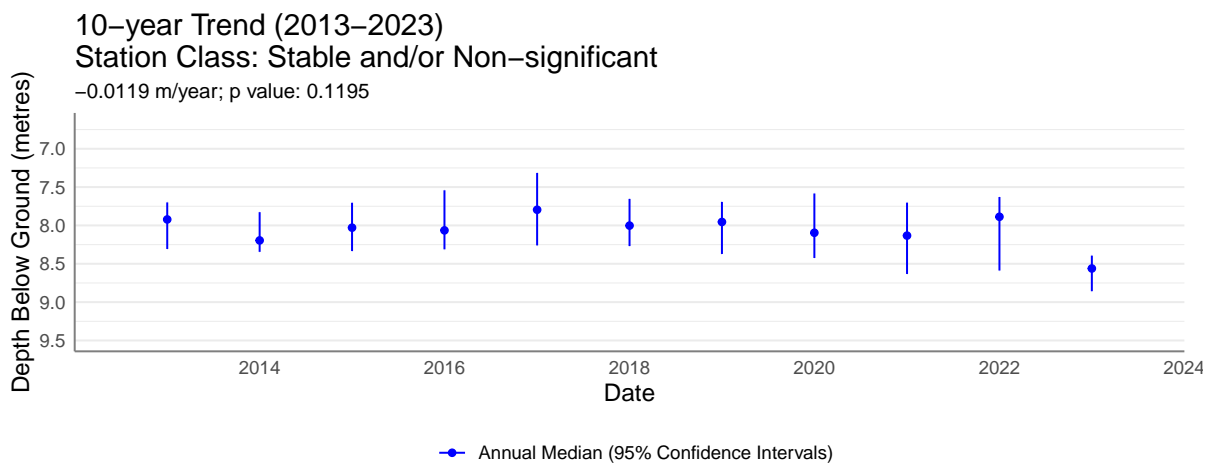
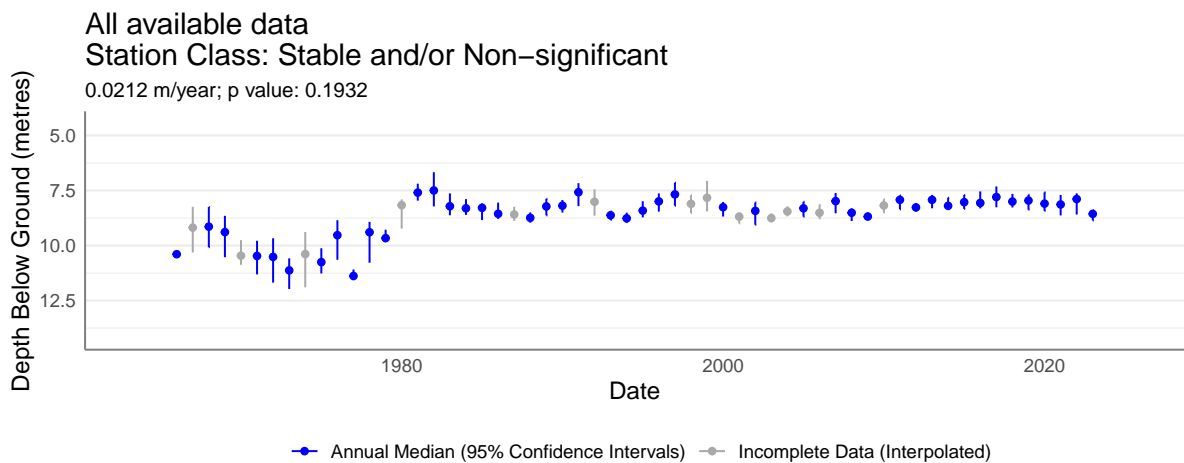
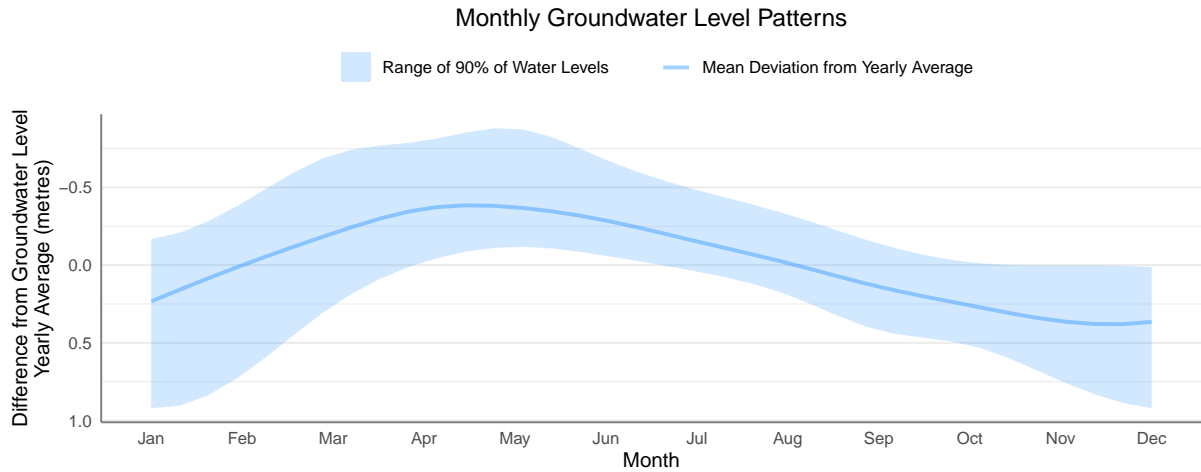
Aquifer Number: 109 **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 058

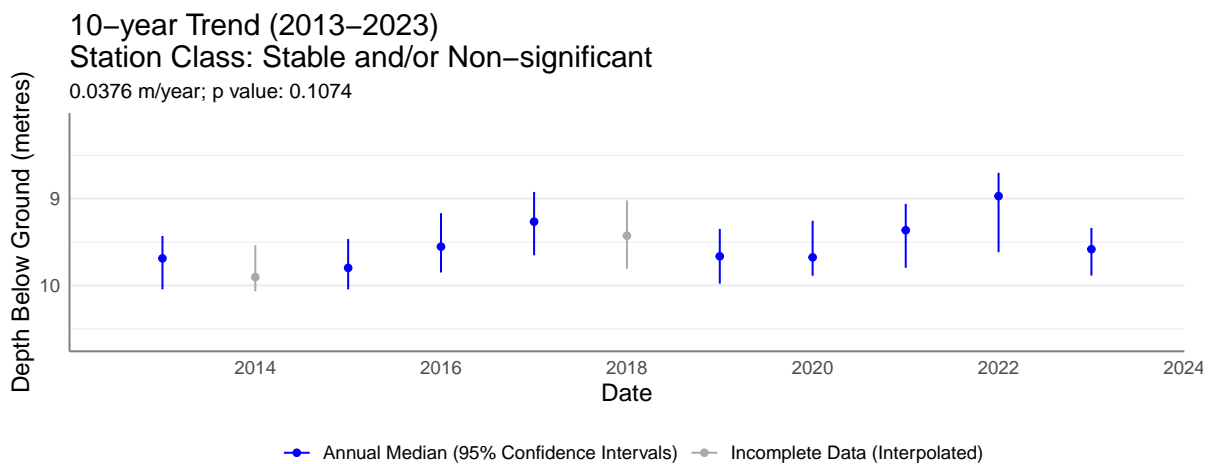
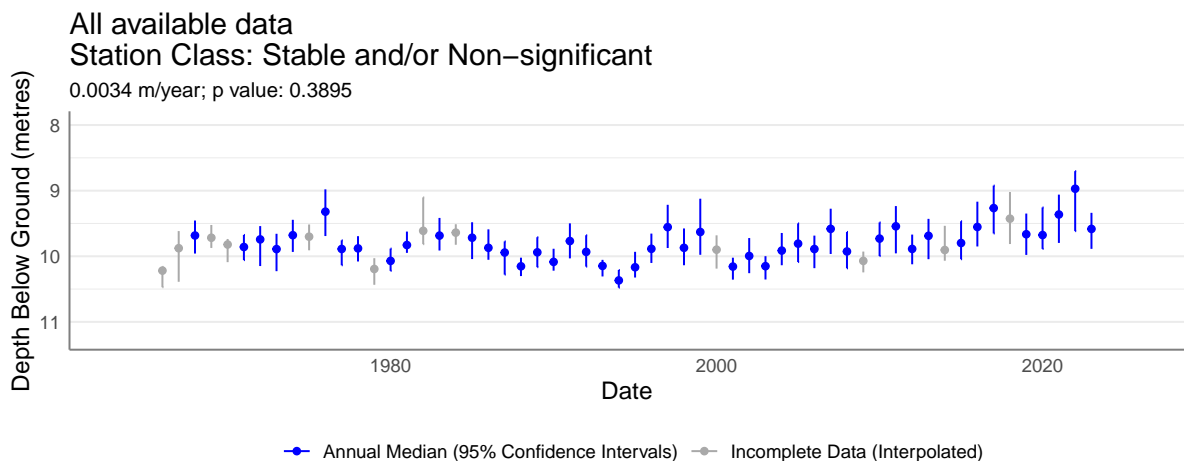
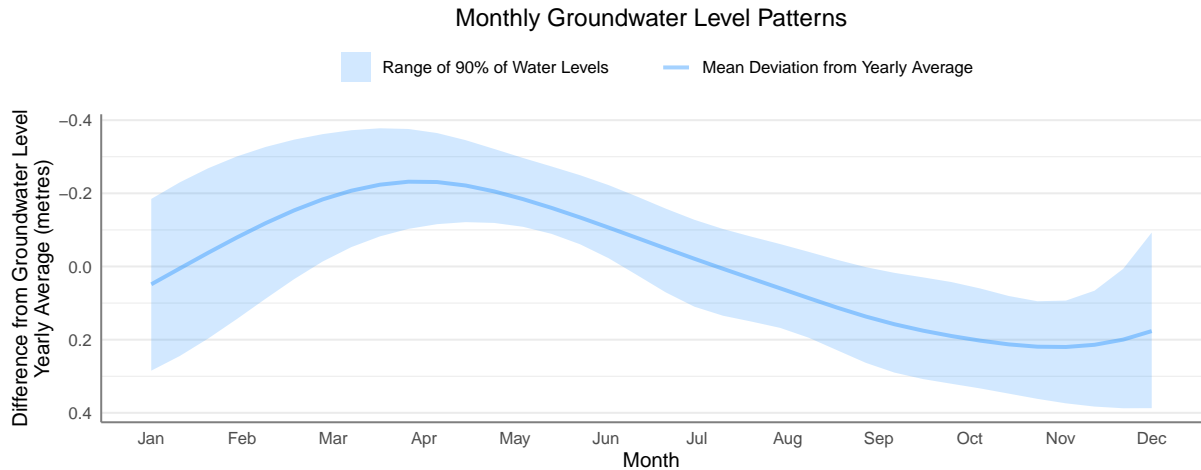
Aquifer Number: 610 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 060

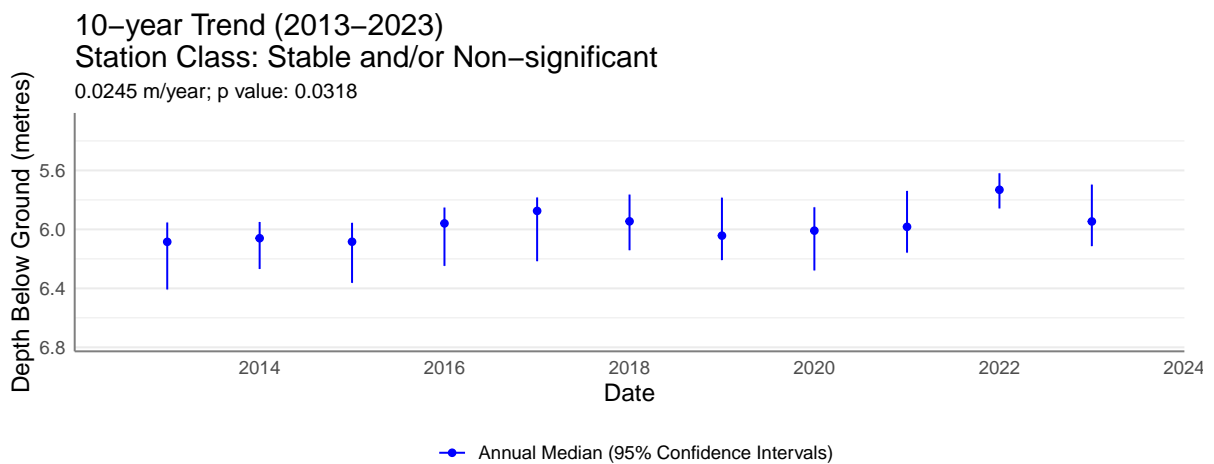
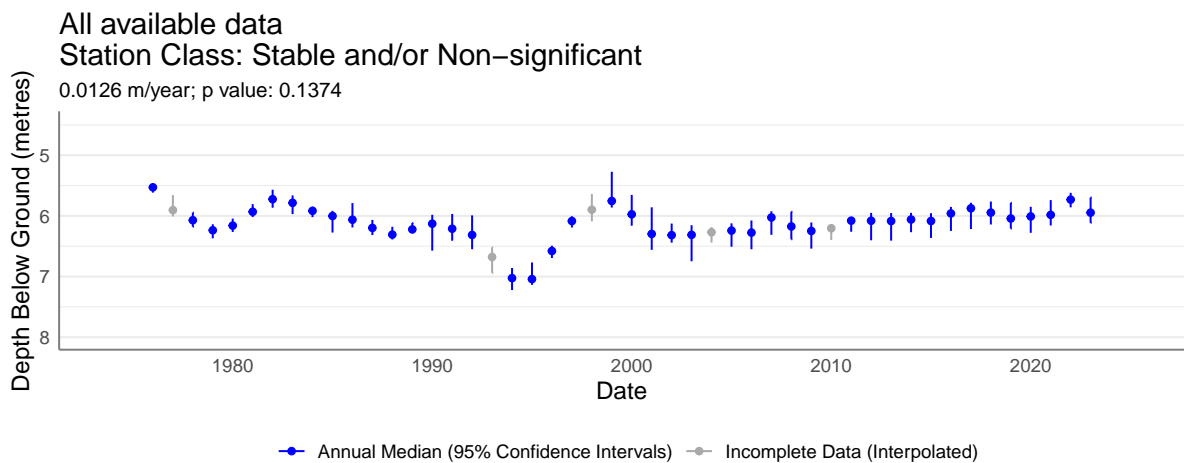
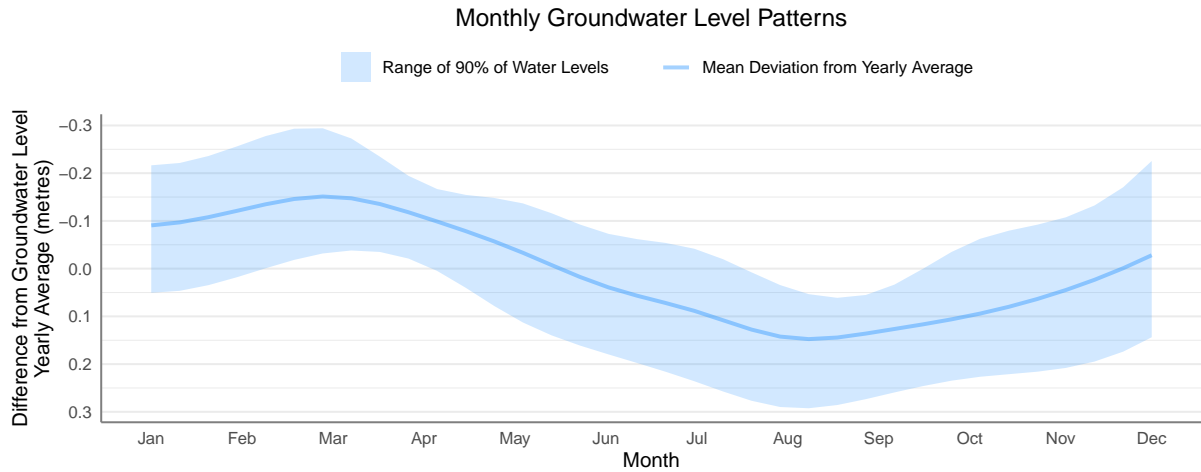
Aquifer Number: 609 **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 071

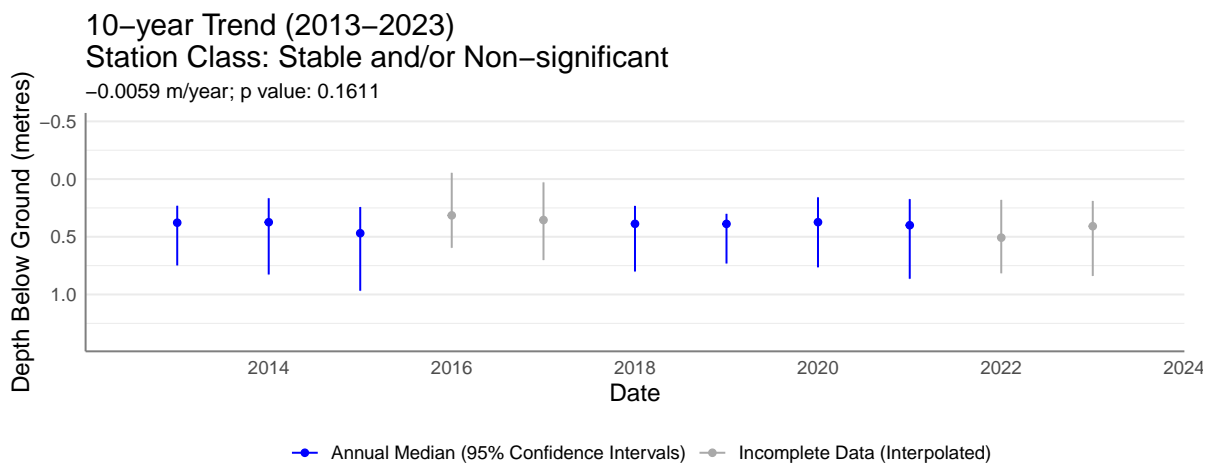
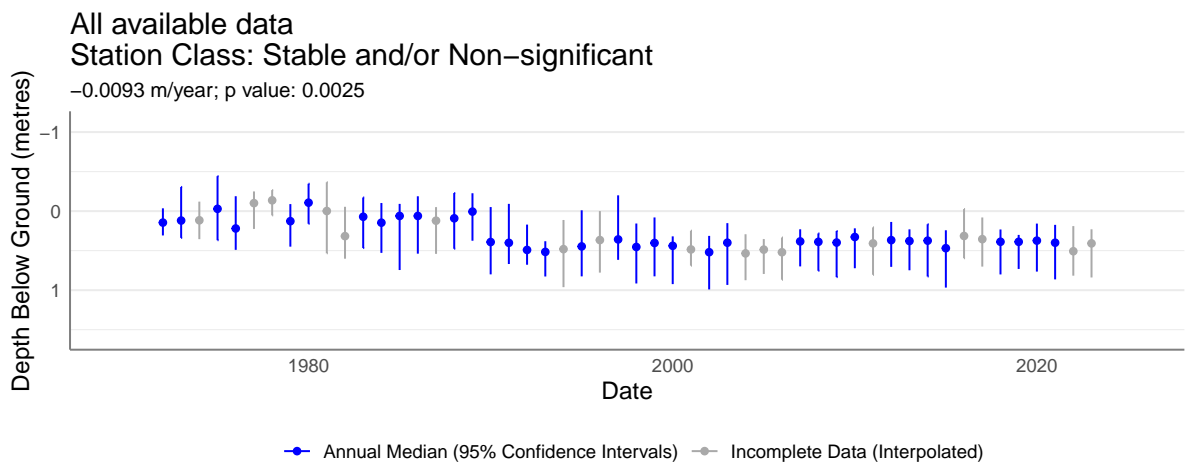
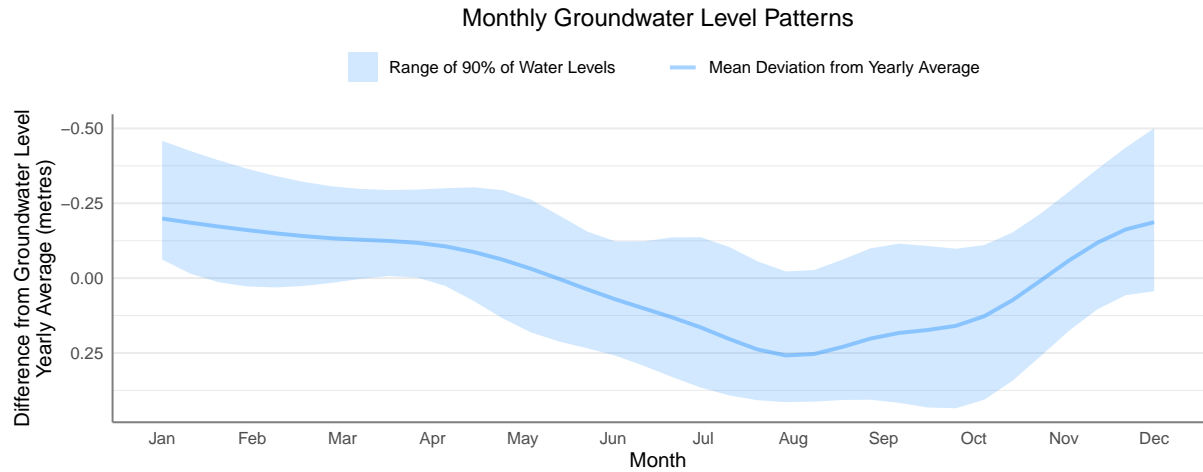
Aquifer Number: 616 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 125

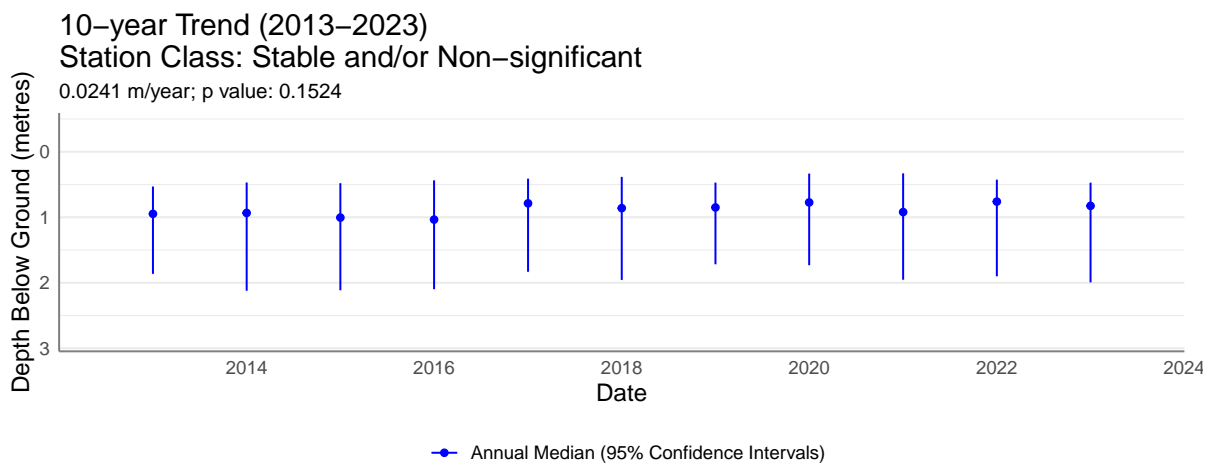
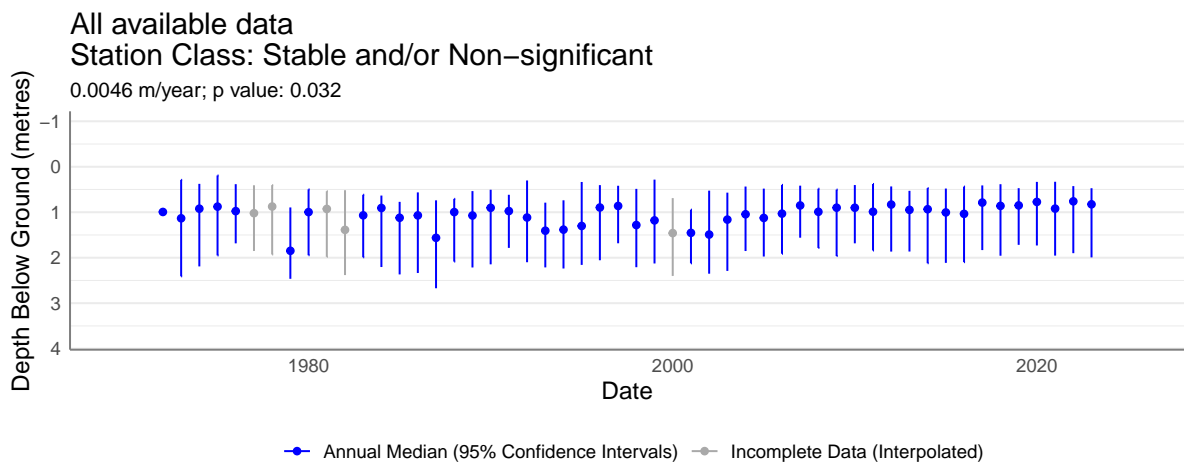
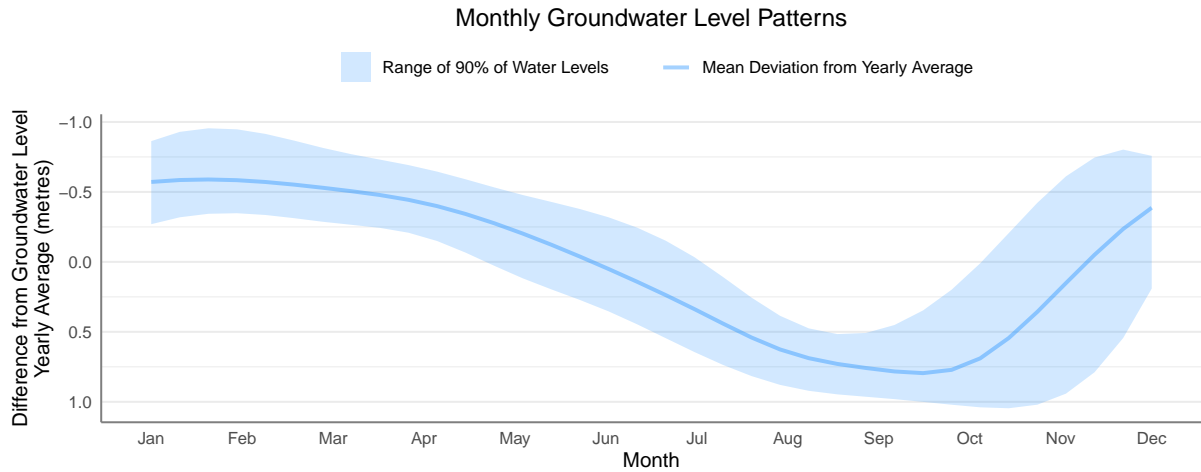
Aquifer Number: 620 **Aquifer Type:** Bedrock



Region: West Coast

Observation Well Number: 128

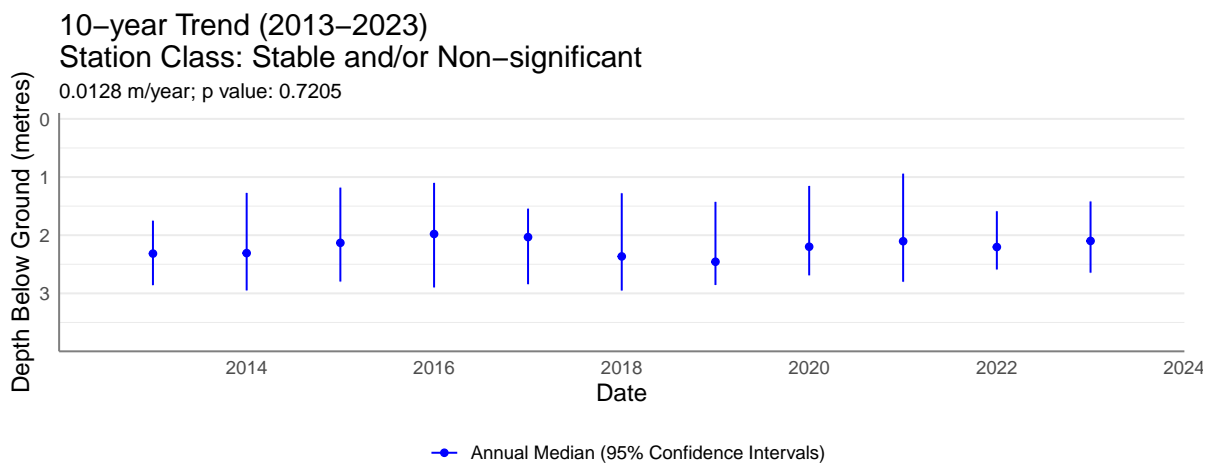
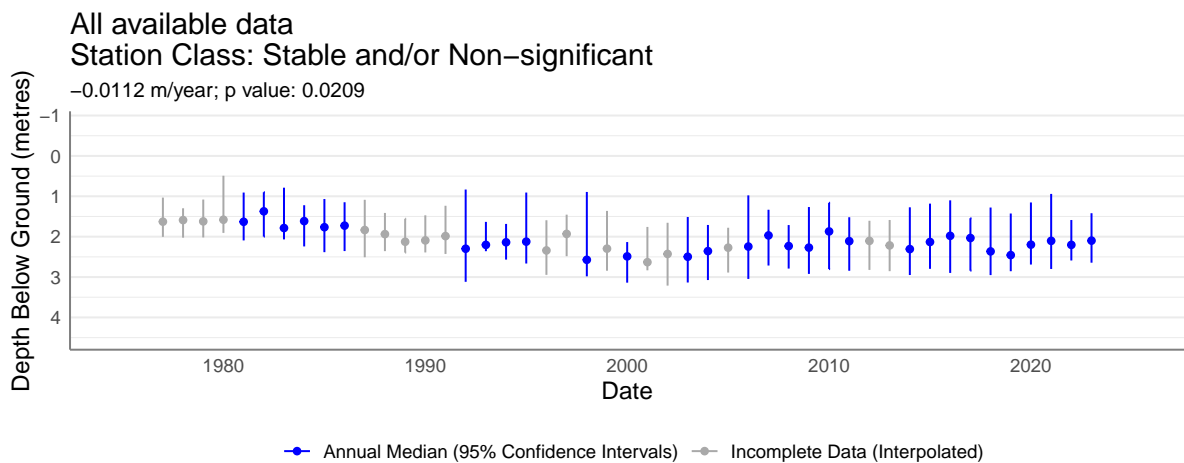
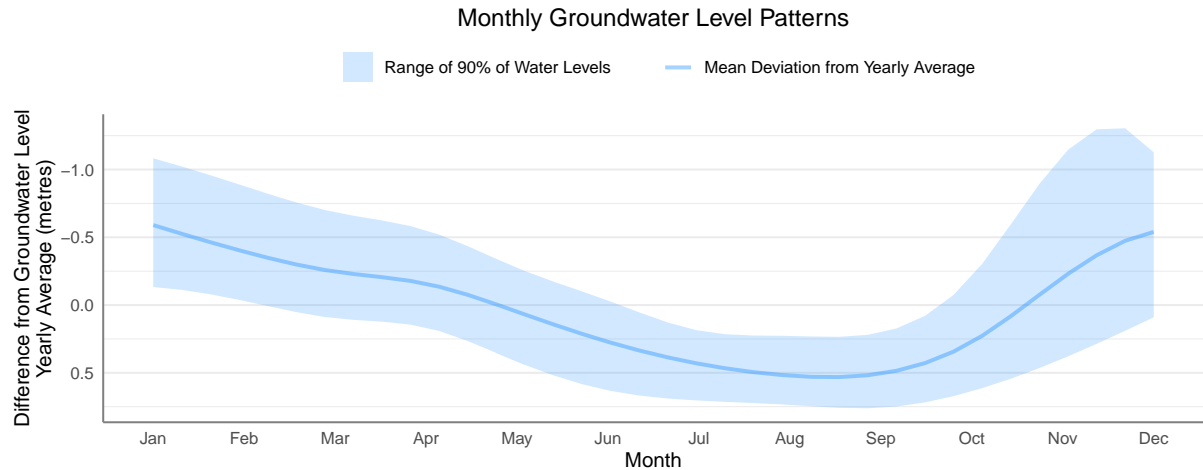
Aquifer Number: 447 **Aquifer Type:** Bedrock



Region: West Coast

Observation Well Number: 204

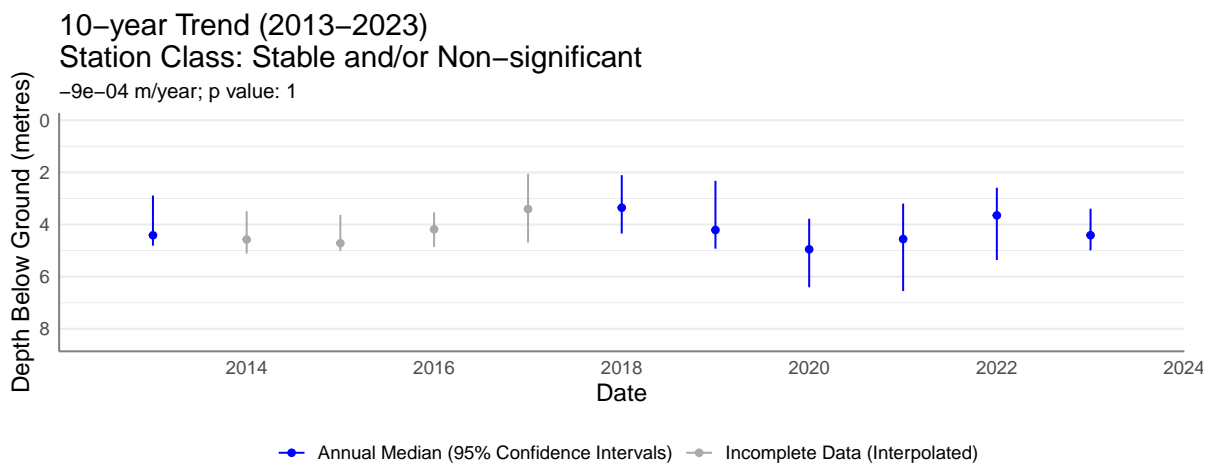
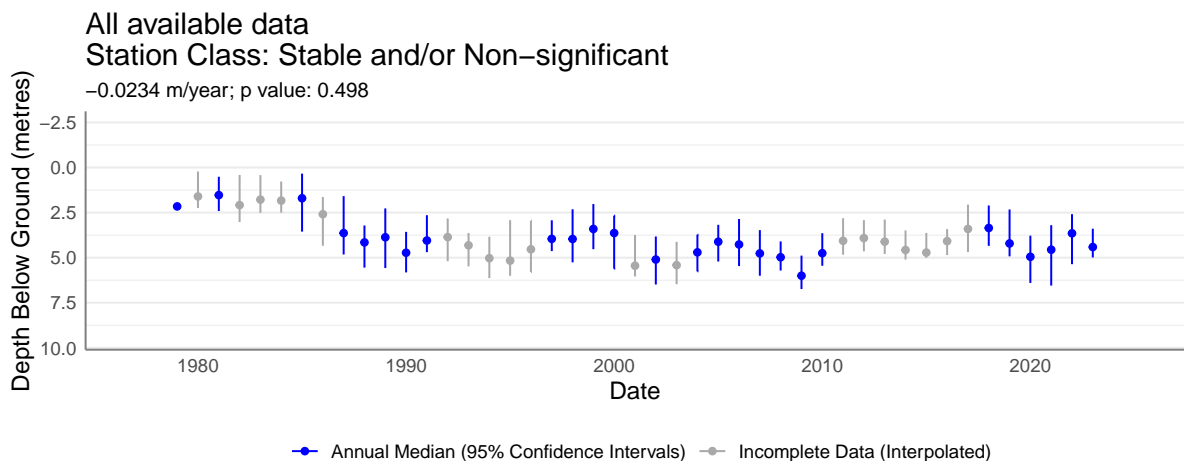
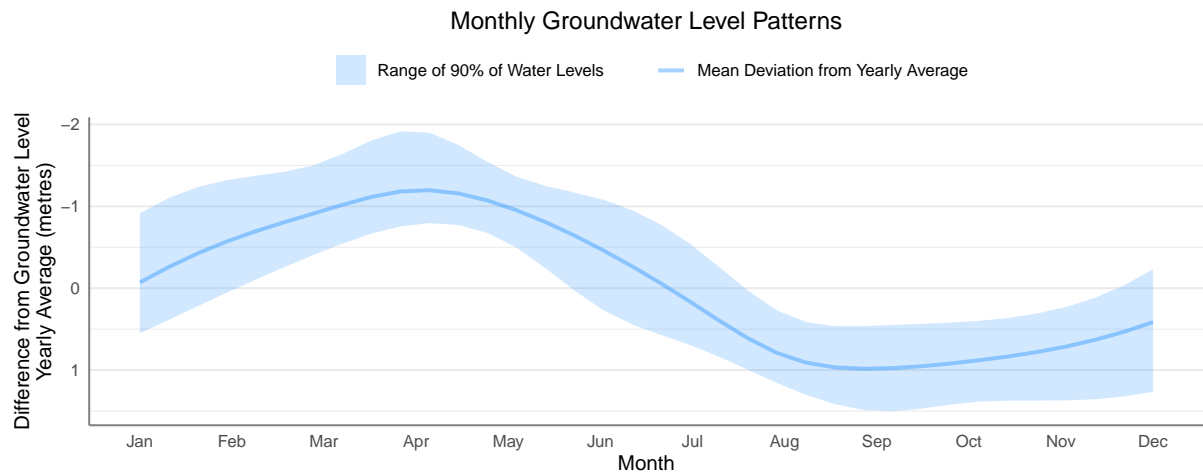
Aquifer Number: 186 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 232

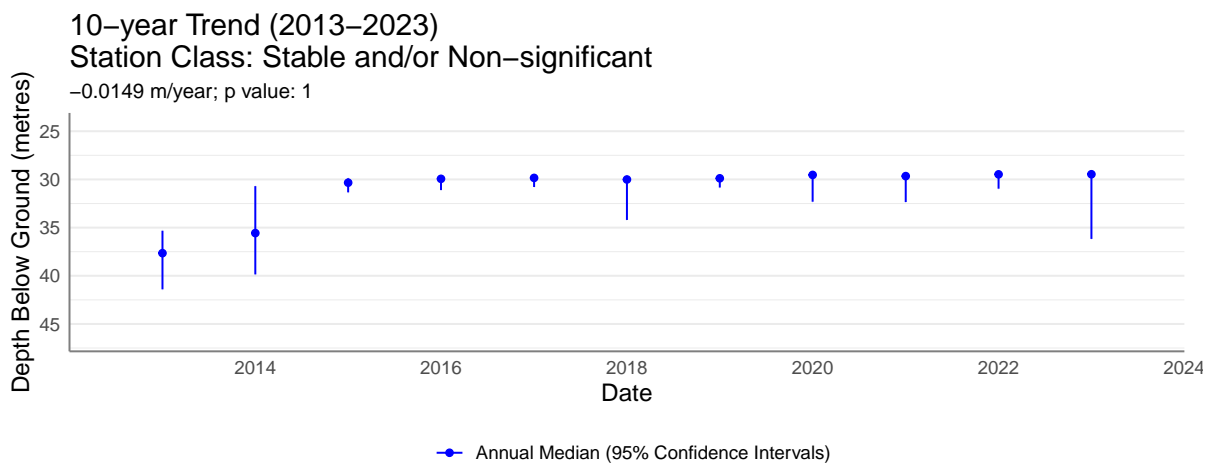
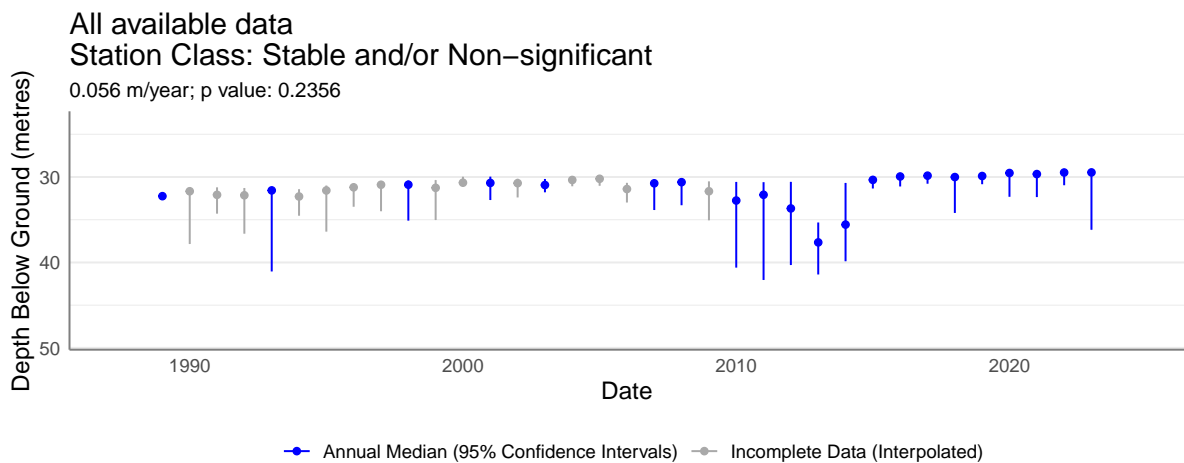
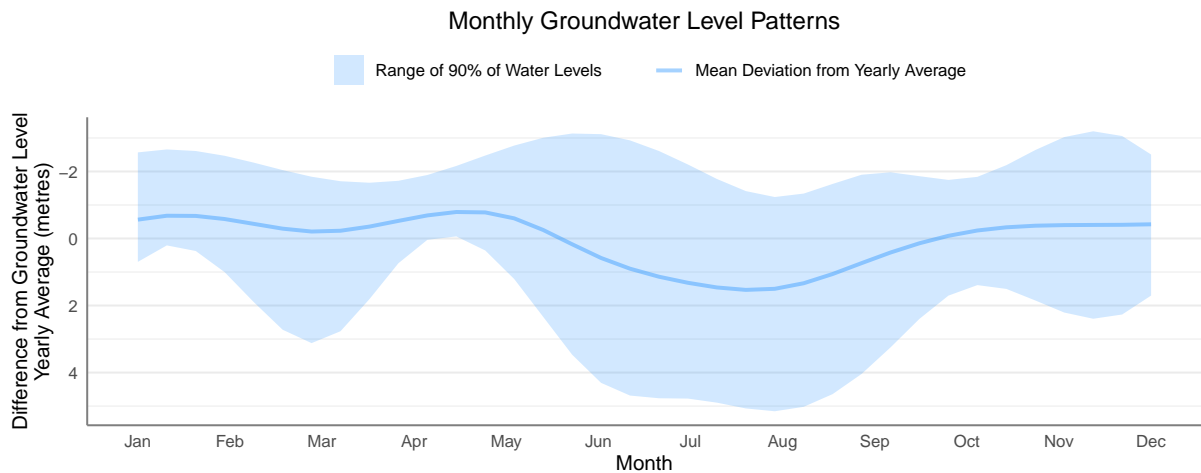
Aquifer Number: 215 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 233

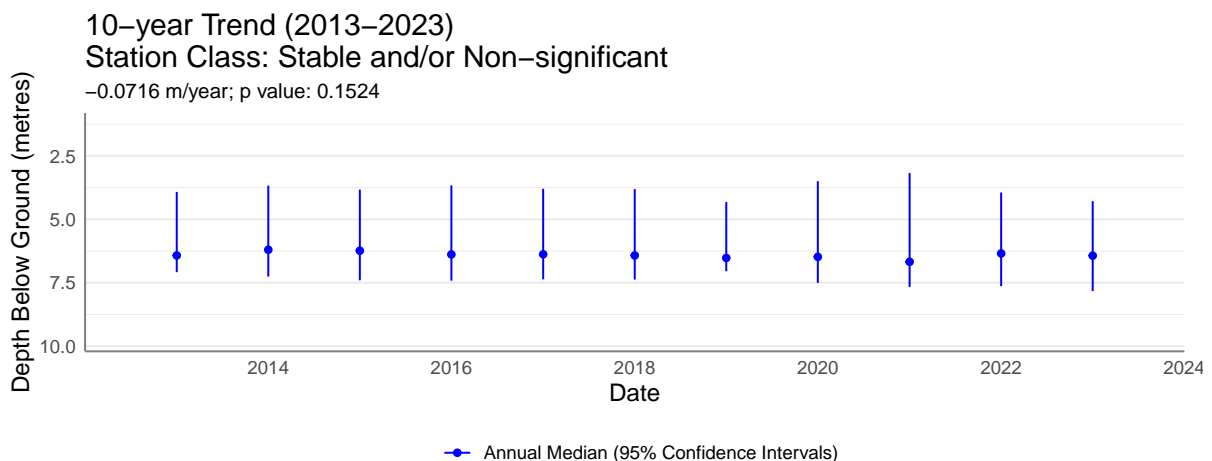
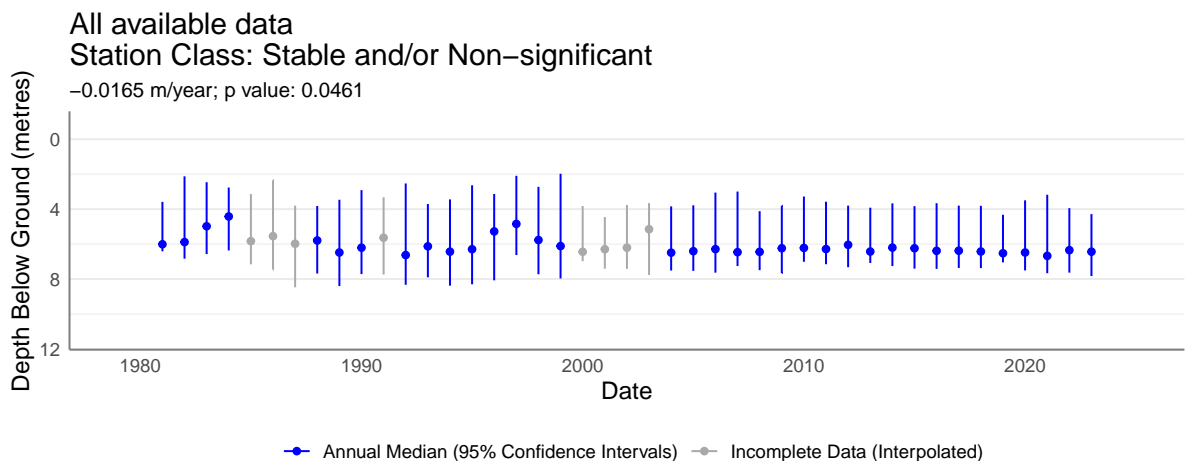
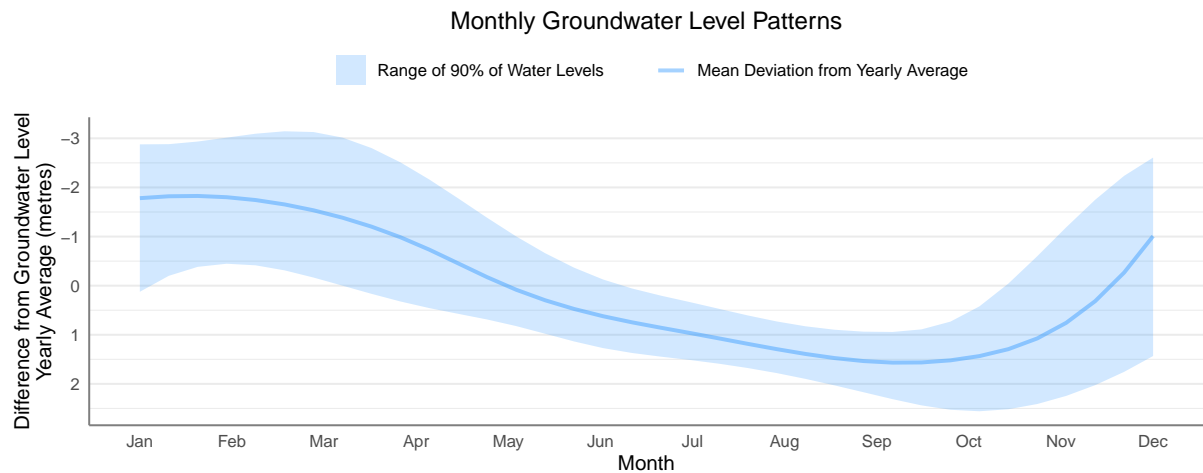
Aquifer Number: 197 **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 240

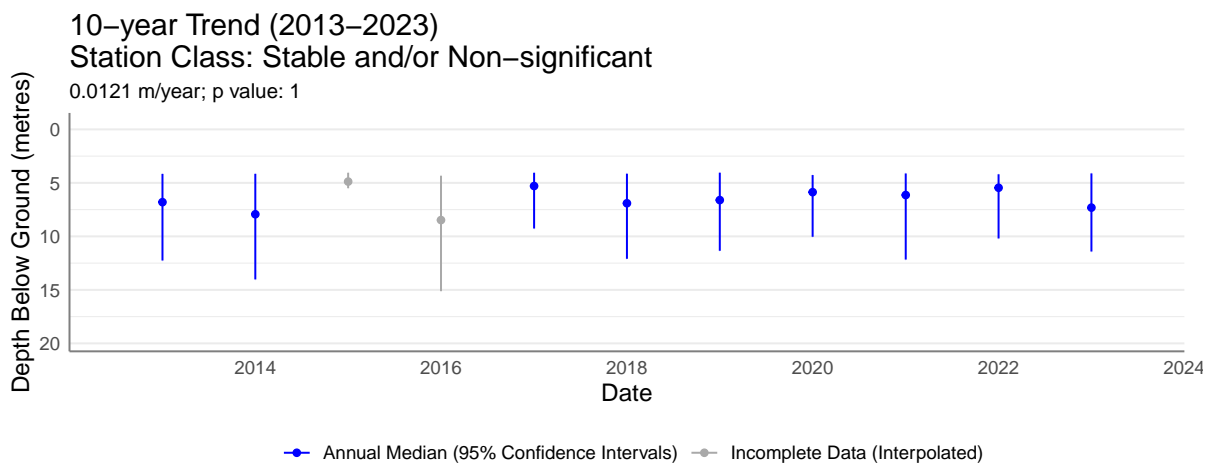
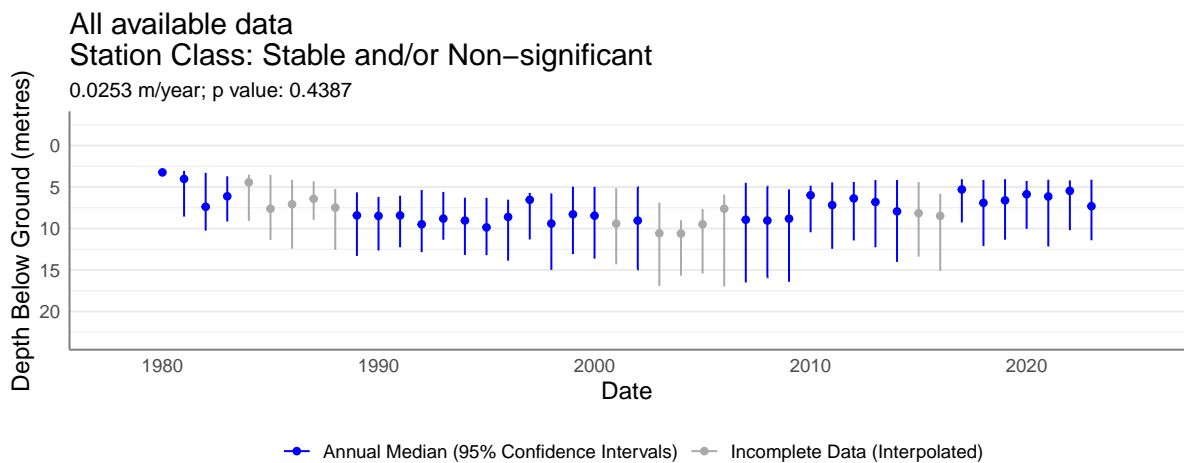
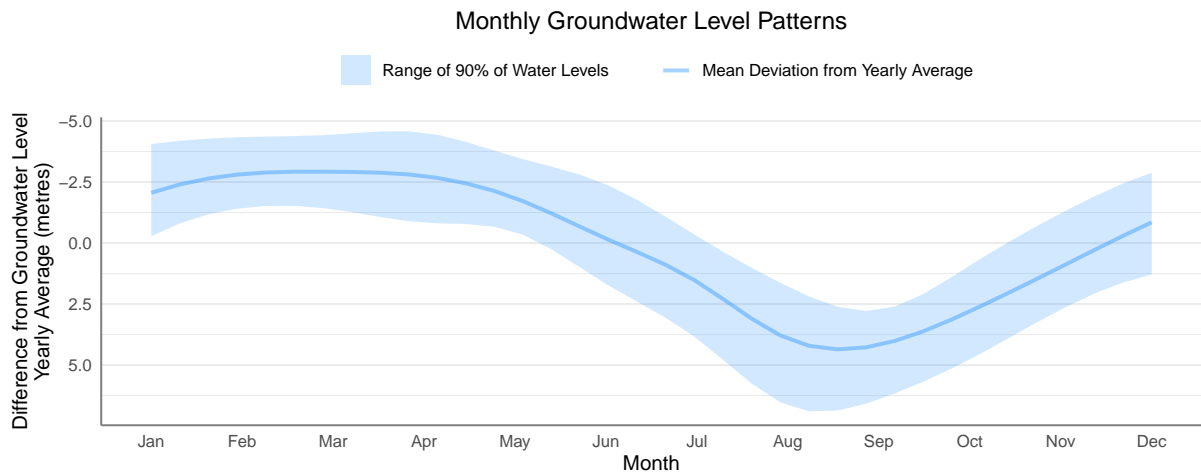
Aquifer Number: 608 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 265

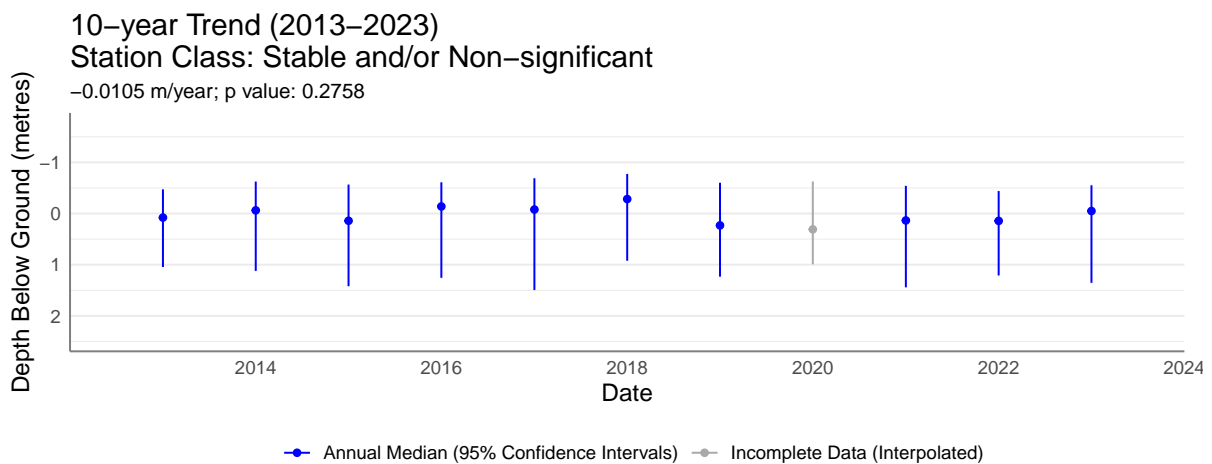
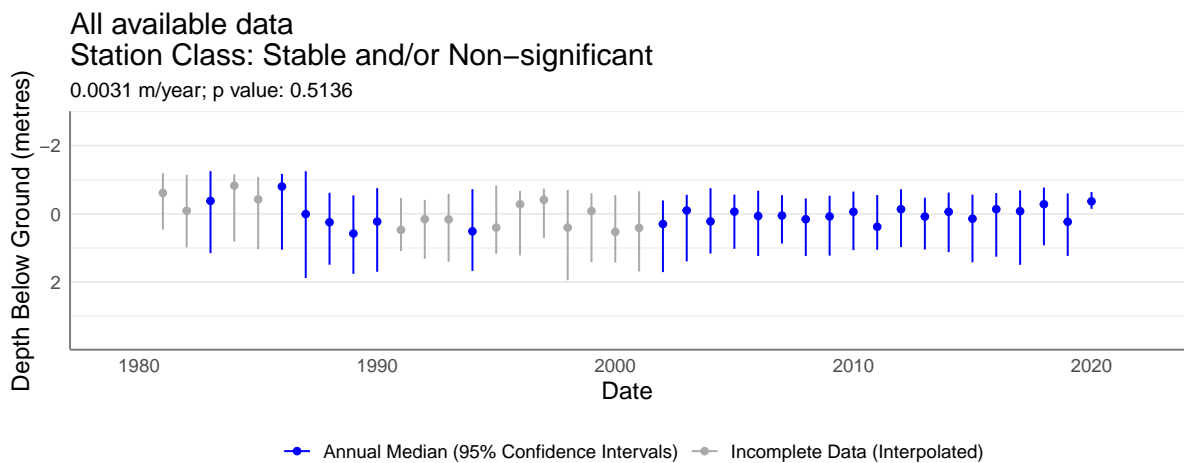
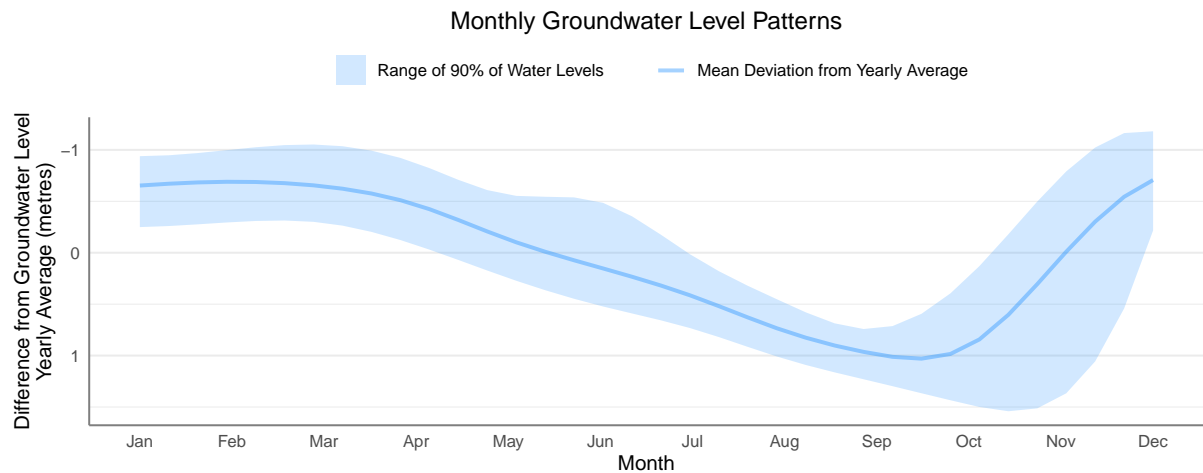
Aquifer Number: 608 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 268

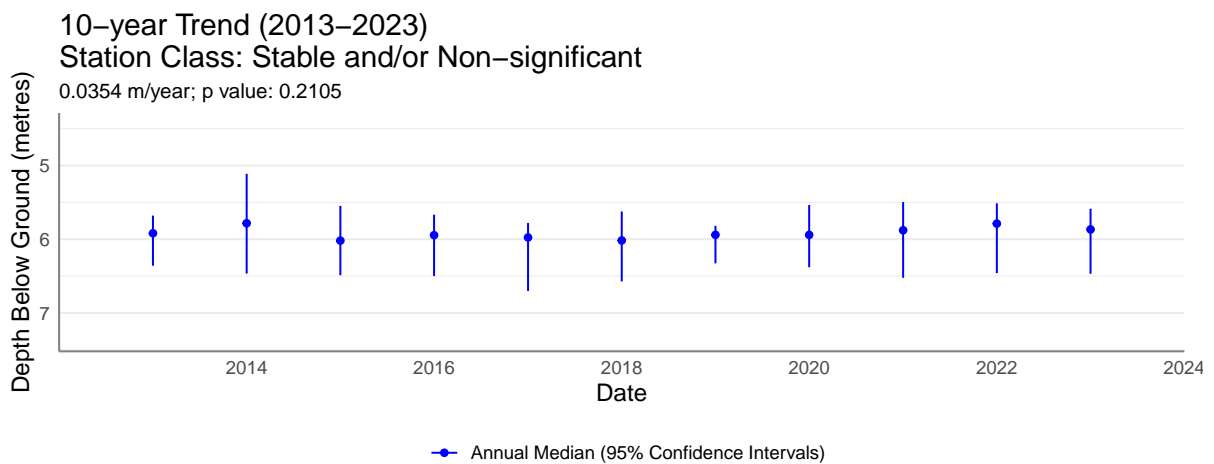
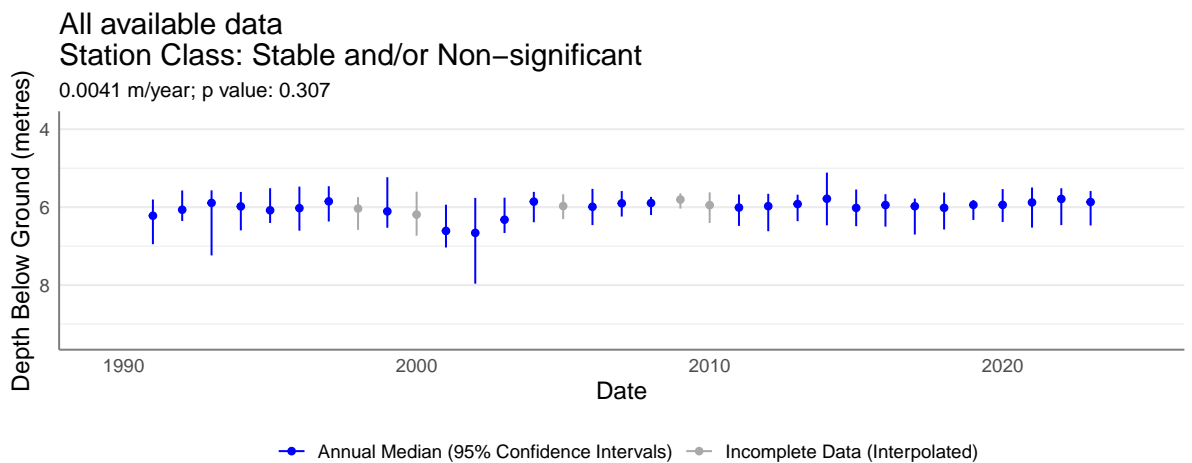
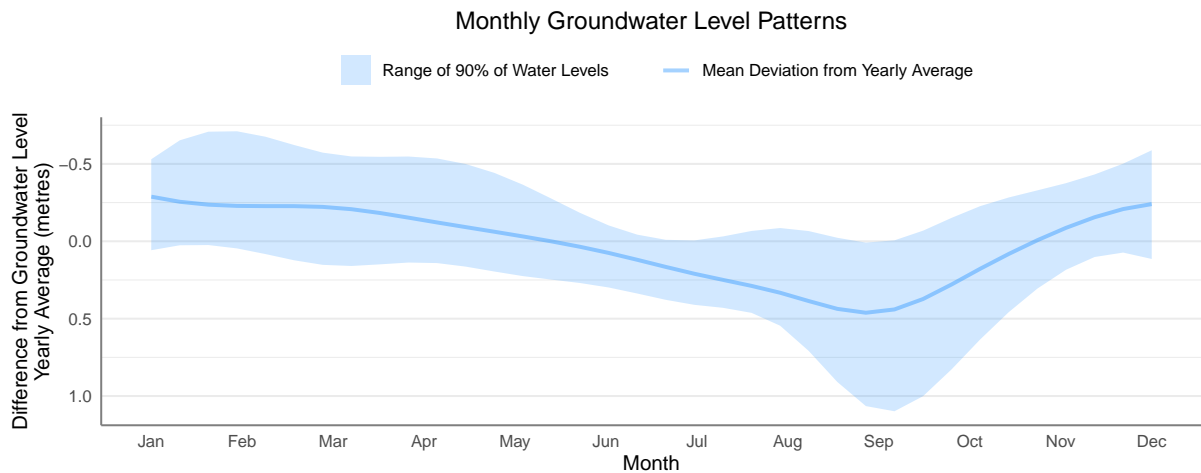
Aquifer Number: 740 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 281

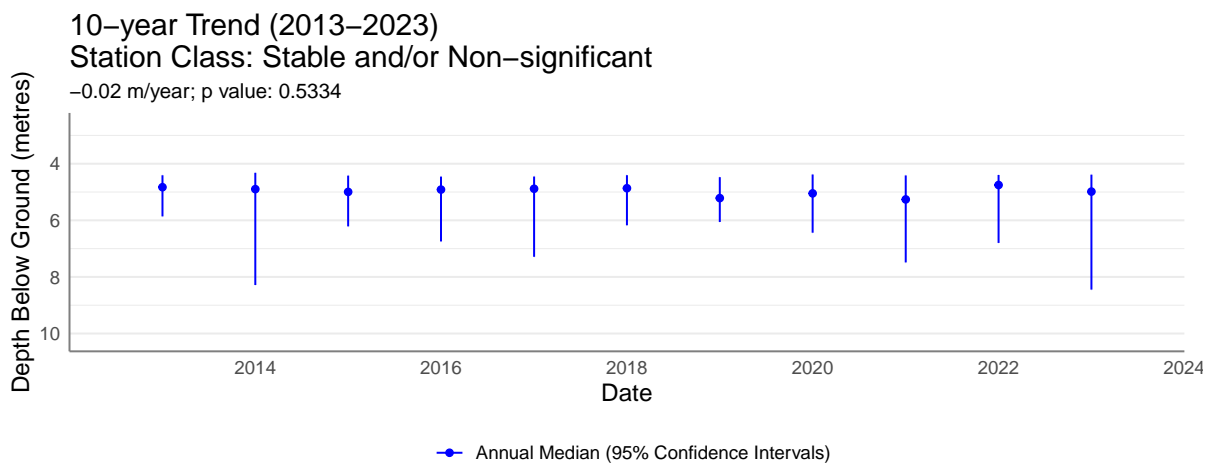
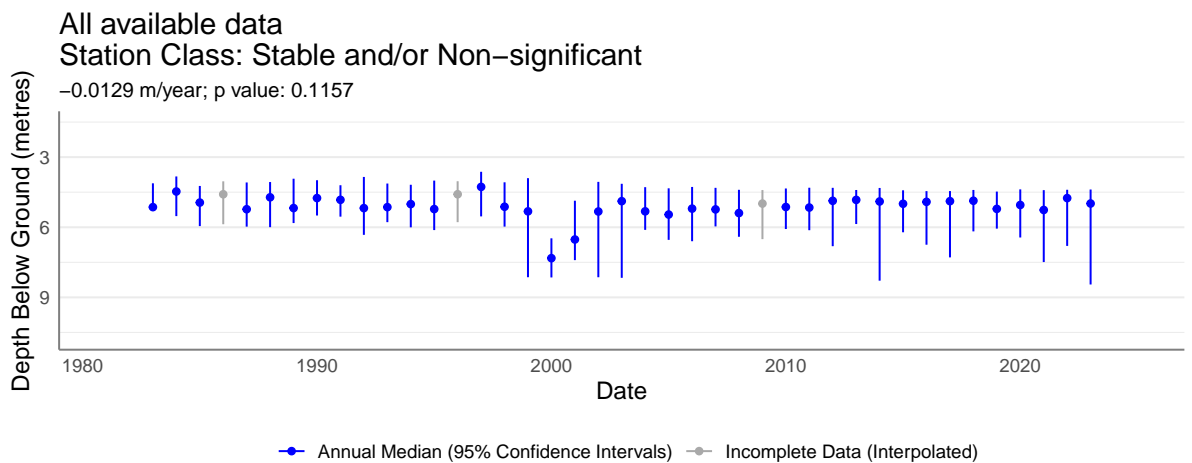
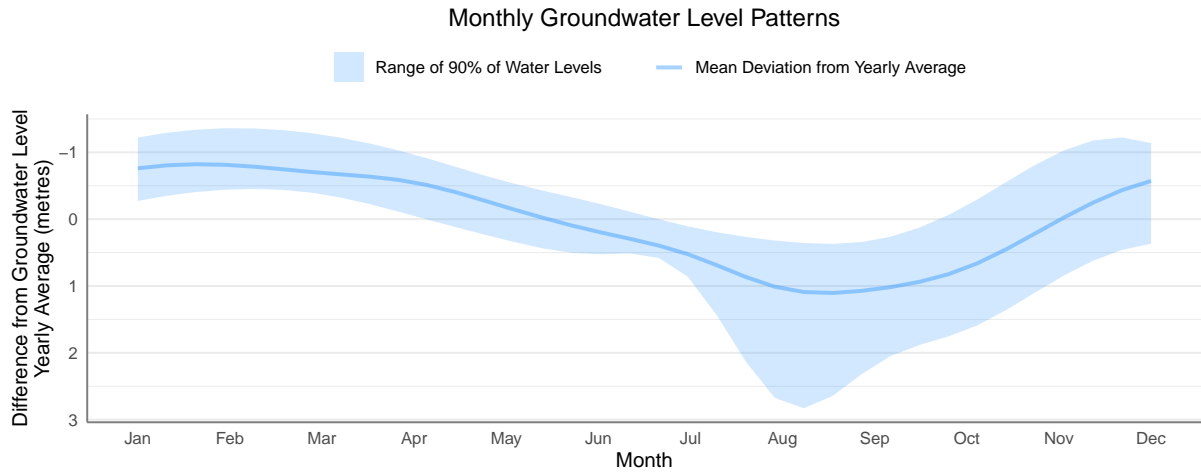
Aquifer Number: 721 **Aquifer Type:** Bedrock



Region: West Coast

Observation Well Number: 283

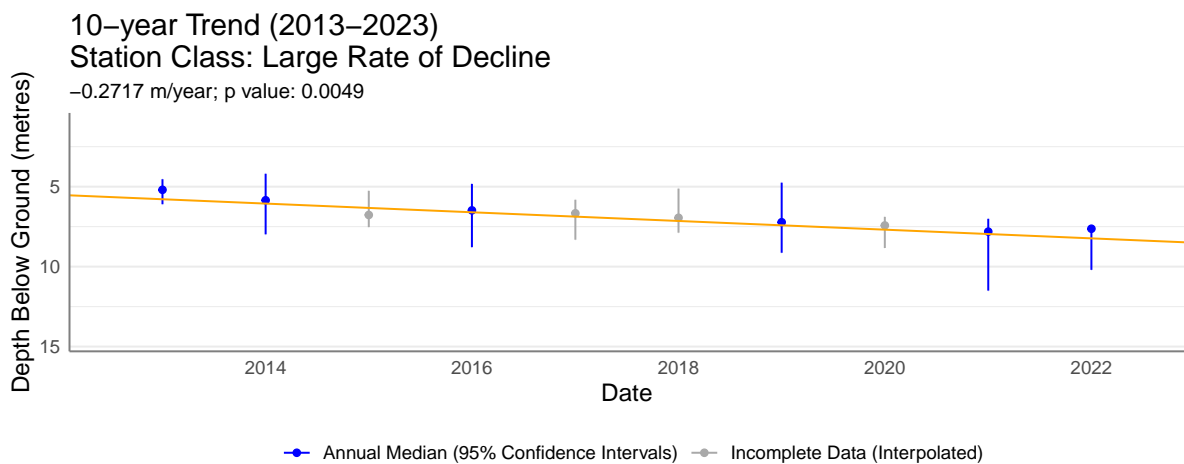
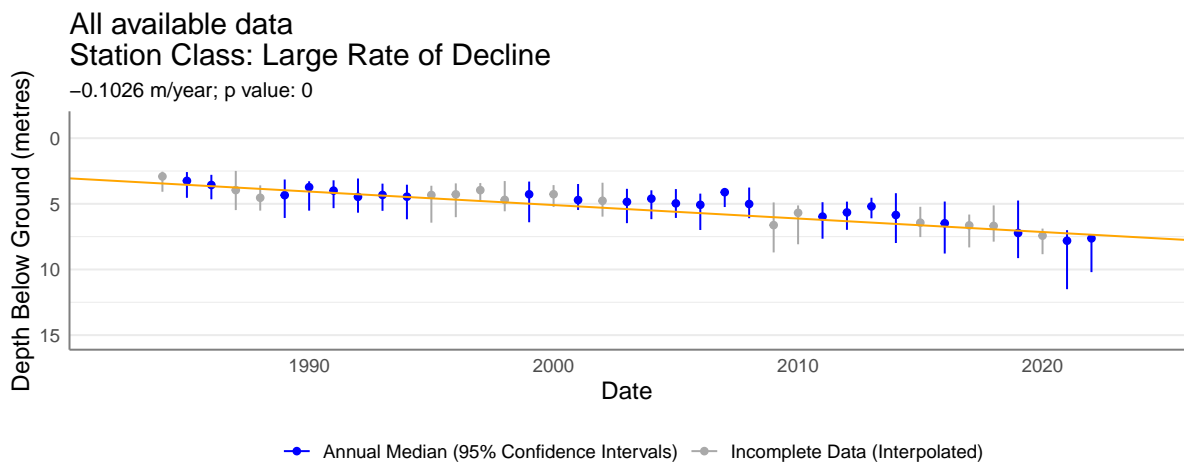
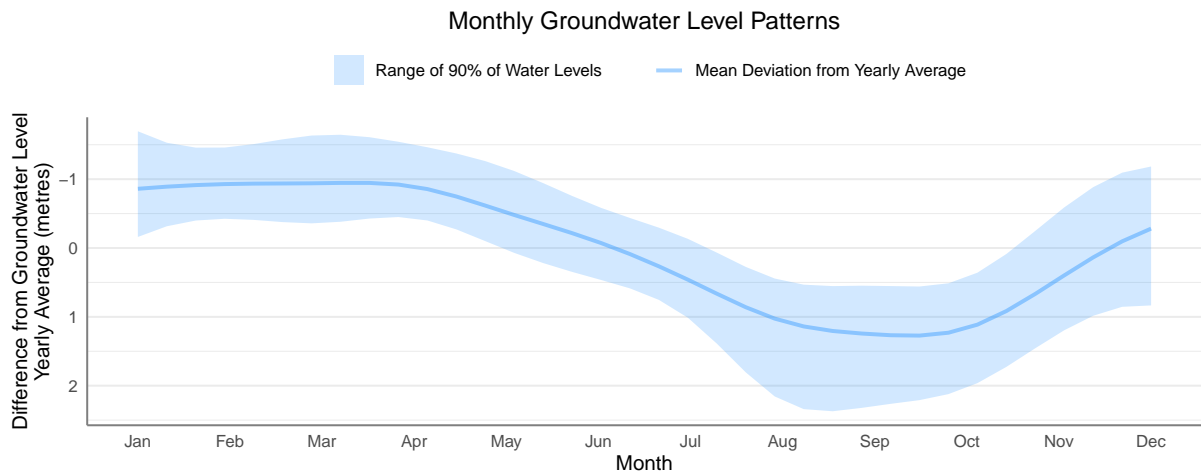
Aquifer Number: 711 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 287

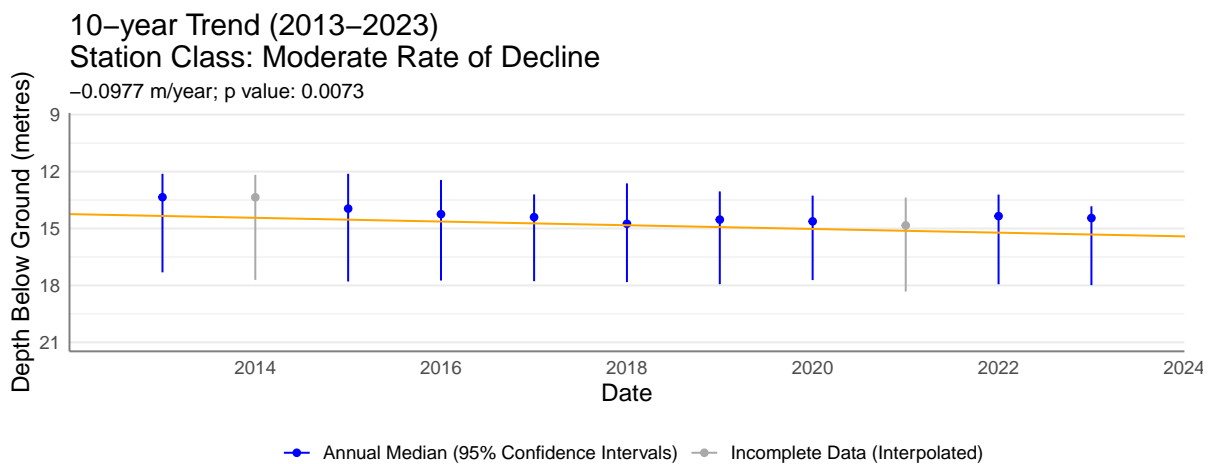
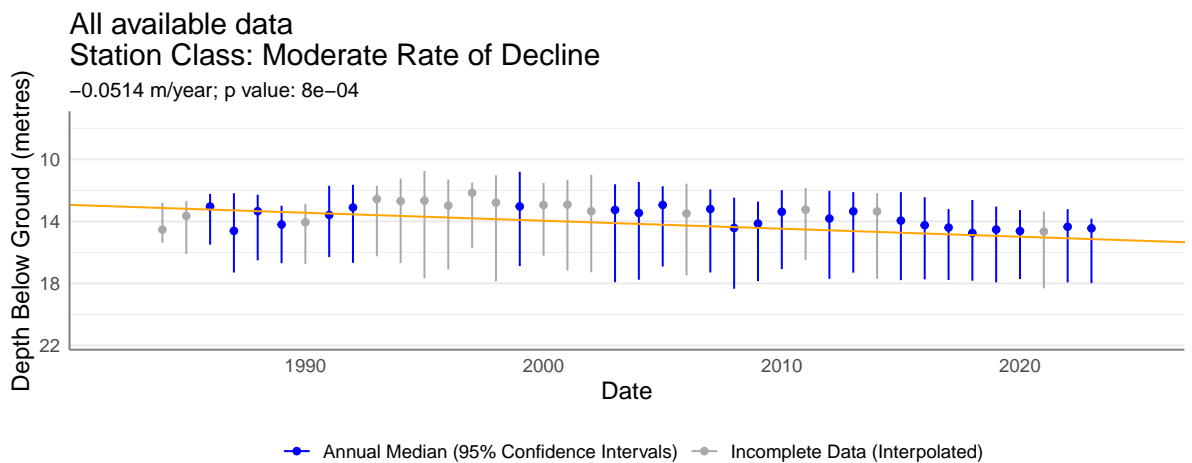
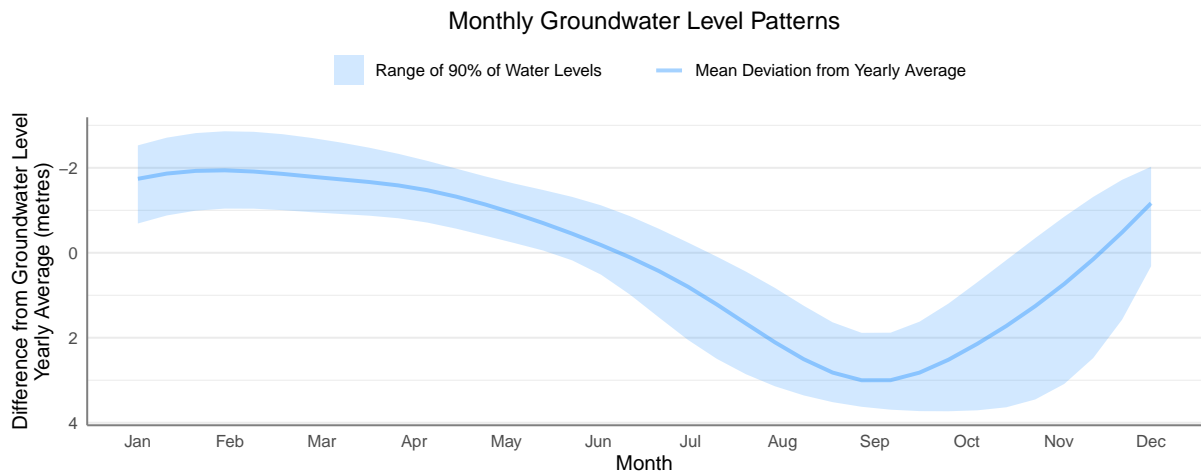
Aquifer Number: 220 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 288

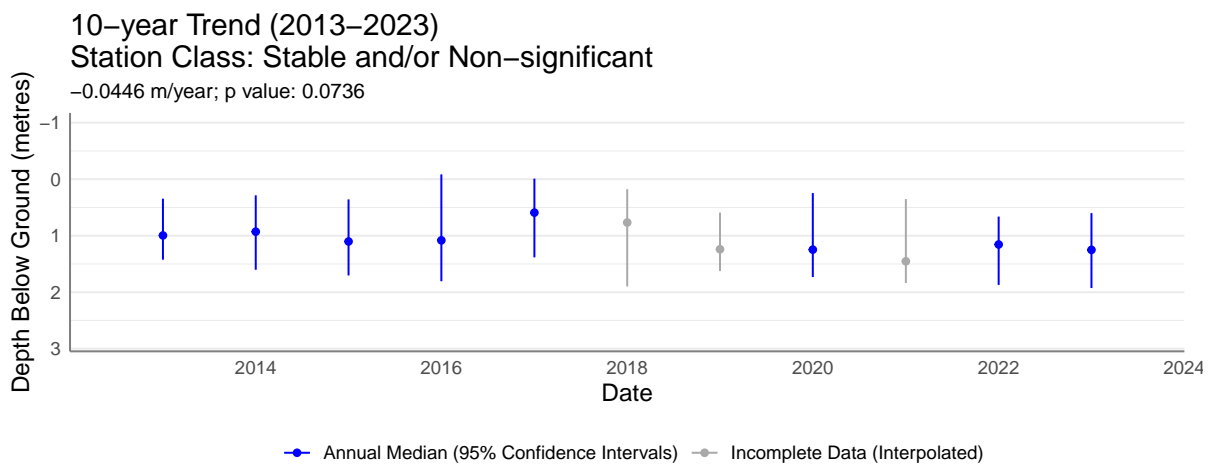
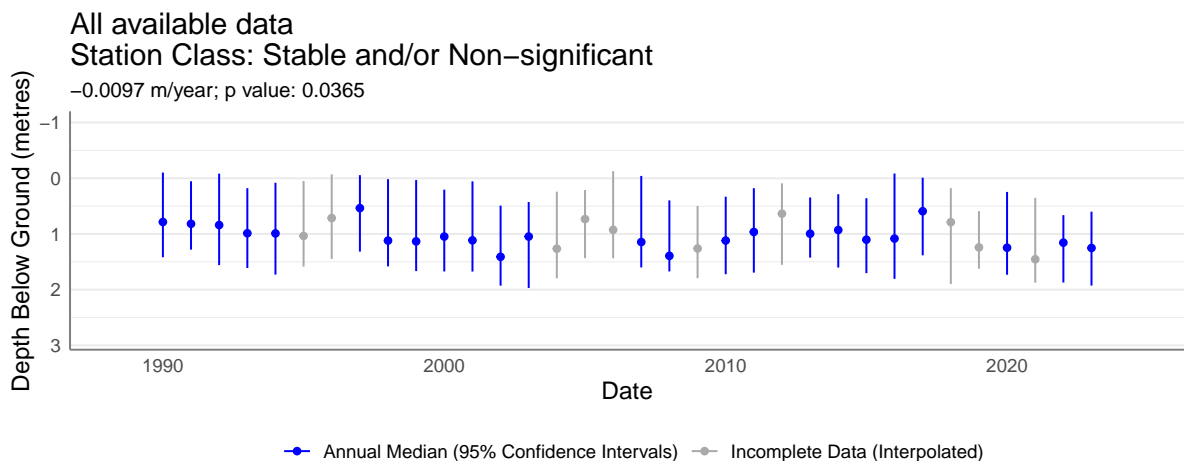
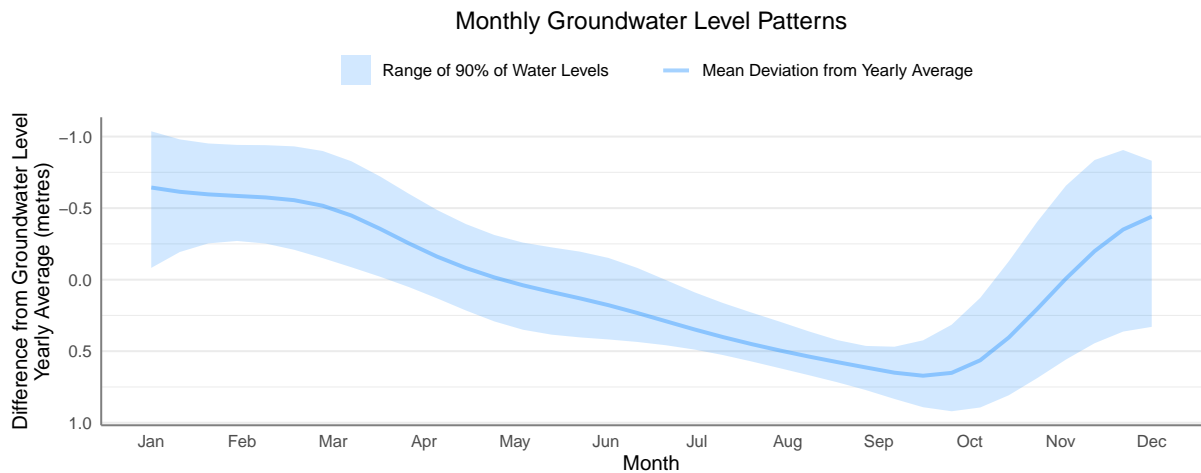
Aquifer Number: 438 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 290

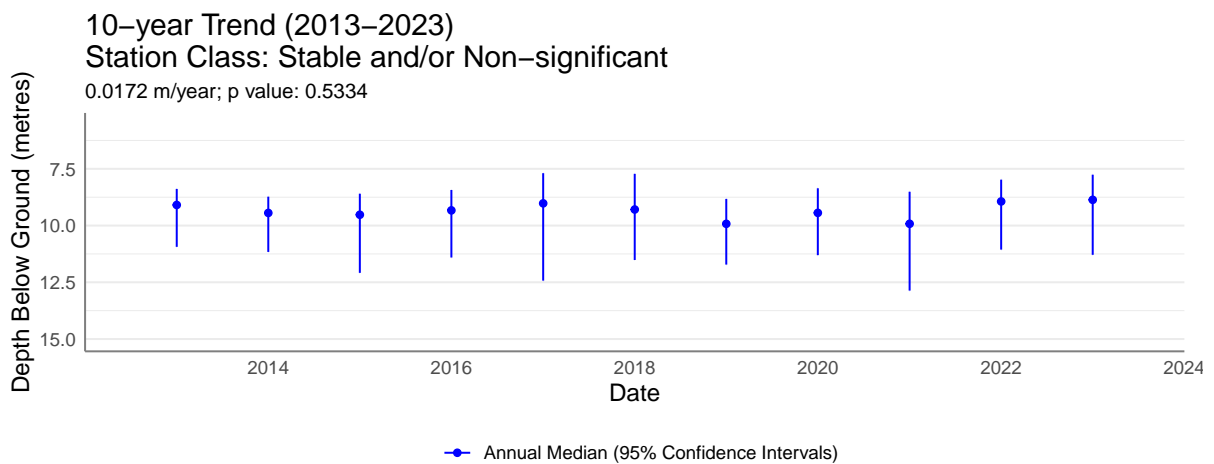
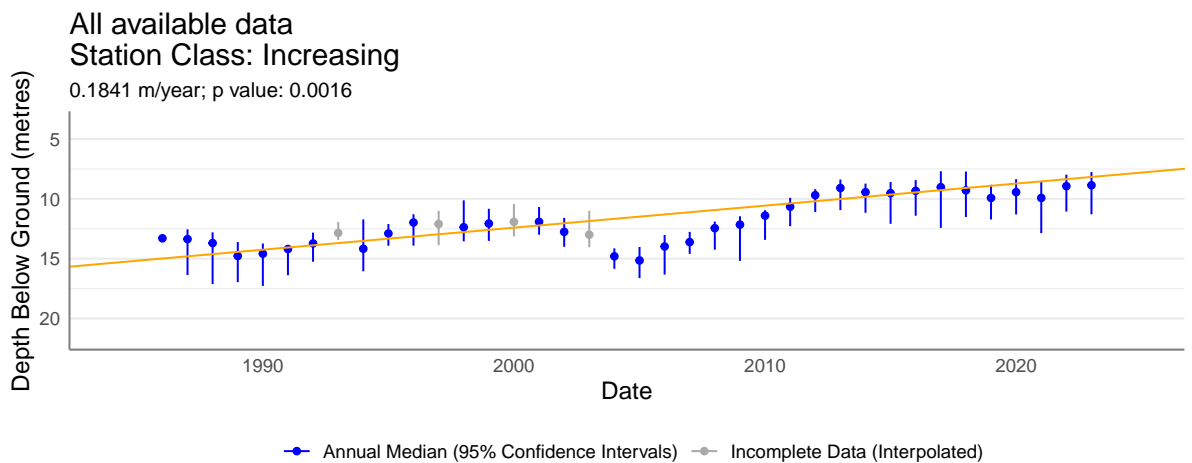
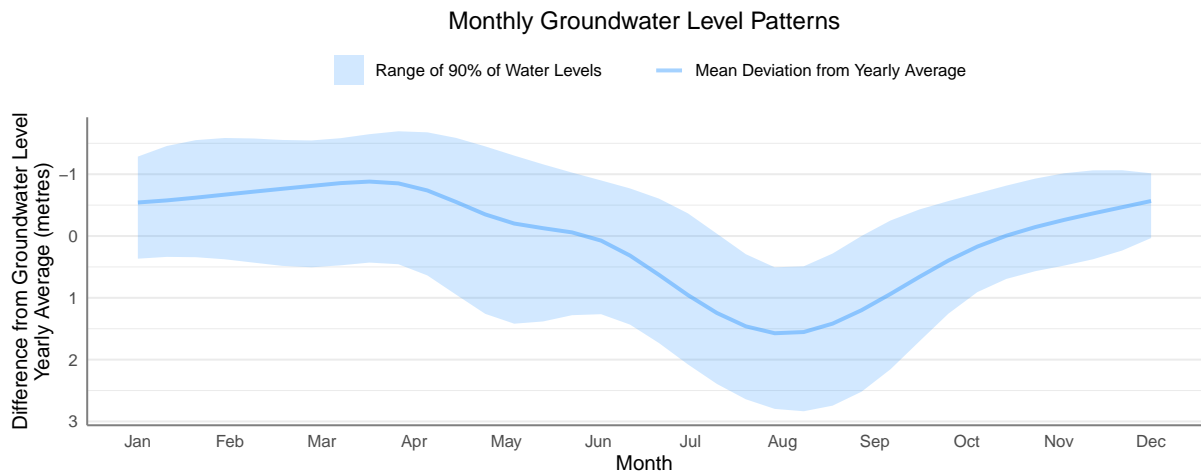
Aquifer Number: 737 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 295

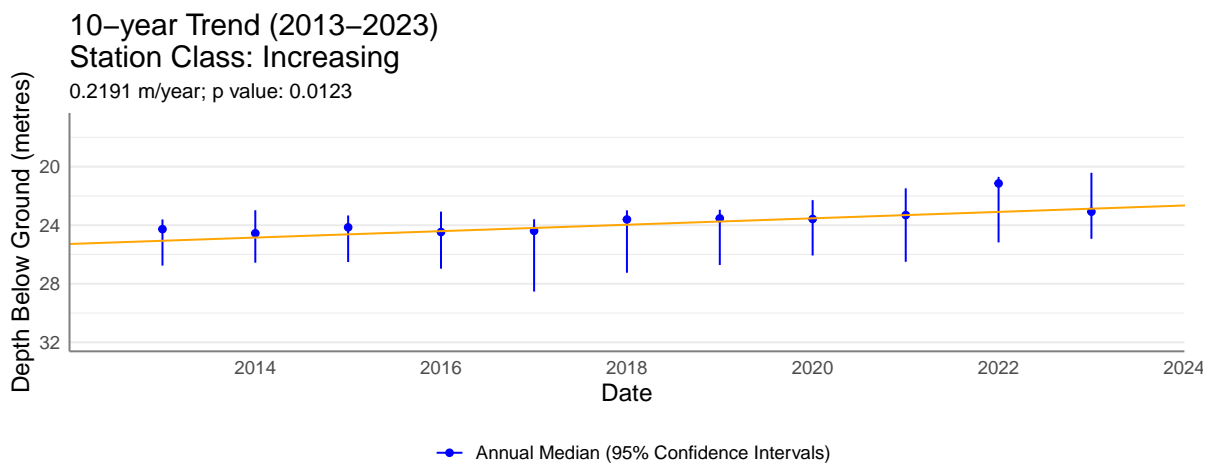
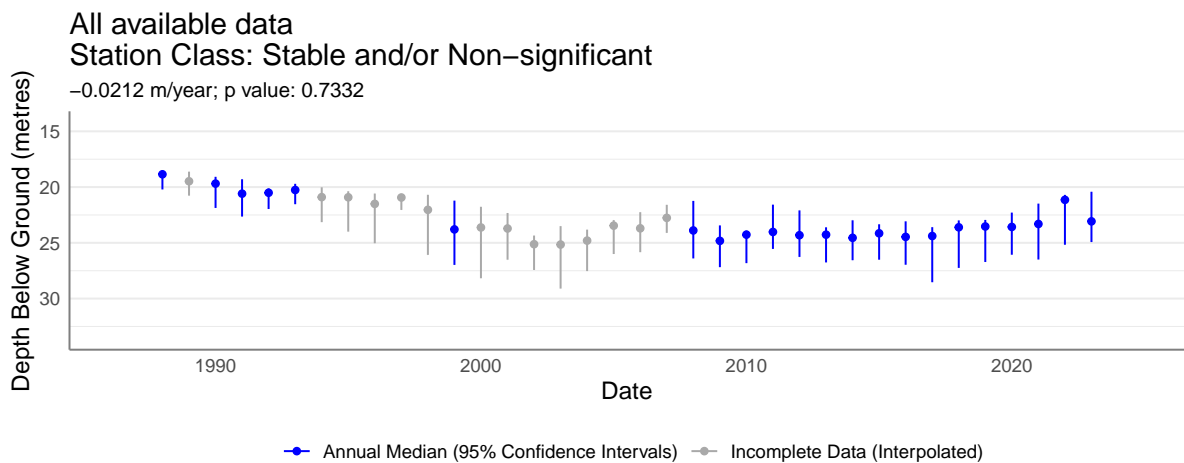
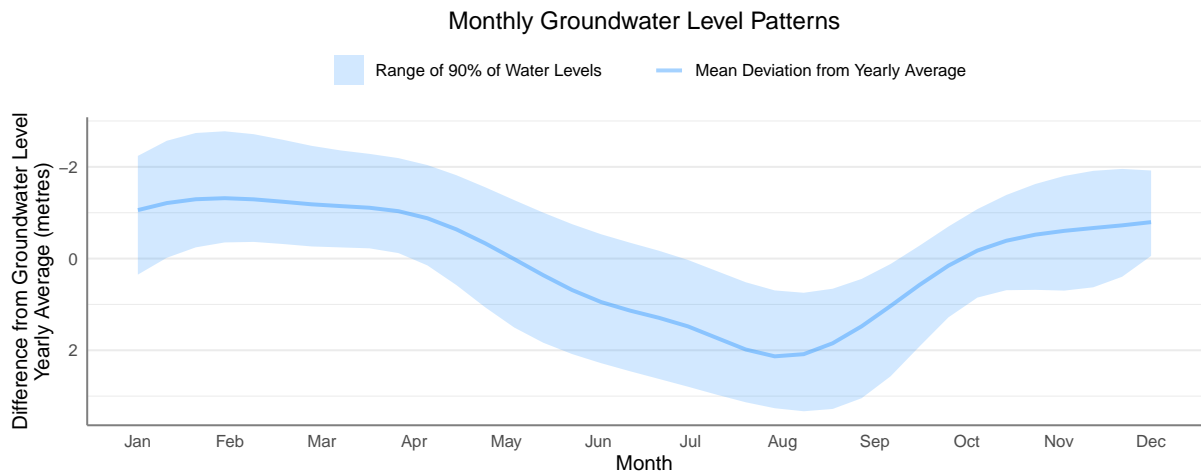
Aquifer Number: 217 **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 303

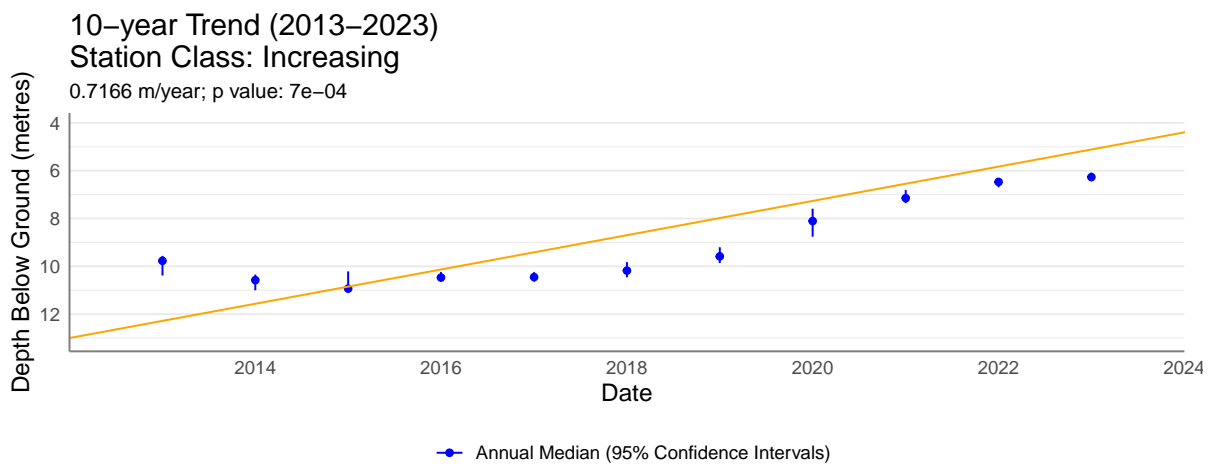
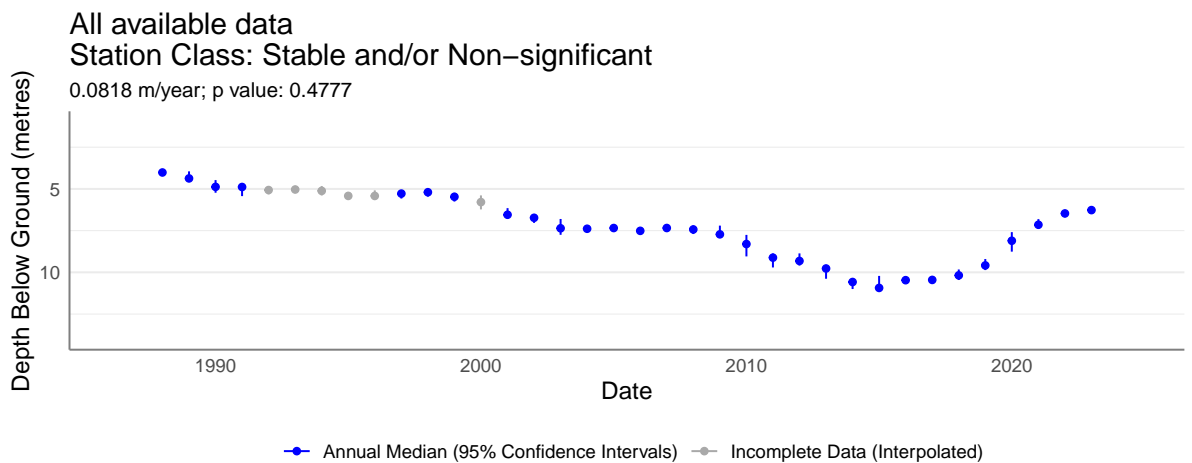
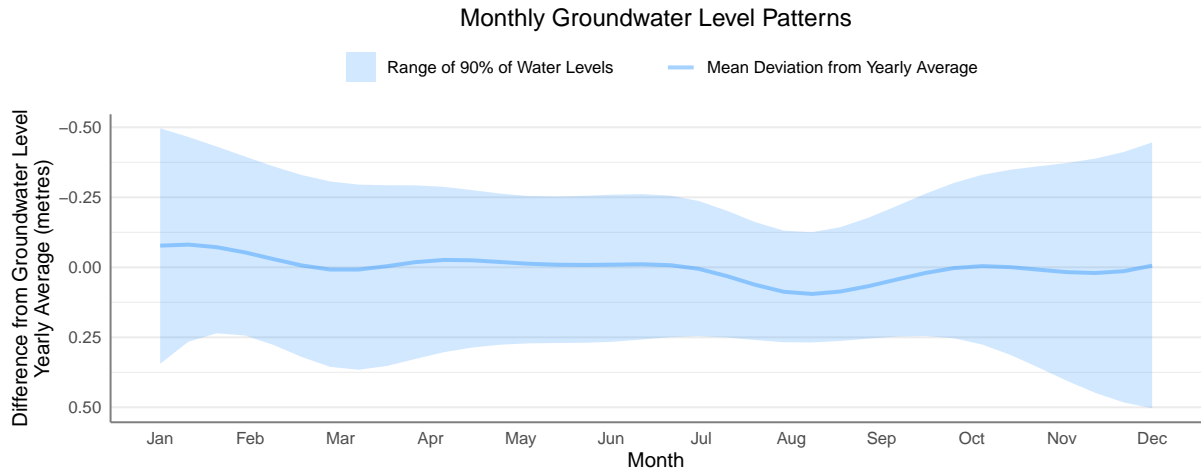
Aquifer Number: 1250 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 304

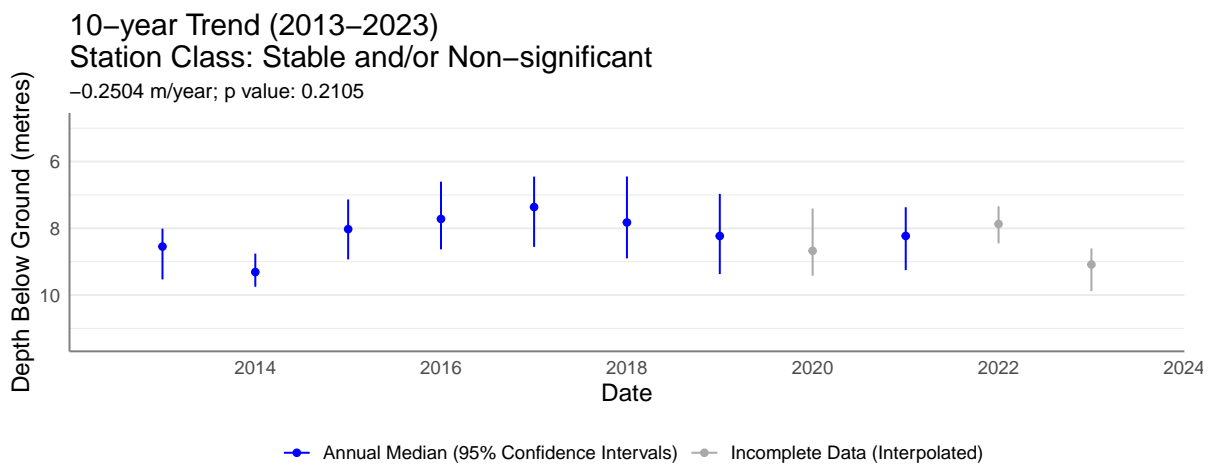
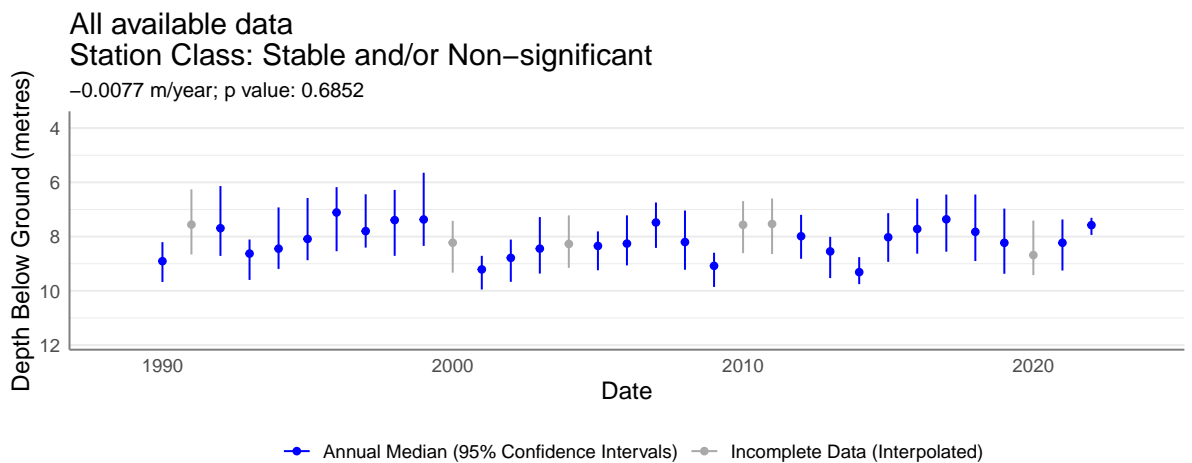
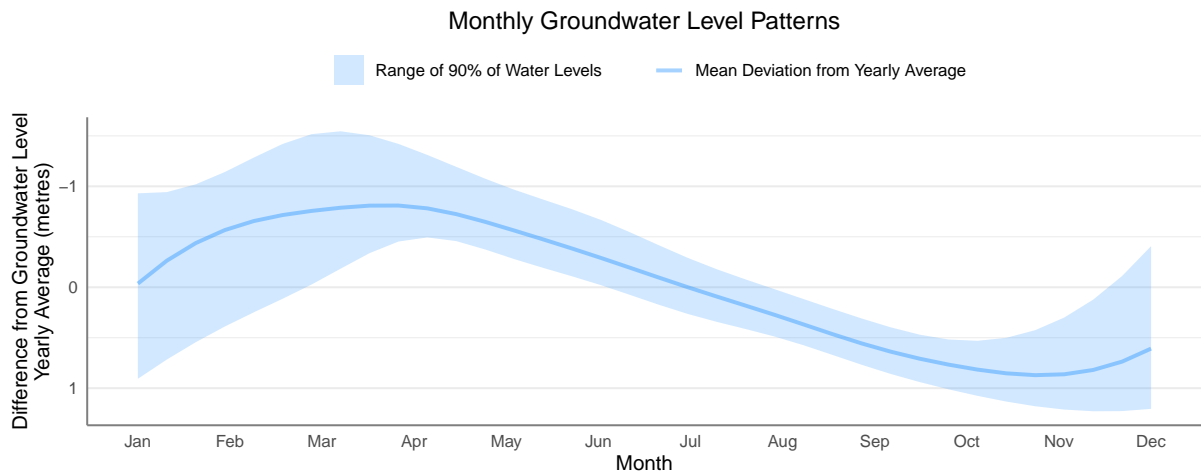
Aquifer Number: 216 **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 310

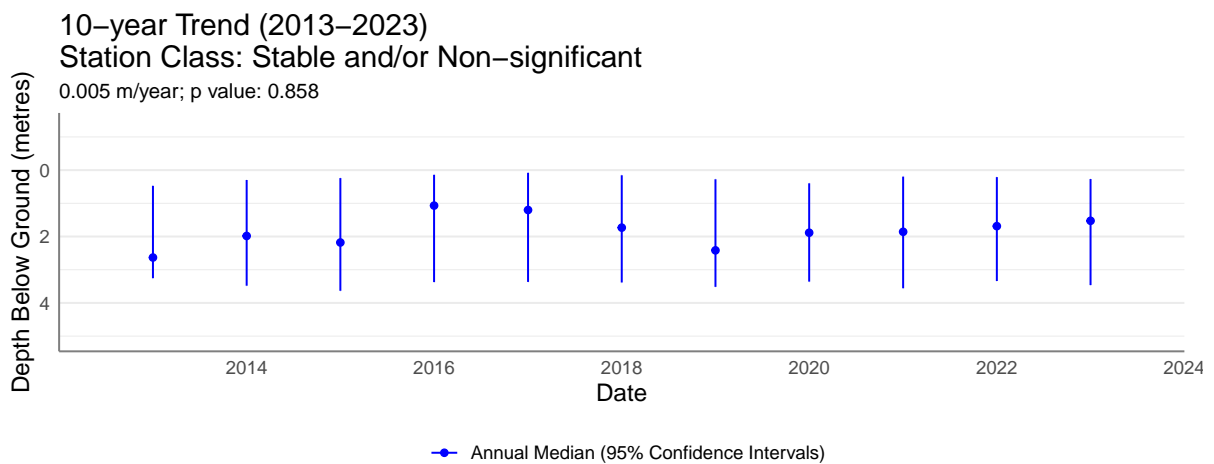
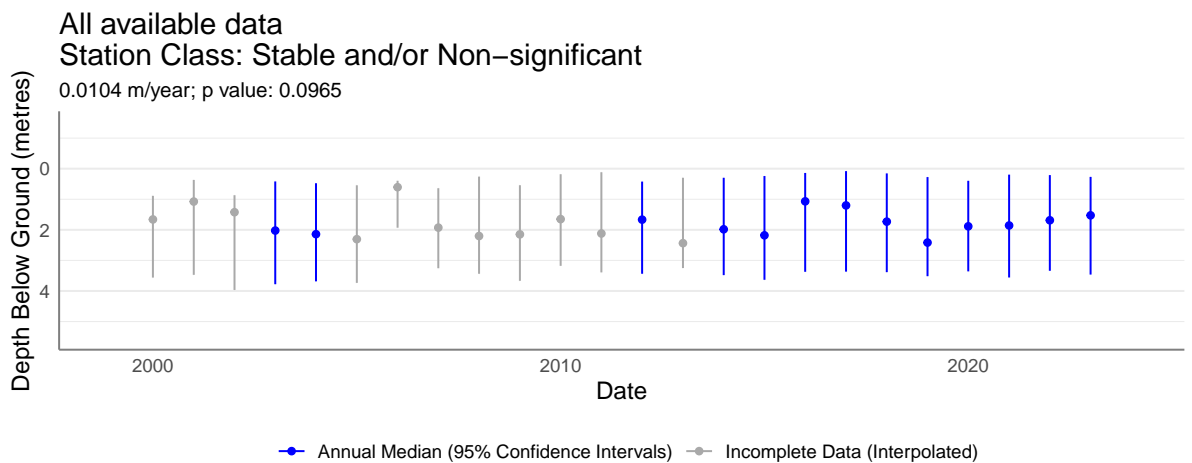
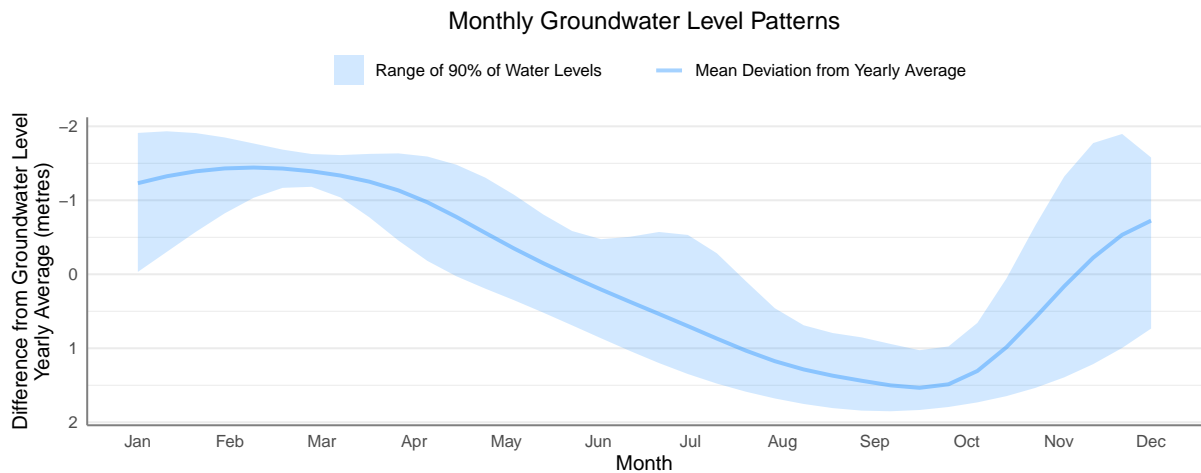
Aquifer Number: 416 **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 316

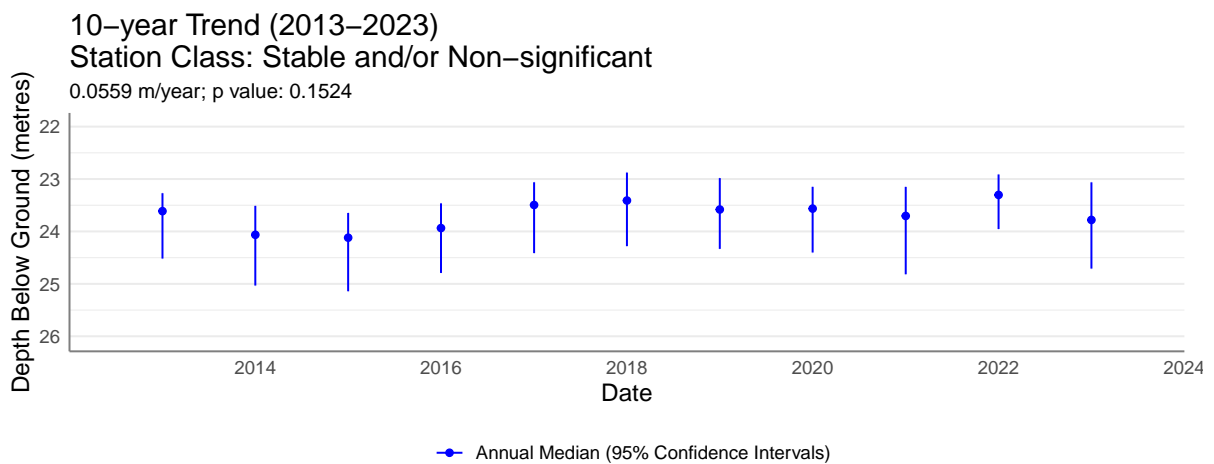
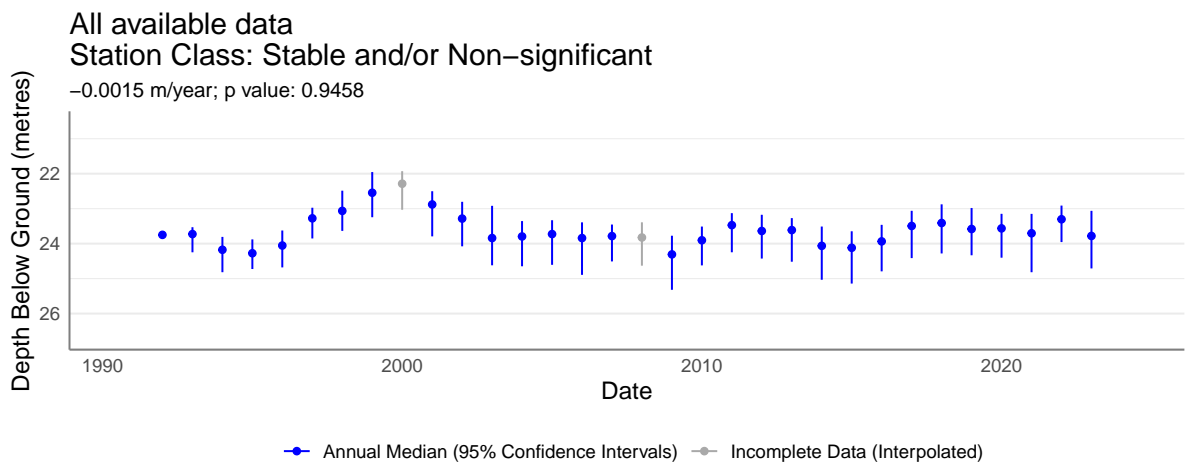
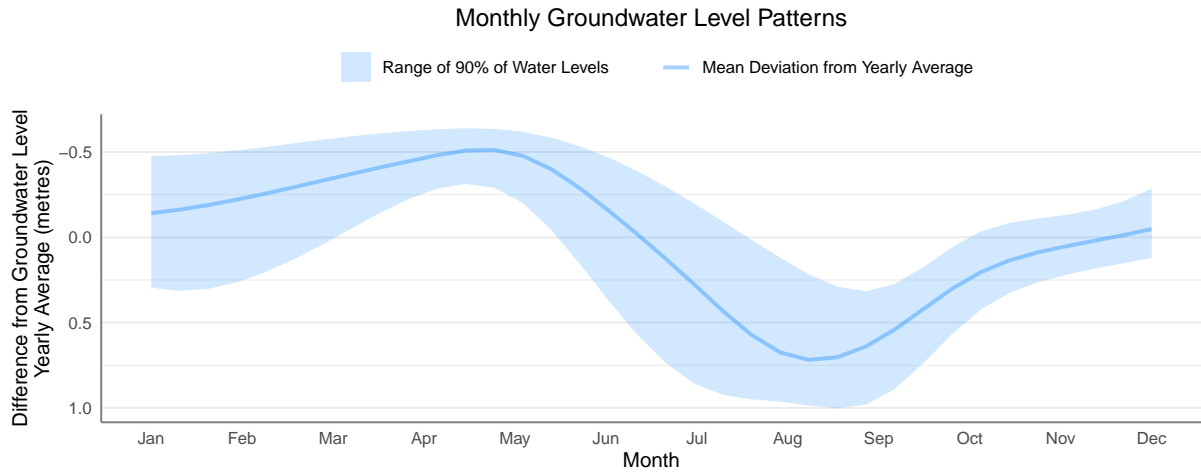
Aquifer Number: 709 Aquifer Type: Unknown



Region: West Coast

Observation Well Number: 320

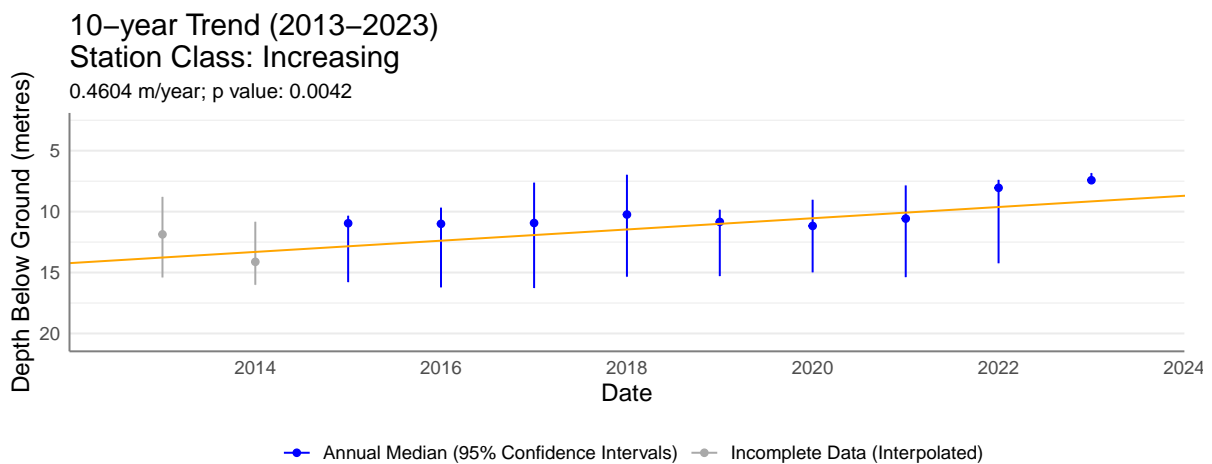
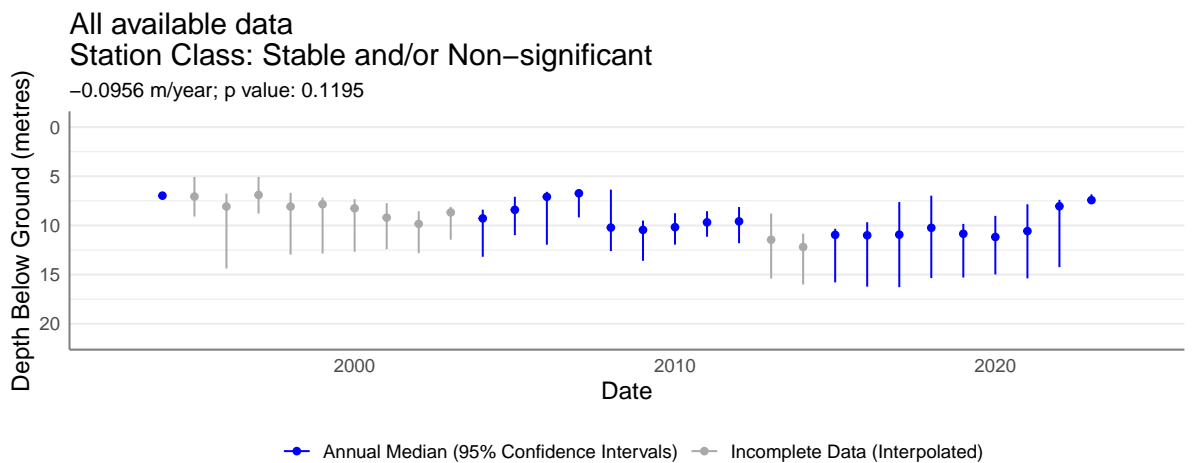
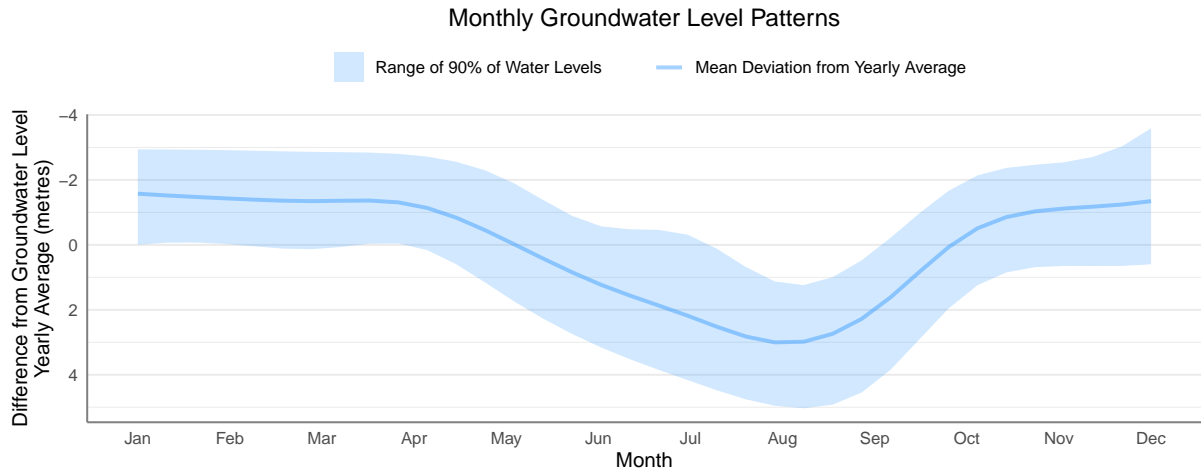
Aquifer Number: 197 **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 321

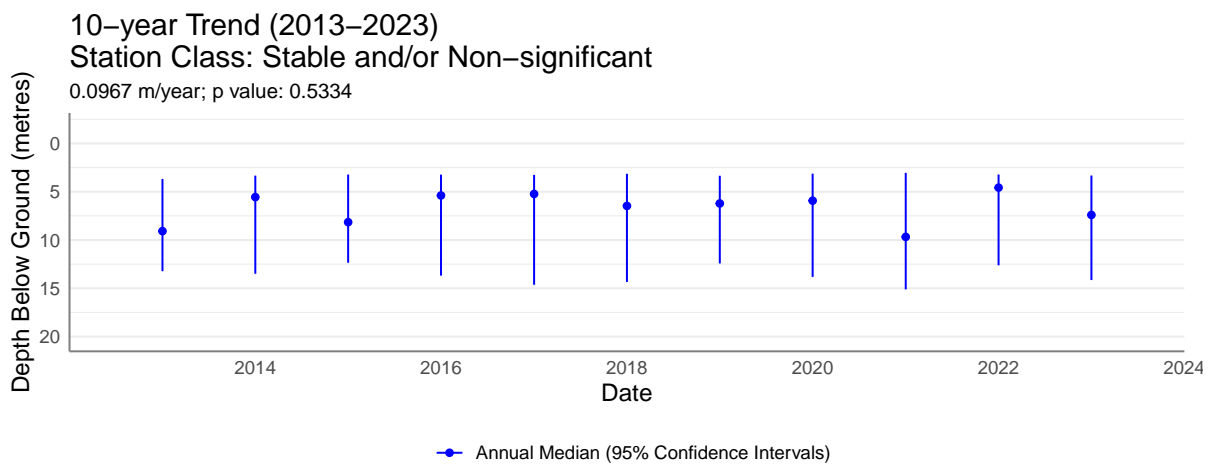
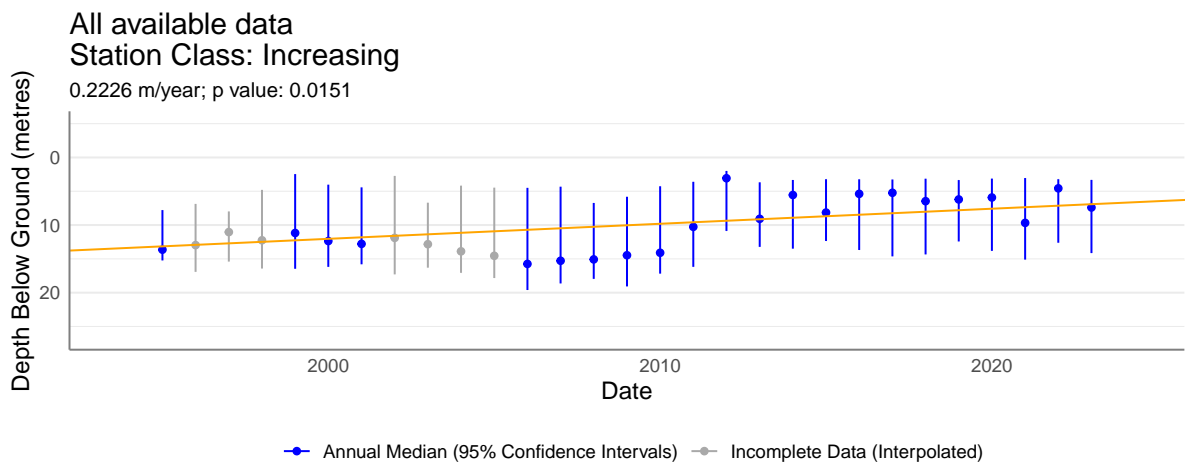
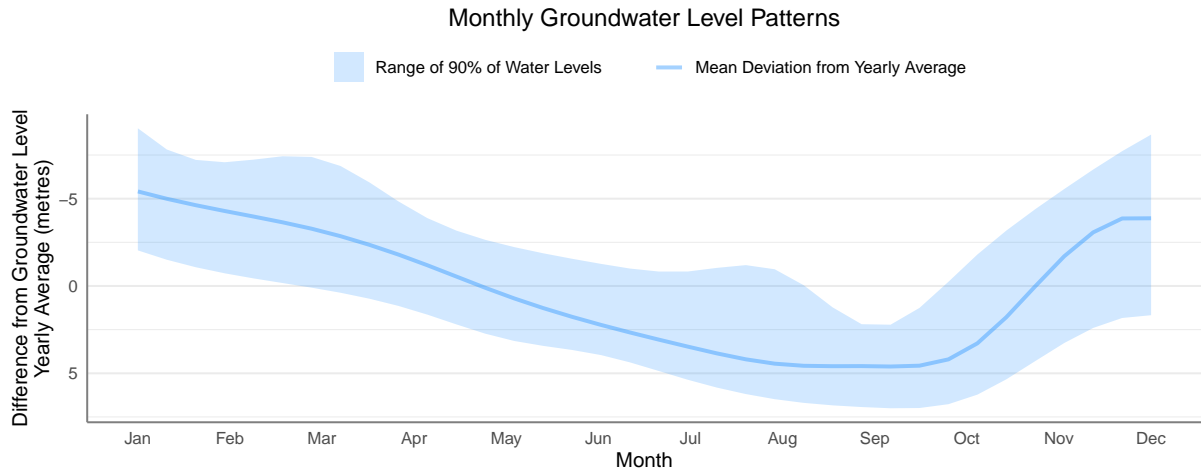
Aquifer Number: 1250 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 327

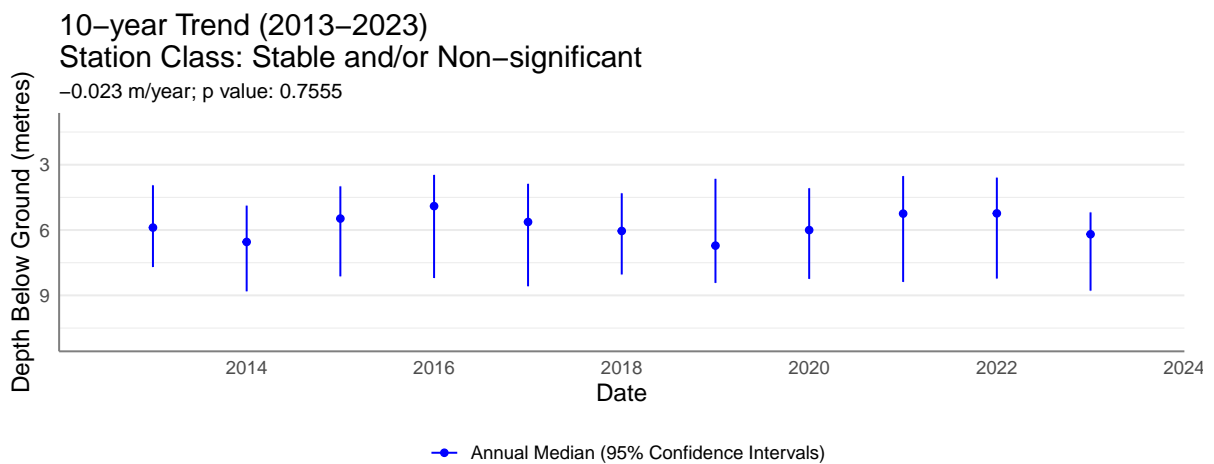
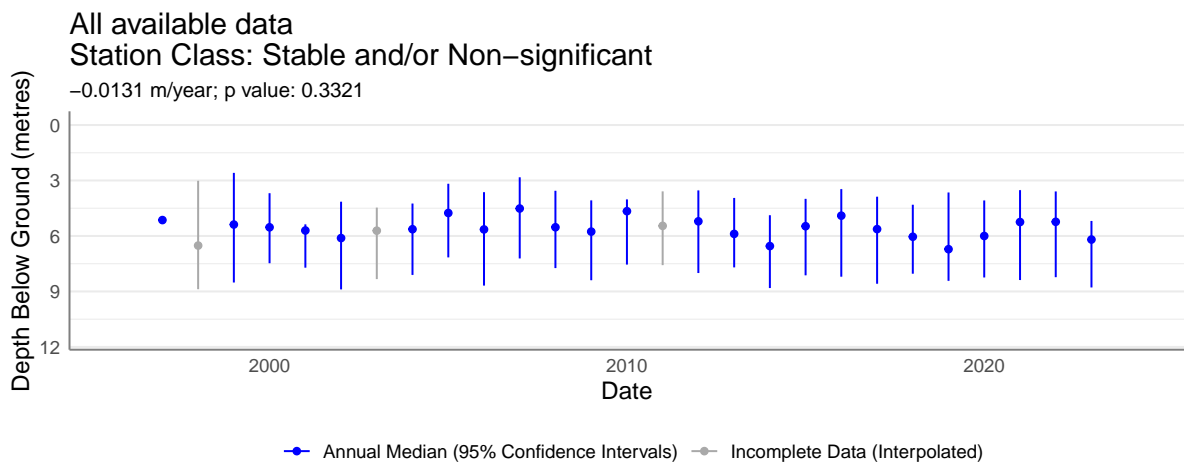
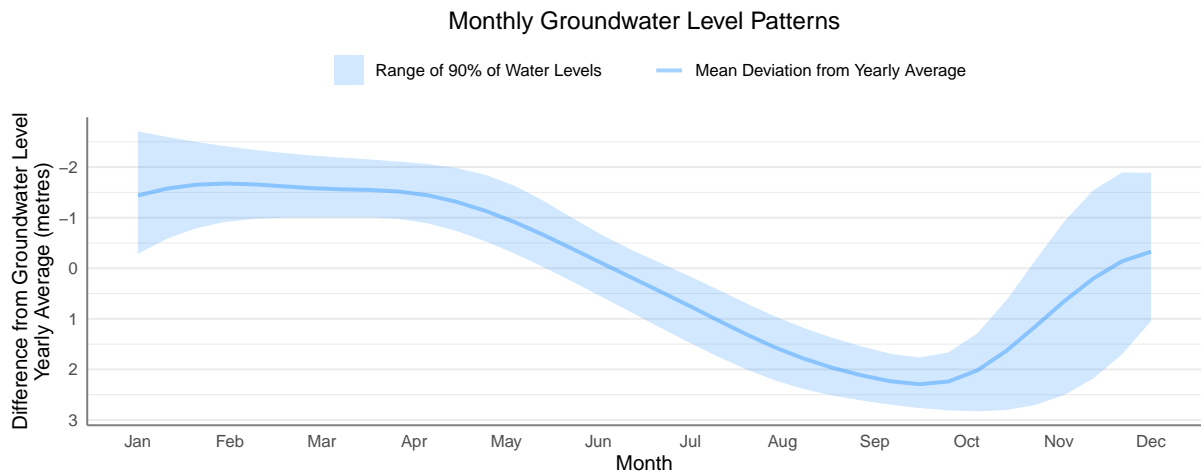
Aquifer Number: 320 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 329

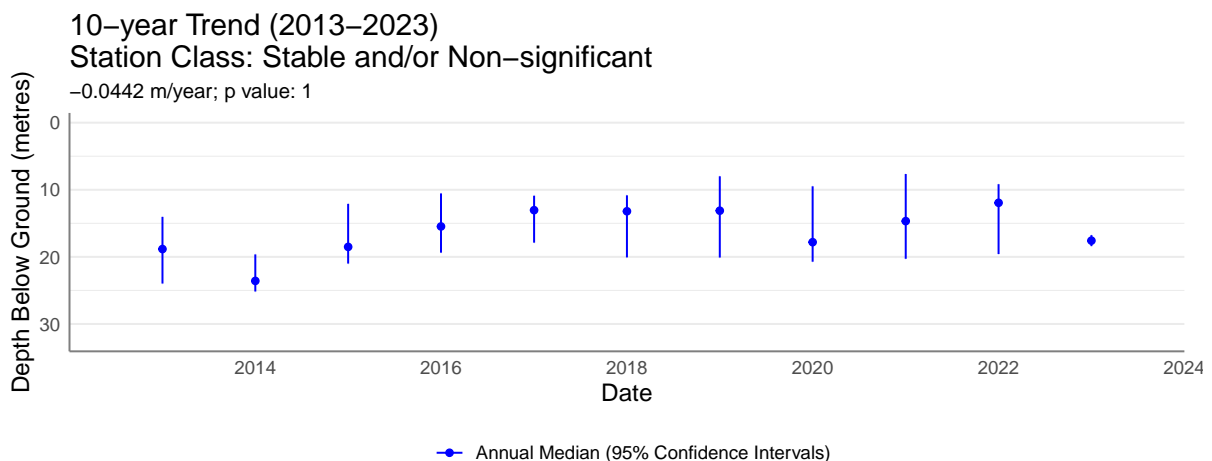
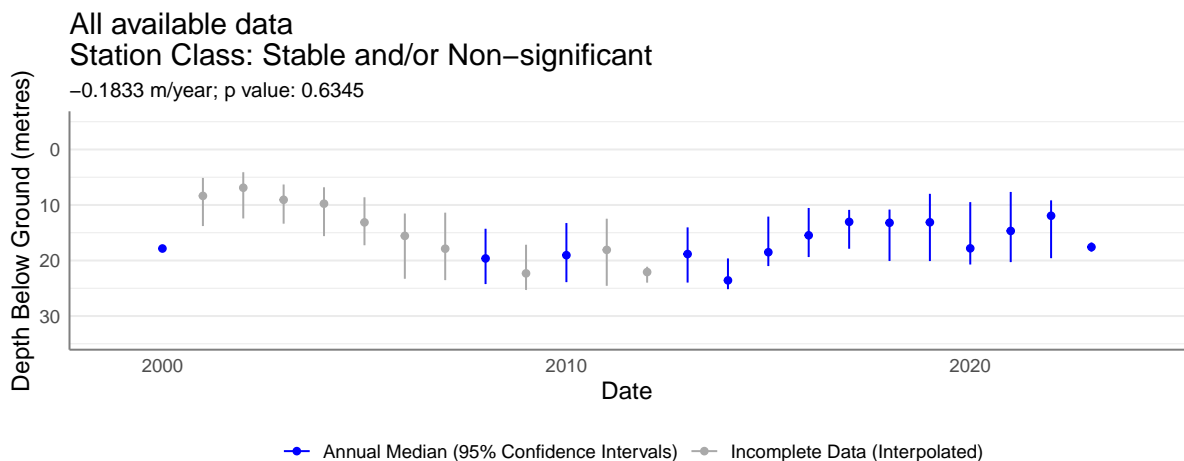
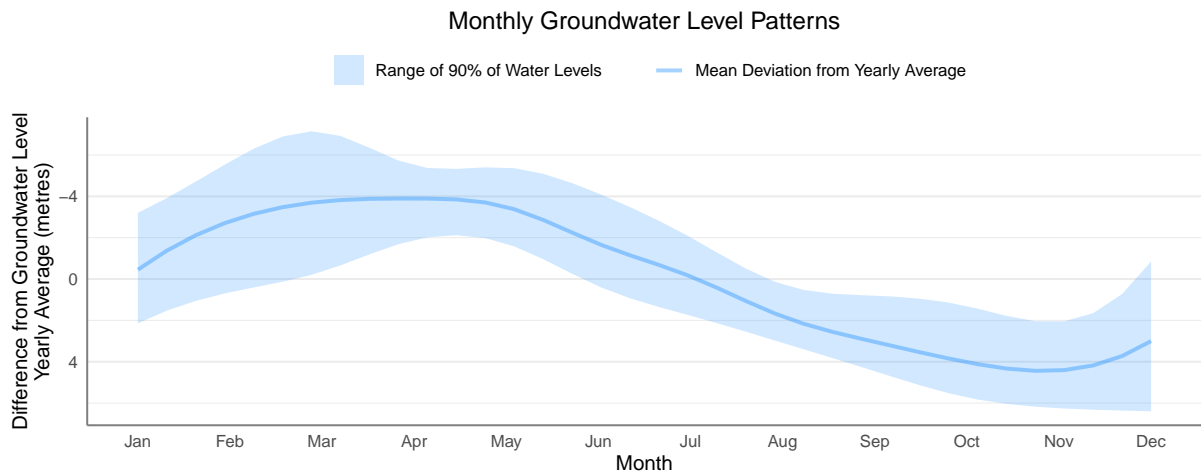
Aquifer Number: 159 **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 337

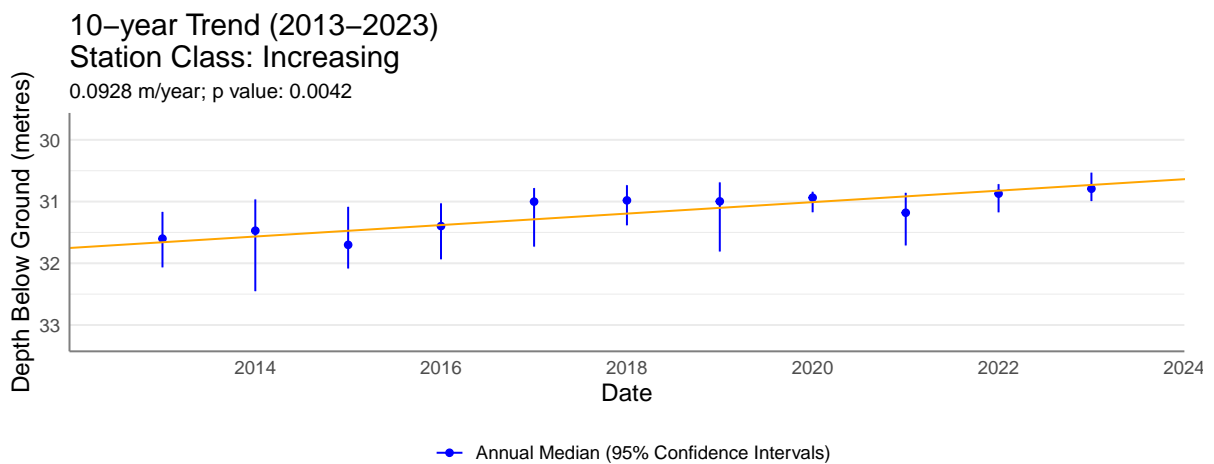
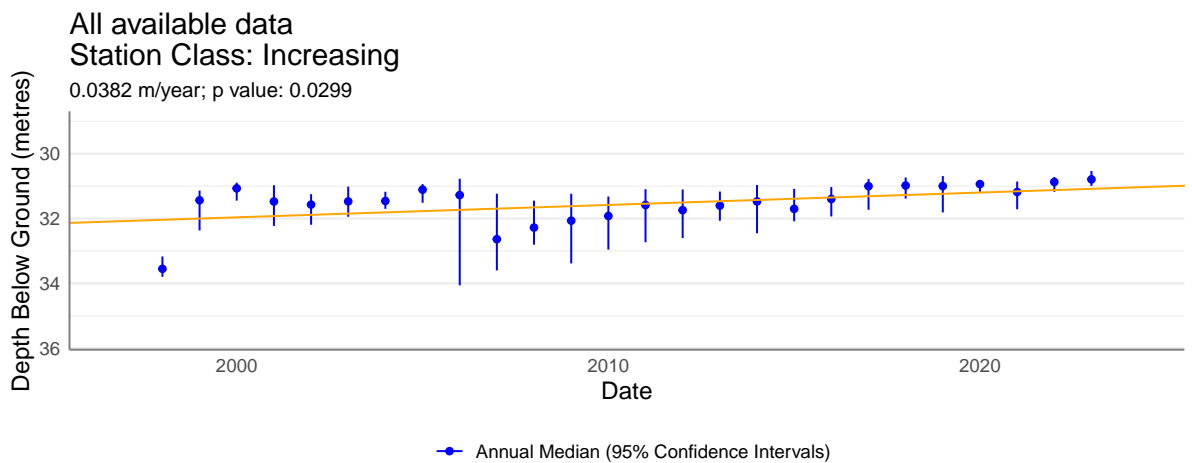
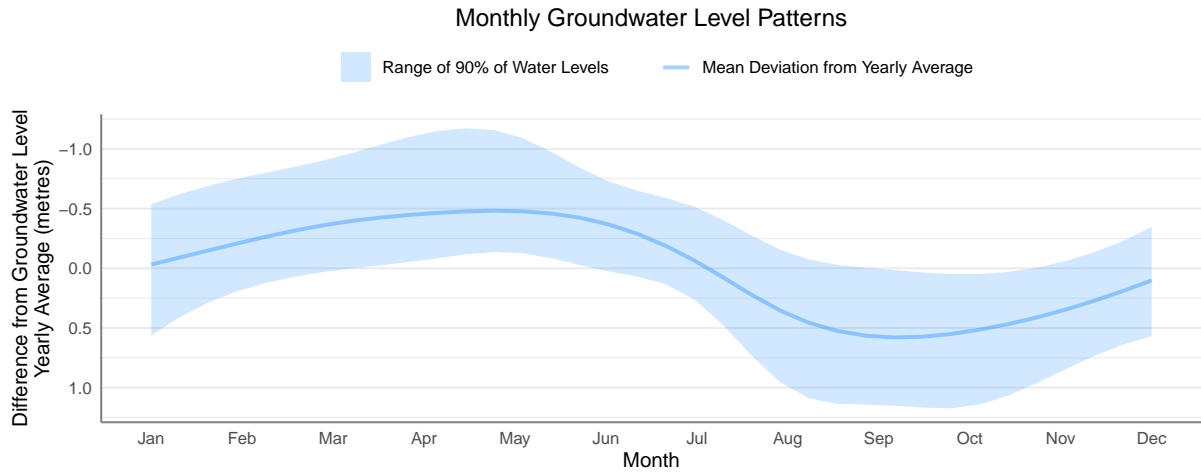
Aquifer Number: 162 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 338

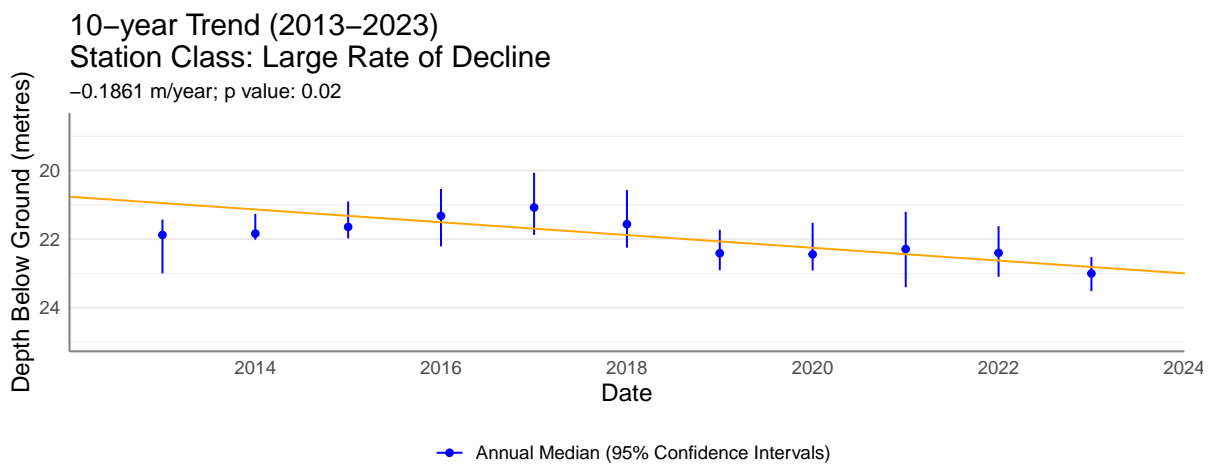
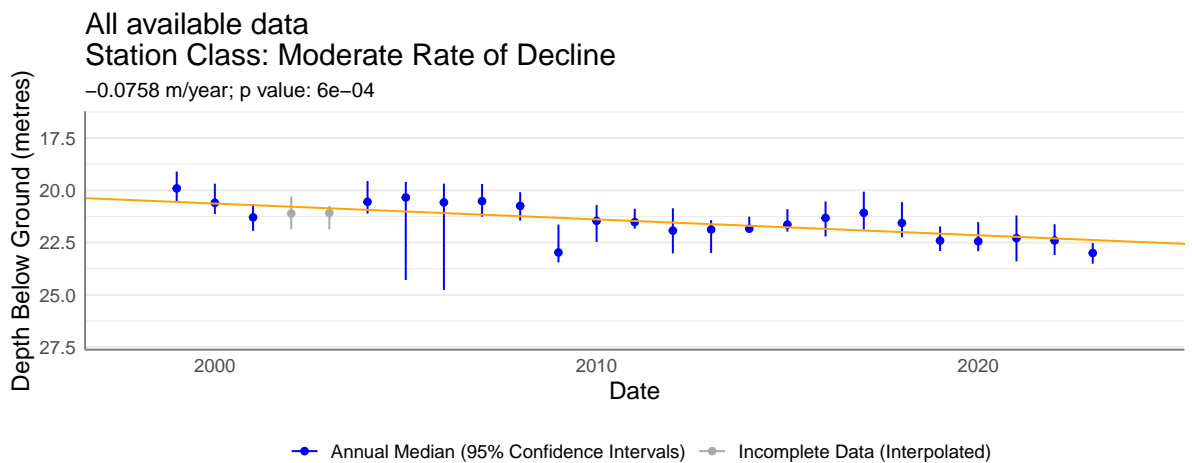
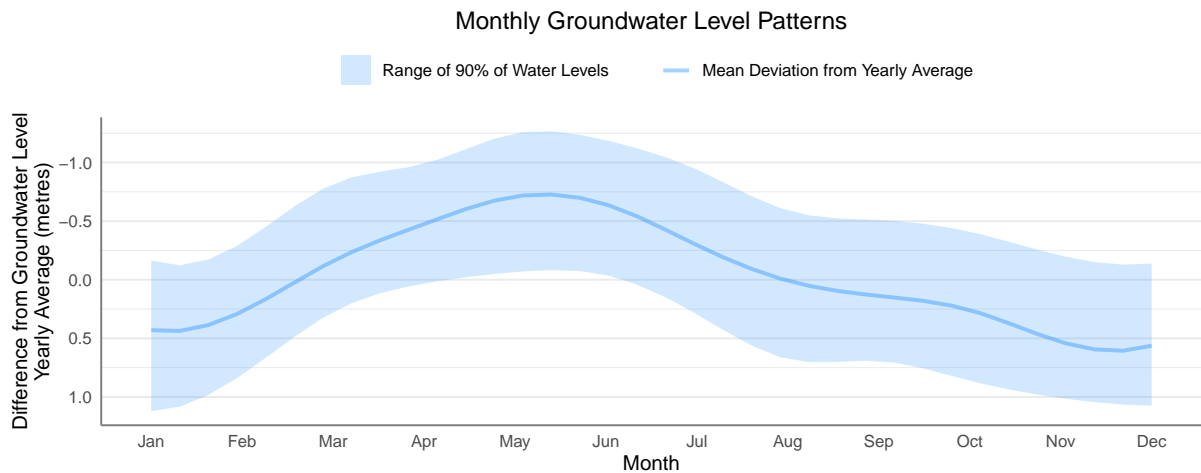
Aquifer Number: 608 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 340

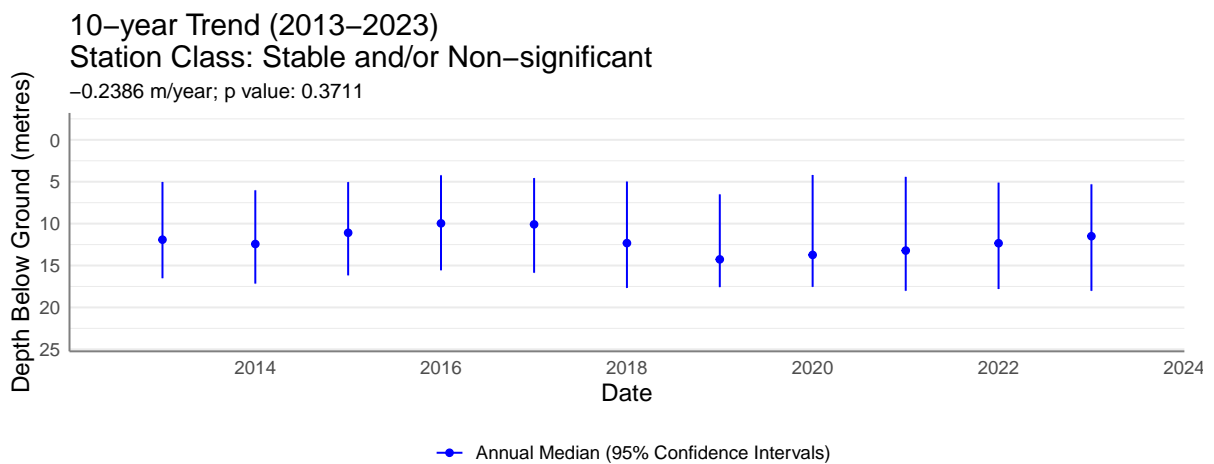
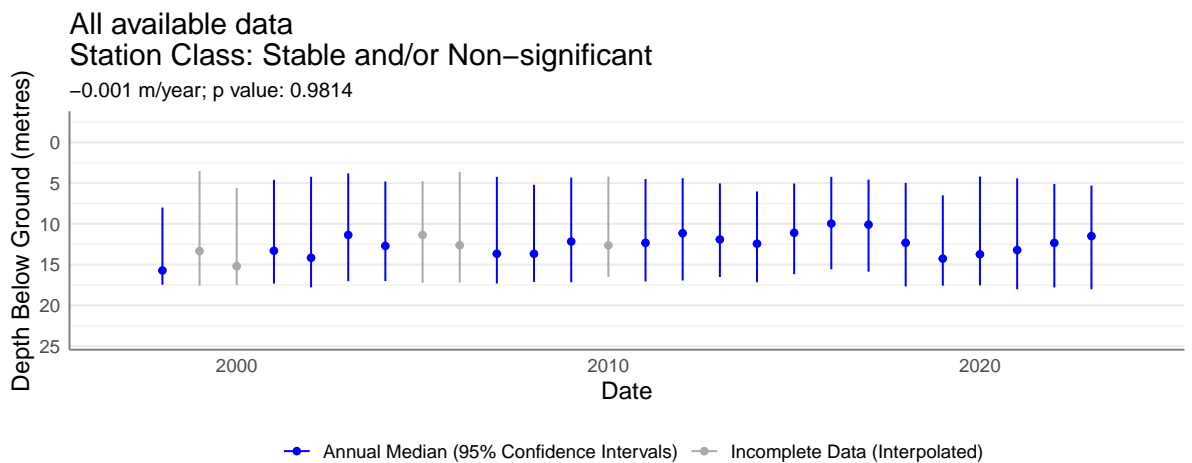
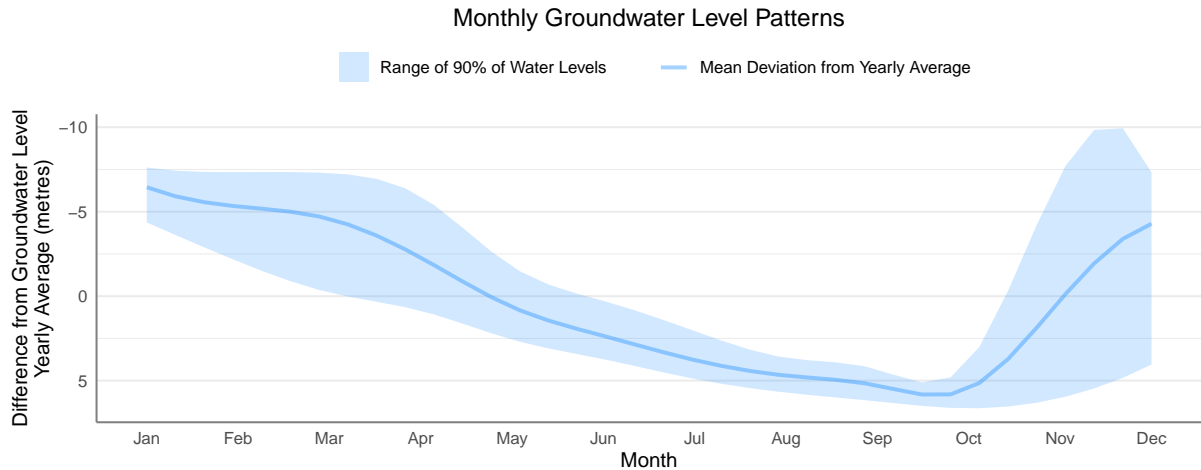
Aquifer Number: 215 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 343

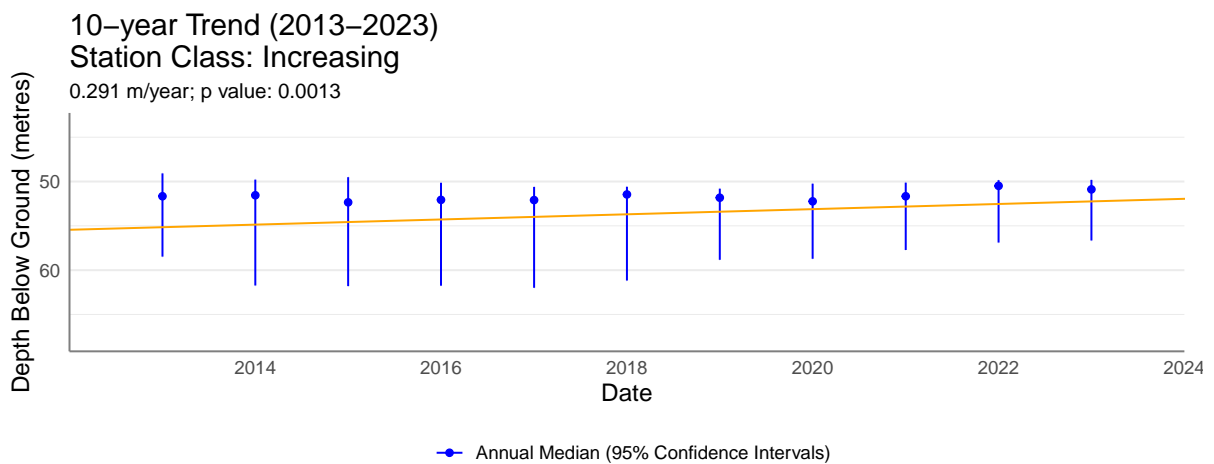
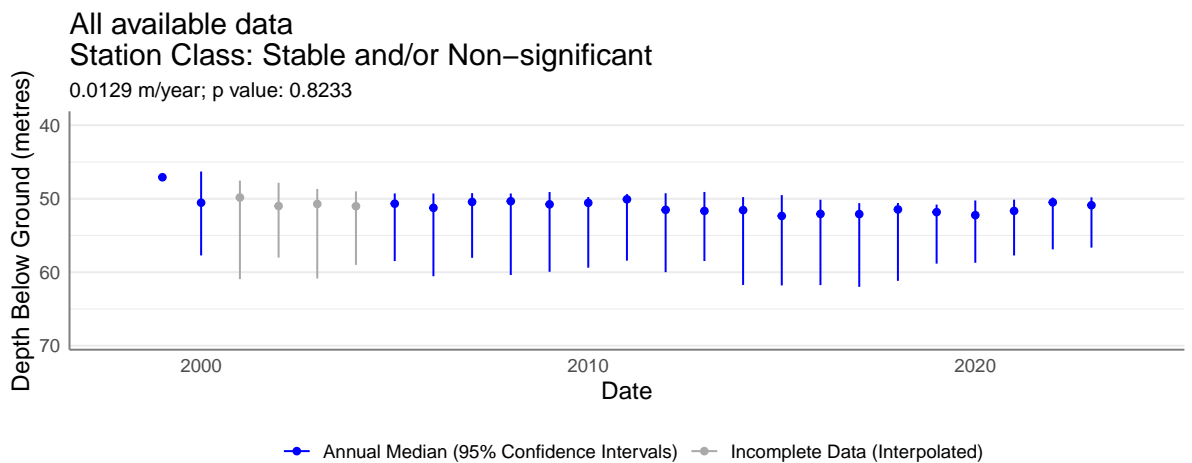
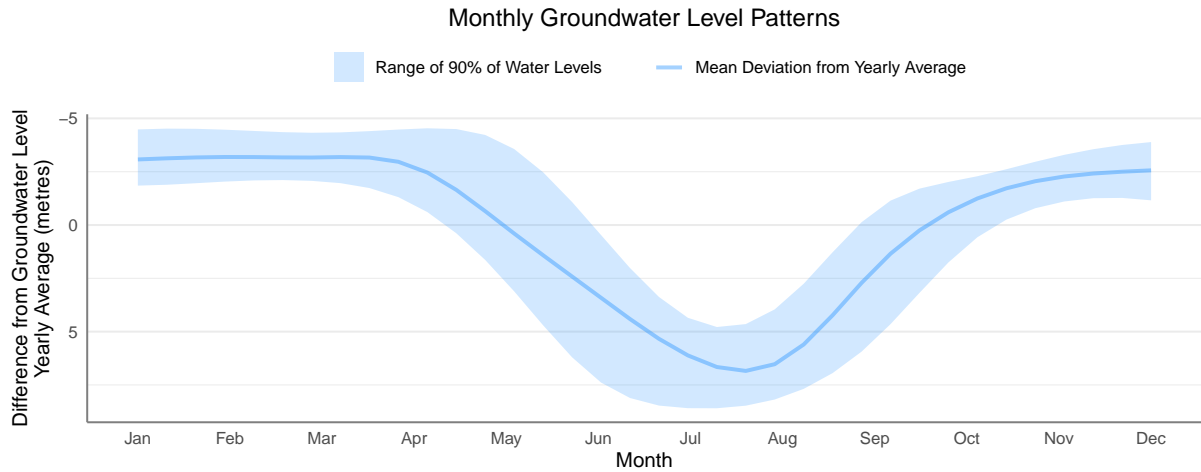
Aquifer Number: 608 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 345

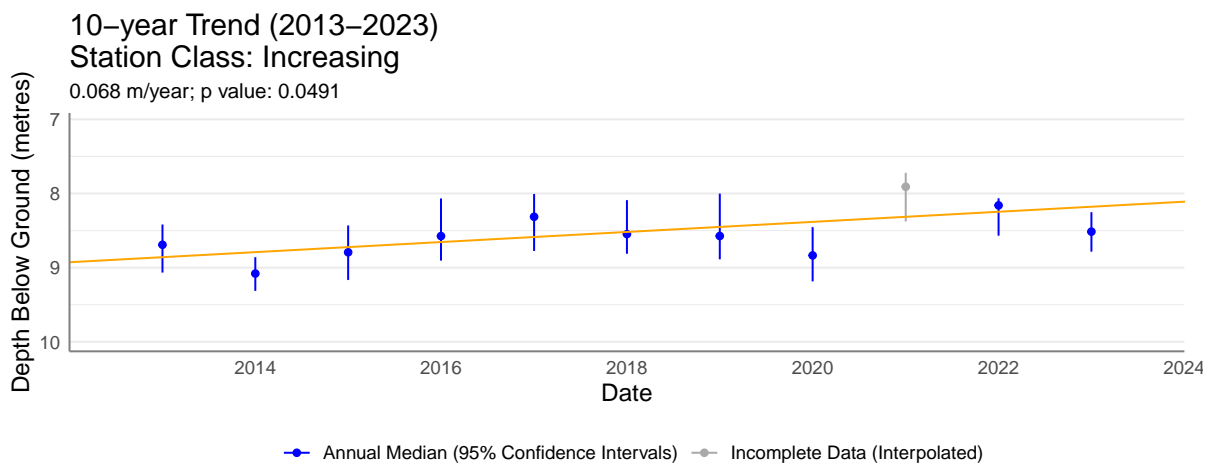
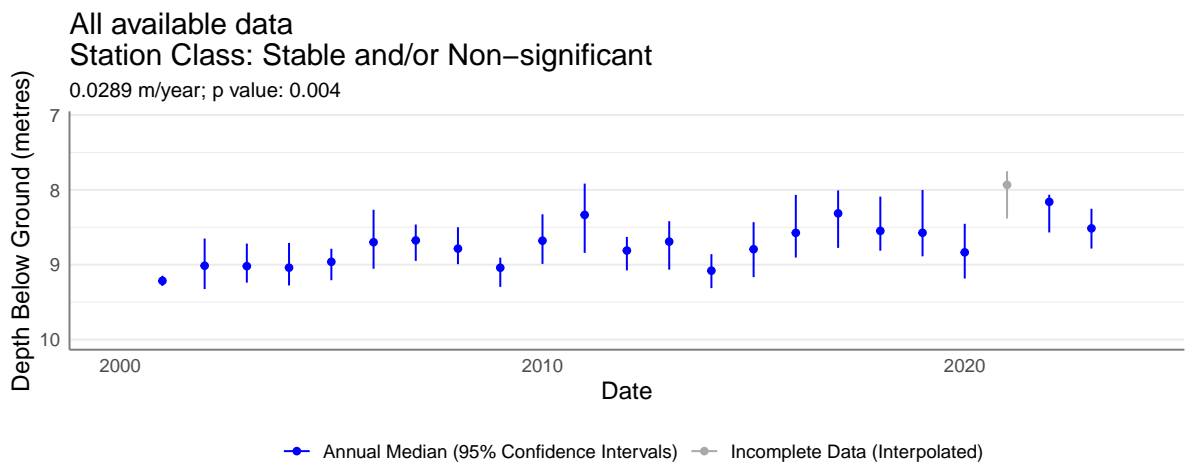
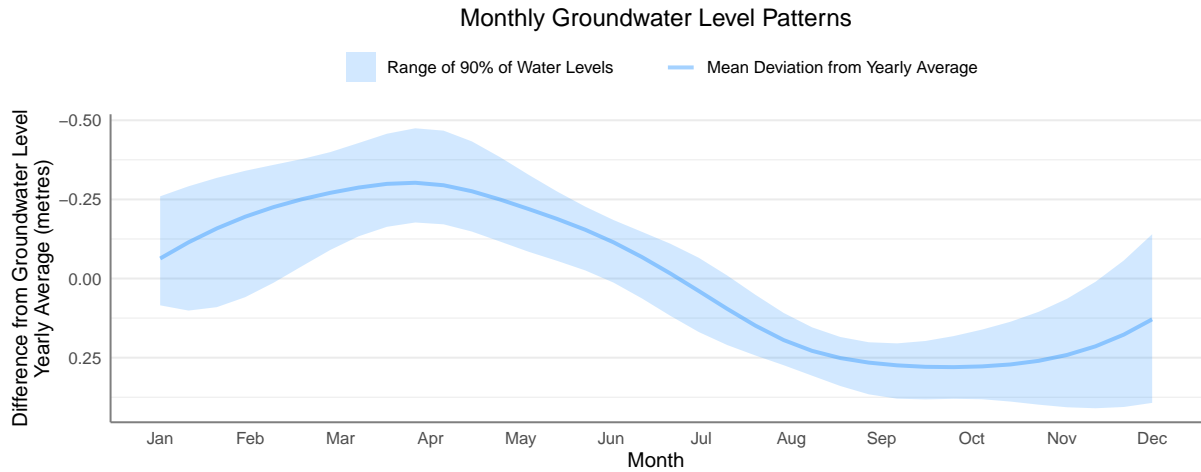
Aquifer Number: 197 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 351

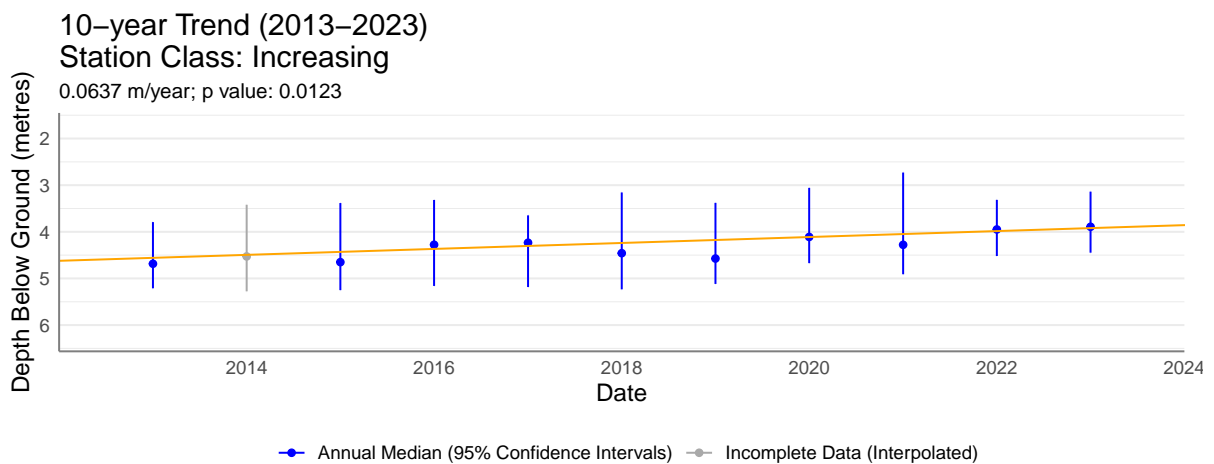
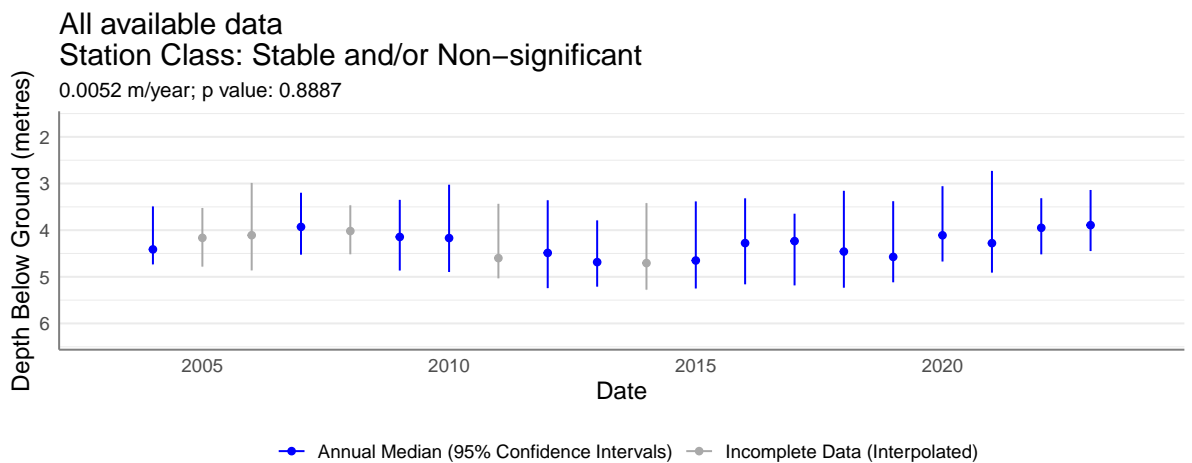
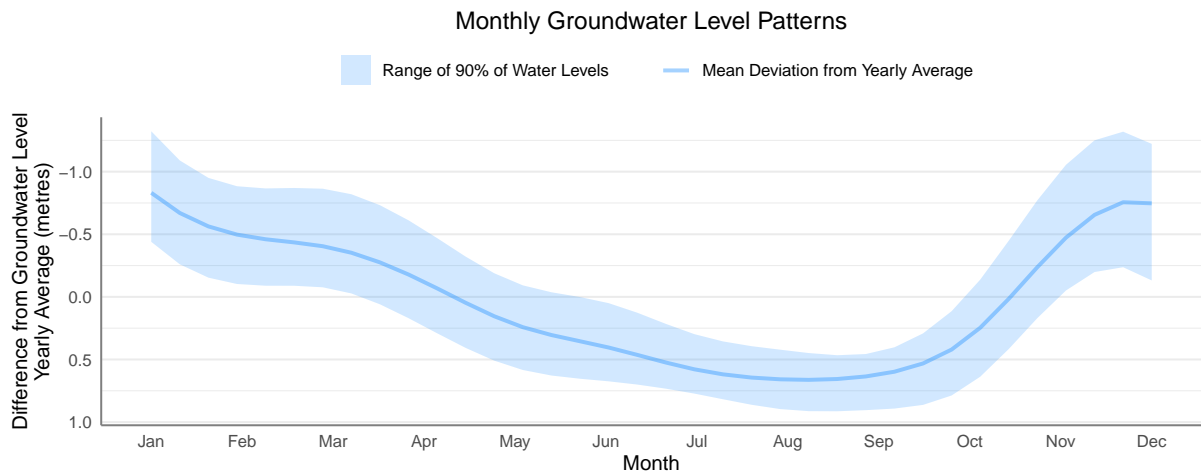
Aquifer Number: 408 **Aquifer Type:** Unknown



Region: West Coast

Observation Well Number: 355

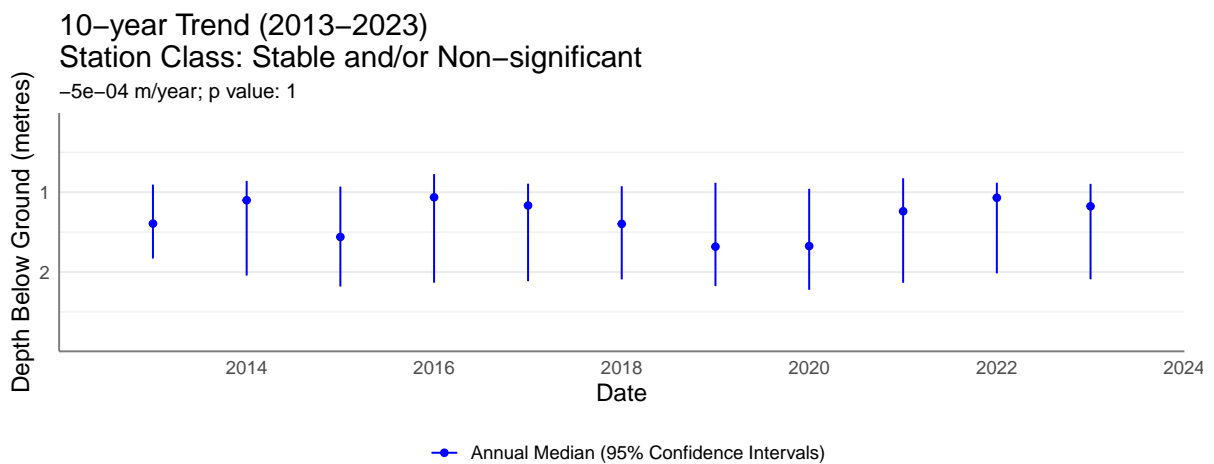
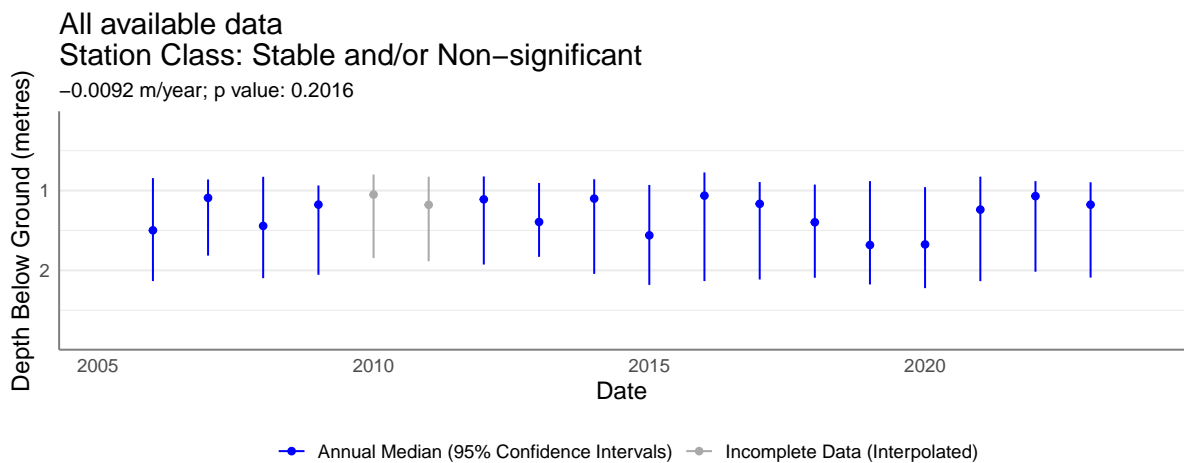
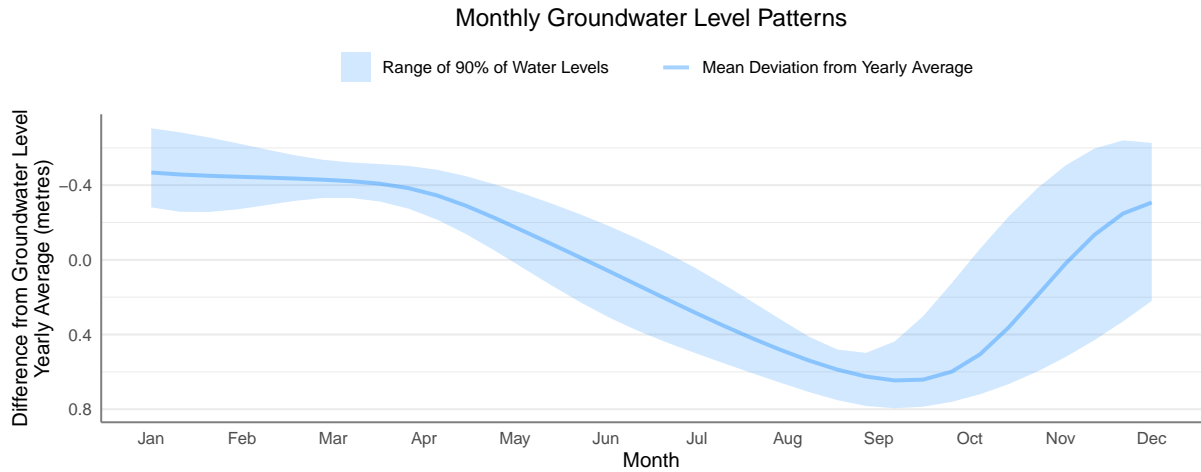
Aquifer Number: 172 **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 369

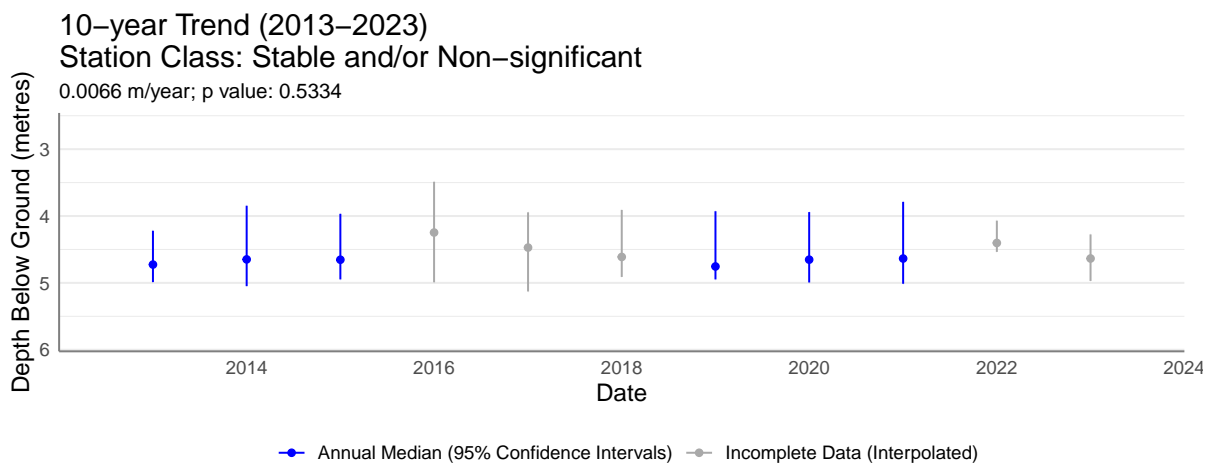
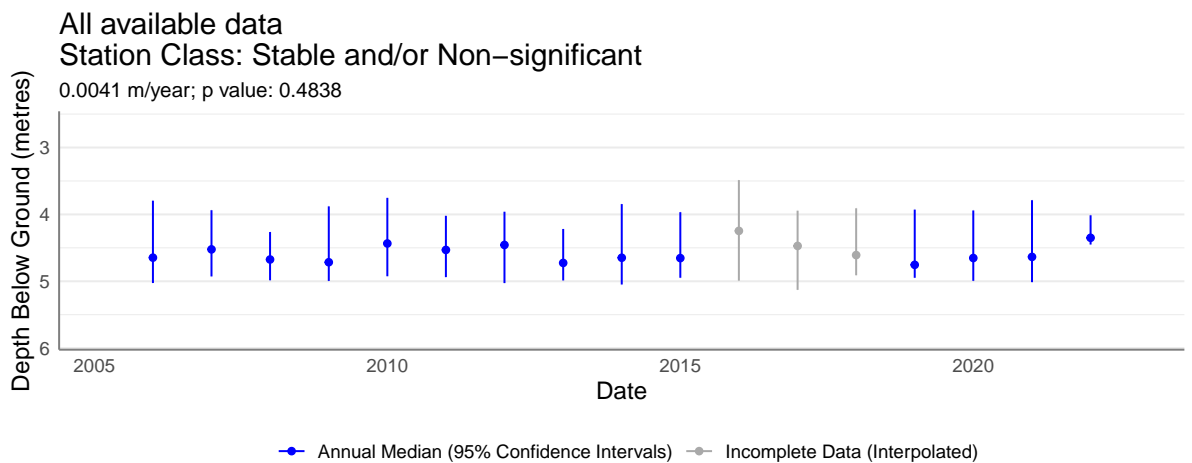
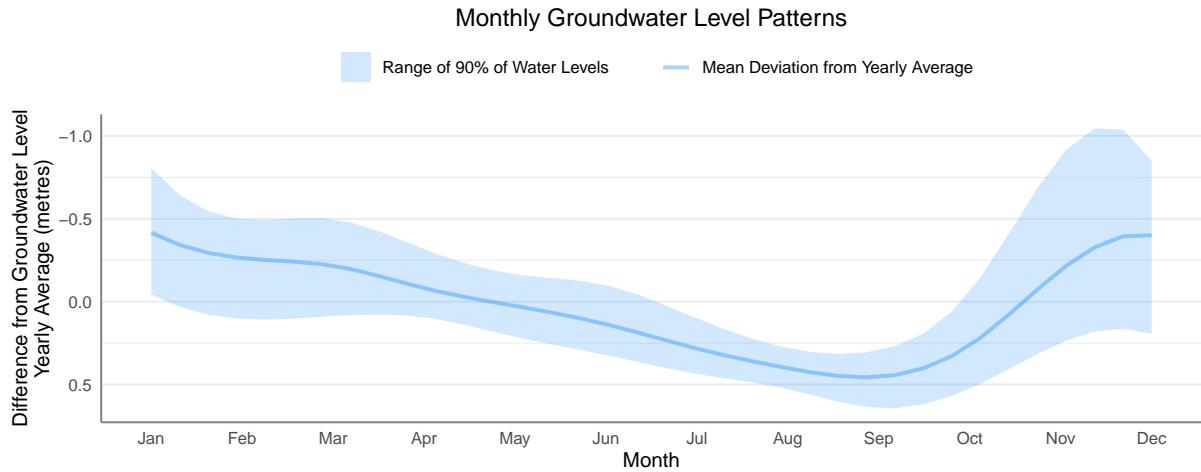
Aquifer Number: NA **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 371

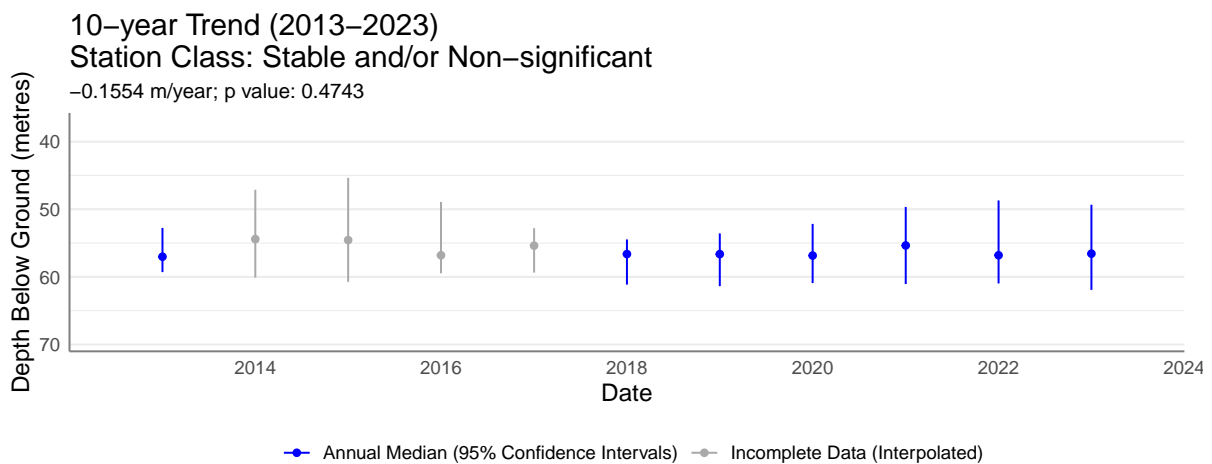
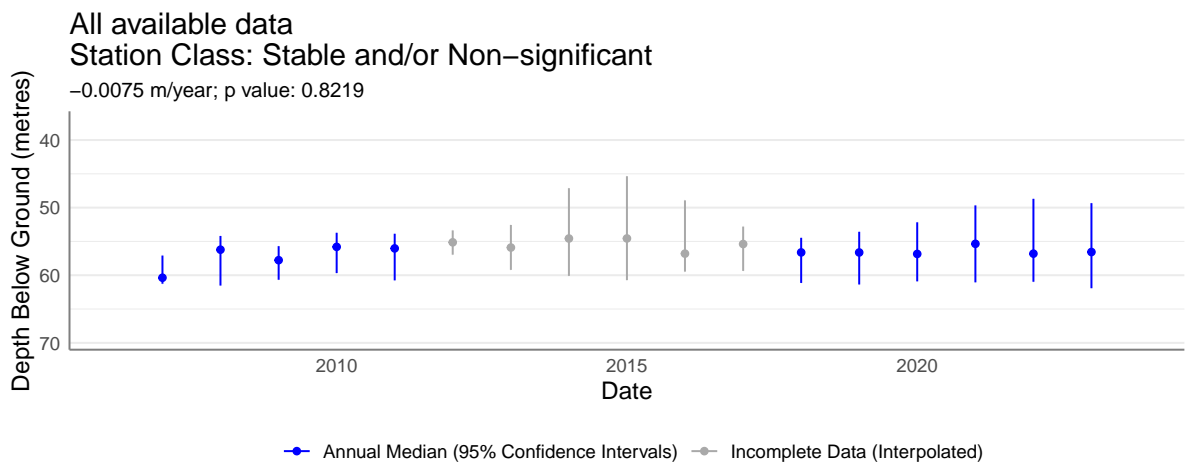
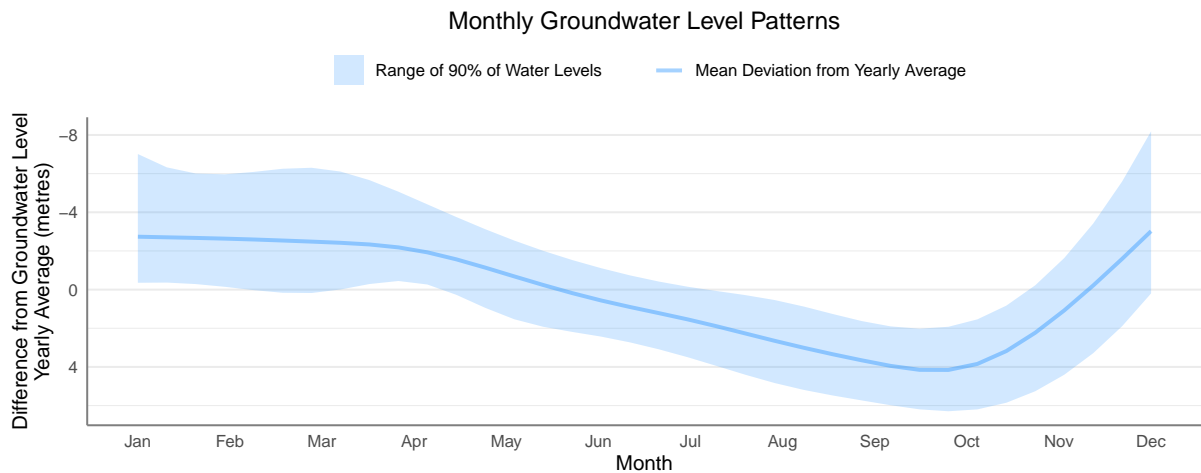
Aquifer Number: 415 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 372

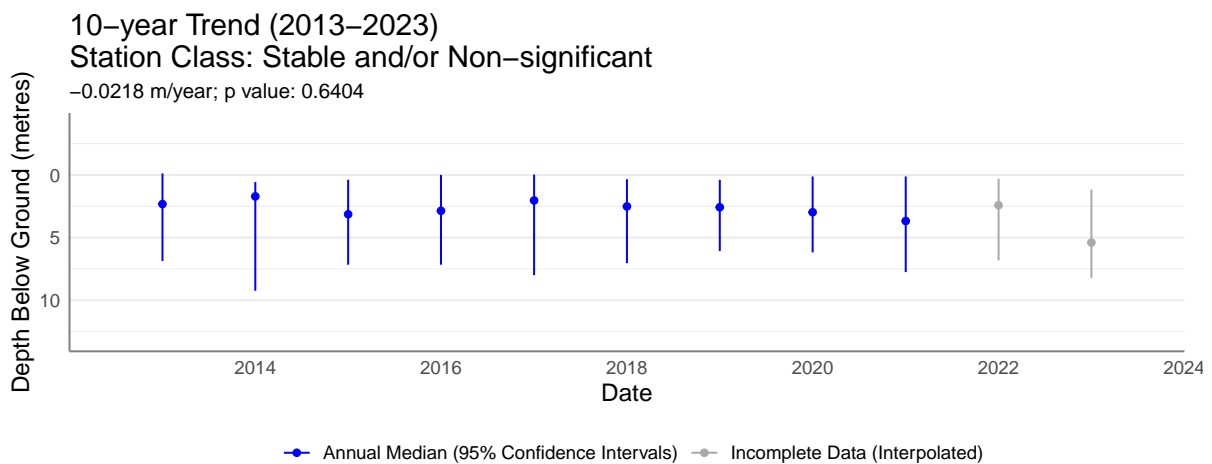
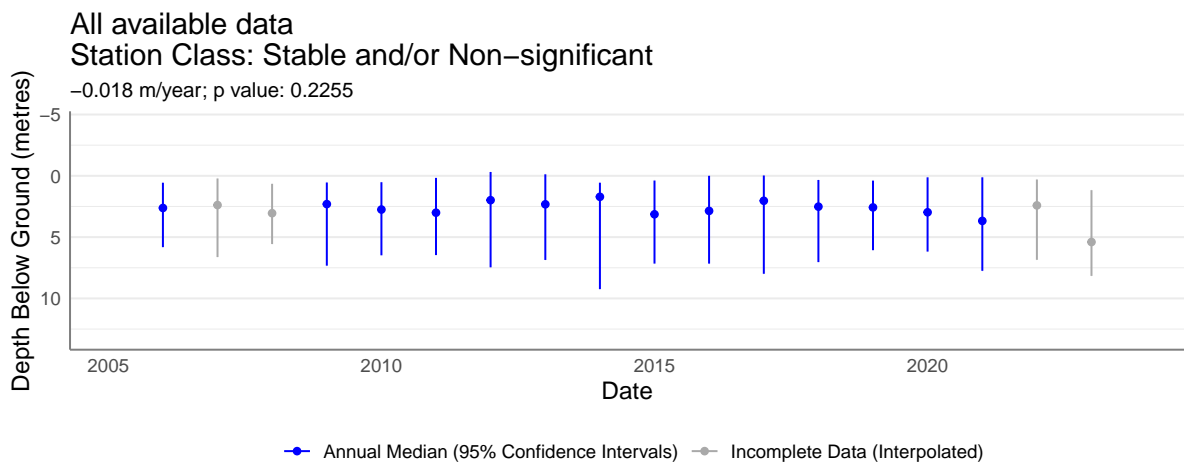
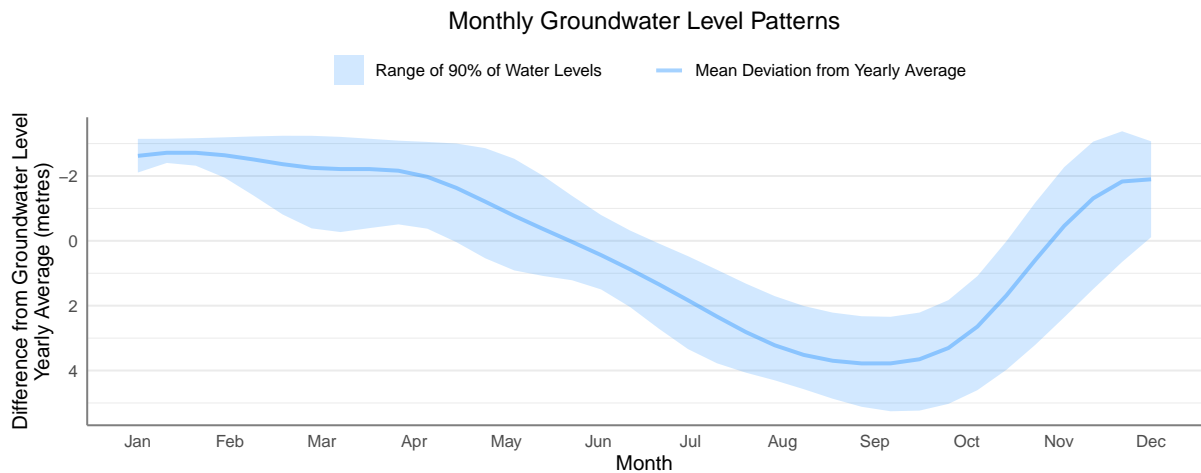
Aquifer Number: 680 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 373

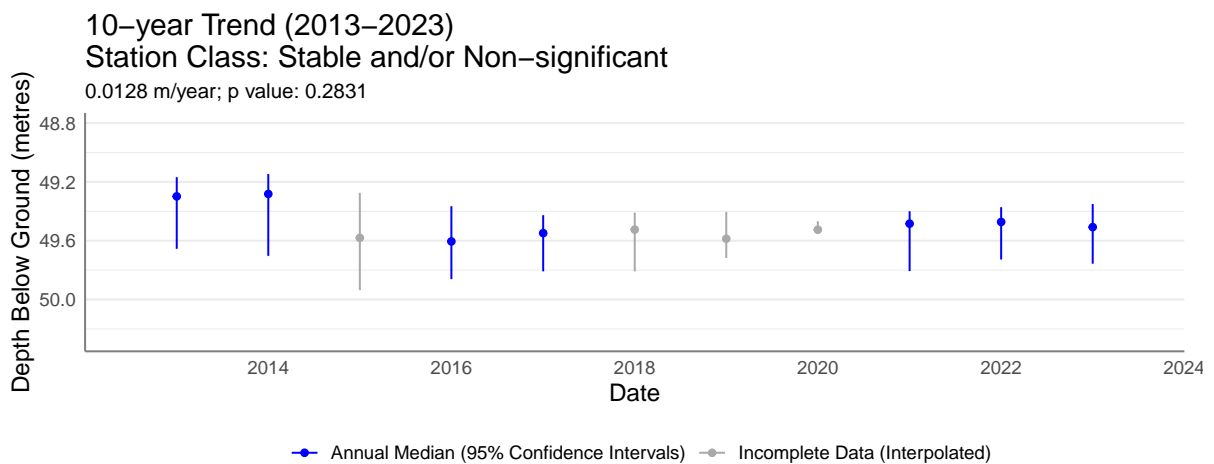
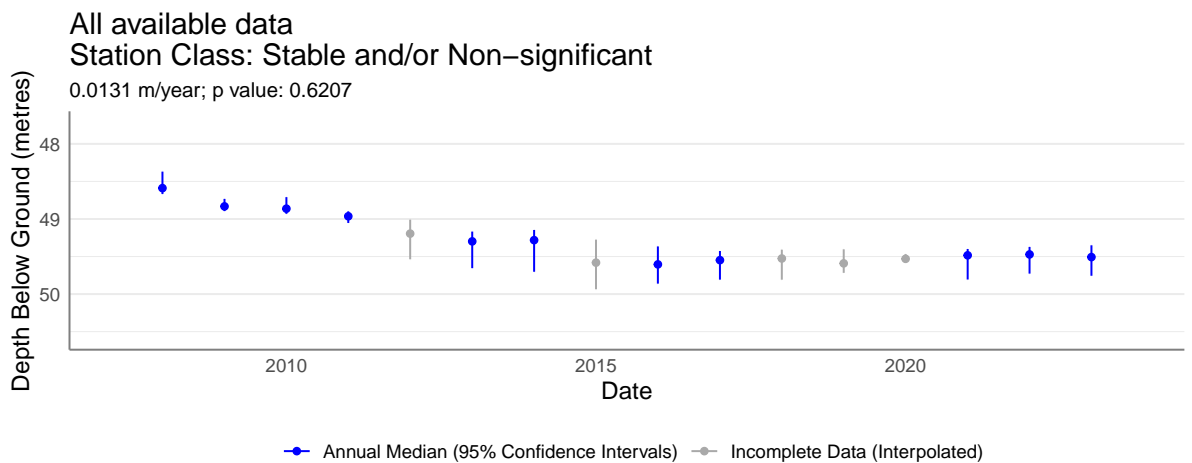
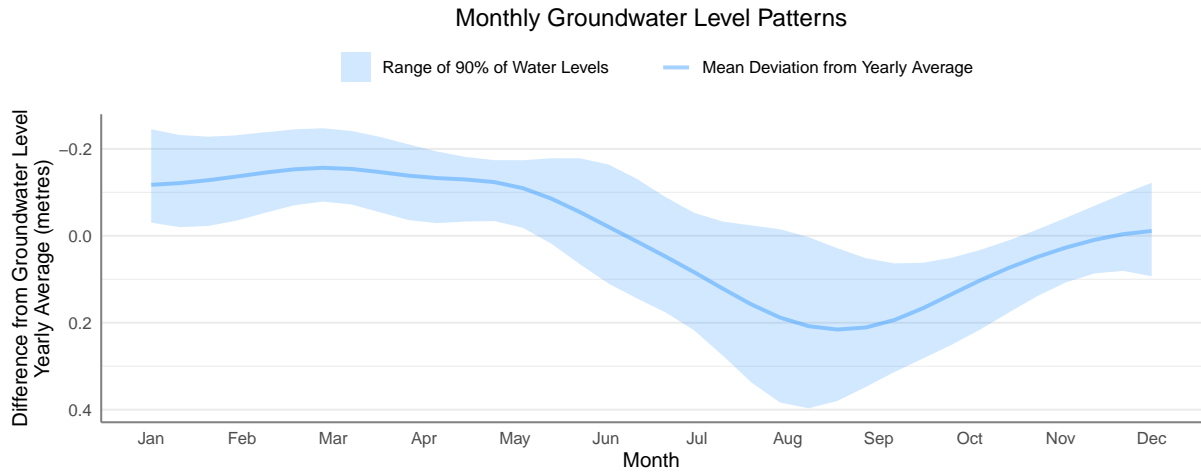
Aquifer Number: 722 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 383

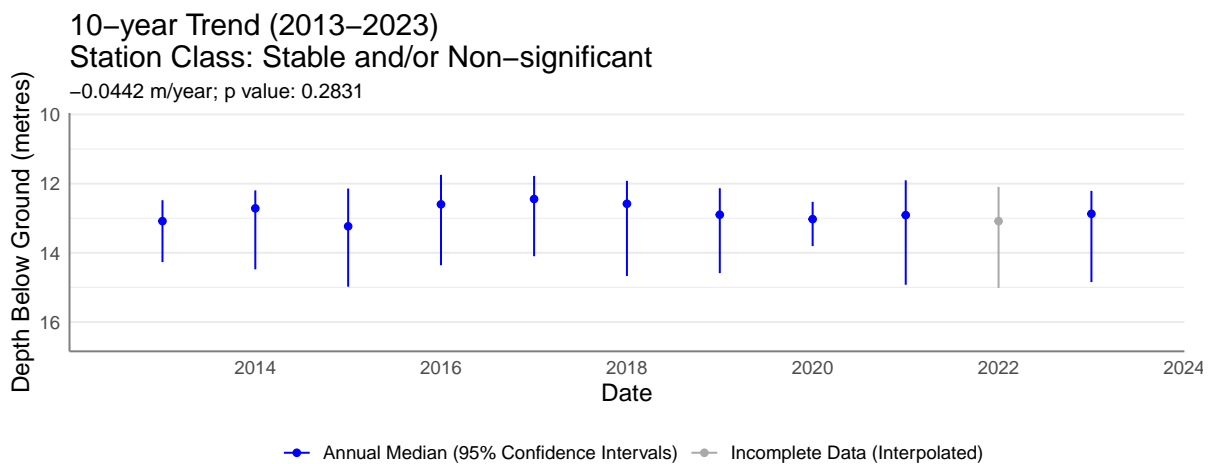
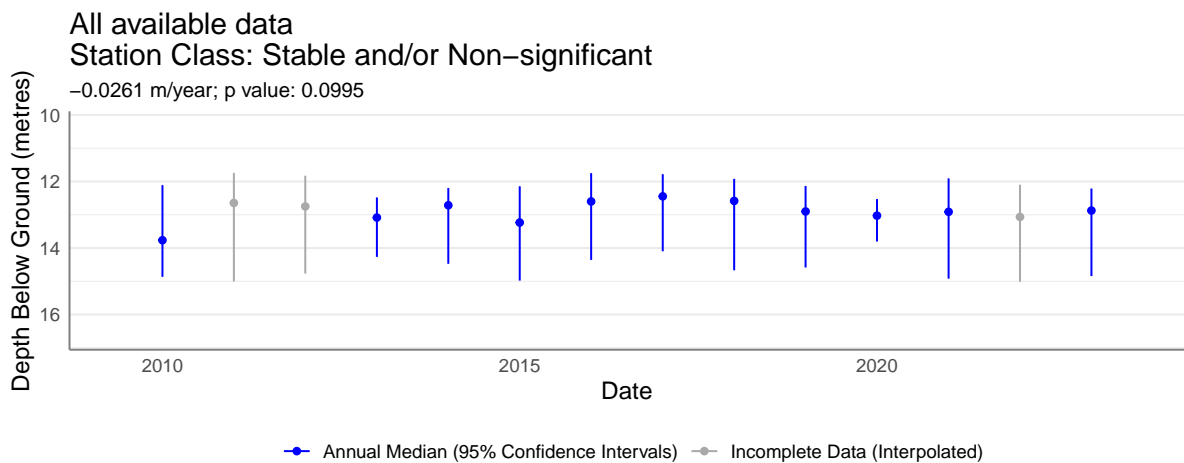
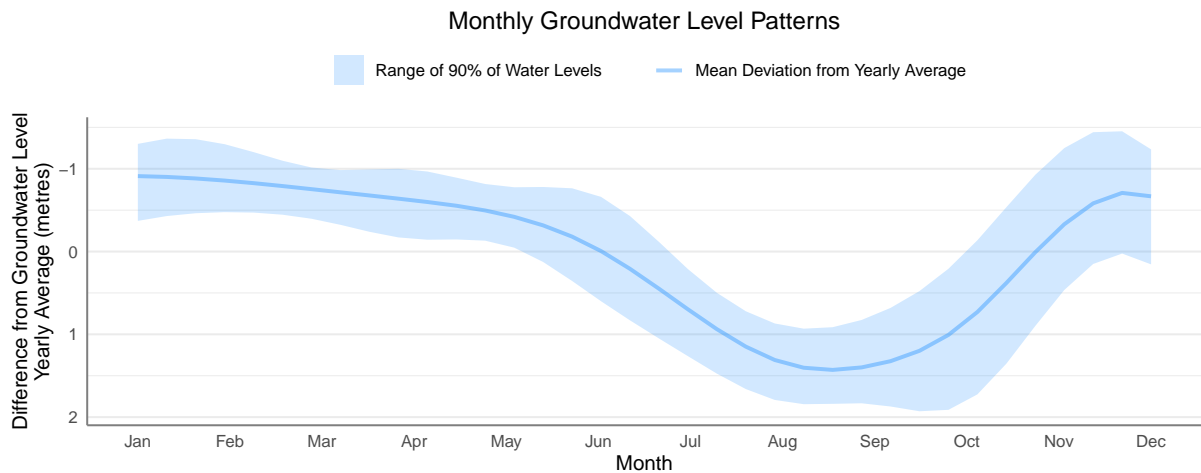
Aquifer Number: 751 **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 385

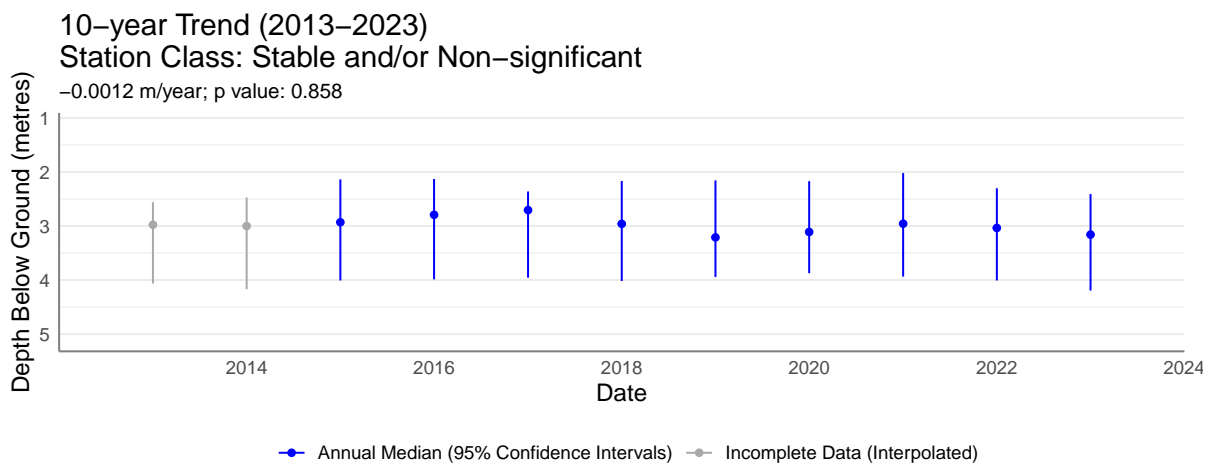
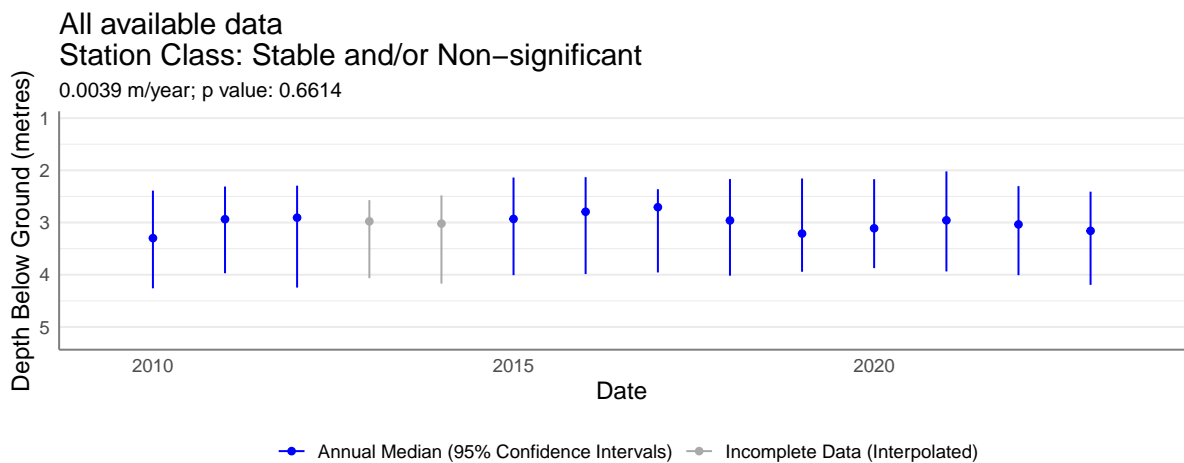
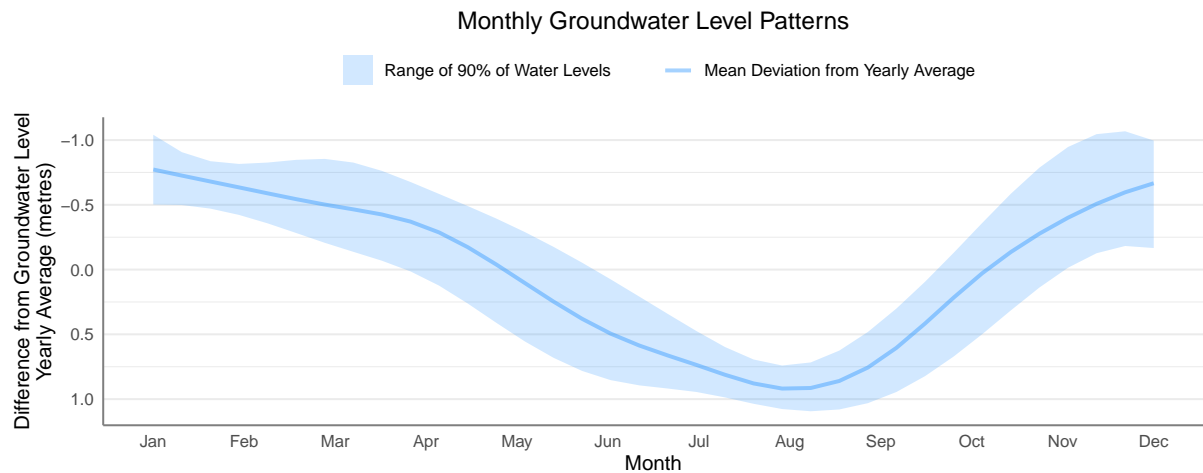
Aquifer Number: 709 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 389

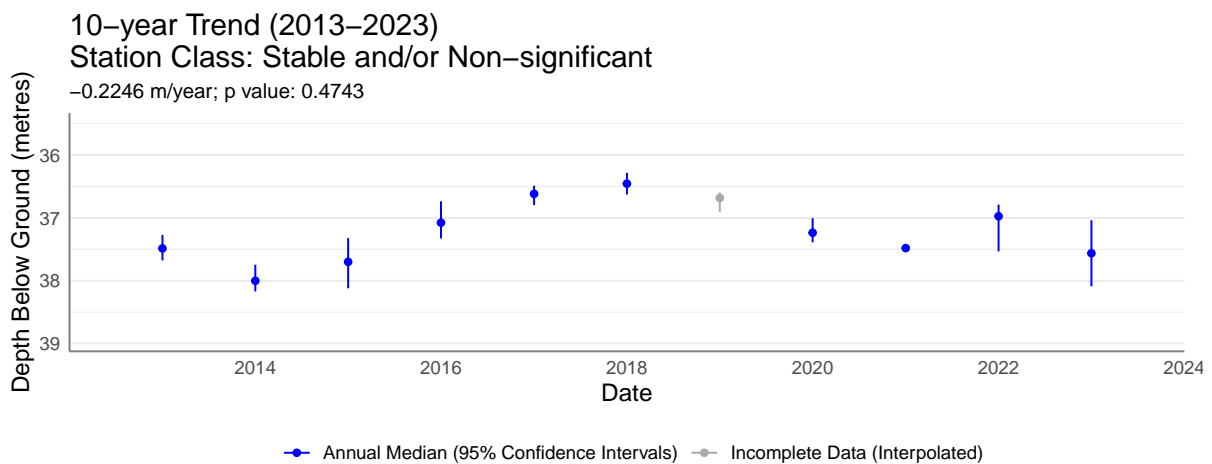
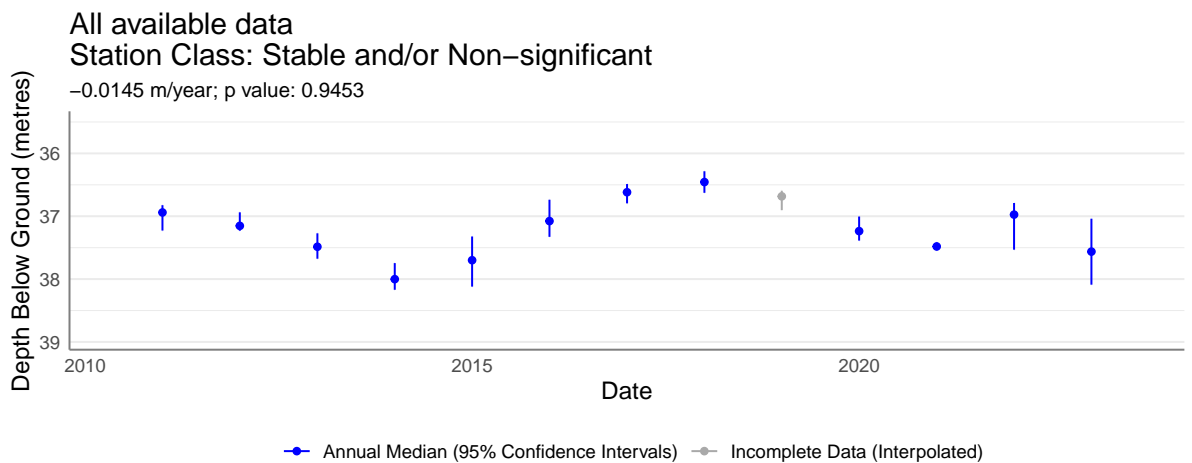
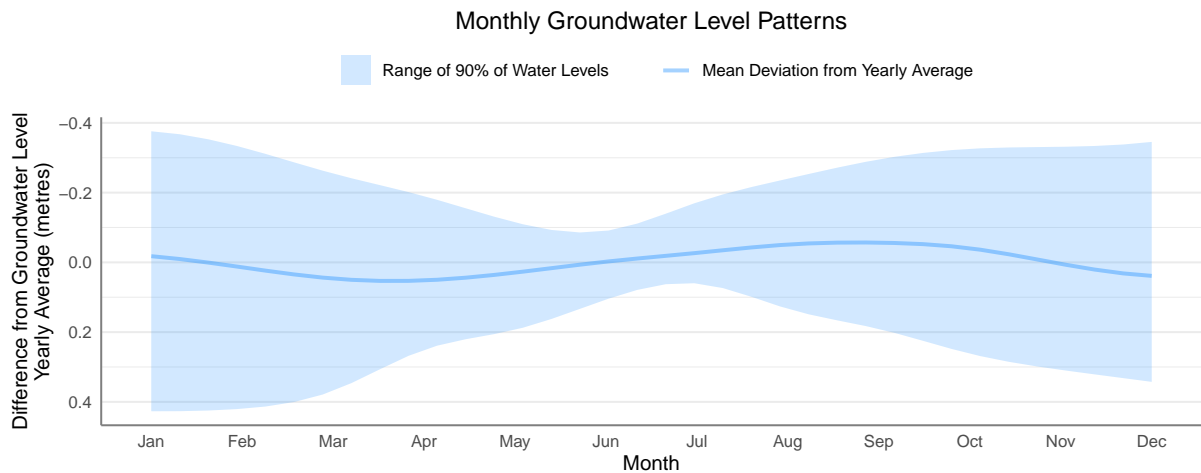
Aquifer Number: 664 **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 391

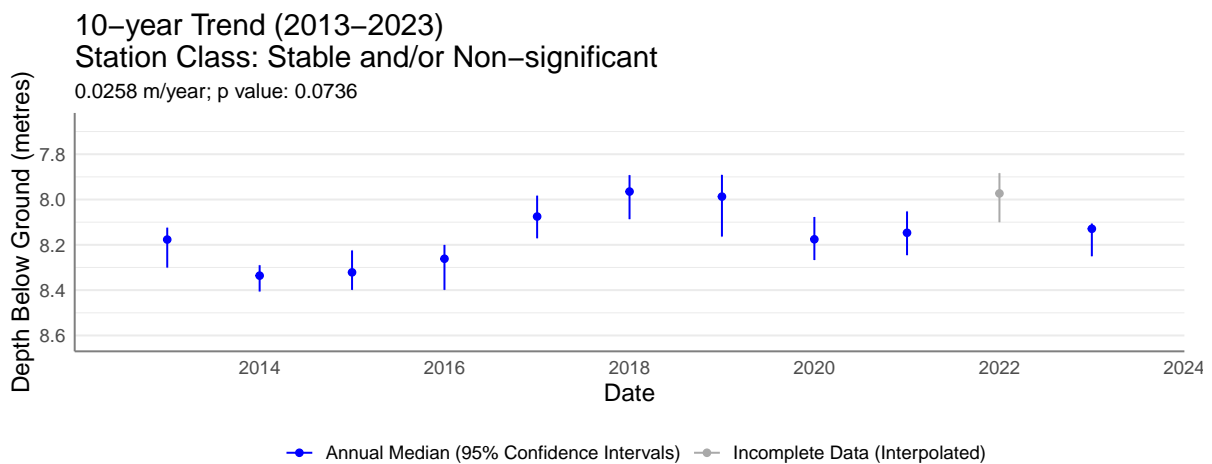
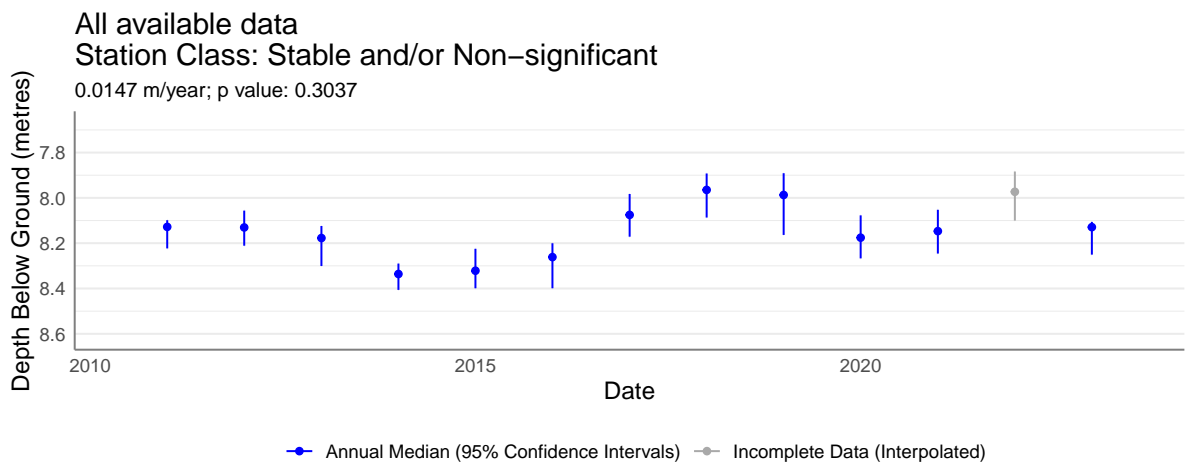
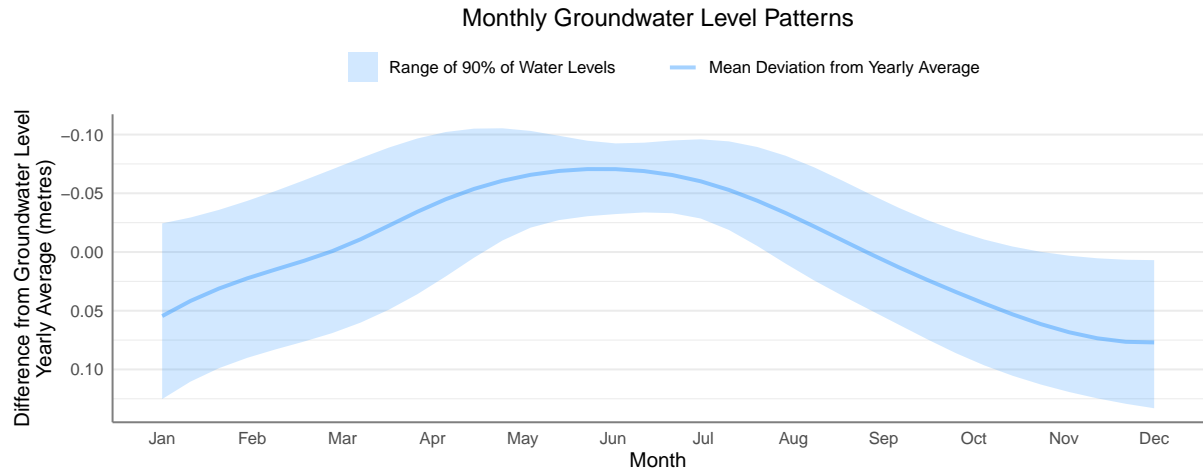
Aquifer Number: 662 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 393

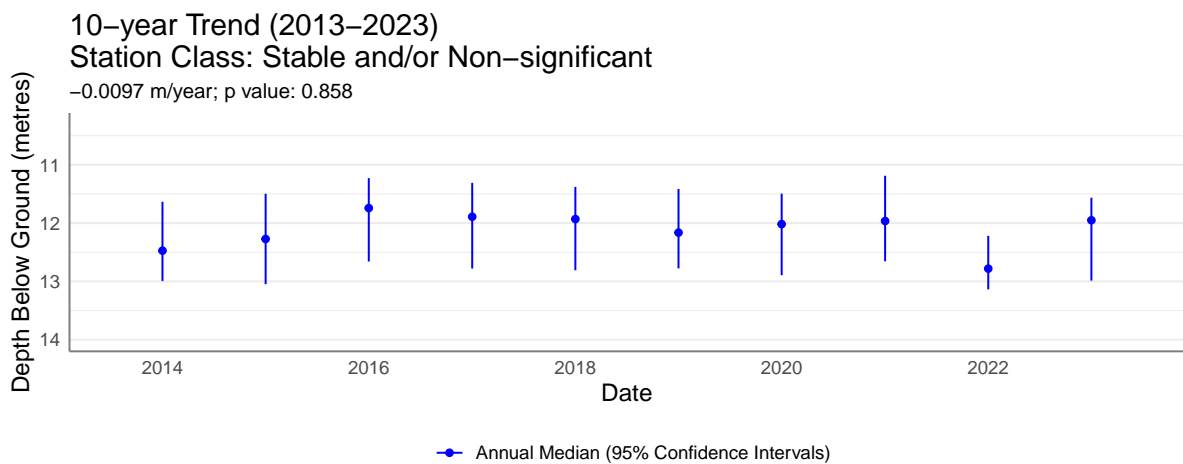
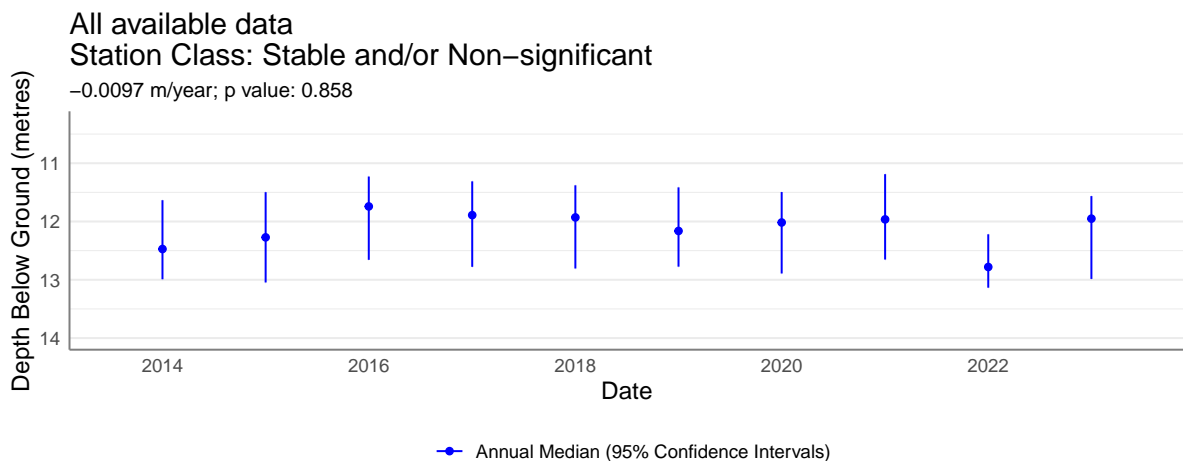
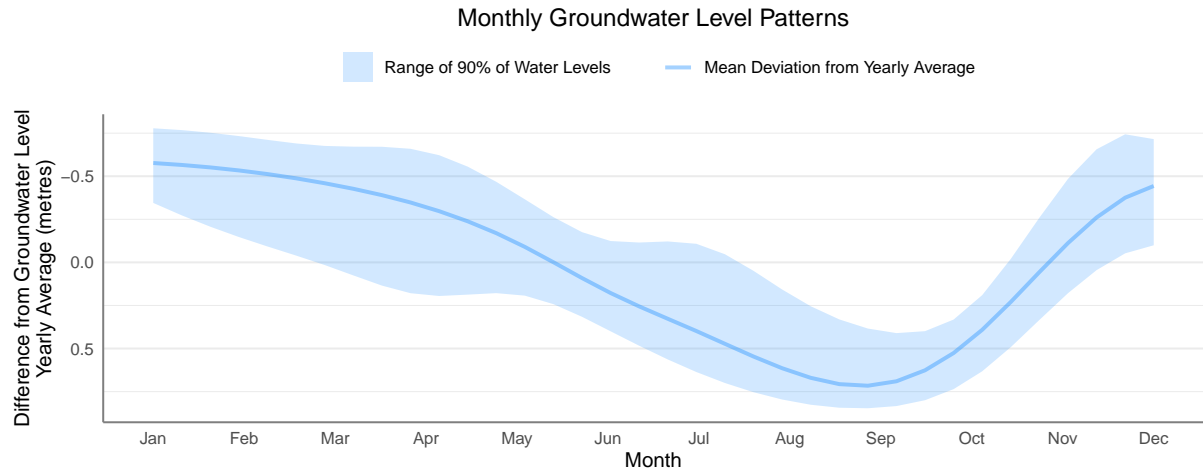
Aquifer Number: 219 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 394

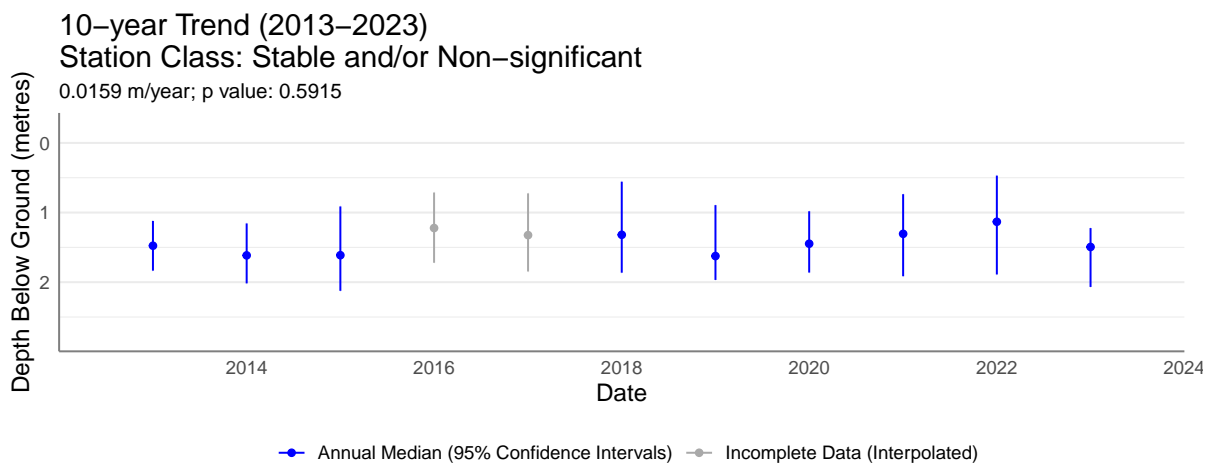
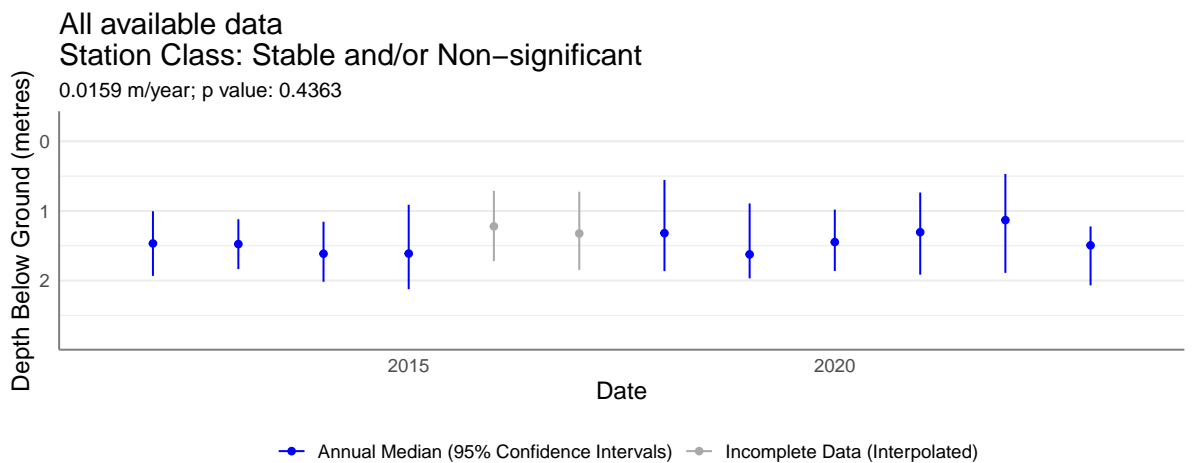
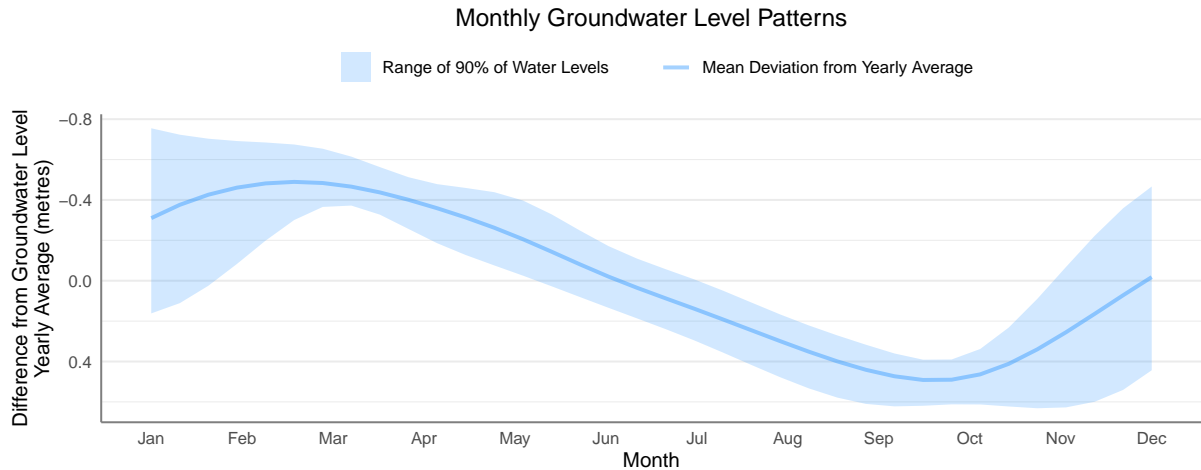
Aquifer Number: 218 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 396

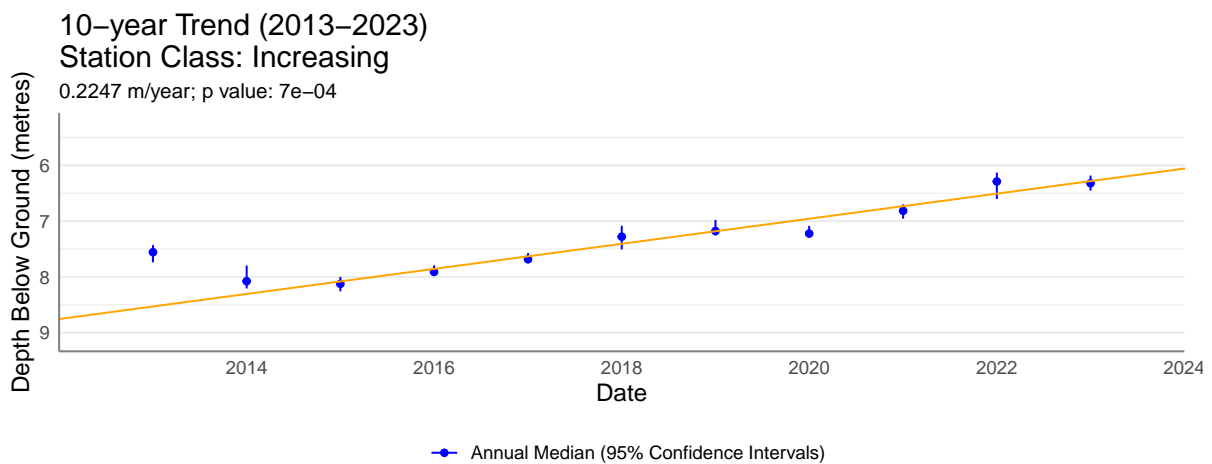
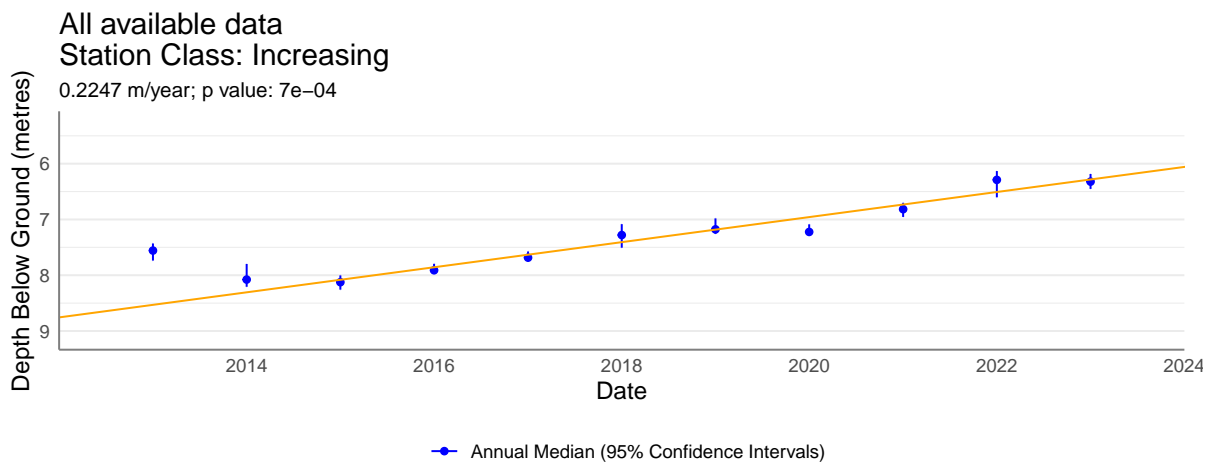
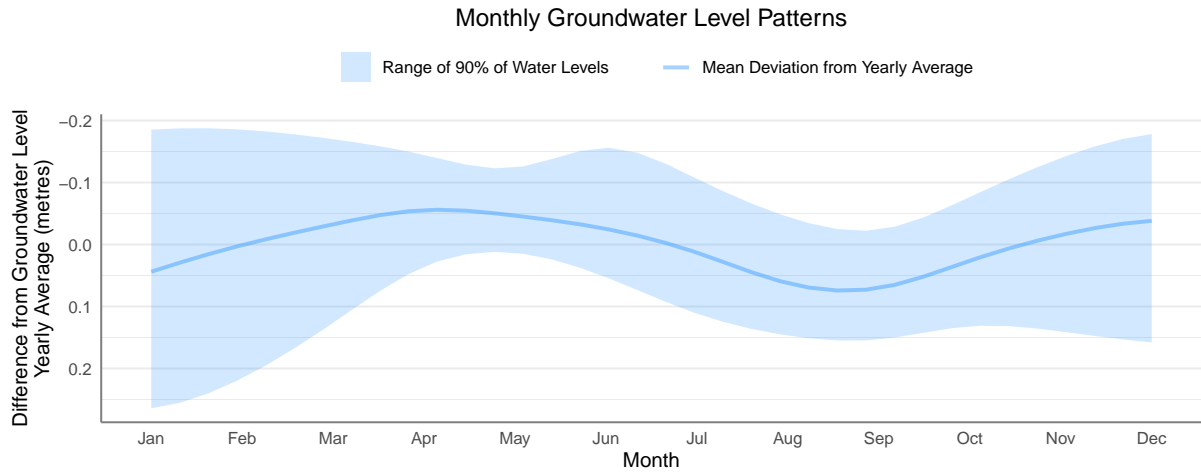
Aquifer Number: 219 Aquifer Type: Unknown



Region: West Coast

Observation Well Number: 398

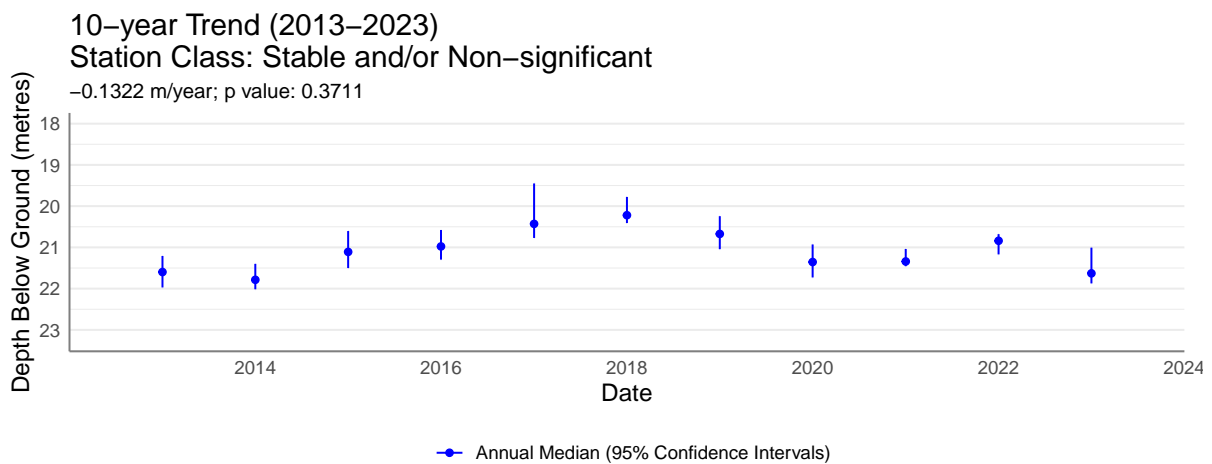
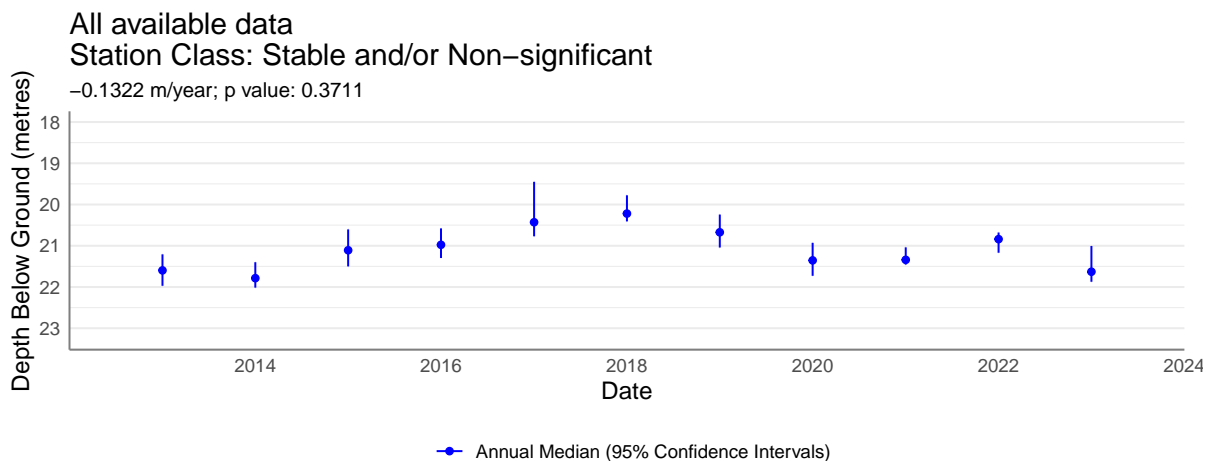
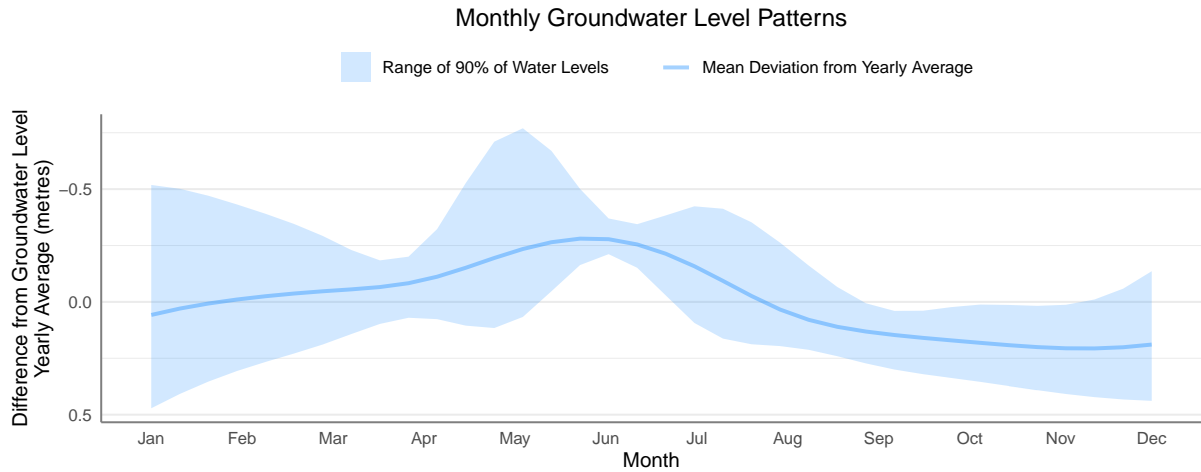
Aquifer Number: 216 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 424

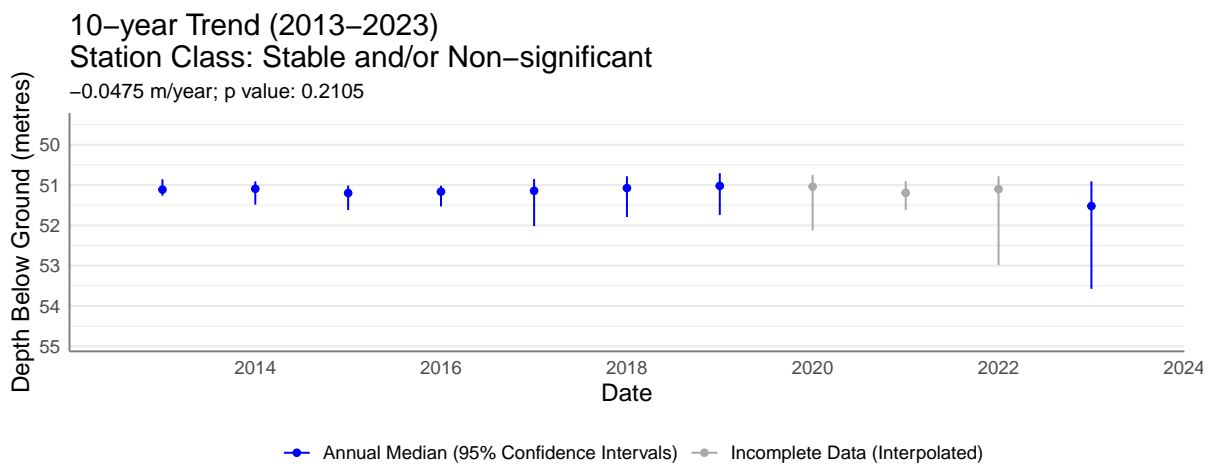
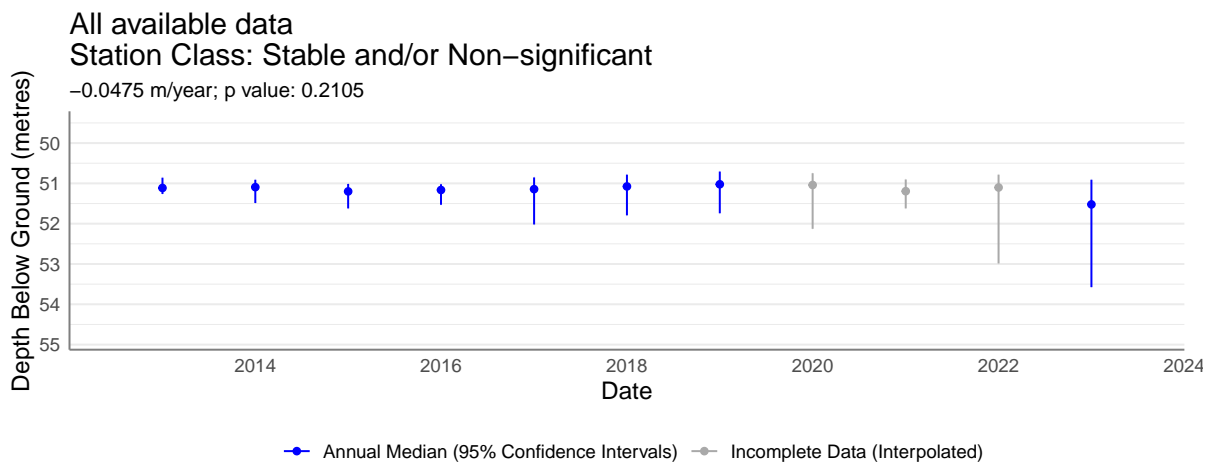
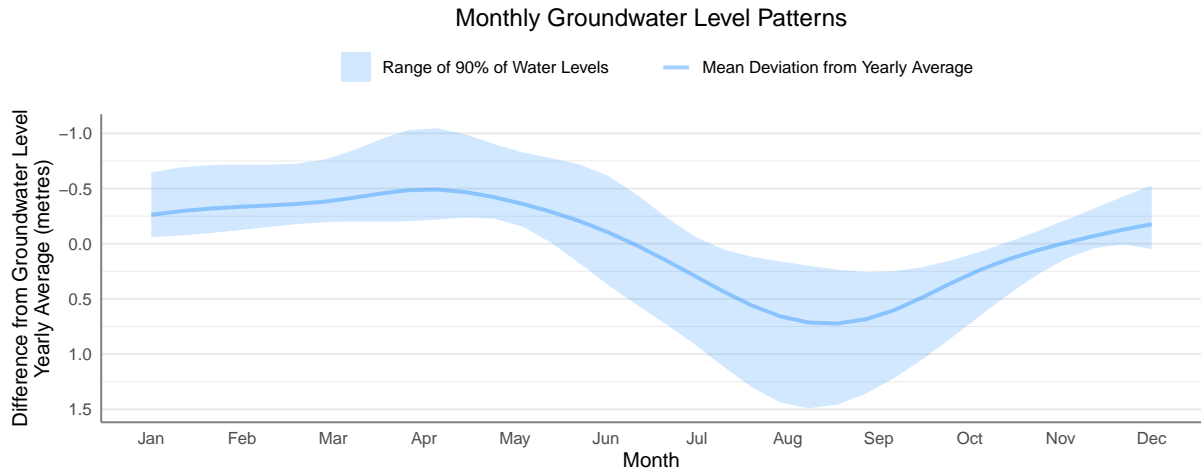
Aquifer Number: 1250 **Aquifer Type:** Sand and Gravel



Region: West Coast

Observation Well Number: 425

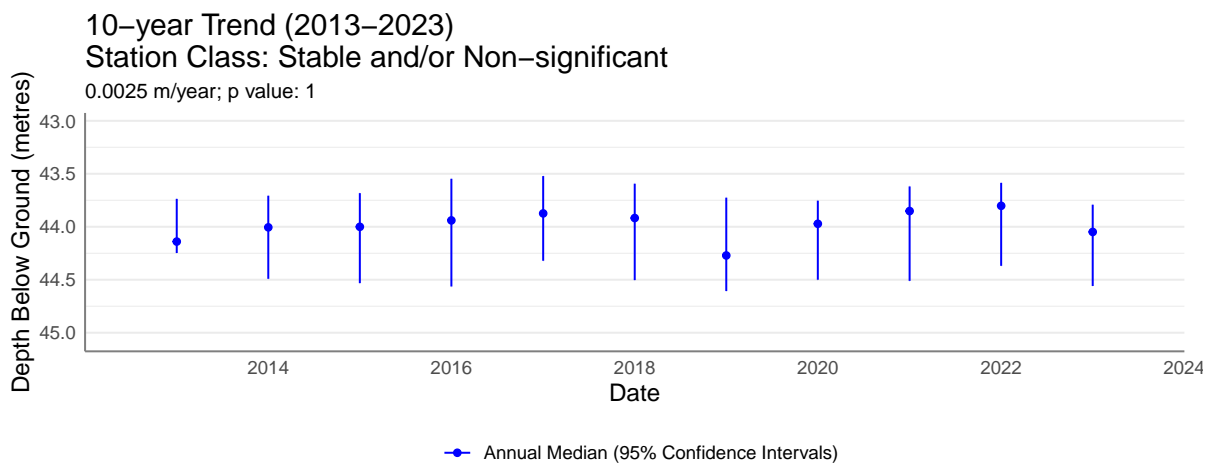
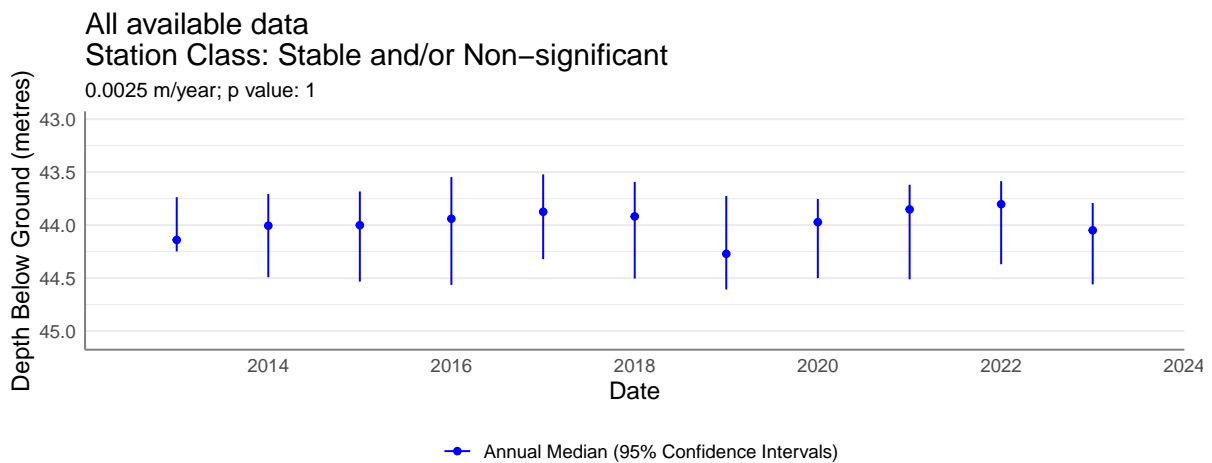
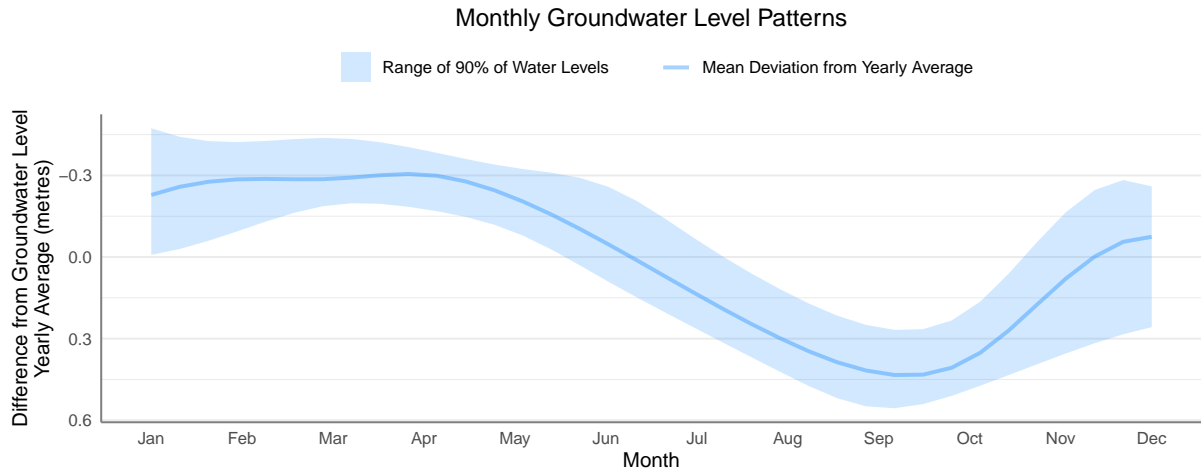
Aquifer Number: 1251 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 428

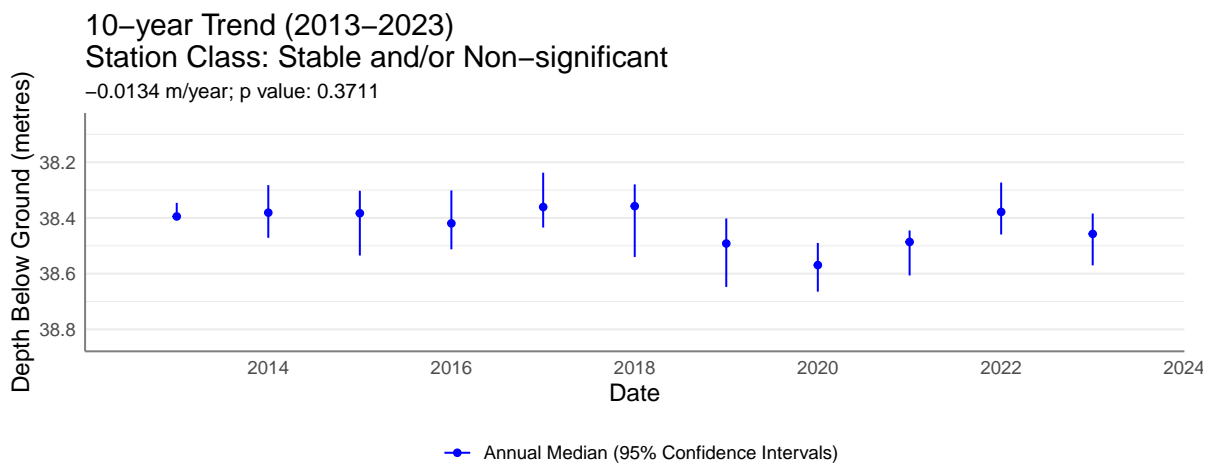
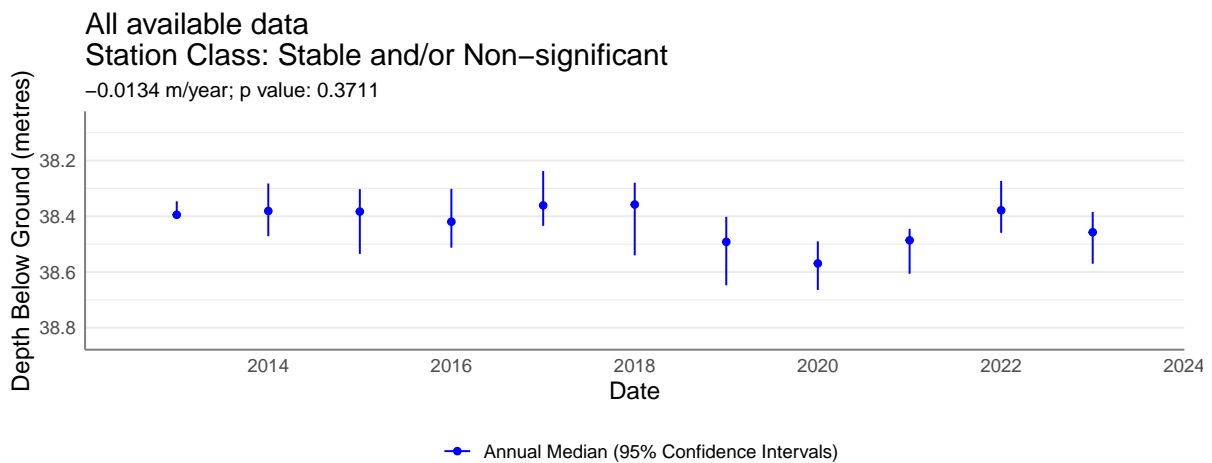
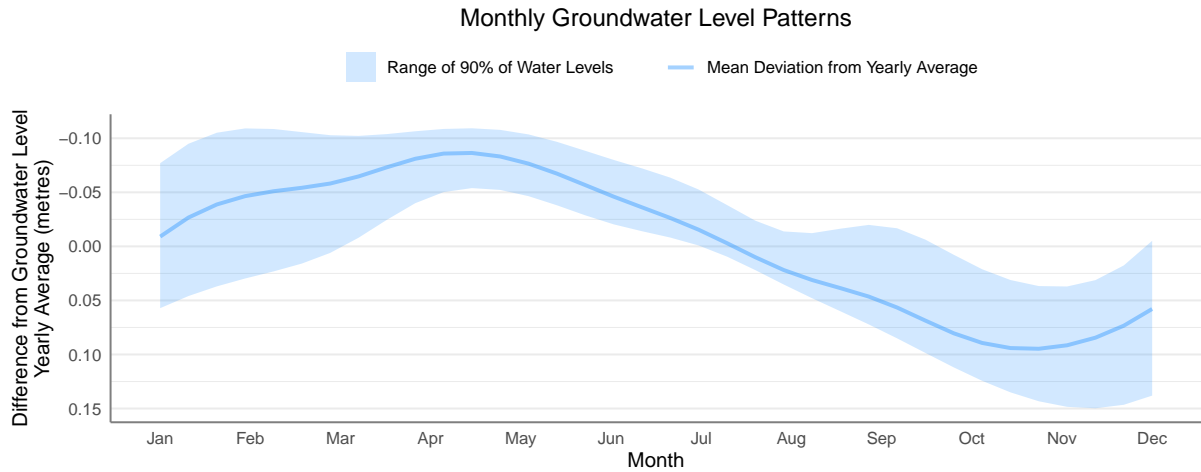
Aquifer Number: 1287 **Aquifer Type:** Bedrock



Region: West Coast

Observation Well Number: 429

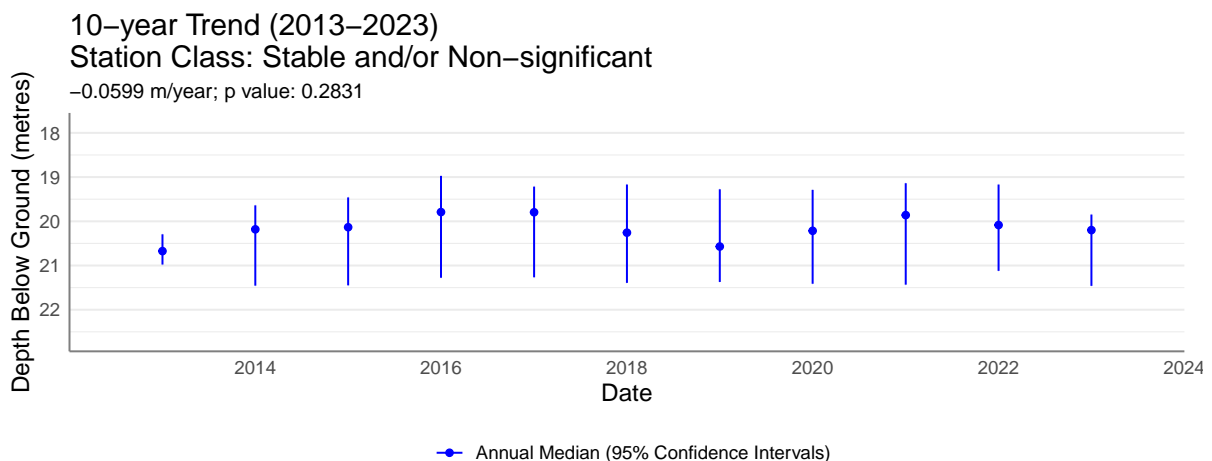
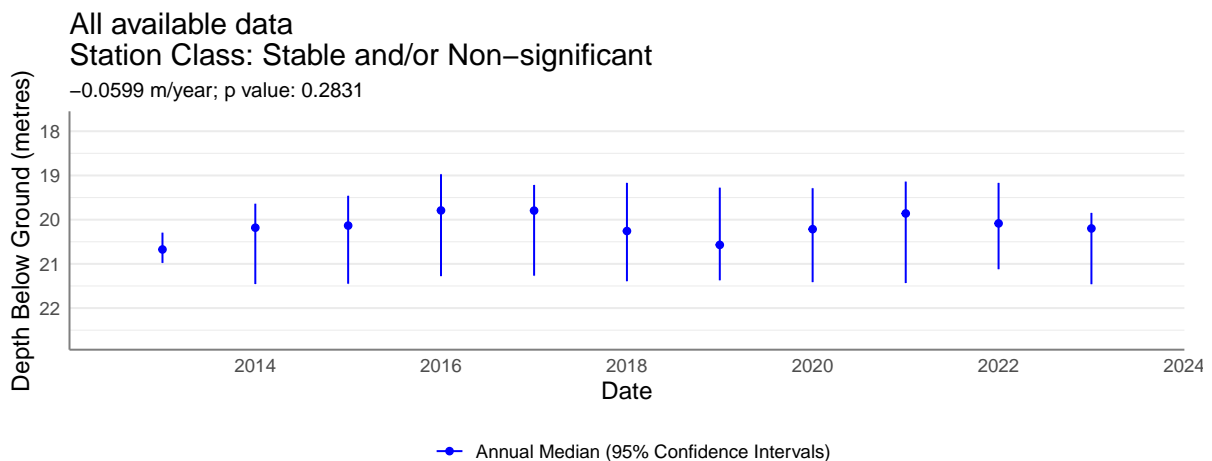
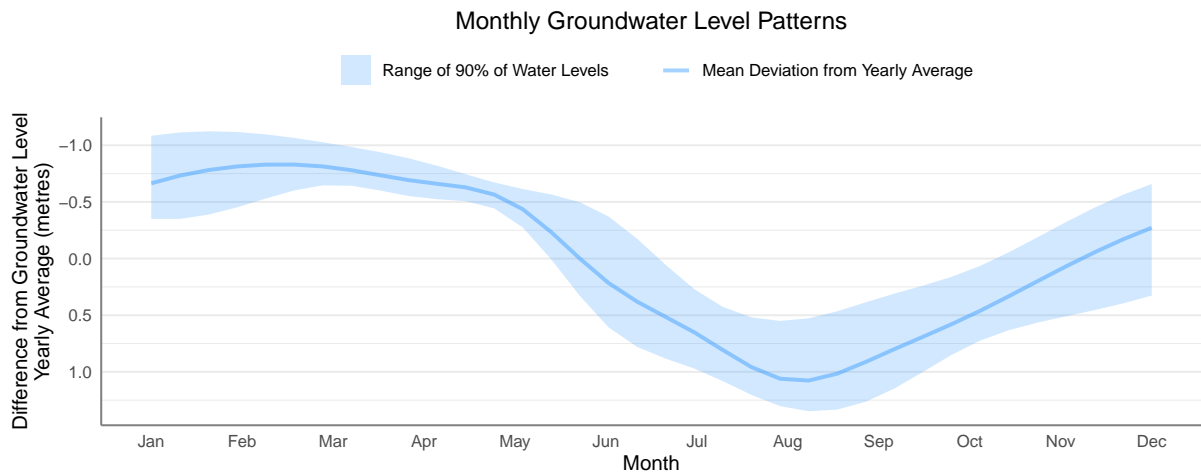
Aquifer Number: 178 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 430

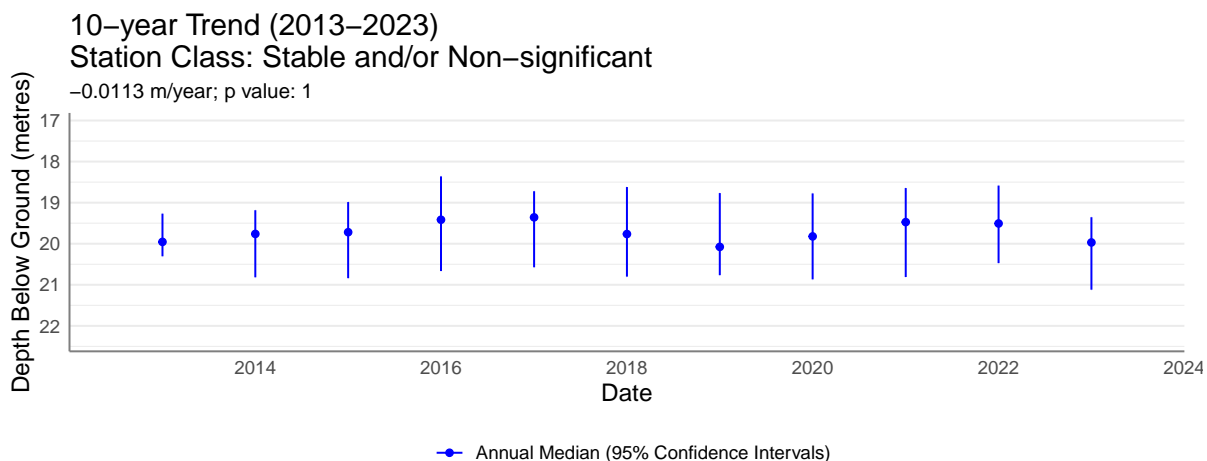
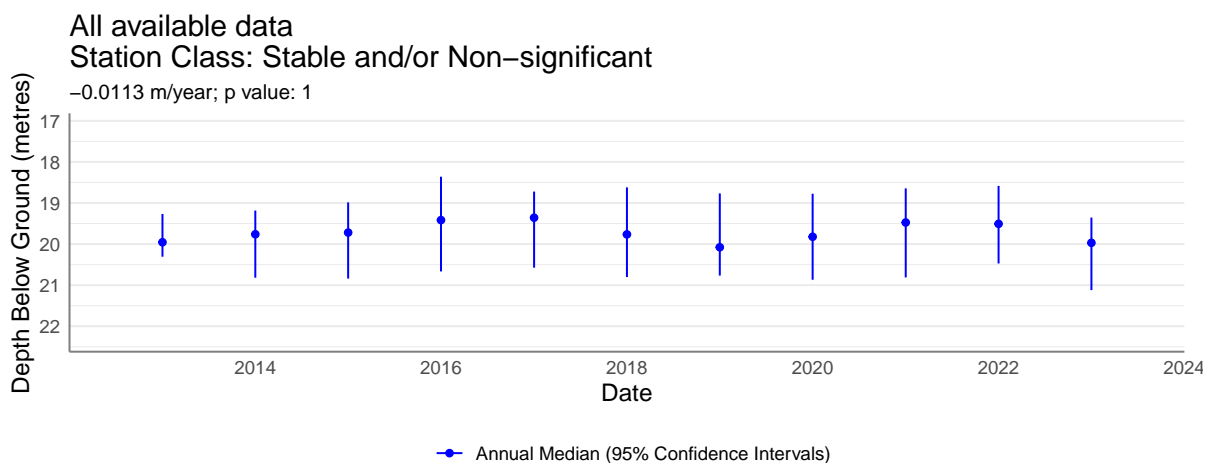
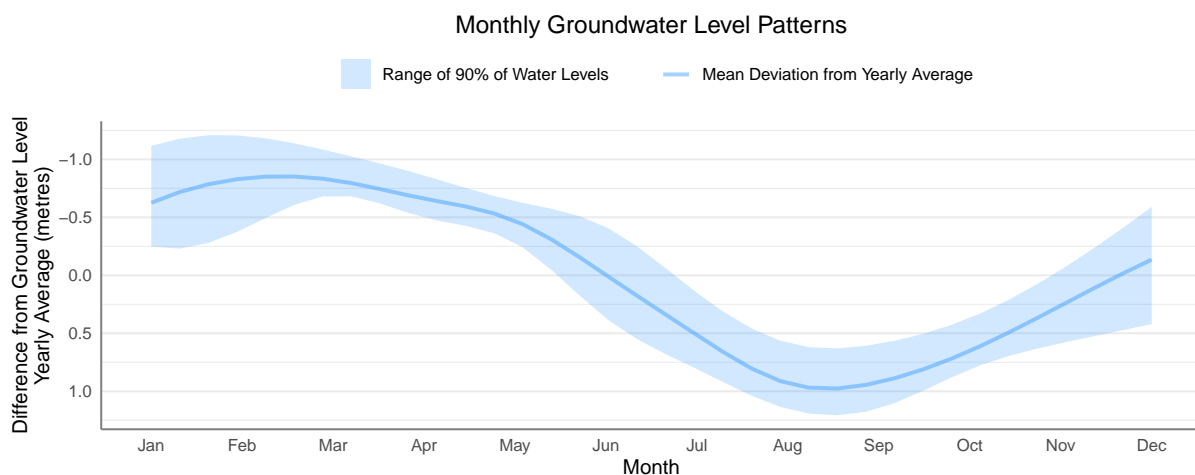
Aquifer Number: 198 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 431

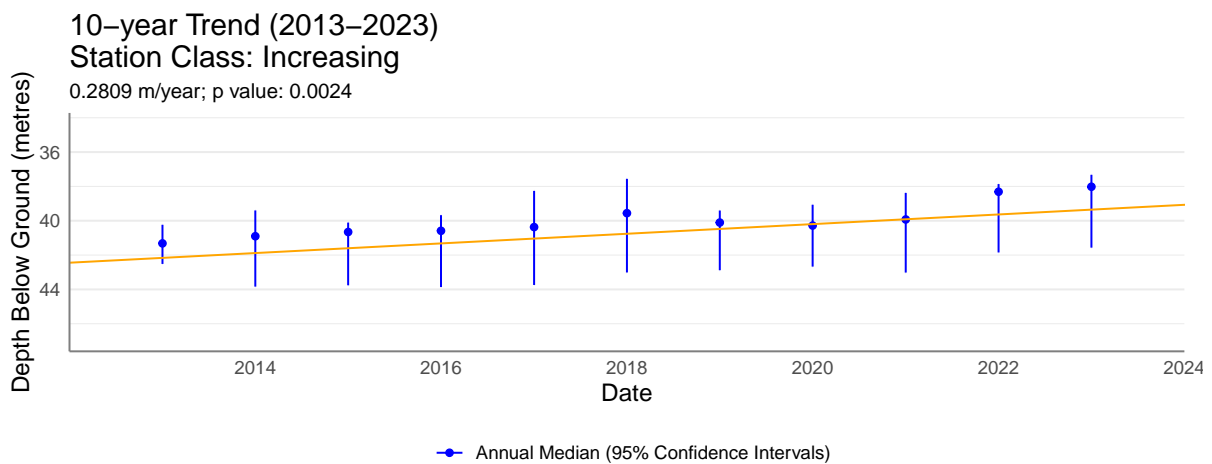
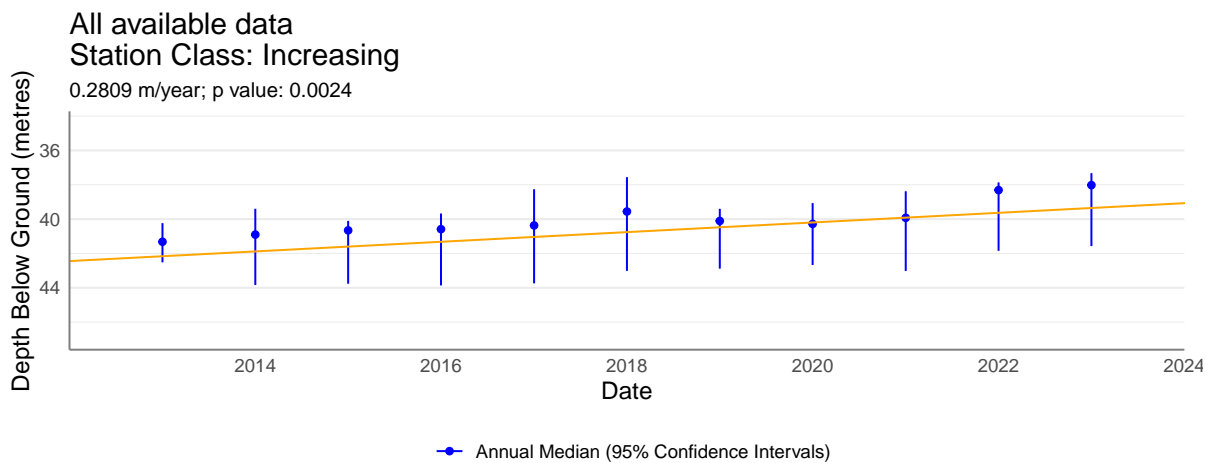
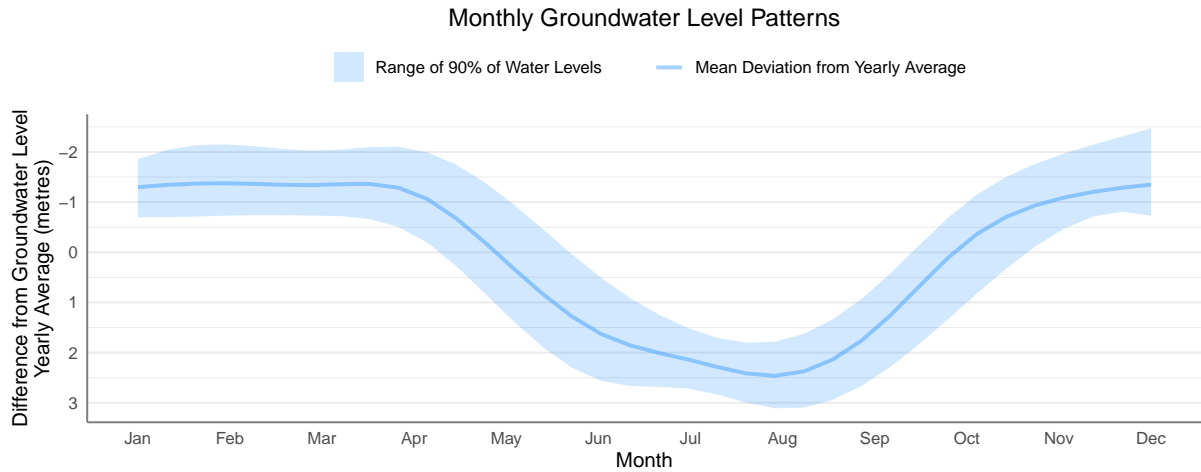
Aquifer Number: 199 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 433

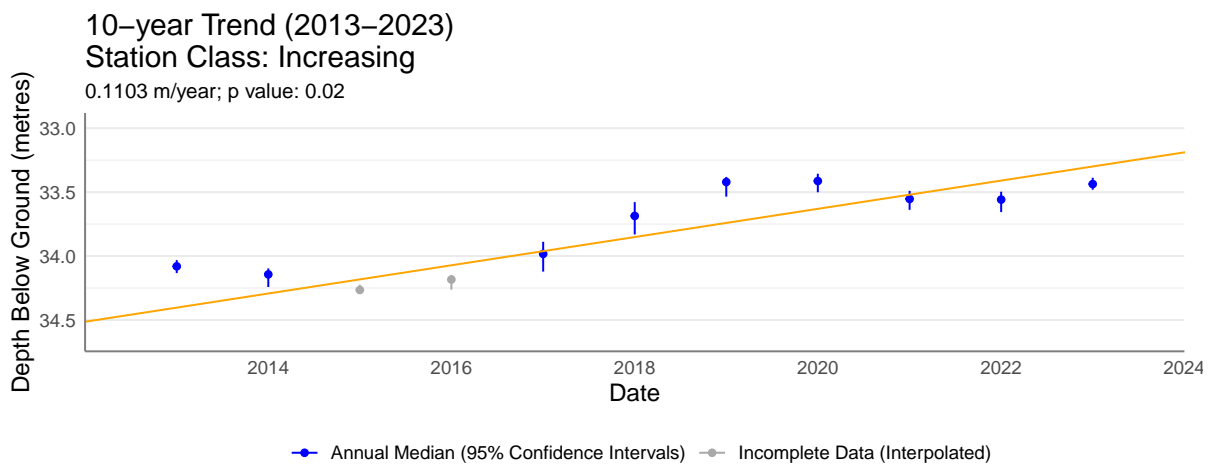
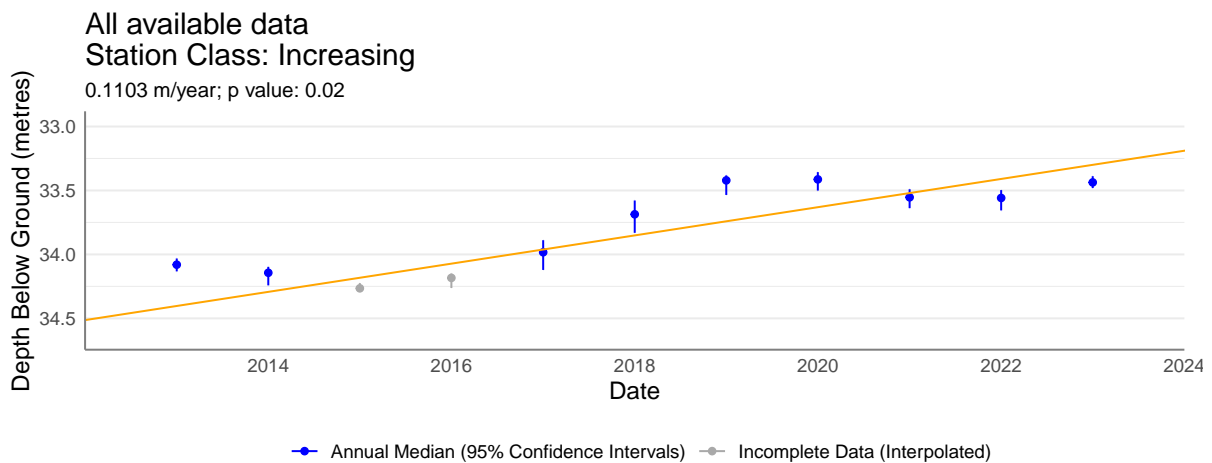
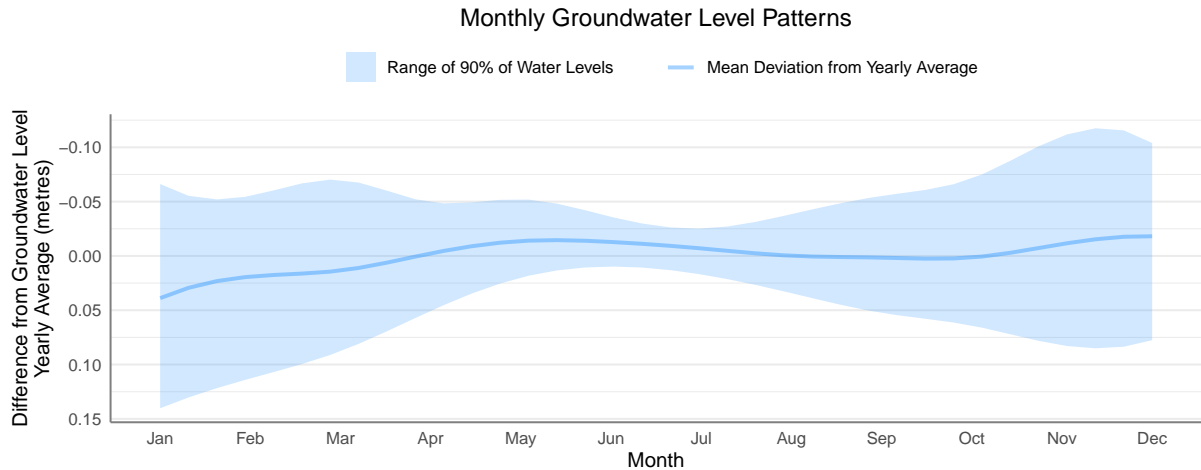
Aquifer Number: 1250 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 434

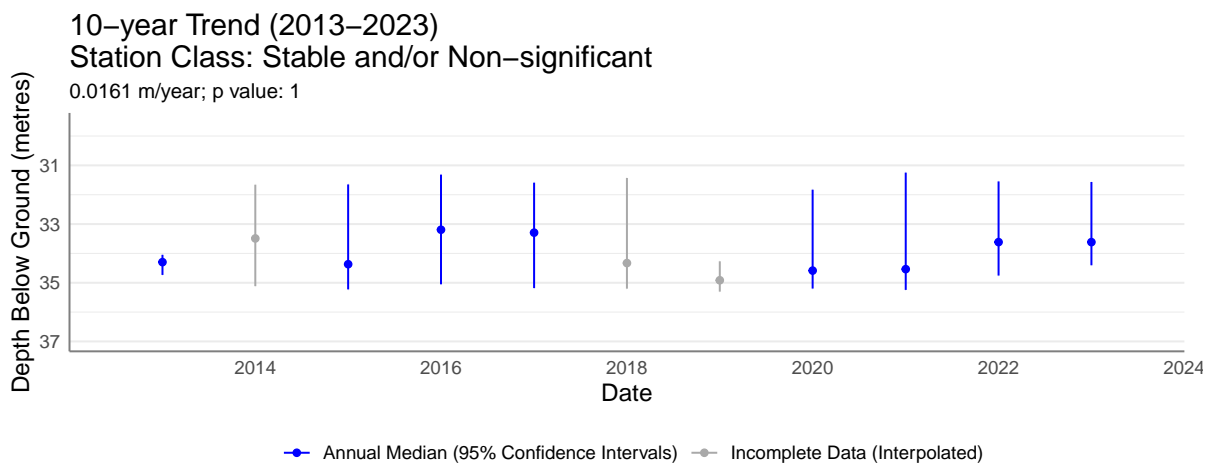
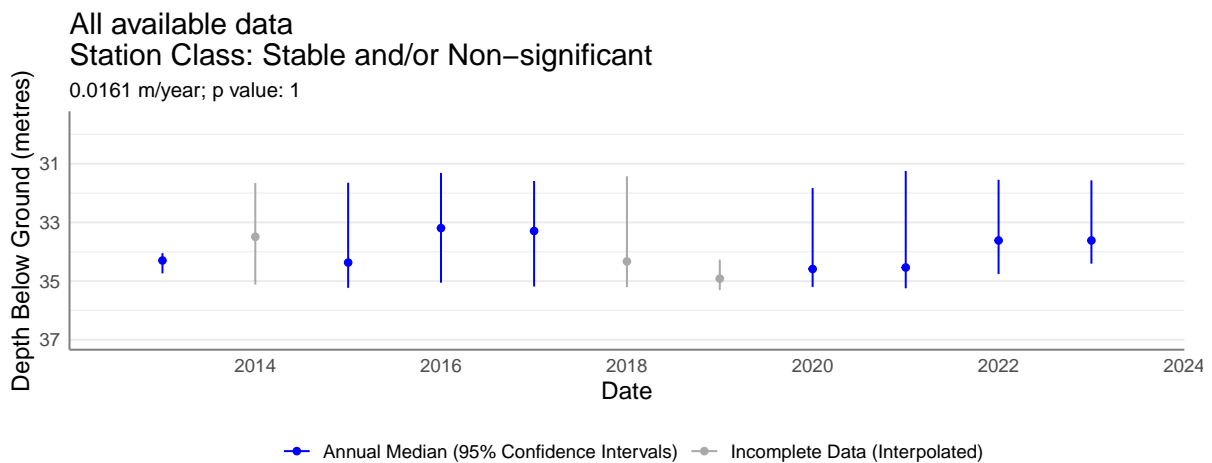
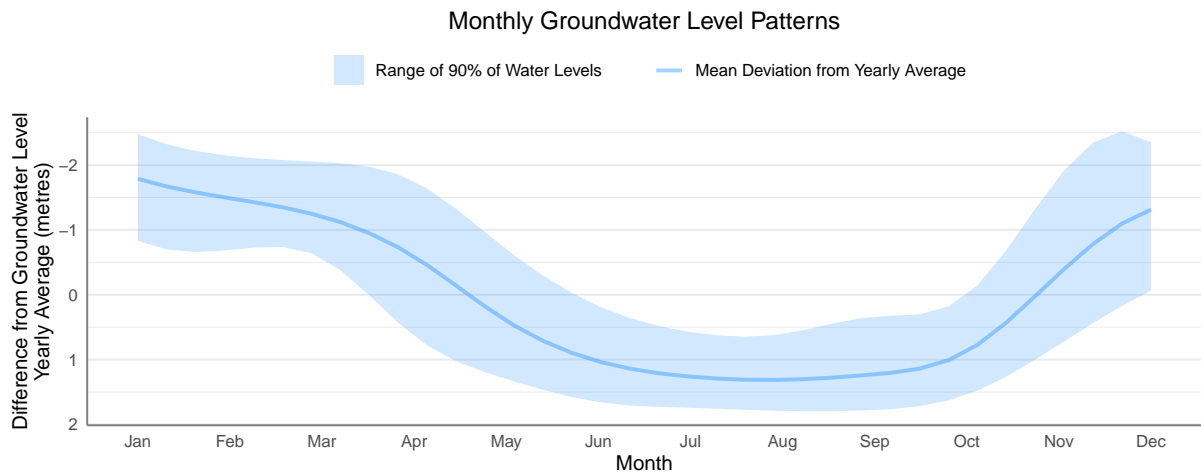
Aquifer Number: 217 Aquifer Type: Sand and Gravel



Region: West Coast

Observation Well Number: 435

Aquifer Number: 165 Aquifer Type: Bedrock



Region: West Coast

Observation Well Number: 438

Aquifer Number: 721 Aquifer Type: Bedrock

