
CASTAC BASIN GROUNDWATER SUSTAINABILITY AGENCY TECHNICAL UPDATE

**BOARD OF DIRECTORS MEETING
30 SEPTEMBER 2026**

Agenda

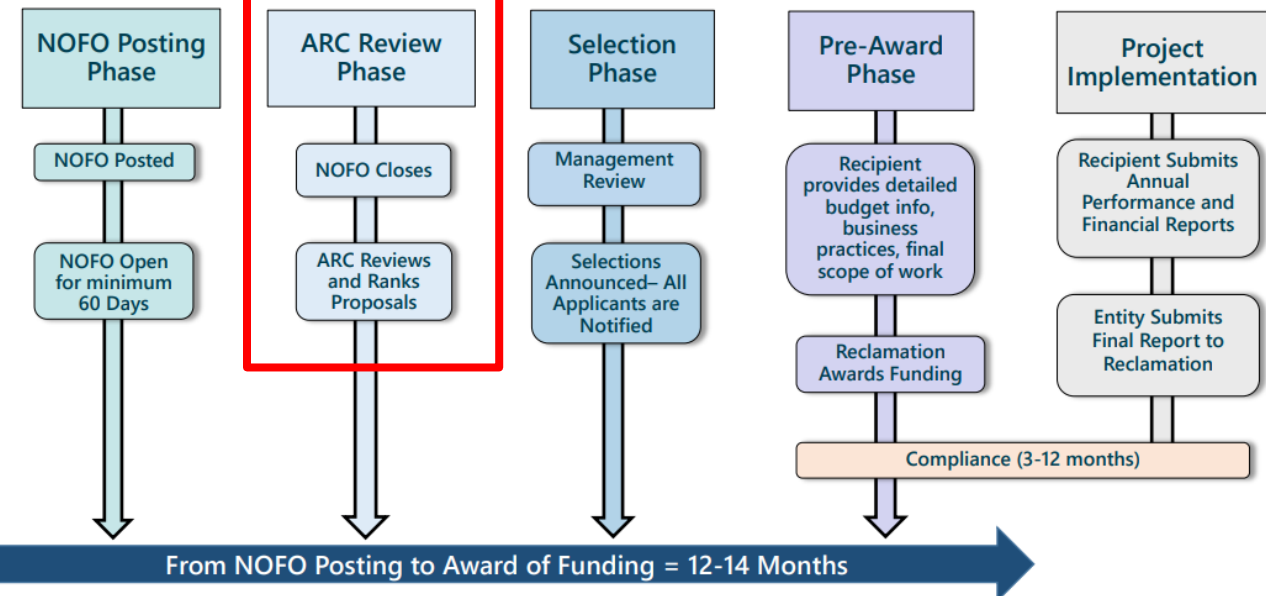
1. Assistance with P&MAs
 - a) Grants Status
 - b) Water Level Monitoring Fieldwork
2. Information Request (California Water Data Consortium)
3. Reminders
4. Groundwater Inflow to Basin: New Estimation Method

Update re: Task 3. Assistance with P&MAs

Tracking the US Bureau of Reclamation WaterSMART grant application for the Beartrap Canyon Pipeline Project:

- Currently no updates
- Grant application is still in Step 2 of the awards process (ARC Review Phase)

WaterSMART Selection Process Sample schedule



Note! Environmental and cultural compliance must be completed before a Notice to Proceed (NTP) can be issued by Reclamation. Once a NTP is issued, ground-disturbing work can begin.



Update re: Task 3. Assistance with P&MAs

Fieldwork: Well pressure transducer maintenance

- EKI Field technician will check the five MW transducers, perform maintenance, & potentially replace one transducer
 - TRC MW-16D has many null readings in Oct 2024 – Oct 2025 data
- Work scheduled for Friday, October 9th

Fieldwork: Castac Lake transducer installation

- EKI was asked to propose a task to monitor Castac Lake water levels at the 16 May Ad-Hoc Technical Committee Meeting
- EKI field team will install a pressure transducer in deepest point of the lake, connected via a protected cable to the northeast lakeside
- Work scheduled for Thursday, October 8th
 - Pre-work site accessibility & installation planning is being organized by EKI field technician with Efren & Charlie (TRC)

eki environment & water

Daily Inspection Report No. _____

Contractor: _____	Sheet: <u>1</u> of <u>2</u>
EKI Staff On-Site: <u>Bradley Nettleton (BGN)</u>	Date: <u>6/5/2024</u>
Weather: <u>Sunny</u>	Project: <u>ICWD - Castac Basin</u>
Temperature: <u>73</u> °F Min to <u>100</u> °F Max	EKI Job No: <u>B80048.02</u>
Work Hours: <u>0600 to 1600</u> Memos Issued: _____	
Photos: <u>Yes</u>	
Special Conditions, Delays, Changes: <u>None</u>	

Accidents, Damage: None

Sampling, Testing: Transducers @ maintenance on Castac basin monitoring wells.

Visitors to Site: Charlie Romero w/ Tejon Ranch

Work Report (Work done, Personnel/Equipment working): _____

07:00 EKE arrives onsite.

- BGN meets with Charlie Romero from Tejon Ranch.

Charlie will be the escort for today due to multiple locked gates.

0720 TRC MW-18D depth to water (DTW) = 66.69 feet (ft) below top of casing (TOC).

0730 TRC MW-18D transducer SN: 20618527 was removed from the well. The submerged end of the transducer cap was broken along with the hanging end of the transducer.



Information Request

California Water Data Consortium

- Project to analyze and recommend modernization of water resource accounting techniques.
- Published a survey of groundwater managers and consultants; it asks how groundwater is tracked in each basin
- Requesting data from Basins of all priority levels, including Castac
- Does the Board want EKI to respond?



Survey Deadline Extended to October 2

Complete the California Groundwater Accounting Survey

We've extended the deadline for our [groundwater accounting survey](#) to **Friday, October 2, 2026**, and we'd love to hear from you before it closes. Thank you to the many respondents who have already weighed in!

This survey asks how groundwater is tracked within your groundwater sustainability agency (GSA), basin, or sub-basin. **We want to hear from basins at every priority level, High, Medium, Low, and Very Low, as well as adjudicated basins.** [Take the survey.](#)

Your responses will directly inform a report on modernizing water accounting, developed in partnership with the Public Policy Institute of California and UC Davis.

[Complete the Survey by October 2](#)

Survey respondents will remain anonymous. Any personally identifying information will be visible only to the research team for follow-up purposes and all data will be analyzed without reference to personally identifying information.

To learn more, email Sonya Milonova at smilonova@cawaterdata.org.

Reminders

- Today is end of Water Year (WY) 2026
 - EKI to send requests for WL and pumping data
 - Basin hydrologic status update will be in next GSA Board Meeting
- Updates on LCWD Well 04 planned pumping schedule/rate?
 - Note potential for water level impacts in the Basin's upgradient Representative Monitoring Well (RMW) TRC MW-16D

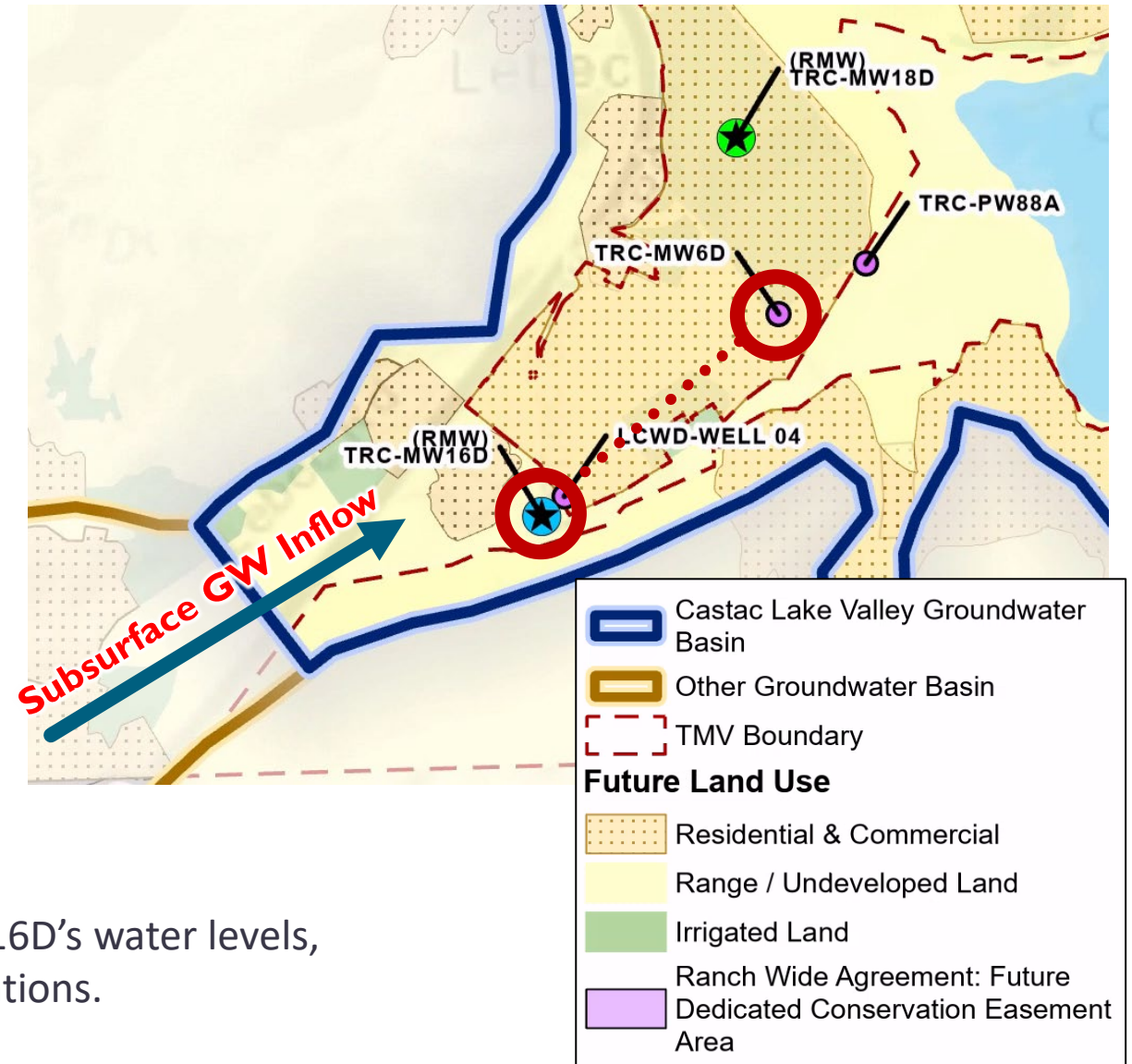


Basin Groundwater Inflow Estimation

- The main source of Basin subsurface inflow of groundwater is from upgradient Cuddy Canyon.
- This inflow has been estimated by calculating the gradient (slope) between water levels of two Basin MWs close to the boundary:
 - Upgradient: TRC-MW16D
 - Downgradient: TRC-MW56A (WY 1998 - 2023)
TRC-MW6D (WY 2024 - present)

However, moving forward, an alternative method must be used to accurately estimate these inflows for the Basin's model and water budget, because:

- TRC-PW88A's increased pumping in late 2025 may have affected water levels in TRC-MW6D, thus biasing the gradient-based inflow estimates.
- LCWD Well 04's operation will likely affect TRC-MW16D's water levels, which would similarly interfere with gradient calculations.



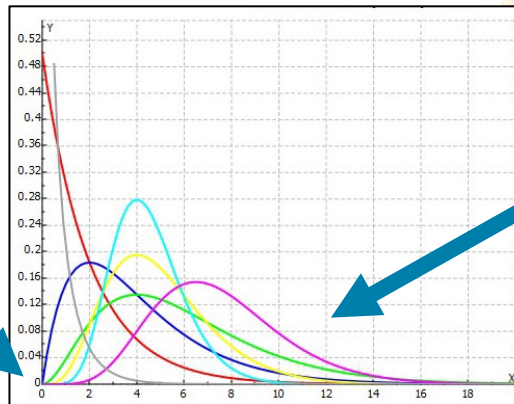
Basin Groundwater Inflow Estimation

- Possible solutions (*proposed in previous meeting*):
 - a) **Assess statistical relationship between the gradient-calculated inflow & proxy data (rainfall, evap, lag time)**
 - b) Coordinate w/LCWD to temporarily shut down new Well 04 monthly so water level can recover and be measured
 - c) Drill new MWs to better-define gradient and inflows

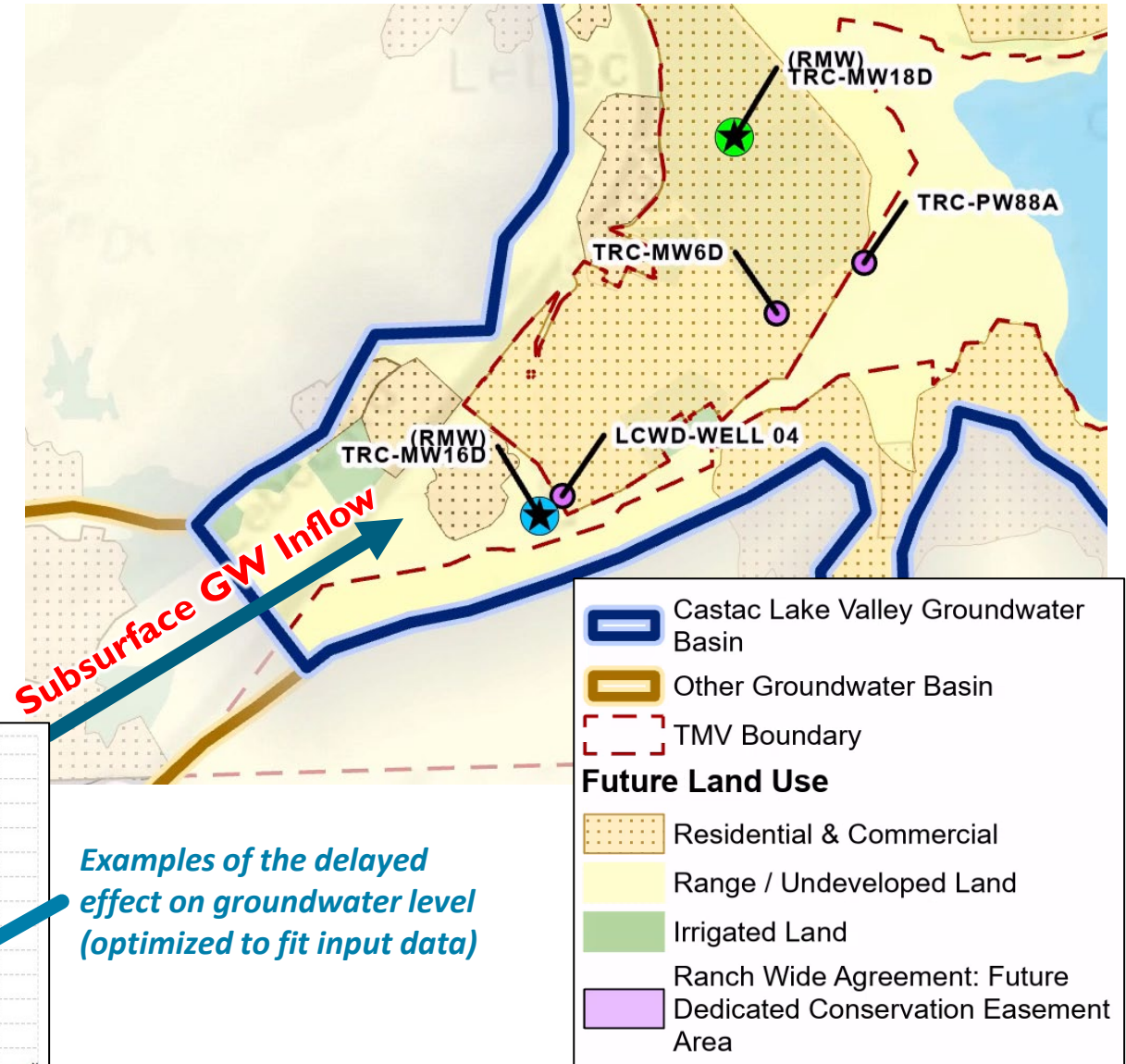
Board requested for EKI to first assess **Solution (a)**.

- Tool used to create the statistics model:
'Pastas' Python code library
 - Models the underlying relationship between independent stresses (precipitation & ET used in this case) to the delayed response of groundwater head at a location
 - Visual of the model type used (Gamma response function):

Rainfall event
at start

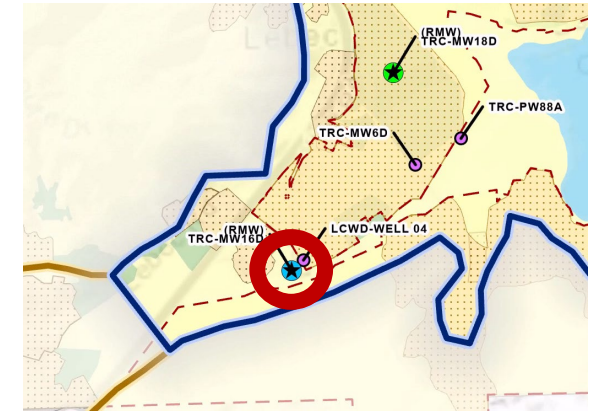


Examples of the delayed
effect on groundwater level
(optimized to fit input data)

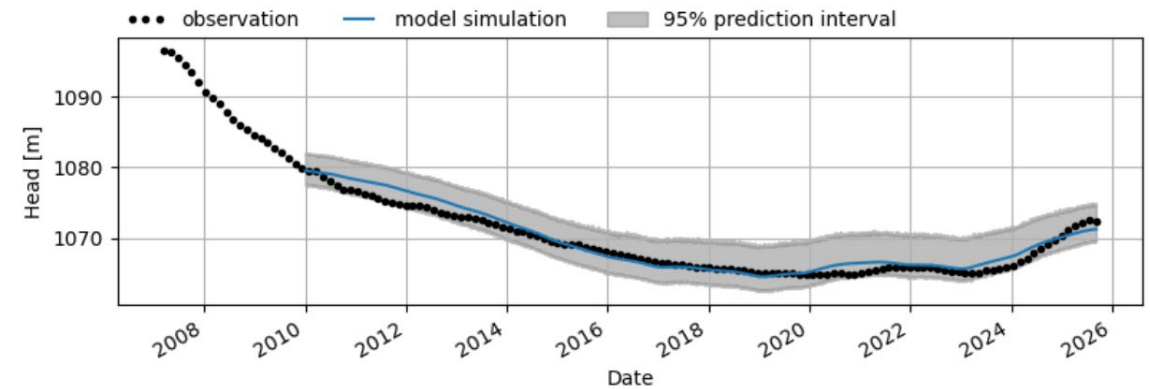


Proof-of-Concept with TRC MW-16D

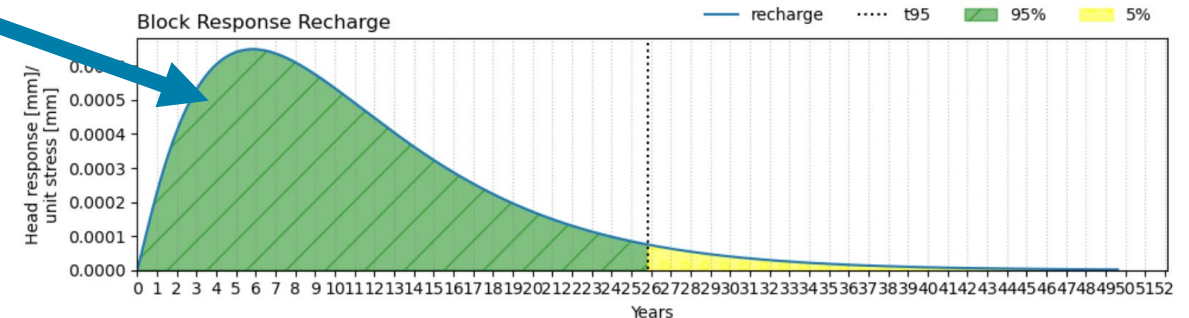
- Tested model structure against water level measurements of **TRC MW-16D**
- Model warmed up on 15 years of rainfall/ET rate data (1995-2010) and calibrated using data from 2010-2025
- The model reproduced MW-16D's water levels with high accuracy ($R^2 = 94\%$) to the measured data from 2010-2025
- Modelled water level response peaks over the **0-6 years** following a rainfall event
- Results capture both shorter-term effects of large rainfall events and longer-term effects of climate & gradual seepage from far-upgradient basins



Observed vs. Predicted GW Head (MW-16D)



Response Time from Rainfall Event (MW-16D)

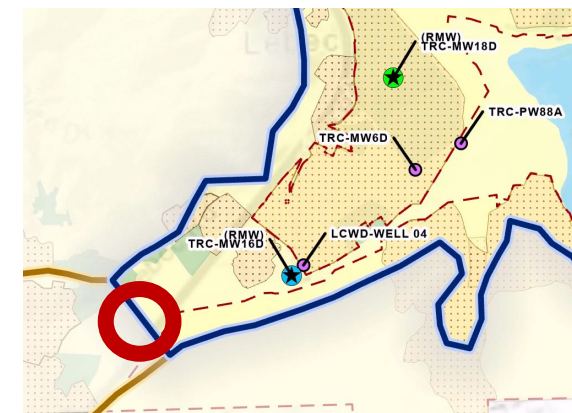


Application to Boundary Inflow Estimation

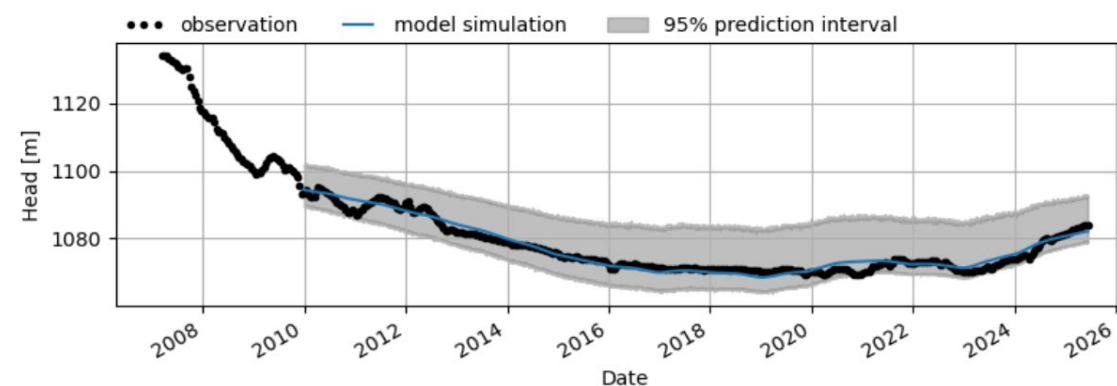
- Used same model structure, but calibrated instead to the gradient-calculated groundwater head at the Basin boundary (calculated monthly up to June 2025)
- The Basin model uses these groundwater head values to determine inflow rate

Results:

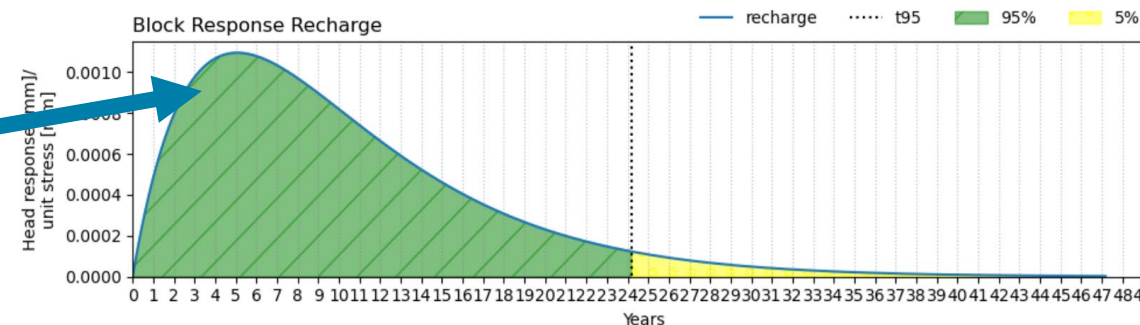
- High-fit prediction ($R^2 = 96\%$), showing effects of both seasonal rainfall & long-term climate/seepage
- Relatively shorter peak response time from rainfall event (~4-5 years)



Calculated ["Observed"] vs. Predicted GW Head (at boundary)



Response Time from Rainfall Event (at boundary)

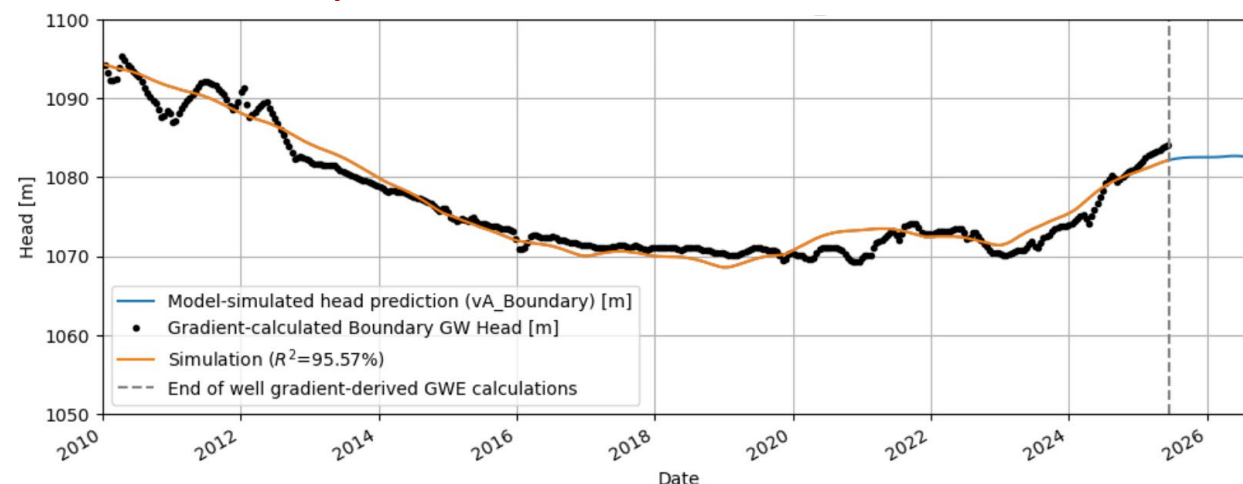


Application to Boundary Inflow Estimation

- Moving forward, groundwater (GW) inflows to the Basin from Cuddy Canyon can be estimated by just using publicly-available rainfall & evapotranspiration (ET) data
- Will continue to use the parallel simulation of TRC MW-16D, which has direct measurements for comparison, to monitor the validity of this statistical approach
- LCWD Well 04's pumping rate can be added into the MW-16D simulation to help adjust for potential drawdown effects

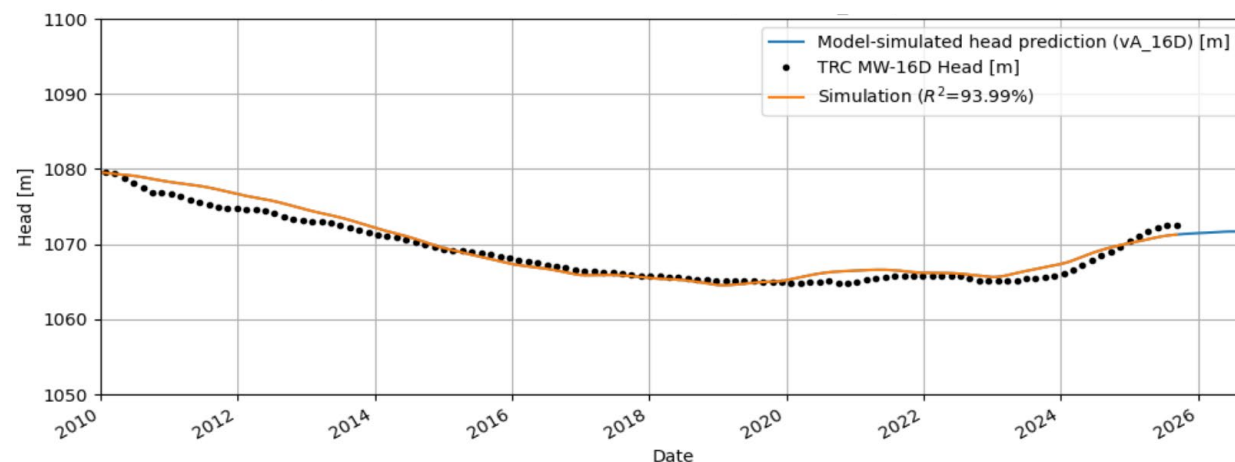
Forward-Simulation of GW Head (at boundary)

DEMO ONLY – placeholder rainfall & ET data used for WY2026



Forward-Simulation of GW Head (MW-16D)

DEMO ONLY – placeholder rainfall & ET data used for WY2026



Next Steps

- **WY 2026 data collection by TCWD, LCWD, and KMWC:**
 - Data Needed (*EKI will send reminder emails*):
 - Water levels at RMWs;
 - Pumping / flow data at all supply wells; and
 - Photographs of active well flow meter faces (for confirmation of flow units).
- **Ongoing P&MA Implementation Tasks:**
 - *[Fieldwork scheduled]* Transducer maintenance & installation in Castac Lake for water level monitoring;
 - Data uploads to DWR in December;
 - Database maintenance for WLS, pumping, and other received data; and
 - Streamlining analytical workbook and numerical model annual update process.
- **Upcoming Deliverables:**
 - Pressure transducer and protective pipe housing installed and operating in Castac Lake;
 - Technical Memorandum for transducer operation and maintenance procedures; and
 - WY2026 Annual Report

End