Two Winters at Pharo Place

What thirteen months of water monitoring shows about Cole Creek flooding

Prepared for the Cole Creek community, colecreekflooding.com
Monitoring data: O'Connor Environmental, Inc., with the California State Water Resources Control Board and Big Valley Rancheria.
Rainfall data: CoCoRaHS station CA-LK-21, Kelseyville 2.8 NNE.

July 14, 2026

Executive summary

Since January 29, 2025, two sensors on the pasture at Pharo Place in Kelseyville have recorded water conditions every 15 minutes: one measuring standing water on the pasture, one measuring groundwater in an unused well. O'Connor Environmental, Inc. maintains the equipment as part of a monitoring effort involving the California State Water Resources Control Board and Big Valley Rancheria, and delivered the first full dataset in July 2026, covering January 29, 2025 through March 5, 2026. Combined with daily rainfall from a community weather station 300 feet away, the record tells a clear story:

- In 2025 the pasture was a lake. Standing water covered it for 135 consecutive days, from before the sensors went in on January 29 until June 12. The water reached 2.31 ft deep on February 15 and stayed at 2 ft or more for 31 days. It was still a foot deep on May 20. By April the water table had risen all the way to the ground surface: the ground itself was full.
- In winter 2026 the water never got past ankle depth. Shallow ponding began around December 25 and persisted through the end of the record, but it peaked at 0.40 ft (about 5 inches) on February 27 and never once reached half a foot.
- Rainfall does not explain the difference by itself. By January 15 of each winter, the rain gauge had recorded an identical 16.0 inches since October 1. The 2024–25 wet season ended up at 97% of the long-term normal, 2025–26 at 76% through early March. A modestly drier winter produced 87% less standing water over the same five-week comparison window.
- The channel work got an immediate, severe test and passed. Cole Creek received two rounds of attention before winter 2026: in August 2025, Lake County crews spent a week excavating sediment and cutting vegetation from a pilot reach upstream of Clark Drive Bridge, and on December 9–16, 2025, California Conservation Corps crews removed 30 trailer loads of vegetation from the channel. In the two weeks after the CCC finished, 6.7 inches of rain fell, more than a typical entire December. The pasture ponded barely 2 inches.
- The data cannot fully separate weather from the channel work, because the drier antecedent conditions of late 2025 also helped. But it establishes the first quantitative baseline this

community has ever had, and it makes one thing unambiguous: in 2025, water that reached this pasture could not leave it.

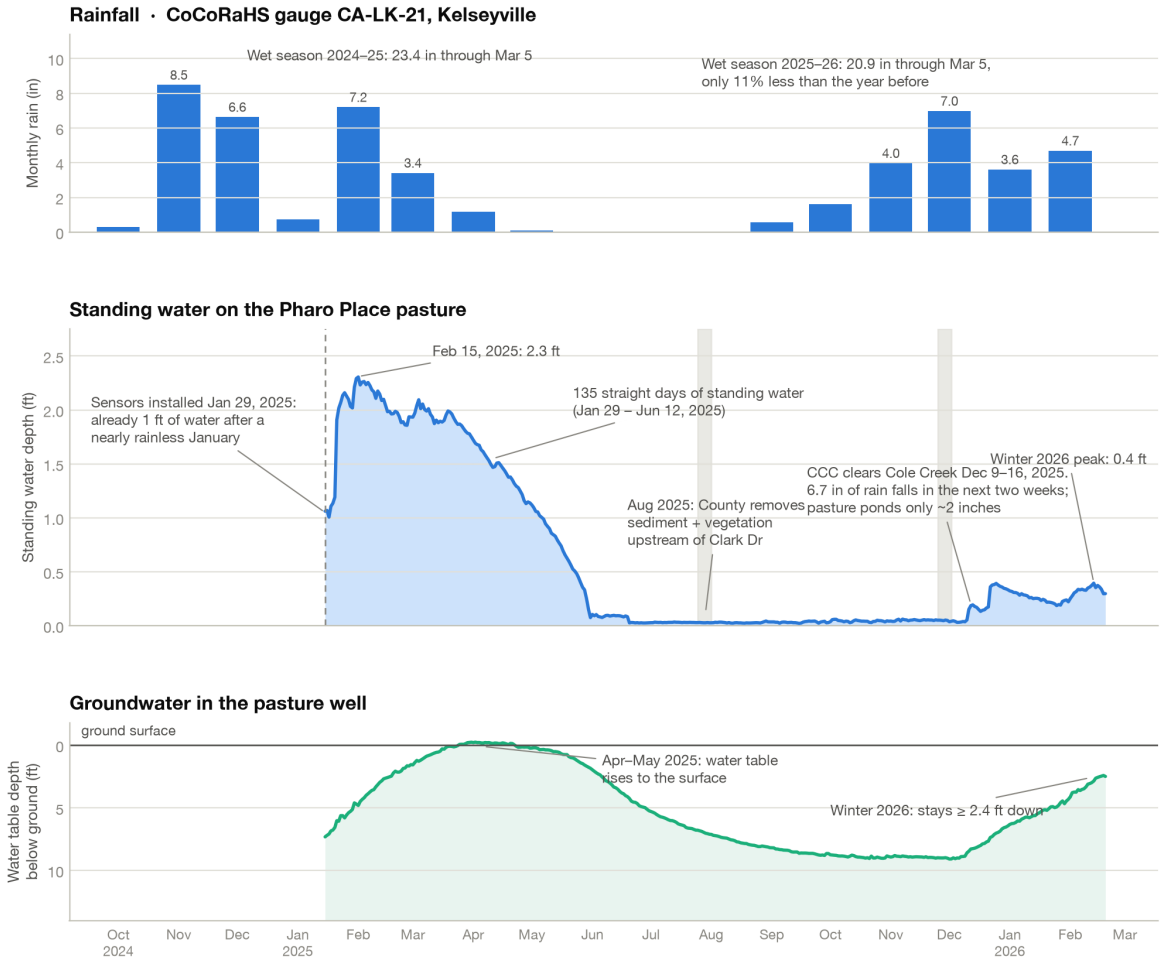

Figure 1: The full monitoring record. Top: monthly rainfall at the CoCoRaHS gauge. Middle: standing water depth on the pasture (daily maximum). Bottom: depth of the water table below the ground surface at the pasture well.

Contents

1 Background

Cole Creek drains the hills south of Kelseyville and crosses the Big Valley floor on its way to Clear Lake. For years, residents along Pharo Place and the surrounding parcels have documented winter flooding that starts when the creek channel, choked by vegetation and sediment, stops carrying water past their properties. The pattern is familiar by now: storm runoff arrives, spreads across pastures, and then simply sits, because the channel that should drain it cannot.

The community has been working the problem through every available channel. In May 2023, after four months of standing water, the California Department of Fish and Wildlife authorized emergency clearing of a clogged culvert; the floodwater dropped within days. In February 2024, a rented three-inch pump kept storm flooding partially in check. A monthly Cole Creek Advisory Collaborative now brings together Lake County Water Resources, CDFW, California State Parks, Big Valley Rancheria, FlowWest engineers, and community representatives, and in May 2026 the county selected FlowWest for a $200,000 to $500,000 contract to plan and design the restoration of 1.55 miles of the creek. The creek also matters beyond the neighborhood: it is spawning habitat for the Clear Lake hitch, a threatened fish of deep cultural significance to Big Valley Rancheria and other Pomo tribes.

What the effort has always lacked is numbers. Photographs show water; they do not show how deep, how long, or how it responds to rain. That changed on January 29, 2025, when State Water Resources Control Board staff installed monitoring equipment in the pasture at Pharo Place, wading through knee-deep water to reach the well.

2 The monitoring program and the data

Two stations sit on a pasture at Pharo Place[1] (38.9974°N, 122.8098°W), about 830 feet from the centerline of Cole Creek, at a ground elevation of roughly 1,339 feet.

- COLE_GW: an In-Situ pressure transducer in an unused well, recording groundwater pressure and temperature every 15 minutes. Well head and ground elevations were surveyed with RTK GPS in spring 2026, so readings convert to true water surface elevations.
- CLH: a HOBO logger recording the depth of standing water on the pasture every 15 minutes, corrected for atmospheric pressure by a dedicated barometric logger on site.

The delivered record spans January 29, 2025 through March 5, 2026: roughly 38,400 inundation readings and 38,400 groundwater readings after processing. Field crews also hand-measured the depth to water in the well on seven visits; the sensor and the hand measurements agree to within about half an inch (Appendix C), which is strong evidence the record can be trusted.

Rainfall comes from CoCoRaHS station CA-LK-21 (“Kelseyville 2.8 NNE”), a daily manual gauge at 1,340 feet elevation roughly 300 feet from the monitoring site, with observations every day since April 2022. Long-term monthly normals for the exact location are available from the PRISM climate model, which allows each month to be compared against what is typical there.

Throughout this report, “standing water depth” is the daily maximum of the 15-minute readings, and the comparison window “January 29 to March 5” is used because it is the only stretch of winter covered by the sensors in both years.

3 The 2025 flood season: a pasture under water for four and a half months

The sensors switched on into a flood already in progress. On installation day, January 29, 2025, the pasture was under 1.06 feet of water, and here is the detail that matters: almost no rain had fallen for a month. January 2025 delivered just 0.73 inches, 12% of normal. The water standing on the pasture that day was left over from the November and December storms, six to ten weeks earlier. Over the sensors’ first three rain-free days the depth did not budge (1.06, 1.07, 1.01 ft). Water that reached this pasture was not draining; it was waiting.

Then February arrived with 7.2 inches of rain. The pond jumped from about 1.1 to 2.0 feet in two days (February 4–5) and reached its annual peak of 2.31 feet on February 15. For the rest of February and most of March the daily maximum depth stayed near or above 2 feet; in total the record shows 31 days at 2 feet or more and 112 days at 1 foot or more.

The recession was painfully slow. On days without rain the pond dropped a median of about 0.02 feet per day, roughly a quarter inch. At that rate, two feet of standing water needs around three

[1] O’Connor Environmental’s data file labels the site “Pharo Lane”; the road is Pharo Place.

months to drain, and that is what happened: still 1 foot deep on May 20, the pasture did not fall below 3 inches until June 12 and was not fully dry until around June 17. The field crew's log entry on July 3 reads simply: "Surface water dry." Counting from installation day, that is 135 consecutive days of standing water, and since the water predates the sensors, the true duration, likely starting with the November 21–22 storm, was closer to seven months.

The groundwater record shows what months of ponded water do to the soil. The water table, about 7 feet below ground at the end of January 2025, climbed all spring and reached the ground surface in April, peaking slightly above it (April 12–23) and staying within inches of the surface into May. The ground was saturated to the top. Nothing more could soak in; nothing could grow. This is the mechanism behind what residents saw in 2023 and again in 2025: pasture grass killed off and wetland plants taking over.

4 Winter 2026: the water shows up, and leaves

The 2025–26 wet season started conventionally: 1.6 inches in October, 4.0 in November, then a wet December of 7.0 inches, 112% of normal and wetter than December 2024. Storms on December 22 and December 26 dropped over an inch each. In January, a 1.6-inch storm on the 6th was the season's biggest single day.

The pasture's response was completely different from the year before. Shallow ponding appeared around Christmas, rose to about 0.38 feet after the January 6 storm, and then declined steadily for three weeks even as more rain fell. A second rise in late February brought the season peak: 0.40 feet on February 27, about five inches. The sensor record ends March 5 with the pond at 0.30 feet and receding; the rain gauge, which kept reporting into June, shows that March 2026 ultimately recorded no rain at all, so the pond almost certainly kept draining.

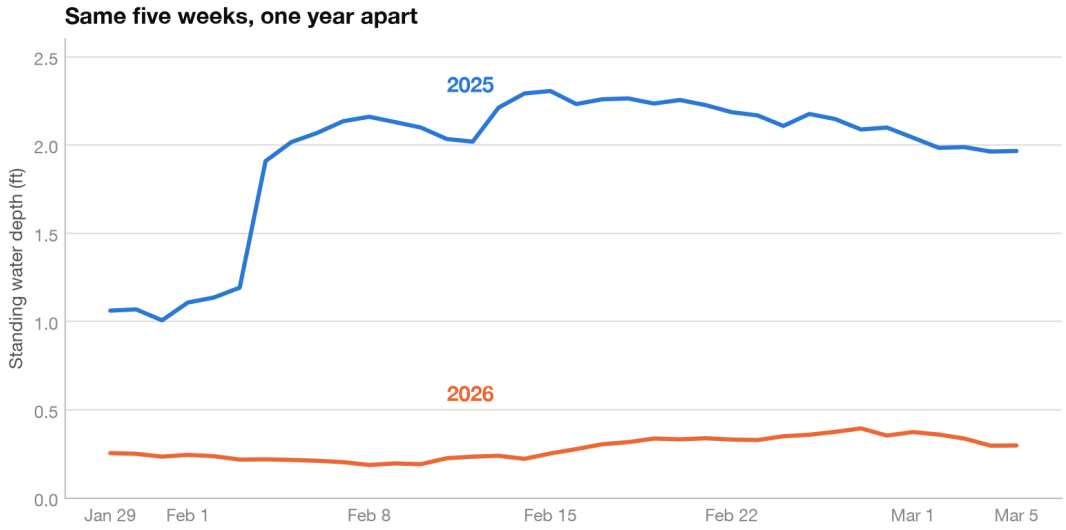

Figure 2: Standing water depth over the identical five-week window covered by the sensors in both winters (January 29 to March 5). Peak depth: 2.31 ft in 2025, 0.40 ft in 2026.

Table 1 puts the two winters side by side over the identical window. The pasture was continuously wet in both years; the difference is what "wet" meant. In 2025 it meant a knee-to-waist-deep pond.

In 2026 it meant a film of water a few inches deep that was visibly on its way out. Integrated over the window, the standing water burden fell from 67.4 to 8.9 foot-days: 87% less water, with 36% less rain.

January 29 to March 5	2025	2026
Rain during the window (in)	7.39	4.70
Peak standing water depth (ft)	2.31	0.40
Days with any standing water ($\geq$ 0.1 ft)	36 of 36	36 of 36
Days at or above 0.5 ft	36	0
Days at or above 1 ft	36	0
Days at or above 2 ft	25	0
Standing water burden (foot-days)	67.4	8.9
Closest the water table came to the surface (ft)	2.2	2.4

Table 1: The identical five-week comparison window, one year apart. Depth statistics use the daily maximum; the foot-day burden integrates the daily mean depth over the window.

5 Was it just the weather?

The obvious objection: maybe winter 2026 was simply dry. The rain gauge next to the site says otherwise, with important nuances.

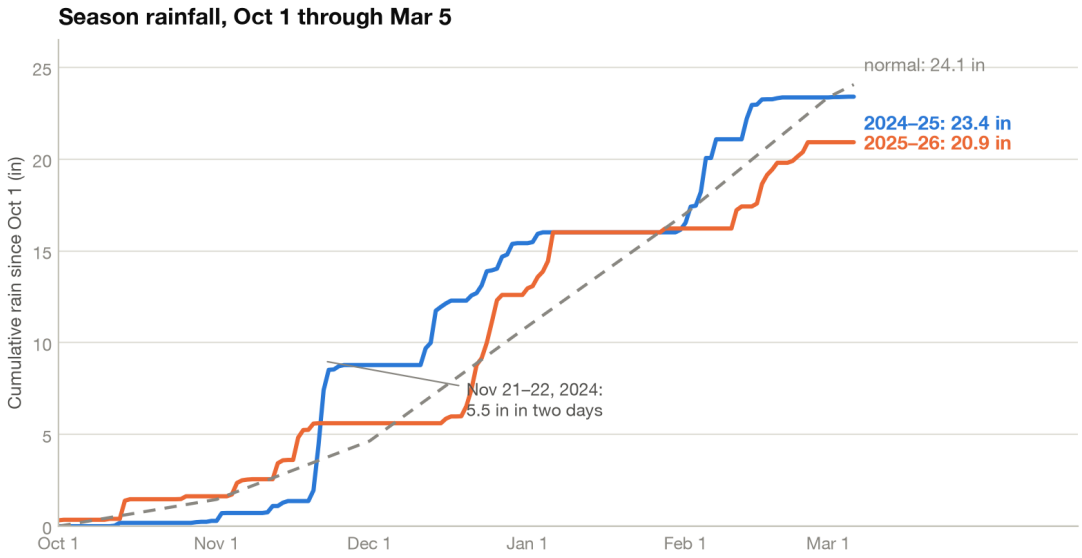

Figure 3: Cumulative rainfall from October 1 through March 5 for both wet seasons, against the PRISM long-term normal for this location. By mid-January the two seasons were identical at 16.0 inches.

Season totals were close. From October 1 through March 5, the gauge recorded 23.4 inches in 2024–25 and 20.9 inches in 2025–26, a difference of 11%. Against the long-term PRISM normal, October through March comes out at 97% and 76% respectively: one normal year, one modestly dry year. Extending through the end of May with the gauge's continued record, the full seasons land at 28.0 and 25.0 inches, 91% and 81% of normal. Neither was a drought, and 2025–26 was

no outlier; its December was actually wetter than normal.

The mid-season comparison is stronger than the totals. By January 15 of each winter, cumulative rainfall since October 1 was identical: 16.0 inches in both years. At that point in 2025, the pasture was holding roughly a foot of trapped storm water through a rainless January (confirmed directly two weeks later when the sensors switched on). At the same point in 2026, the pasture held about four inches, already draining.

Two honest caveats keep this from being a controlled experiment:

1. Storm intensity differed. November 2024 brought 8.5 inches (267% of normal), including 5.5 inches in two days on November 21–22, the kind of event that overwhelms any channel. Nothing that intense occurred in 2025–26, whose biggest day was 1.6 inches. February also differed: 7.2 inches in 2025 (114% of normal) against 4.7 in 2026 (74%). The deep February 2025 peak clearly owes something to a wetter February.
2. The ground started the two winters in different states. Hand soundings show the water table about 7.4 feet below ground in late January 2025, but 9.2 feet down in November and December 2025 after the dry summer. Drier soil going into winter 2026 means the first storms soaked in rather than ponding, independent of anything done to the channel.

Weighing all of it: rainfall differences are real but far too small to explain the outcome on their own. An 11% reduction in season rain, or even a 36% reduction inside the comparison window, does not by itself turn a 2.3-foot, 135-day lake into a 5-inch film. Something else changed in how water leaves this pasture.

6 The channel work and the December test

What changed most visibly between the two winters is the channel itself, in two installments. In August 2025, Lake County Water Resources crews spent a full week on a pilot reach just upstream of Clark Drive Bridge, cutting through vegetation and excavating sediment from a creek bed that had silted in nearly level with the surrounding ground. The pilot showed how much material would have to come out to reopen the channel; reaches downstream of the bridge remained partly choked, and as late as the November 2025 collaborative meeting the county was still seeking partners to extend the work.

Then, between December 9 and 16, 2025, California Conservation Corps crews, working with CDFW and Lake County, spent three days on Cole Creek with 15 to 25 people per day, cutting vegetation that had been choking the channel and hauling away 30 dump-trailer loads of material so it could not wash back in.

The weather then delivered an immediate stress test. In the two weeks after the crews finished, 6.7 inches of rain fell, more than the long-term normal for an entire December. Storms on December 22 (1.3 in) and December 26 (1.2 in) came back to back, followed by 3.4 more inches in the first ten days of January, with 1.6 inches on January 6 alone.

The pasture's answer: a maximum of 0.19 feet of ponding in December, just over two inches, and 0.39 feet after the January 6 storm, followed by three weeks of steady decline. For comparison, the storm sequence of early February 2025 (4.9 inches over seven days, similar in size) raised the pond from 1.1 to 2.1 feet, where it stayed for a month and a half.

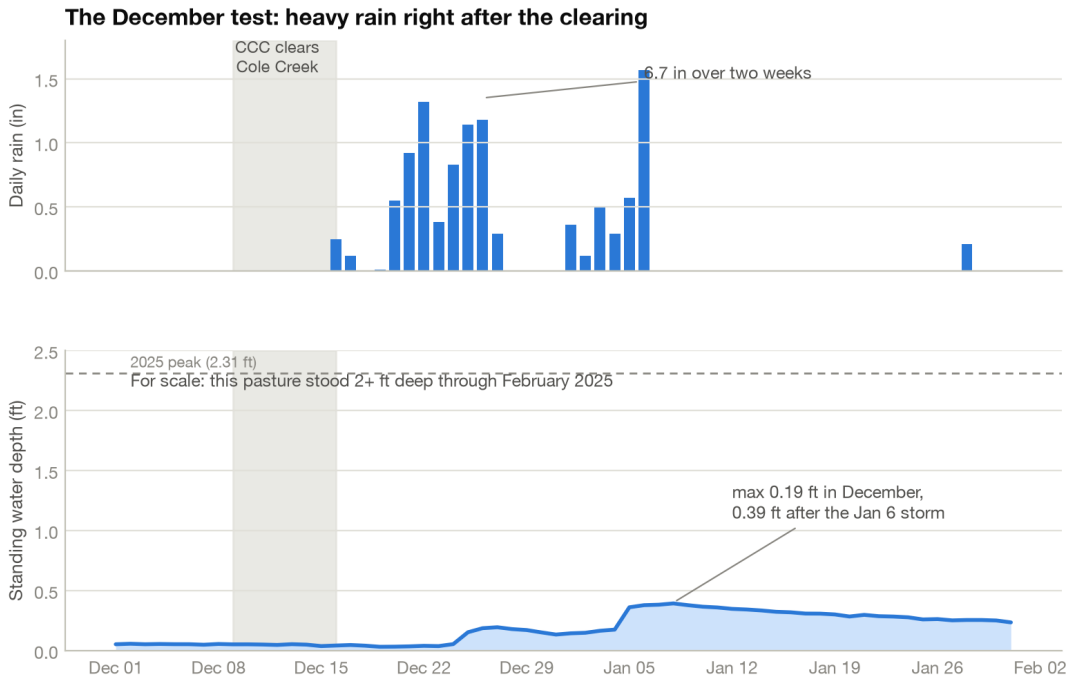

Figure 4: Daily rain (top) and standing water on the pasture (bottom), December 2025 through January 2026. The gray band marks the CCC clearing work.

This is one winter of evidence, from a season that was drier than normal in January and February, and it cannot prove cause and effect on its own. It also cannot apportion credit between the county's sediment excavation in August and the CCC's vegetation removal in December; both reopened parts of the same bottleneck. But the outcome is exactly what you would expect if the channel work worked, and it is exactly the observation the community was never able to make before, because before 2025 there were no instruments in the ground.

7 What the groundwater adds

The well record adds a longer-term dimension. In 2025 the water table did not peak until April, two months after the rain peak, and then took the entire summer to fall back, reaching its low point (about 9 feet down) only in November. A single flood season, in other words, kept the shallow groundwater system loaded for most of a calendar year.

In winter 2026 the water table behaved normally: it rose with the December and January storms and stood about 2.4 feet below the surface when the record ends in early March, close to where it stood at the same point in 2025 (2.2 feet). The difference between the two winters is not that the ground held less water in 2026; it is that the surface water on top of it drained instead of pooling. That distinction points at the channel, not the sky. It also carries a warning: the aquifer under this pasture fills to the brim in any wet winter, so surface drainage is the only variable anyone can actually manage.

8 Caveats and open questions

- The 2026 sensor record ends March 5; the rain gauge does not. Water-level statistics stop at the data cutoff, but the gauge shows what the weather did next: not a drop of rain in all of March 2026 (normal is 4.3 inches), then 3.4 inches in April and 0.7 in May. The bone-dry March makes significant late-season ponding unlikely, though the sensors will have the final word when the spring data arrive. Season totals in the body of this report are through March 5, matching the sensor window, unless stated otherwise.
- One site, one winter of "after" data. These sensors measure one pasture. A second wet winter with a cleared channel, ideally a wetter one, is needed before anyone can say with confidence how much of the improvement the channel work bought, or how the August sediment excavation and the December vegetation removal each contributed.
- The 2025 flood predates its own record. Ponding was already a foot deep when monitoring began, so 2025 peak-season statistics are conservative lower bounds on the flood's true duration.
- Attribution is shared. Less mid-winter rain, drier antecedent soil, and a cleared channel all pushed the same direction in 2026. This report quantifies the first two and finds them insufficient on their own; it cannot put a precise number on the third.
- Ground elevation at the well is derived from the RTK survey of the well head minus the measured casing height (3.55 ft). Water-table depths below ground are accurate to a few tenths of a foot.

9 What to watch next

1. Keep the sensors running. The value of this dataset compounds with every winter. The next big storm year is the real test of the cleared channel, and the instruments are already in place to referee it.
2. Get the full spring 2026 sensor data. The current file ends March 5. The rain gauge hints at how the season ended (a rainless March, 3.4 inches in April); the April–June sensor record will show whether the pasture dried early, as that suggests.
3. Maintain the channel. The 2023 culvert episode showed how fast a blockage undoes everything. If vegetation regrows and the 2027 data worsens while rain stays normal, that is the signal to act early, in fall, not in flood season.
4. Pair the data with creek flow. A stage gauge on Cole Creek itself, upstream and downstream of the constrained reach FlowWest and CDFW are studying, would close the remaining gap between "rain fell" and "pasture flooded."

Sources: O'Connor Environmental, Inc. monitoring dataset (Jan 2025–Mar 2026); CoCoRaHS station CA-LK-21 daily observations and PRISM normals; Lake County News (Clear Lake flood stage, Feb 2025); community documentation at colecreekflooding.com.

A Monthly rainfall against normal

	2024–25 season			2025–26 season		
Month	Rain (in)	Normal	%	Rain (in)	Normal	%
October	0.29	1.46	20%	1.63	1.46	112%
November	8.49	3.18	267%	3.98	3.18	125%
December	6.64	6.25	106%	6.99	6.25	112%
January	0.73	6.14	12%	3.62	6.14	59%
February	7.21	6.34	114%	4.70	6.34	74%
March	3.42	4.28	80%	0.00	4.28	0%
April	1.17	1.80	65%	3.38	1.80	188%
May	0.08	1.24	6%	0.69	1.24	56%
Oct–Mar total	26.78	27.65	97%	20.92	27.65	76%
Oct–May total	28.03	30.69	91%	24.99	30.69	81%

Table 2: Monthly rainfall at CoCoRaHS CA-LK-21 against PRISM long-term normals for the station location. The gauge kept reporting after the March 5 sensor cutoff, so the 2025–26 spring months are complete. For context, February 2024, the last flood winter before this record, delivered 10.52 inches (166% of normal).

B Timeline of events

Date	Event
Nov 21–22, 2024	5.5 inches of rain in two days (267% of normal for the month)
Jan 2025	Nearly rainless (0.73 in); floodwater sits on the pasture regardless
Jan 29, 2025	Sensors installed; pasture already under 1.06 ft of water
Feb 8, 2025	Clear Lake enters flood stage
Feb 15, 2025	Peak standing water: 2.31 ft
Apr 12–23, 2025	Water table at or slightly above the ground surface
Jun 12, 2025	Standing water finally recedes below 3 inches (day 135)
Jul 3, 2025	Field crew log: “Surface water dry”
Aug 2025	County pilot: a week of sediment excavation and clearing above Clark Drive Bridge
Nov 11, 2025	Water table at seasonal low, about 9 ft below ground
Dec 9–16, 2025	CCC crews clear Cole Creek; 30 trailer loads of vegetation removed
Dec 17–31, 2025	6.7 inches of rain; pasture ponds a maximum of 0.19 ft
Jan 6, 2026	Largest storm of the season (1.6 in); pond peaks at 0.39 ft, then declines
Feb 27, 2026	Winter 2026 maximum standing water: 0.40 ft
Mar 5, 2026	End of delivered record; pond at 0.30 ft and receding
May 15, 2026	Lake County selects FlowWest to plan the Cole Creek restoration

Table 3: Key events across the monitoring period.

C Data quality

Field crews hand-measured depth to water in the well on seven visits. Where these soundings overlap the pressure-transducer record, the five tie-downs agree to within 0.017 meters (0.7 inches), most within a quarter inch. Well head elevations were surveyed by RTK GPS in spring 2026 and tied to a known reference. The inundation logger is barometrically compensated by an on-site atmospheric logger, and the rain gauge reported every day of the analysis period.