NOTICE AND AGENDA OF SPECIAL MEETING

GROUNDWATER SUSTAINABILITY AGENCY
FOR THE CENTRAL MANAGEMENT AREA
IN THE SANTA YNEZ RIVER GROUNDWATER BASIN

WILL BE HELD
AT **10:00 A.M.**, MONDAY, APRIL 26, 2021

TELECONFERENCE MEETING ONLY – NO PHYSICAL MEETING LOCATION
PUBLIC PARTICIPATION DIAL-IN NUMBER: 1-267-866-0999
MEETING ID / PASSCODE: 7541 82 4682

Public participants can view presentation materials and live video on their device.

Website: app.chime.aws (or download *Amazon Chime* app),
"Join a meeting without an account"
Meeting ID: 7541 82 4682

You do NOT need to create an Amazon Chime account or login with email for meeting participation.

Public participant phones and microphones will be muted, and webcams disabled.
Live Chat Text (online users only) will be enabled for questions.

If your device does not have a microphone or speakers, you can also call Phone Number & log in with Meeting ID listed above to listen while viewing the live presentation online.

Teleconference Meeting During Coronavirus (COVID-19) Emergency: As a result of the COVID-19 emergency and Governor Newsom's Executive Orders to protect public health by issuing shelter-in-home standards, limiting public gatherings, and requiring social distancing, this meeting will occur solely via teleconference as authorized by and in furtherance of Executive Order Nos. N-29-20 and N-33-20. **Virtual meeting is in accordance with the SB County Health Office Order 2021-12.2**

Important Notice Regarding Public Participation in Teleconference Meeting: Those who wish to provide public comment on an Agenda Item, or who otherwise are making a presentation to the GSA Committee, may participate in the meeting using the dial-in number and passcode above. **Those wishing to submit written comments instead, please submit any and all comments and materials to the GSA via electronic mail at bbuelow@syrwcd.com.** All submittals of written comments must be received by the GSA no later than **Friday, April 23, 2021**, and should indicate **"April 26, 2021 GSA Meeting"** in the subject line. To the extent practicable, public comments and materials received in advance pursuant to this timeframe will be read into the public record during the meeting. Public comments and materials not read into the record will become part of the post-meeting materials available to the public and posted on the SGMA website.

In the interest of clear reception and efficient administration of the meeting, all persons participating in this teleconference are respectfully requested to mute their phones after dialing-in and at all times unless speaking.

AGENDA ON NEXT PAGE

GROUNDWATER SUSTAINABILITY AGENCY
FOR THE CENTRAL MANAGEMENT AREA
IN THE SANTA YNEZ RIVER GROUNDWATER BASIN

MONDAY, APRIL 26, 2021, 10:00 A.M.

AGENDA OF SPECIAL MEETING

I. Call to Order and Roll Call

II. Introductions and review of SGMA in the Santa Ynez River Valley Basin

III. Additions or Deletions to the Agenda

IV. Public Comment (Any member of the public may address the Committee relating to any non-agenda matter within the Committee's jurisdiction. The total time for all public participation shall not exceed fifteen minutes and the time allotted for each individual shall not exceed five minutes. No action will be taken by the Committee at this meeting on any public item.)

V. Review Telecon Memorandum summary of conversation with DWR Staff regarding SGMA Status of Santa Ynez River and River Alluvium

VI. Receive Presentation from Stetson Team on "Numeric Groundwater Model and Model Documentation"

VII. Receive schedule for Draft Numeric Groundwater Model Technical Memorandum and consider public comment period.

VIII. Next "Regular" CMA GSA Meeting: Monday, May 24, 2021, 10:00 AM

IX. CMA GSA Committee requests and comments

X. Adjournment

[This agenda was posted 72 hours prior to the scheduled special meeting at 3669 Sagunto Street, Suite 101, Santa Ynez, California, and https://www.santaynezwater.org in accordance with Government Code Section 54954. In compliance with the Americans with Disabilities Act, if you need special assistance to review agenda materials or participate in this meeting, please contact the Santa Ynez River Water Conservation District at (805) 693-1156. Notification 72 hours prior to the meeting will enable the GSA to make reasonable arrangements to ensure accessibility to this meeting.]

STAFF MEMORANDUM

DATE: April 19, 2021

TO: File

FROM: B. Buelow

SUBJECT: Summary of Telephone Conversation with A. Regmi 04-15-2021

As a follow up to several emails (attached) from Anita Regmi at DWR, a call was scheduled between Bill Buelow of the Santa Ynez River Water Conservation District (SYRWCD) and Anita Regmi of the southern regional office of the State of California, Department of Water Resources (DWR) to discuss the issue of the Santa Ynez River Alluvium (River Alluvium) in the three Groundwater Sustainability Plans (GSP) currently being prepared for the Santa Ynez River Valley Groundwater Basin (Basin).

Ms. Regmi said that DWR needs to know more about this subject as it has come up during several recent GSA meetings and there have been specific questions that have been asked by various agencies such as NOAA.

Ms. Regmi reiterated that DWR had received some information from SYRWCD in response to earlier requests, but that she still did not understand the source of the boundary of the Santa Ynez River Alluvium. Mr. Buelow reiterated the previous request of January 25, 2021 by Ms. Regmi was about data collected by riparian pumpers and where it was sent and stored. Mr. Buelow sent Ms. Regmi a link to the eWRIMS system, where riparian pumpers upload pumping records to maintain compliance with the State Board.

Mr. Buelow then clarified that the extent of the River Alluvium extends upstream from the Lompoc Narrows to Bradbury dam and corresponds to the District's Zone A plus some additional areas of River Alluvium between the two non-contiguous sections of the District. The management of the River Alluvium as surface water or surface water underflow accords with the State Water Resource Control Board's (State Board) assertion of jurisdiction over River surface and subsurface water as underflow. This is documented in various State Board Orders, including D886, 73-37, 89-18, and most recently, 2019-0148, and has been accepted for a long time.

Mr. Buelow further explained that SGMA's definition of groundwater specifically excludes subsurface "water flowing through a known and defined channel," which is essentially how the State Board has defined subsurface water in the River Alluvium. Mr. Buelow pointed out this was done intentionally by the two agencies so there would be no jurisdictional overlap. Ms. Regmi she appreciated and understood the clarification.

Ms. Regmi stressed that all three GSPs need to more clearly document the status of wells screened in the River Alluvium. She added that there needs to be a better explanation of the process of evaluating each well and the GSAs will need to provide DWR with documentation of sources and citations. She further explained that as currently drafted, the reviewers of the GSPs will not understand the assertion of the exemption of wells in the River Alluvium. Mr. Buelow thanked Ms. Regmi for the feedback and said he would pass along the information to the GSAs.

Ms. Regmi indicated that the declaration of the exemption to SGMA "is a big deal" and further explained that DWR's request for more information is a "heads-up" to the GSAs. Mr. Buelow explained that the GSAs will provide additional details about the status of wells in the River Alluvium and explained that the GSAs are currently contemplating how this will be done (either in the body of the GSPs and/or adding an appendix with technical information to each GSP). Ms. Regmi appreciated the information and indicated that DWR will require the GSAs to verify that every well that classified as "exempt from SGMA" is reporting its pumping to the State Board. In addition, DWR will need to know how each exempt well was surveyed or screened to determine its status as a riparian well and exempt from SGMA.

Mr. Buelow offered to send Ms. Regmi a link to the current State Board order 2019-0148. Ms. Regmi said she would appreciate the information.

Mr. Buelow asked Ms. Regmi about other basin's that consolidate or separate post GSP submittal and asked if there was a specific process that GSAs must follow. Ms. Regmi said that she thought it was straight forward so long as there are no material changes. If there are material changes, then a public hearing process would need to be followed. Ms. Regmi said that she would ask her manager for more information on the process and pass it along.

From: Regmi, Anita@DWR
To: Bill Buelow
Cc: "Lawler, Curtis (curtisl@stetsonengineers.com)"
Subject: RE: Status of wells in River Alluvium
Date: Thursday, April 01, 2021 7:50:37 AM

Good morning Bill,
I would like to follow up on the topic discussed in the email below. We have been receiving inquires related to the GSA's process of SGMA implementation and specifically regarding the subarea identified as River Alluvium. Therefore, it is even more important for us to understand the source of the River Alluvium boundary so that we can provide guidance to all interested parties. I am interested in knowing the data source of this boundary and who determined this boundary. I will appreciate a response.
Thank you.
Anita

Anita Regmi
DWR-Southern Region Office
Cell Phone: (818) 429-2414

From: Regmi, Anita@DWR
Sent: Monday, March 8, 2021 10:27 AM
To: Bill Buelow <bbuelow@syrwcd.com>
Cc: 'Lawler, Curtis (curtisl@stetsonengineers.com)' <curtisl@stetsonengineers.com>
Subject: RE: Status of wells in River Alluvium

Good morning Bill,
I have a follow up request for information regarding the subareas where the wells are identified as River wells in the Santa Ynez River Valley groundwater basin. I reviewed the information available under the State Board on its Electronic Water Rights Information Management System which provides information about surface water diversions and wells with existing water rights. I have also reviewed the information pertaining to the River Alluvium Subarea from the draft HCM. I am trying to understand how the boundary of the subarea "River Alluvium" was drawn. Your email below says " It is well documented that wells in the River and River alluvium are under the jurisdiction of the State Water Resources Control Board". My recollection from one of the GSA meetings is that the River Alluvium boundary was drawn by the State Board. I will appreciate it if you could direct me to the document which discusses how the boundary is drawn. BTW, I also checked the reference made in HCM about the boundary in question, the referenced document does not discuss anything about the scientific or the legal basis of the boundary and about who created this boundary.

Thank you.
Anita

Anita Regmi
DWR-Southern Region Office
Cell Phone: (818) 429-2414

From: Regmi, Anita@DWR
Sent: Wednesday, February 24, 2021 9:54 AM
To: Bill Buelow <bbuelow@syrwcd.com>
Cc: 'Lawler, Curtis (curtisl@stetsonengineers.com)' <curtisl@stetsonengineers.com>
Subject: RE: Status of wells in River Alluvium

Good morning Bill,
Thank you for your email. The link you have provided below is helpful. The database and documents available through the link below shows that many of the water users in the Santa Ynez Valley Groundwater Basin have various types of water rights. The State Water Board and the state courts have authority to administer the water rights and they enforce water right laws. I will look into details to understand how the existing water rights address the groundwater in the Basin. SGMA does not change any of the existing water rights, therefore, I will dig further to understand if the area with existing water rights are exempt from management under SGMA. I will get back to you on this topic in near future.

Thank you.
Anita

Anita Regmi
DWR-Southern Region Office
Cell Phone: (818) 429-2414

From: Bill Buelow <bbuelow@syrwcd.com>
Sent: Tuesday, February 23, 2021 5:32 PM
To: Regmi, Anita@DWR <Anita.Regmi@water.ca.gov>; 'Lawler, Curtis (curtisl@stetsonengineers.com)' <curtisl@stetsonengineers.com>
Subject: RE: Status of wells in River Alluvium

Hi Anita,

Thanks again for touching base with us on this matter. My apology for the delayed response, it has been a busy time for the three GSAs and the District.

The purpose of my email is to address your question during the last CMA meeting and follow-up email below relating to current data, data reporting, and well construction information for wells in the Santa Ynez River and Santa Ynez River alluvium (River). It is well documented that wells in the River and River alluvium are under the jurisdiction of the State Water Resources Control Board. As such, all applicable reporting data for the River, such as diversions, well locations, well construction data, maps, etc. are filed with the State Board (not the Regional Water Quality Control Board). The data is made publicly available by the State Board on its Electronic Water Rights Information Management System (referred to as "eWRIMs"). The eWRIMs system is very comprehensive and can be found at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/ewrims/.

As you know, under SGMA surface water is analyzed and handled differently than groundwater. The three GSAs are in the process of addressing both the River and Basin groundwater resources in accordance with the SGMA statute and implementing the SGMA regulations with the preparation of three GSPs.

We sincerely appreciate your follow-up and look forward to our ongoing work together.

Regards,
Bill

Bill Buelow, PG
Board Treasurer
Groundwater Program Manager
Santa Ynez River Water Conservation District
3669 Sagunto St. Suite 101
Mailing Address: P.O. Box 719
Santa Ynez, CA 93460
Direct: (805) 620-7985
Main: (805) 693-1156 ext. 403
Mobile: (805) 345-5982
BBuelow@SYRWCD.com

From: Regmi, Anita@DWR <Anita.Regmi@water.ca.gov>
Sent: Monday, January 25, 2021 11:05 AM
To: Bill Buelow <bbuelow@syrwcd.com>; 'Lawler, Curtis (curtisl@stetsonengineers.com)' <curtisl@stetsonengineers.com>
Subject: RE: Status of wells in River Alluvium

Hi Bill and Curtis,
Thank you for reaching out. As I mentioned in the meeting today, I would like to see the current data, how and where these data are being reported. If these data are being reported as surface water data to the regional water quality control board, please provide some information on the

program, water quality management plan (if any), and the well constructions (screen-interval) for the wells in question if possible.

Thank you.
Anita

Anita Regmi, P.G.
Engineering Geologist
California Department of Water Resources
770 Fairmont Ave, Suite 200
Glendale,CA 91203-1035
Cell: (818) 429-2414
Phone: (818) 549-2340
FAX: (818) 543-4604
Email: anita.regmi@water.ca.gov

From: Bill Buelow <bbuelow@syrwcd.com>
Sent: Monday, January 25, 2021 10:53 AM
To: Regmi, Anita@DWR <Anita.Regmi@water.ca.gov>
Cc: 'Lawler, Curtis (curtisl@stetsonengineers.com)' <curtisl@stetsonengineers.com>
Subject: Status of wells in River Alluvium

Anita,
Thanks for your comment during today's CMA meeting.
We would like to follow up with you regarding this topic at your earliest convenience.

Thanks,

Bill Buelow, PG
Board Treasurer
Groundwater Program Manager
Santa Ynez River Water Conservation District
3669 Sagunto St. Suite 101
Mailing Address: P.O. Box 719
Santa Ynez, CA 93460

CMA

Santa Ynez River Valley Groundwater Basin
Central Management Area
Groundwater Sustainability Agency

April 2021
Numerical Groundwater Model and Model Documentation Workshop

STETSON ENGINEERS INC.

DUDEK

Geosyntec consultants
engineers | scientists | innovators

Housekeeping

- Recording the meeting for the purpose of capturing public feedback
- Recording can be made available upon request
- Opportunities for public feedback and questions throughout the workshop
- Public comments on the GCTM should be submitted to the website:

www.santaynezwater.org

- Slide numbers in lower right

WMA/CMA
Numerical Groundwater Model
& Model Documentation
April 26, 2021

- Numerical Groundwater Model Construction
  - MODFLOW Unstructured Grid
  - Hydrologic Parameters: K, S
  - Boundary Conditions: CHD
  - Inflow to Model: RCH, SFR
  - Outflow from Model: EVT, WEL, SFR
- Model Calibration
  - Measured and Simulated Streamflow Hydrographs
  - Measured and Simulated Groundwater Levels
  - Water Budget

Groundwater Model Uses and SGMA

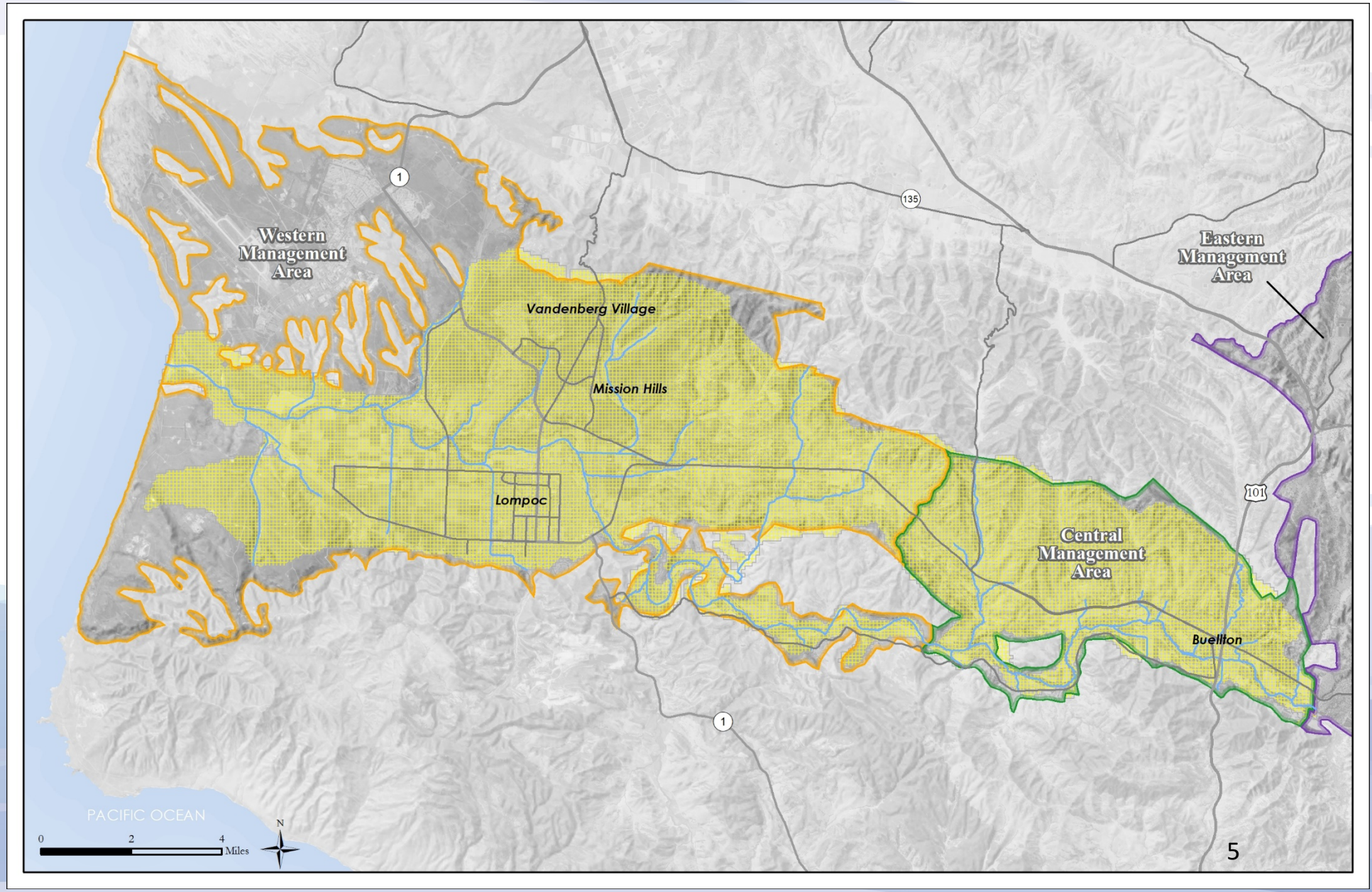
- Simulates occurrence and movement of water: inflows, outflows, and storage changes for WMA, CMA, and 6 subareas (informs the Water Budget);
- Evaluates water resources during wet/dry conditions and seasonal variability;
- Quantitative framework to estimate future management scenarios; and
- Guides development of SGMA Management Criteria triggers and thresholds.

Groundwater Modeling Steps:

- Construct and Calibrate (historical measured data)
- Develop Future Baseline (recent conditions, projected growth; long-term average hydrology)
- Future Management Scenarios (potential projects, climate change)

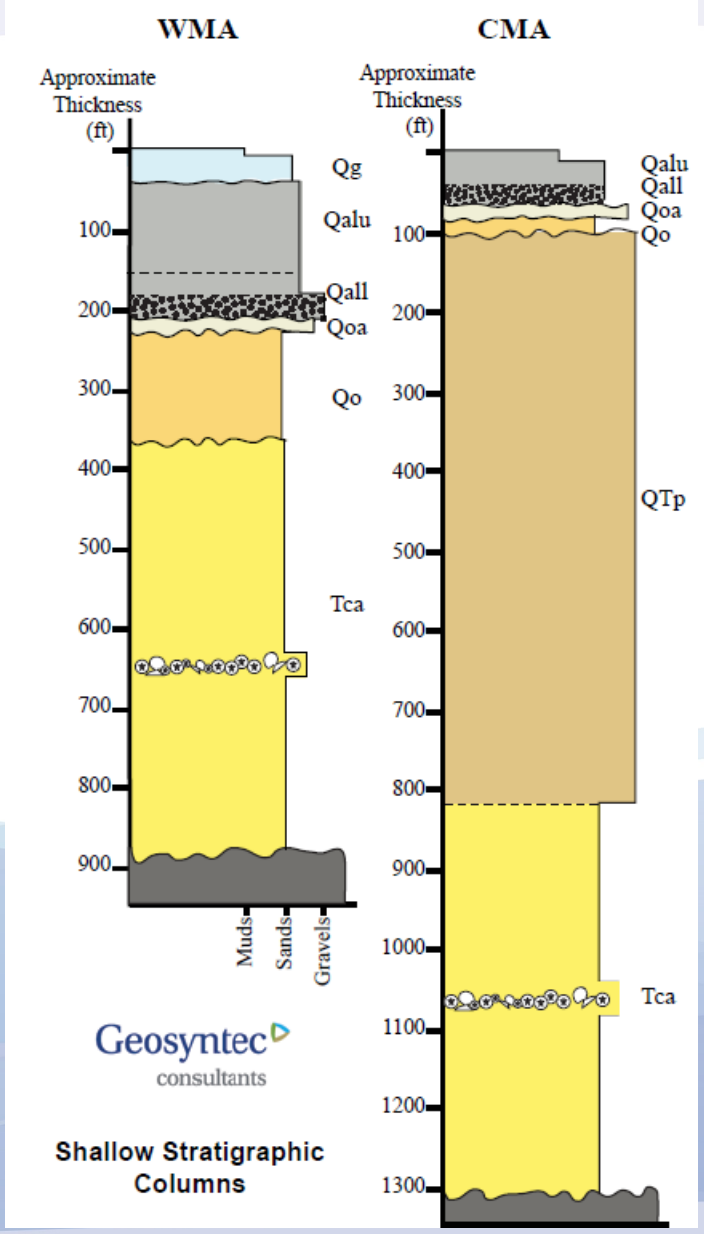
Numerical Groundwater Model Extents

- East-West: near Solvang to Pacific Ocean
- Central and Western Management Areas
- USGS MODFLOW Unstructured Grid
  - 8 Layers based on Geologic Structure
  - 53,265 Model Cells
  - 4-acre Model Cells
  - Monthly Stress Periods
  - 37 Water Years: 1982-2018 (Oct – Sep)



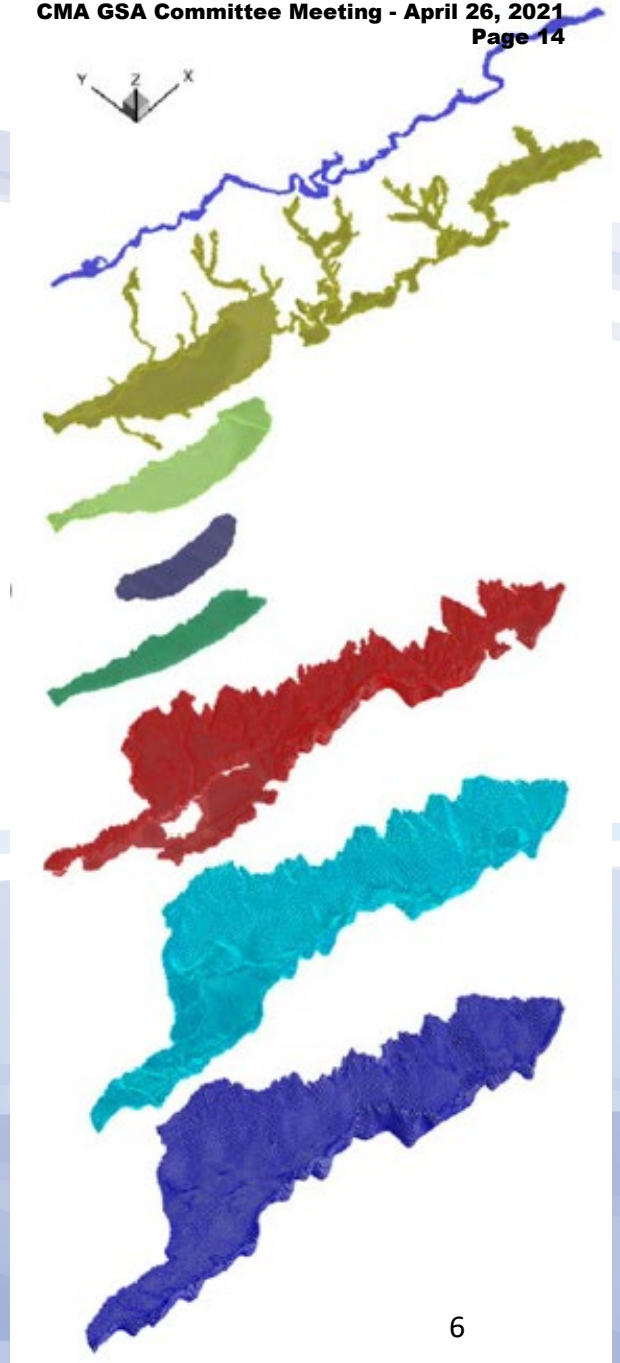
Groundwater Model Structure

- Geosyntec's 3D subsurface geologic model (Leapfrog) used to construct unstructured grid for numerical groundwater model
- Each model layer correlates to a different geological formation (or unit) and identified Principal Aquifer



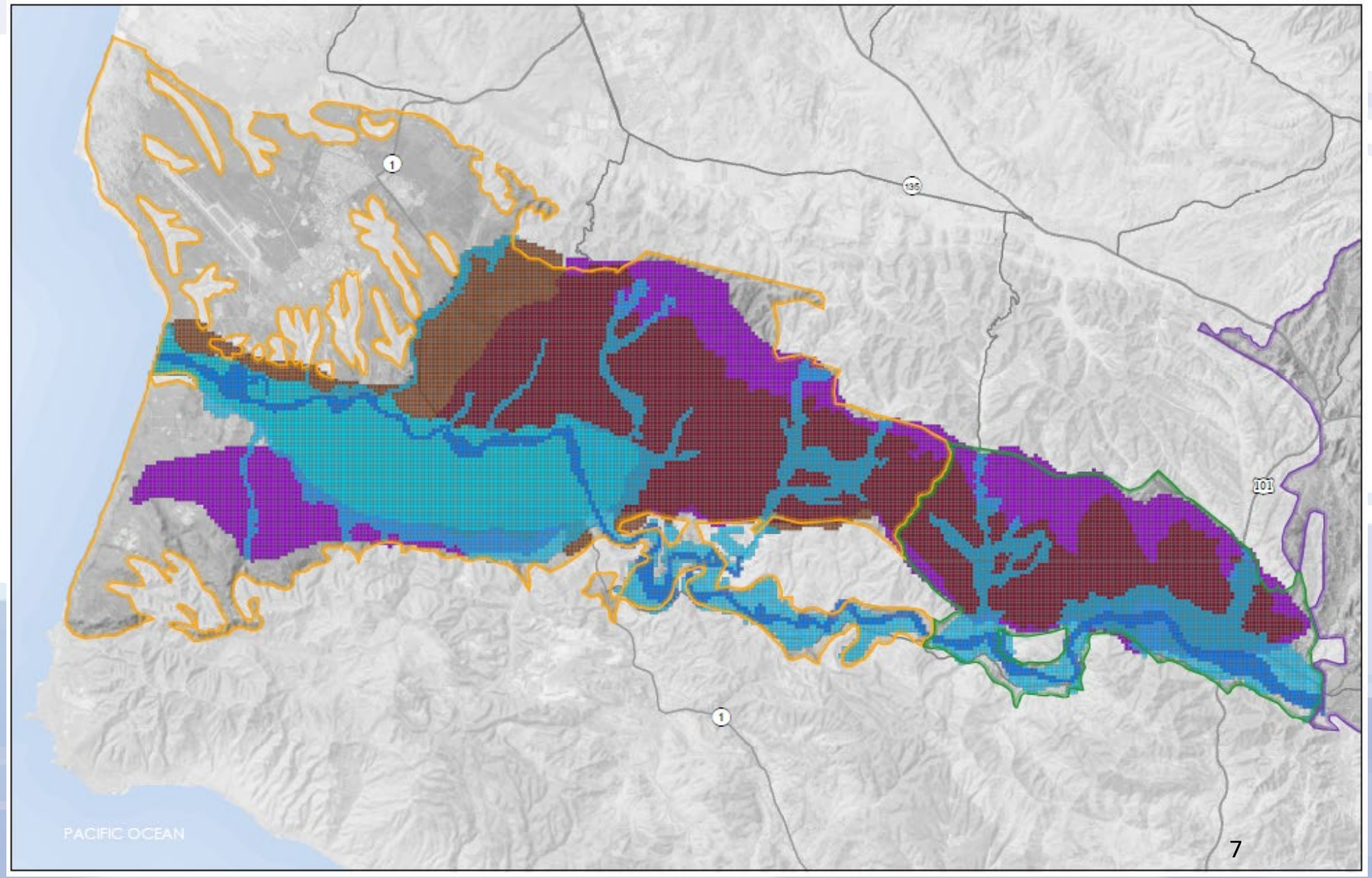
Layer. Geologic Unit

1. River Gravels
2. Qal, Young Alluvium
3. Qal, upper
4. Qal, mid
5. Qal, lower
6. Orcutt Sands
   Paso Robles
7. Careaga SS
   (Graciosa)
8. Careaga SS
   (Cebada)



Model Layer Discretization

Layer	# Model Cells
Layer 1	1,219
Layer 2	7,710
Layer 3	3,035
Layer 4	1,399
Layer 5	1,988
Layer 6	10,910
Layer 7	13,502
Layer 8	13,502
TOTAL	53,265



Model Hydrologic Parameters: Hydraulic Conductivity

Model simulates the occurrence and movement of groundwater
Hydraulic Conductivity (K) ft/day
Storage Coefficient (Sy, Ss) unitless, 1/ft

WMA/CMA Model Hydraulic Conductivity

(K_{xy} / K_z, feet/day)

Geologic Unit	Layer	WMA SYR	CMA SYR	Lompoc Plain	Lompoc Terrace	Lompoc Upland	Santa Rita Upland	Buellton Upland
River Gravels	1	600 / 30	750 / 37.5	600 / 30				
Qal, Young Alluvium	2	360 / 36	360 / 36	55 / 5.5	45 / 4.5	40 / 4	40 / 4	10 / 2
Qal, upper	3			35 / 3.5				
Qal, mid	4			5 / 0.5				
Qal, lower	5			325 / 32.5				
Orcutt / Paso Robles	6			45 / 4.5		25 / 2.5	25 / 2.5	2 / 0.1
Graciosa Careaga	7			40 / 4	15 / 1.5	25 / 2.5	25 / 2.5	2 / 0.1
Cebada Careaga	8			4 / 0.4	1.5 / 0.15	2.5 / 2.5	2.5 / 0.25	1 / 0.1

Model Hydrologic Parameters: Storage Parameters

WMA/CMA Model Storage Parameters

Specific Yield, Sy (unitless)
Storage Coefficient, S (1/foot)

Geologic Unit	Layer	WMA SYR	CMA SYR	Lompoc Plain	Lompoc Terrace	Lompoc Upland	Santa Rita Upland	Buellton Upland
River Gravels	1	0.05 / 5.0E-06	0.05 / 5.0E-06	0.05 / 5.0E-06				
Qal, Young Alluvium	2	0.1 / 1.0E-05	0.1 / 1.0E-05	0.1 / 1.0E-05	0.1 / 1.0E-05	0.1 / 1.0E-05	0.1 / 1.0E-05	0.1 / 1.0E-05
Qal, upper	3			0.1 / 1.0E-05				
Qal, mid	4			0.1 / 1.0E-05				
Qal, lower	5			0.1 / 1.0E-05				
Orcutt / Paso Robles	6			0.1 / 1.0E-05		0.1 / 1.0E-05	0.1 / 1.0E-05	0.1 / 1.0E-05
Graciosa Careaga	7			0.1 / 1.0E-05	0.1 / 1.0E-05	0.1 / 1.0E-05	0.1 / 1.0E-05	0.1 / 1.0E-05
Cebada Careaga	8			0.04 / 4.0E-06	0.015 / 1.5E-06	0.025 / 2.5E-06	0.025 / 2.5E-06	0.1 / 1E-06

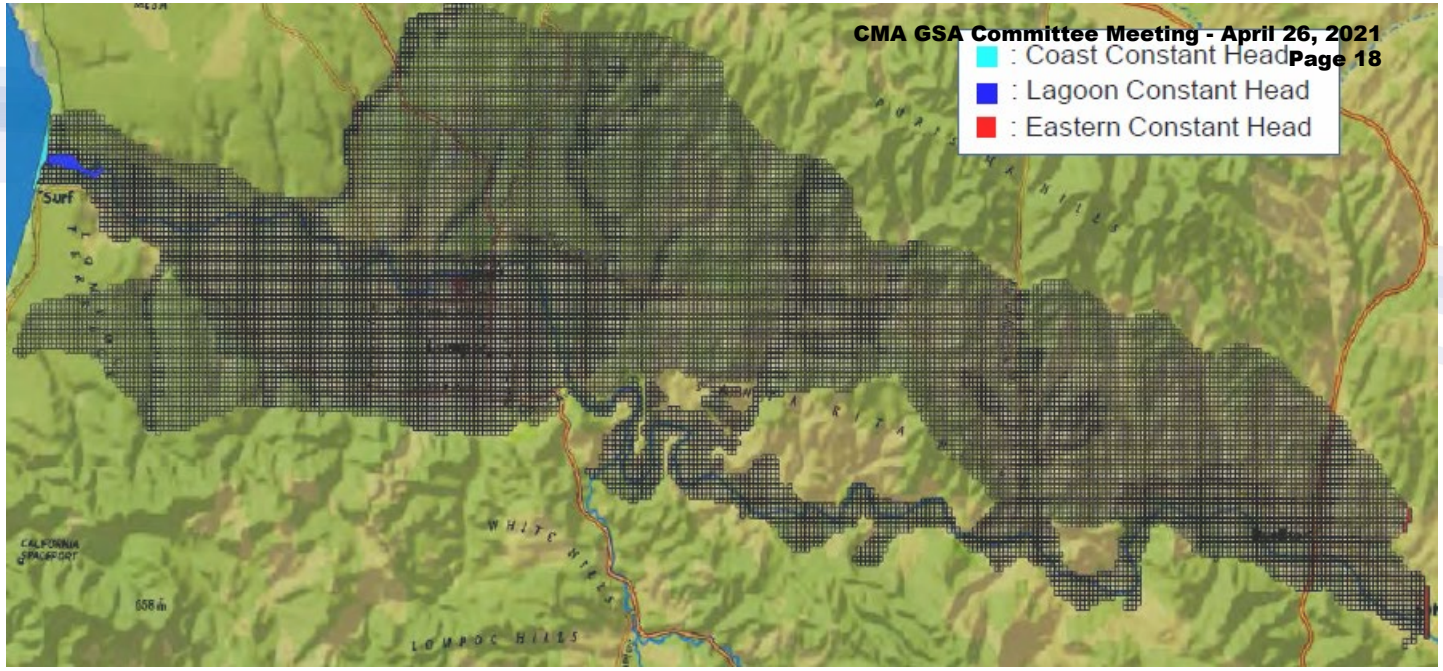
Groundwater Model Boundary Conditions

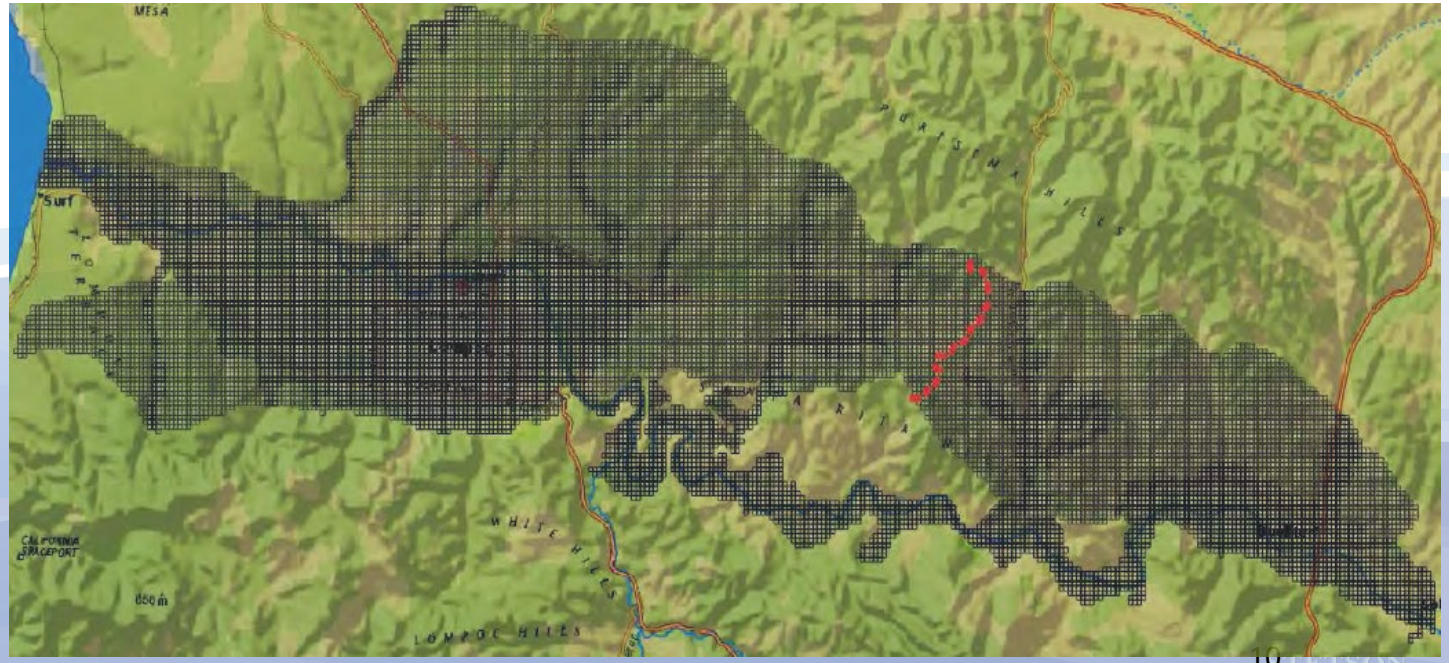
Time Variant Specified Head (CHD):

Eastern Boundary with EMA Pacific Ocean and Lagoon

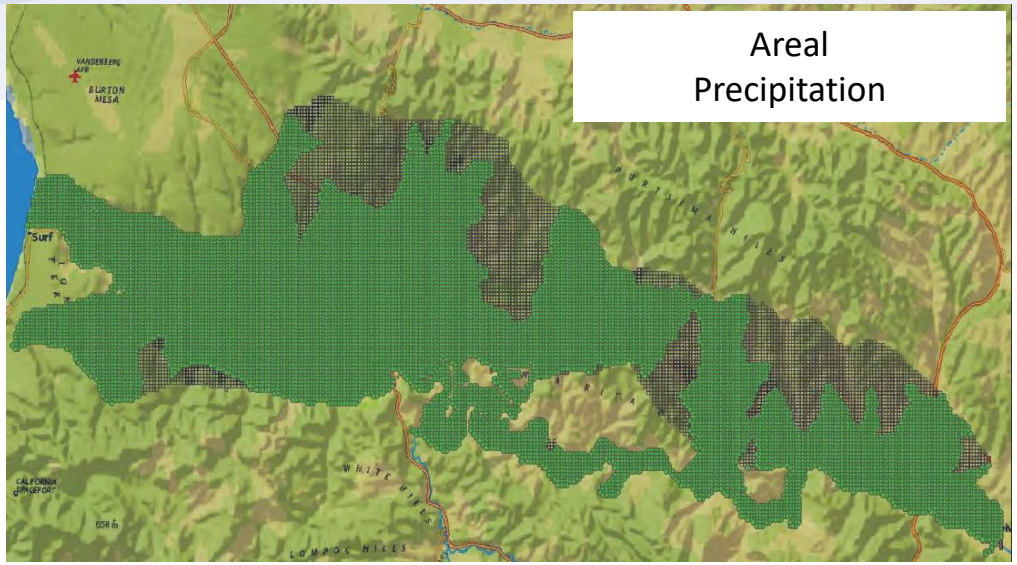
Internal Groundwater Flow Influenced by Low Permeability Model Cells

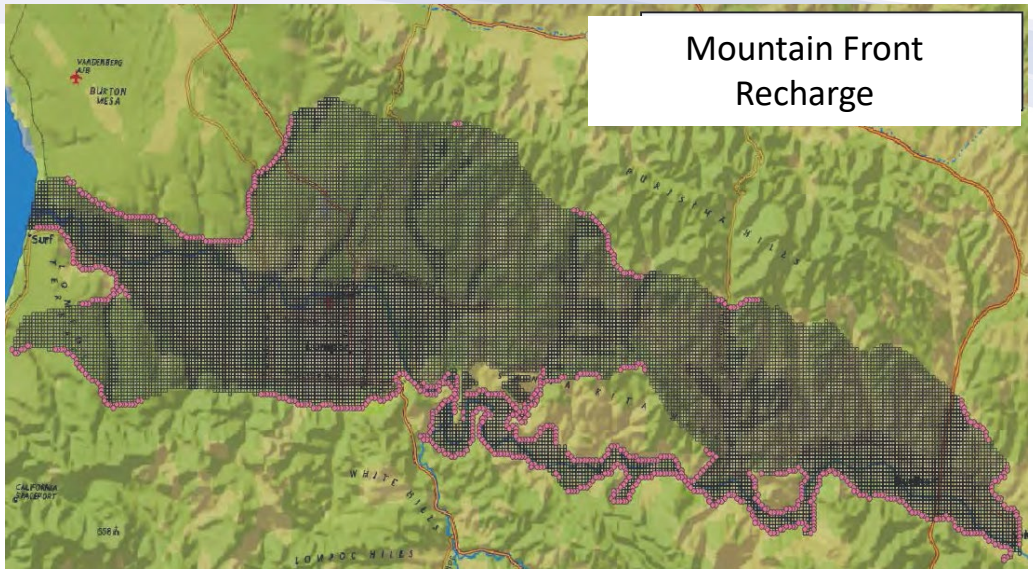
- Between Buellton Upland and Santa Rita Upland
- ~200-300’ Difference in GW Levels

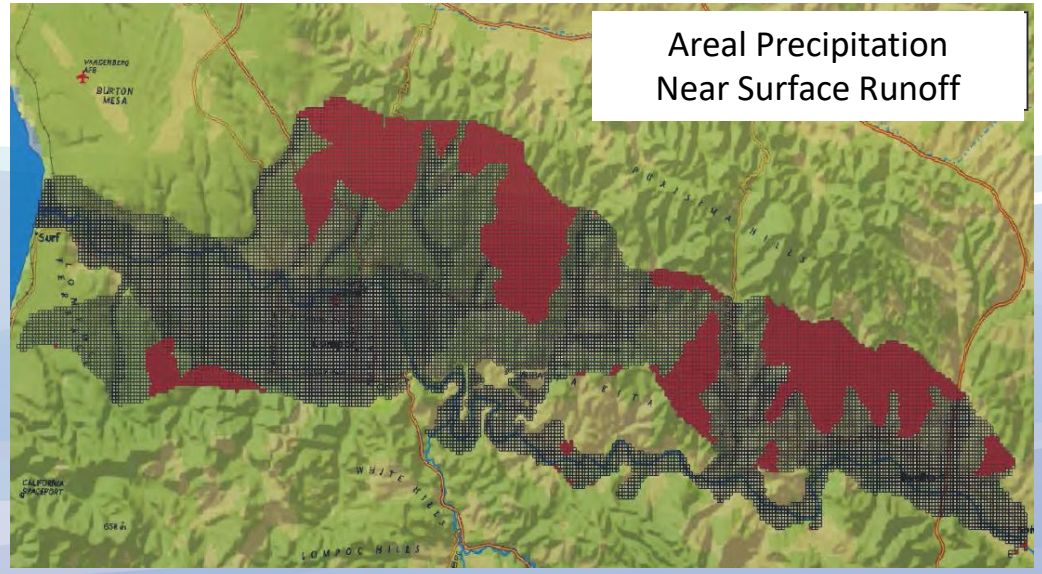


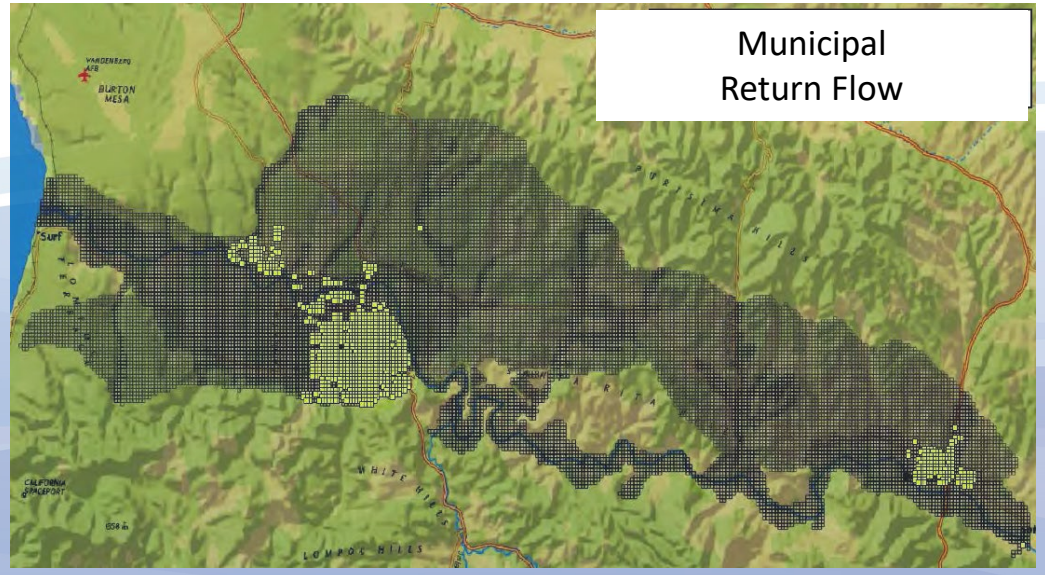


MODFLOW Recharge Package (RCH)





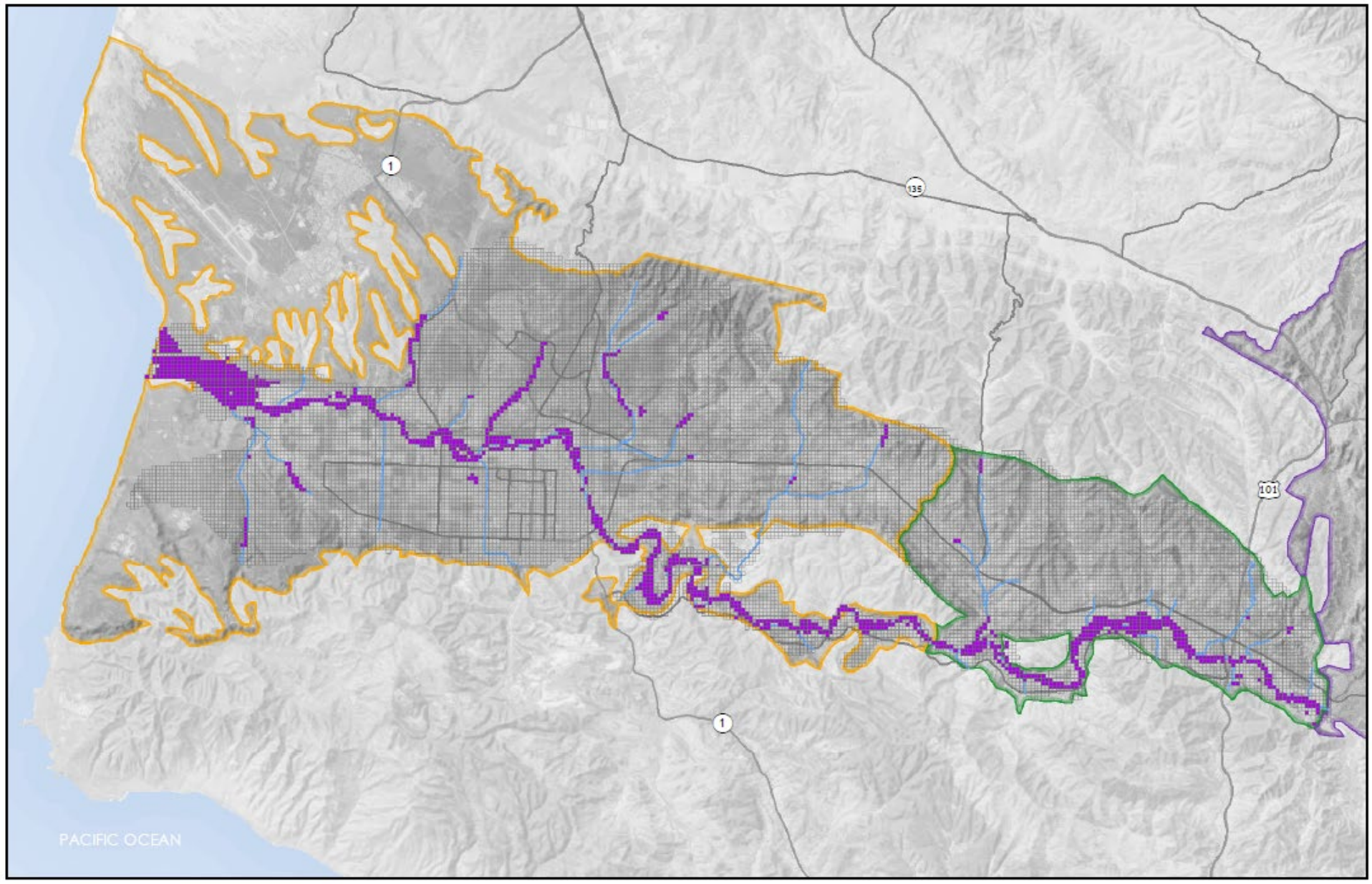




WY 1982-2018 Average Annual Recharge:
20,360 AFY

- Areal Precipitation 10,750 AFY
- Drainage Recharge 4,450 AFY
- Mountainfront Recharge 3,040 AFY
- Municipal Return Flow 2,120 AFY

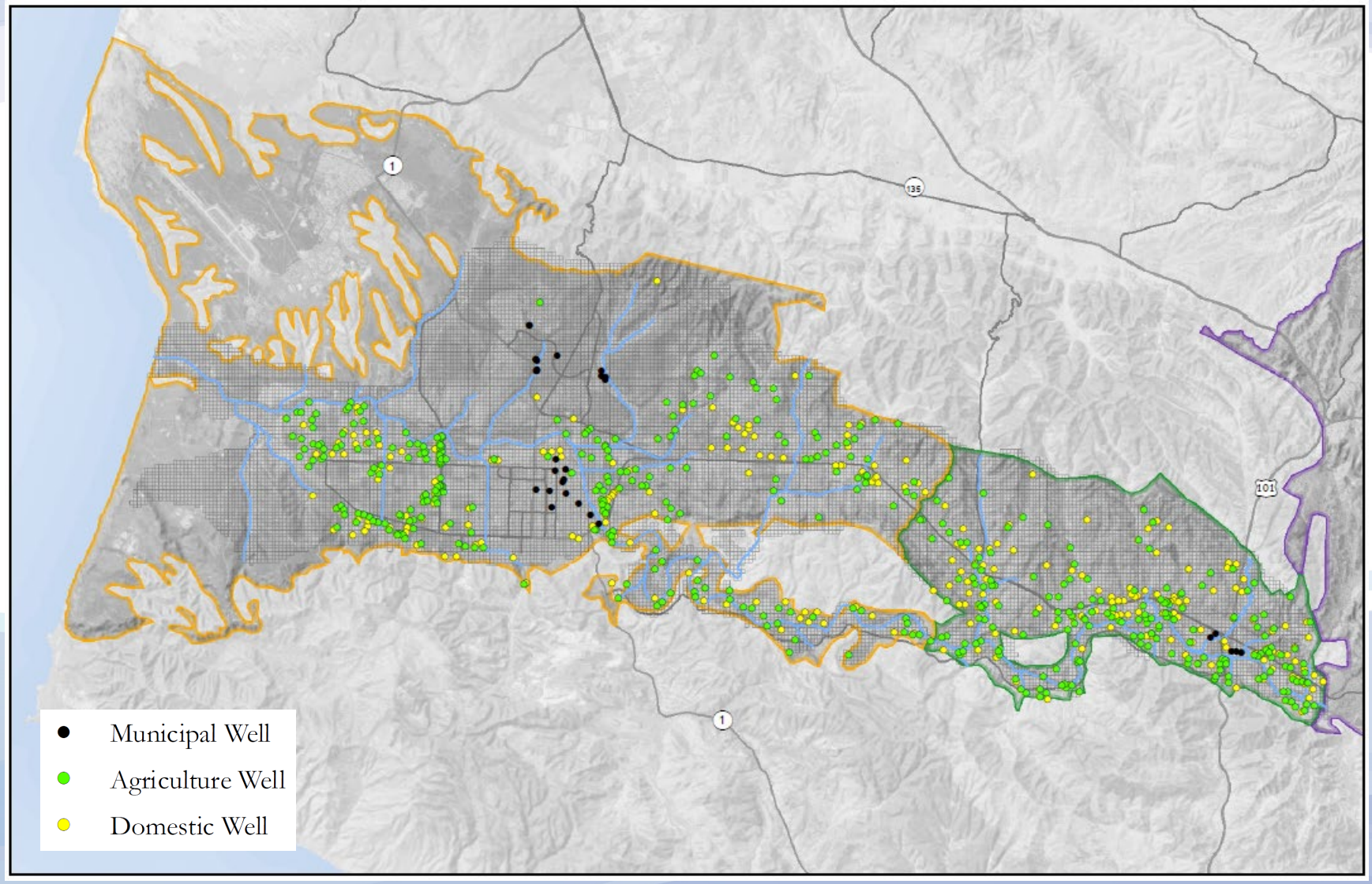
MODFLOW Evapotranspiration Package (EVT)

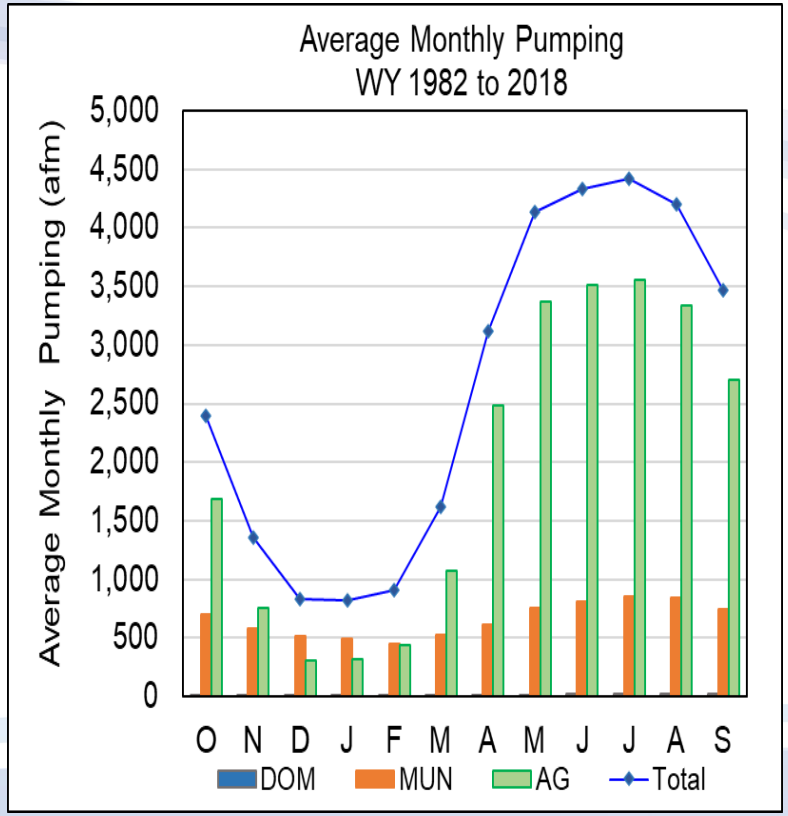


- Model Calculates ET based on Simulated Depth to Water from Land Surface
- Potential ET Rate and Extinction Depth

Month	Potential ET Rate (inches/day)	
	WMA	CMA
Jan	0.06	0.06
Feb	0.07	0.08
Mar	0.11	0.12
Apr	0.14	0.16
May	0.19	0.21
Jun	0.17	0.20
Jul	0.18	0.22
Aug	0.16	0.20
Sep	0.14	0.16
Oct	0.10	0.12
Nov	0.07	0.08
Dec	0.05	0.06

MODFLOW Well Package (WEL)

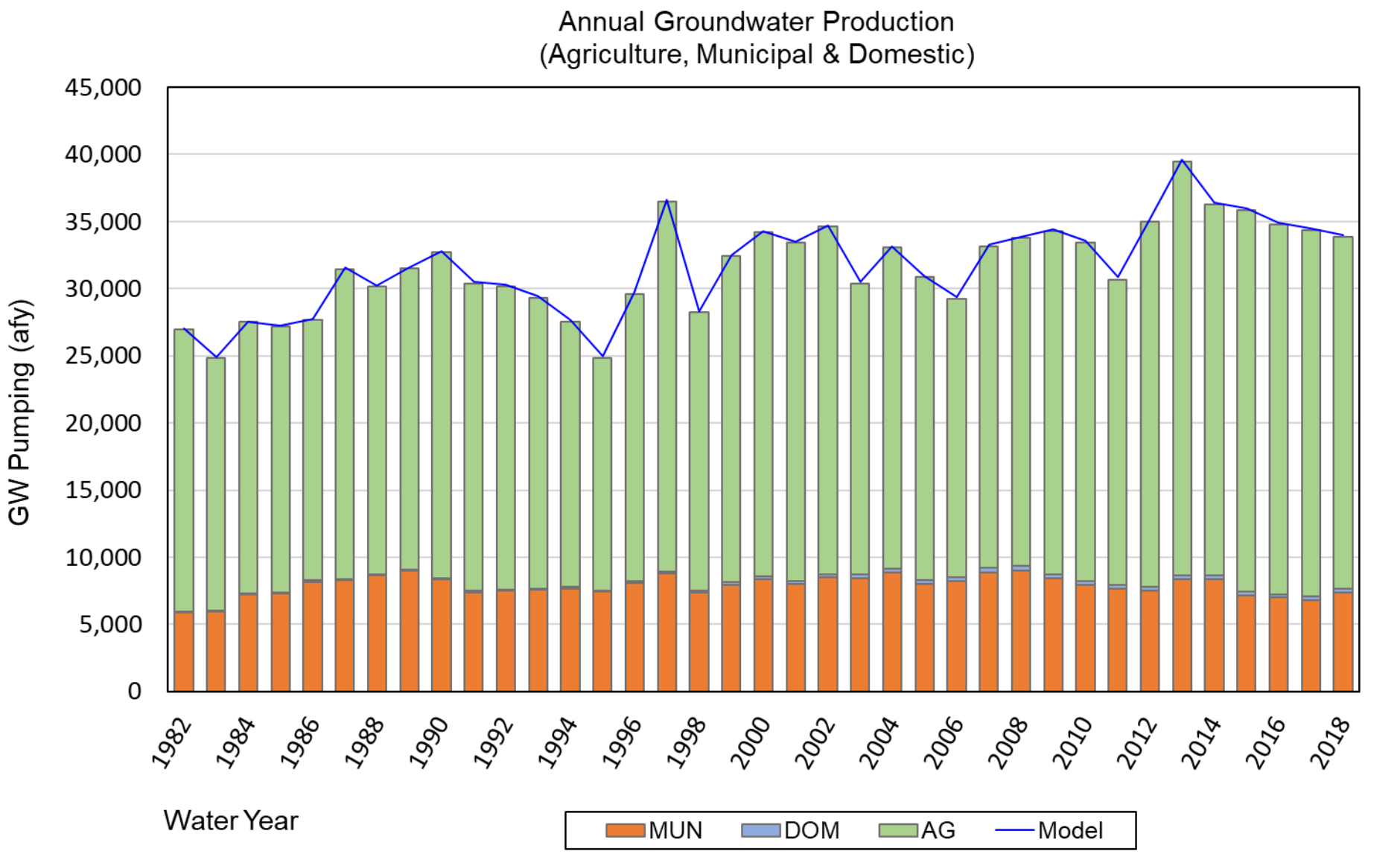




WY 1982-2018 Production Wells

- Municipal 22 wells
- Agricultural 203 wells

MODFLOW Well Package (WEL)

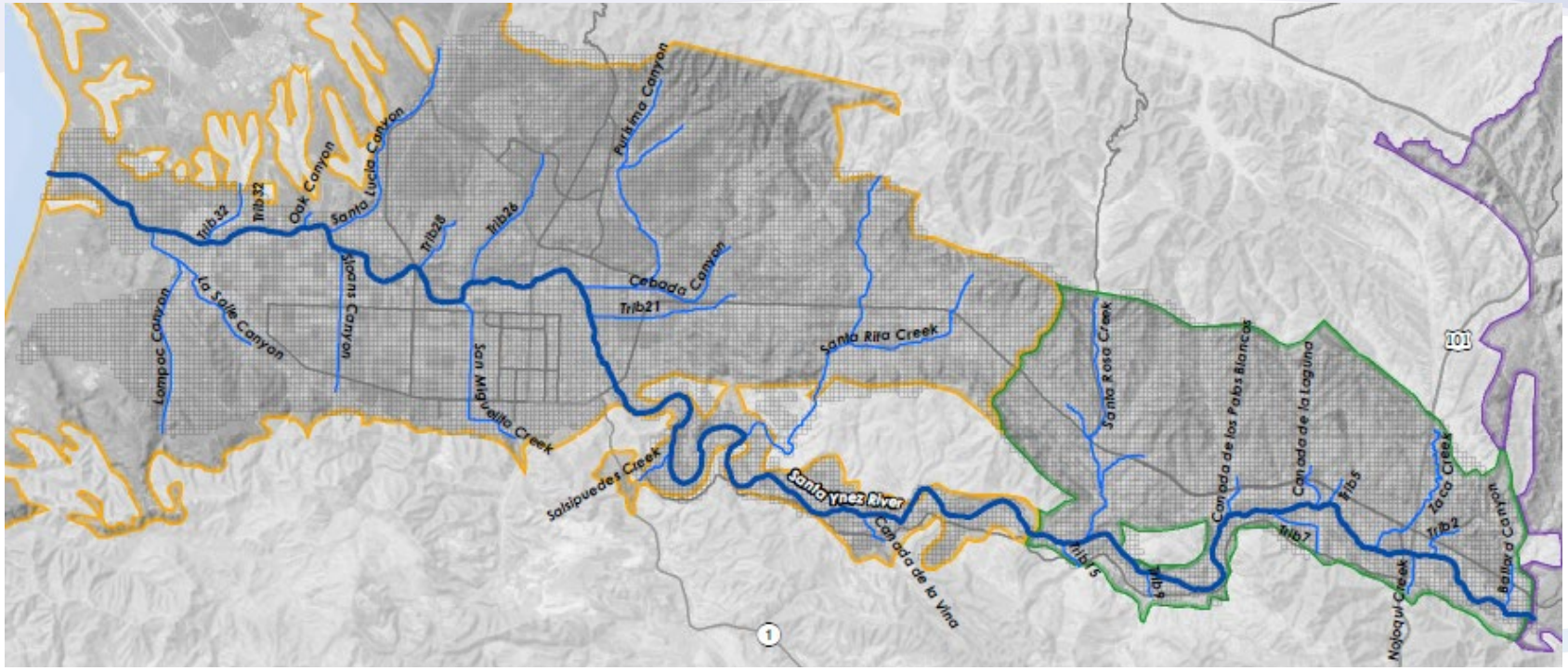


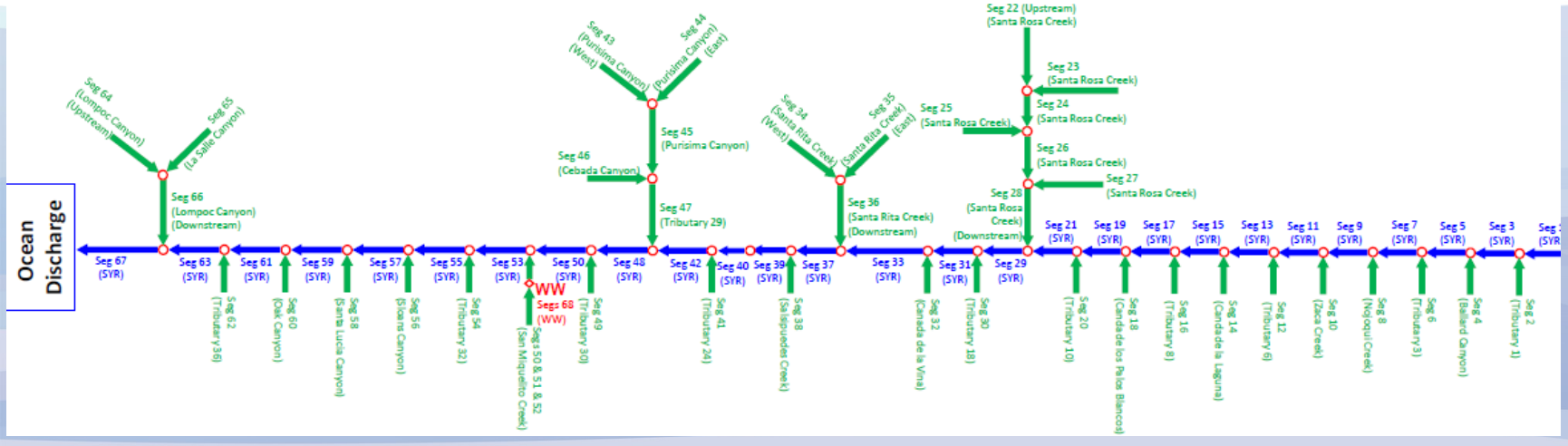
WY 1982-2018 Average Annual Pumping:

31,550 AFY

- Municipal 7,890 AFY
- Domestic 190 AFY
- Agricultural 2,3480 AFY

MODFLOW Streamflow Routing Package (SFR)



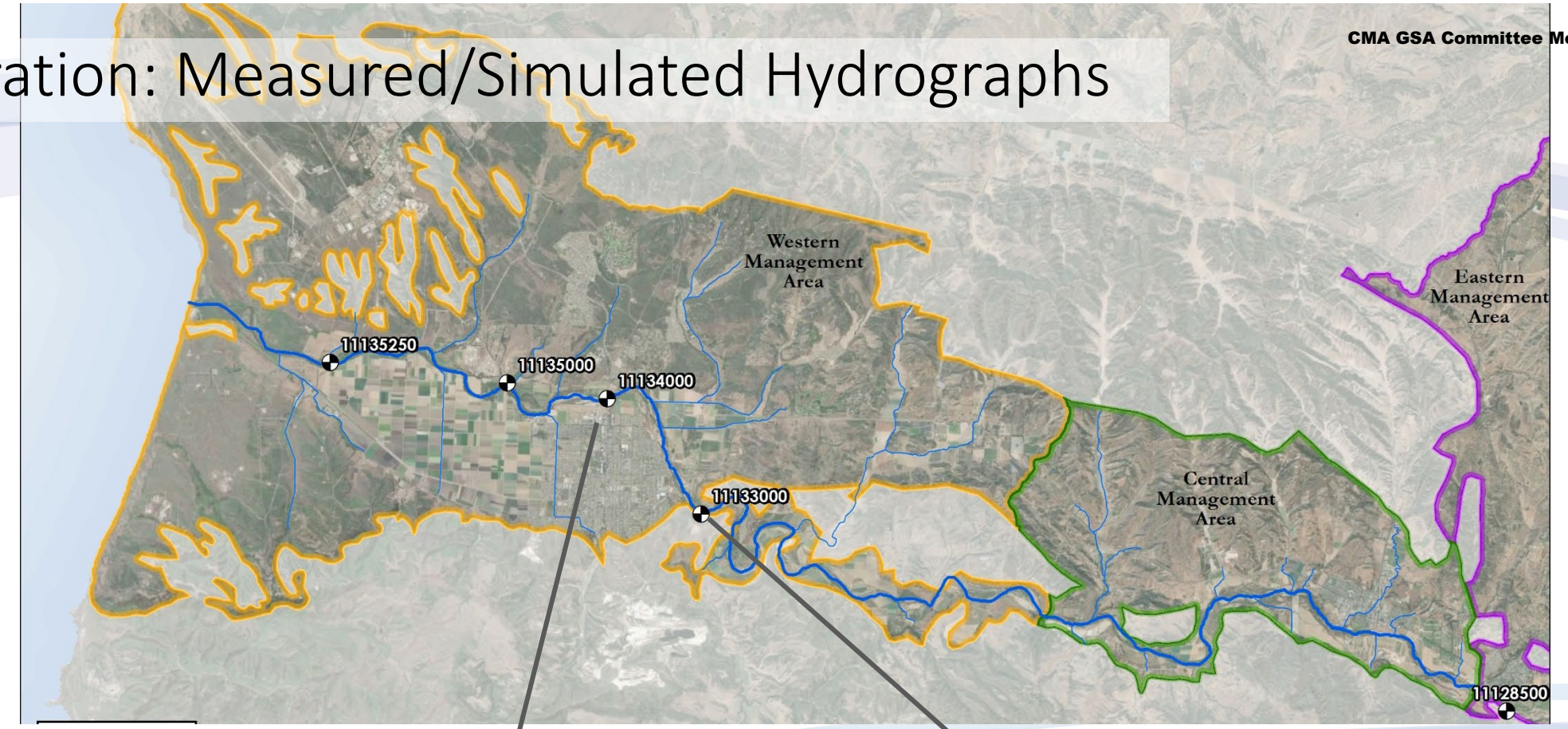


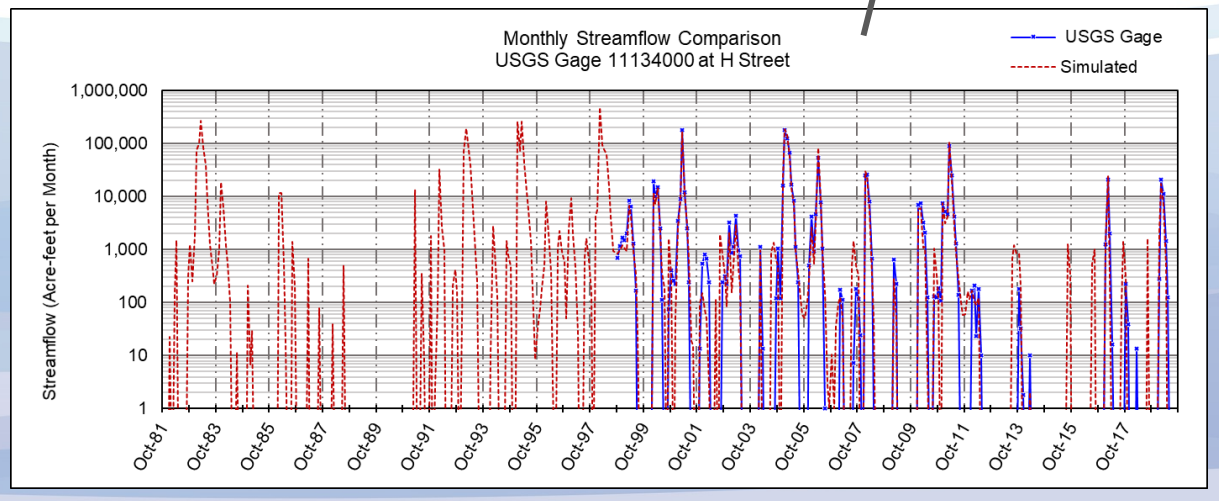
- SW-GW Interface:
  - Stream Seepage
  - Baseflow
- Santa Ynez River
- 28 Side Tributaries
- 1 Wastewater
- 68 Segments
- 1490 Model Cells
- Stream Channel Hydraulics based on Flow/Width/Depth Relationship

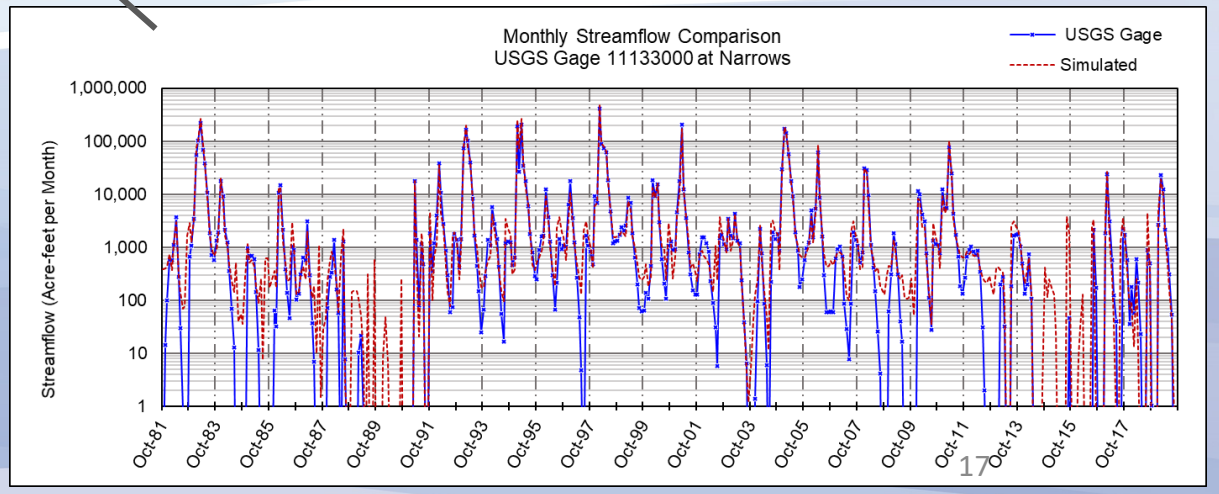
Model Calibration

- Measured and Simulated Streamflow Hydrographs
- Measured and Simulated Groundwater Levels

Calibration: Measured/Simulated Hydrographs

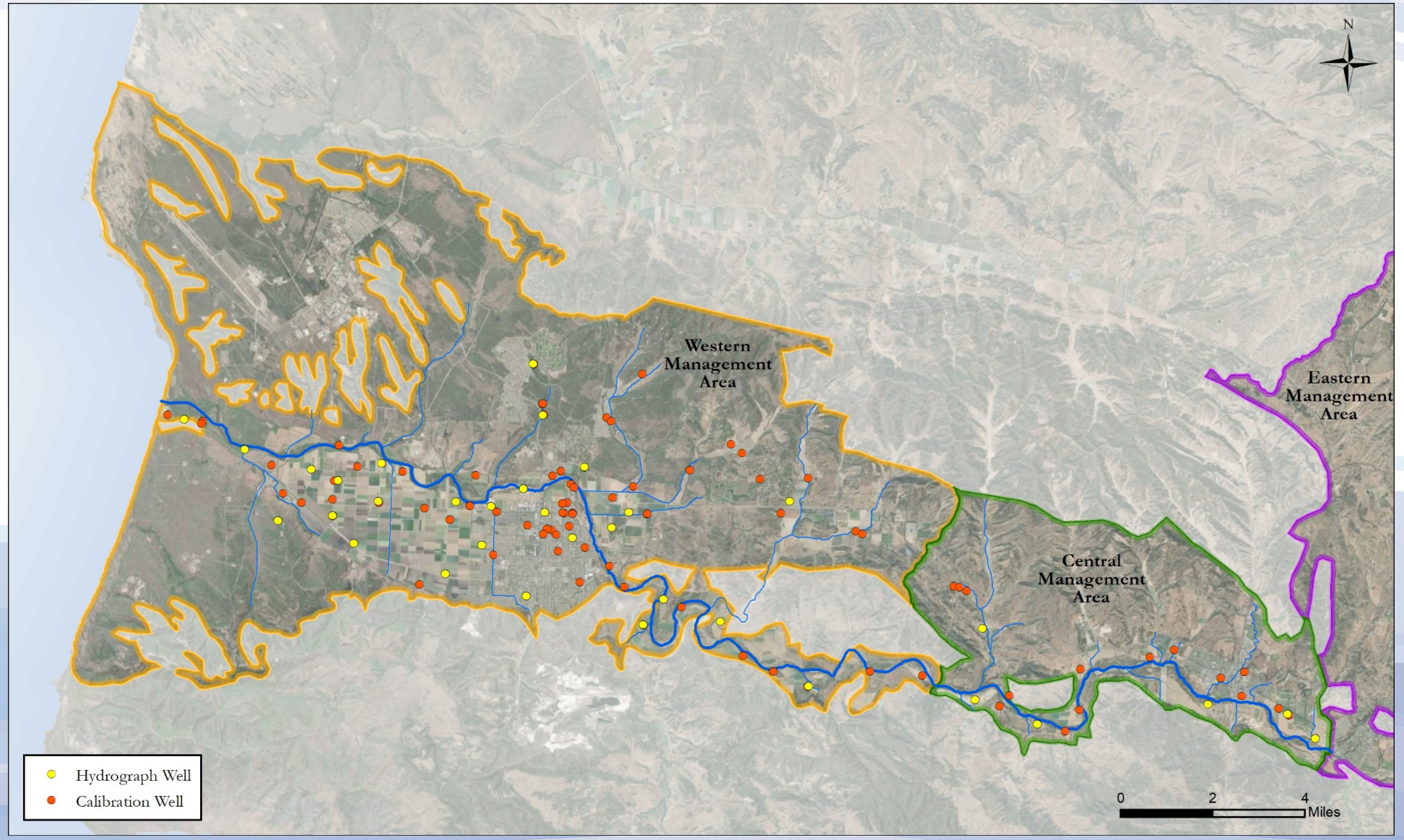




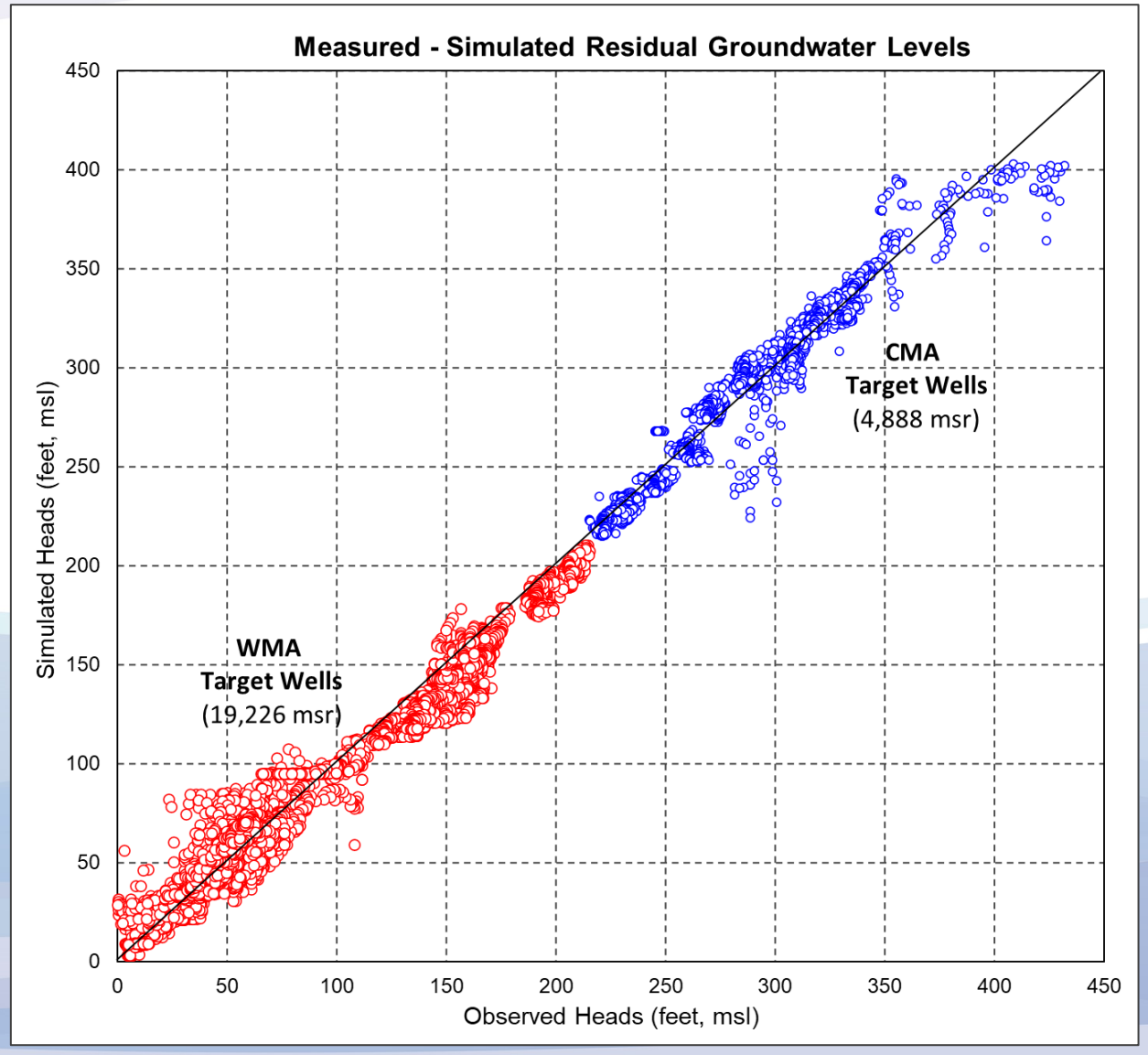


Calibration:

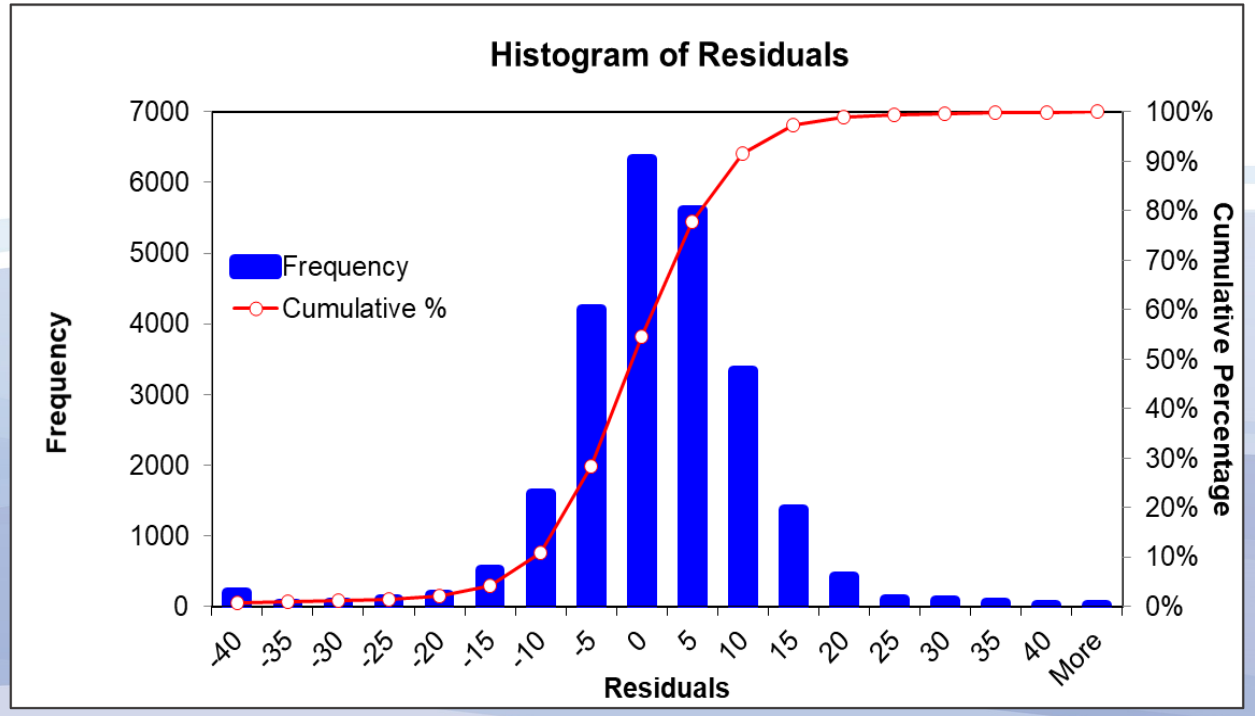
Target Wells Showing Measured/Simulated Hydrographs



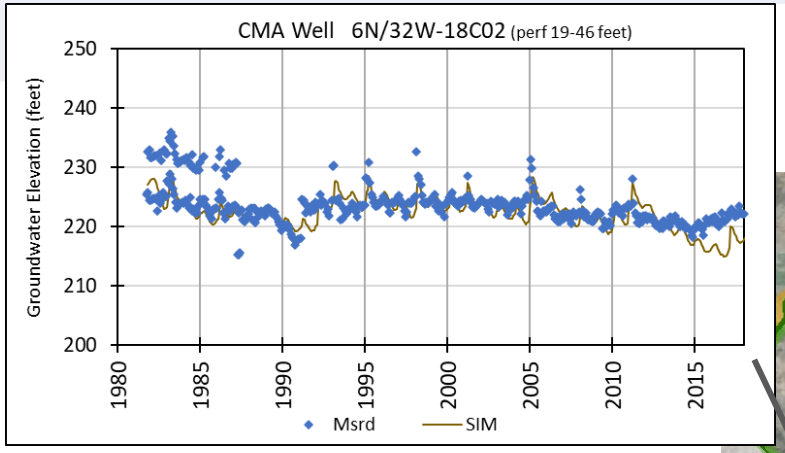
Simulated Groundwater Level Calibration Statistics
24,114 data for 122 wells

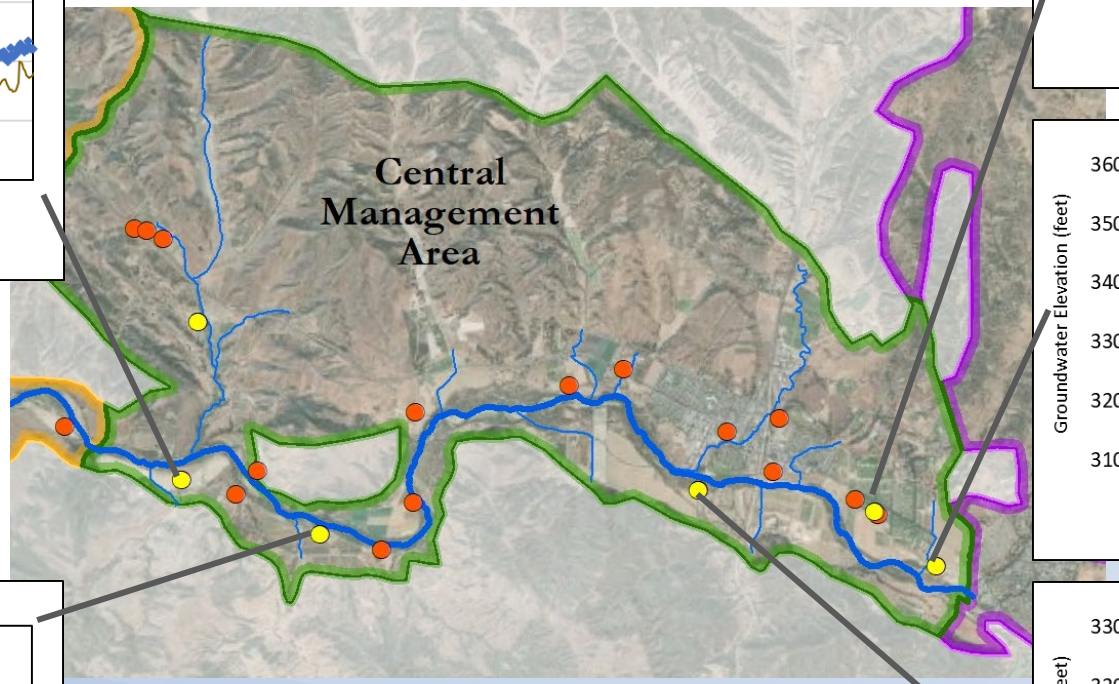


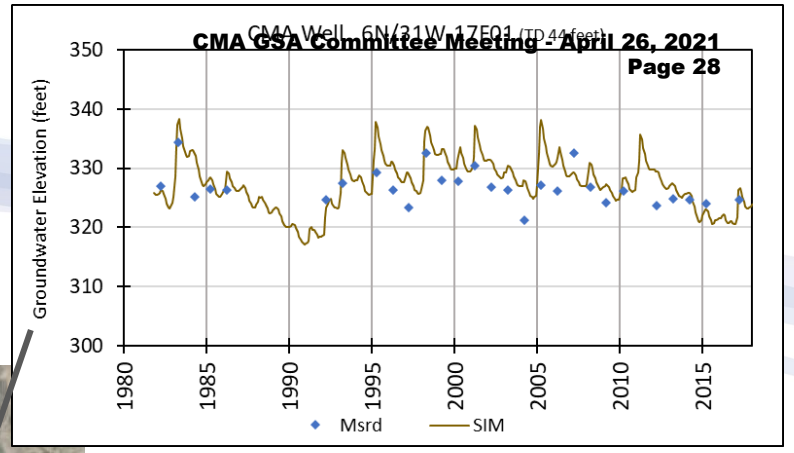
Residual Statistics (msr-sim)			
Mean	-1.06	Range	147.3
Standard Error	0.07	Minimum	-78.7
Median	-0.79	Maximum	68.6
Standard Deviation	10.1	Sum	-25,560
Sample Variance	102.2	Count	24,11
Skewness	-2.0	95% Confdnc Level	0.13

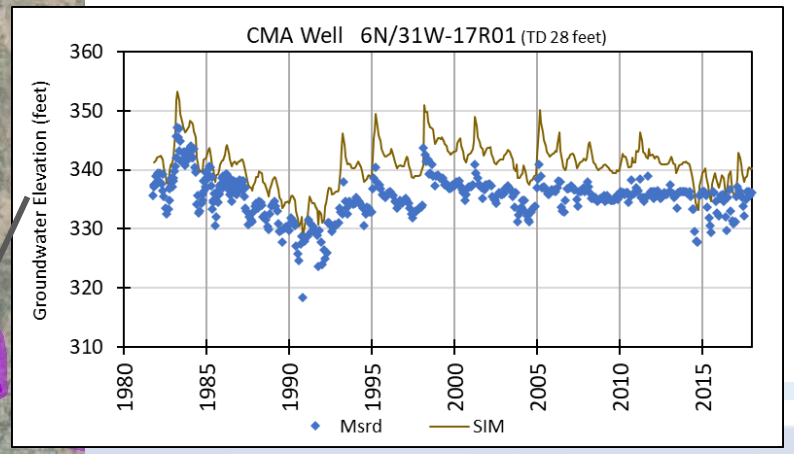


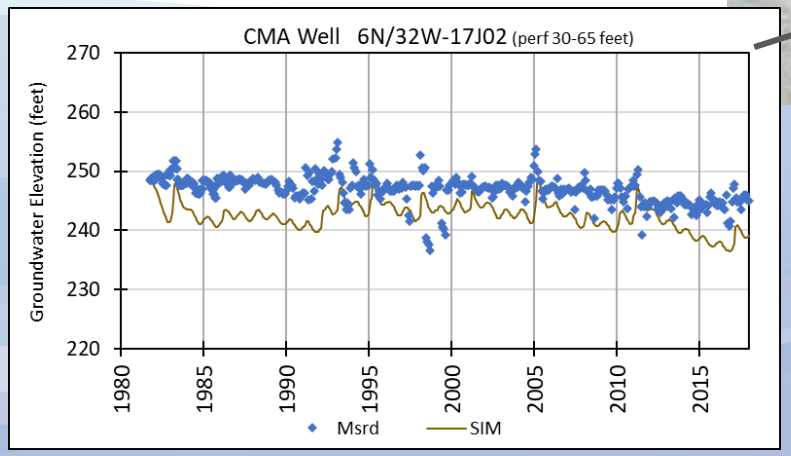
Measured/Simulated Hydrographs

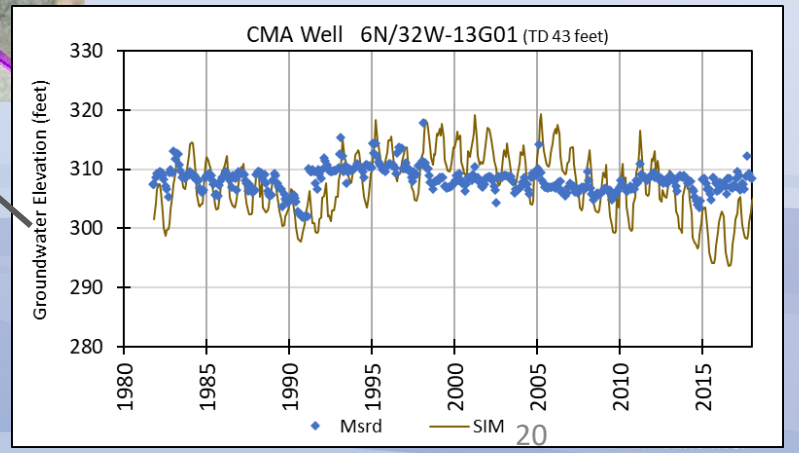




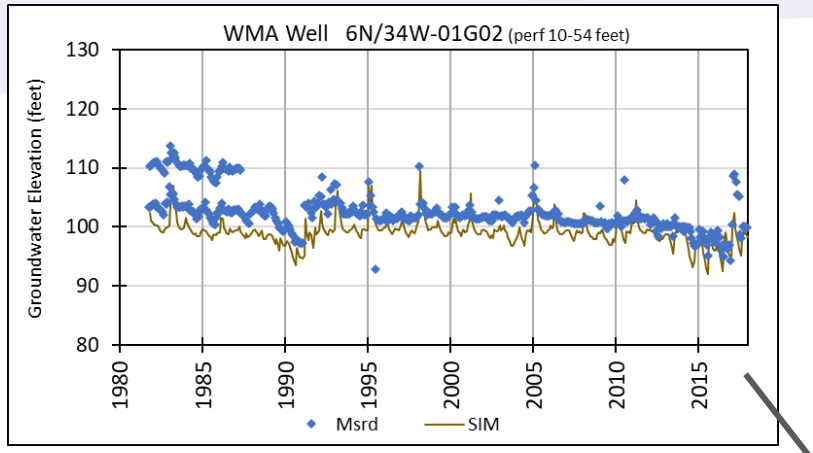


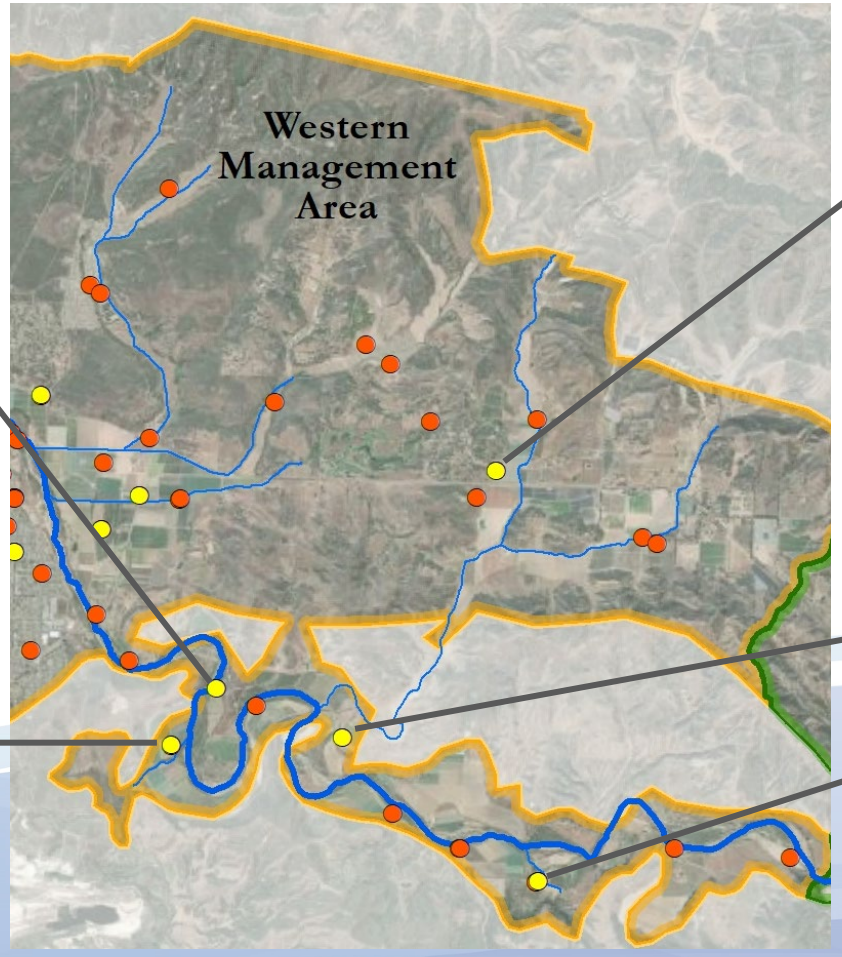


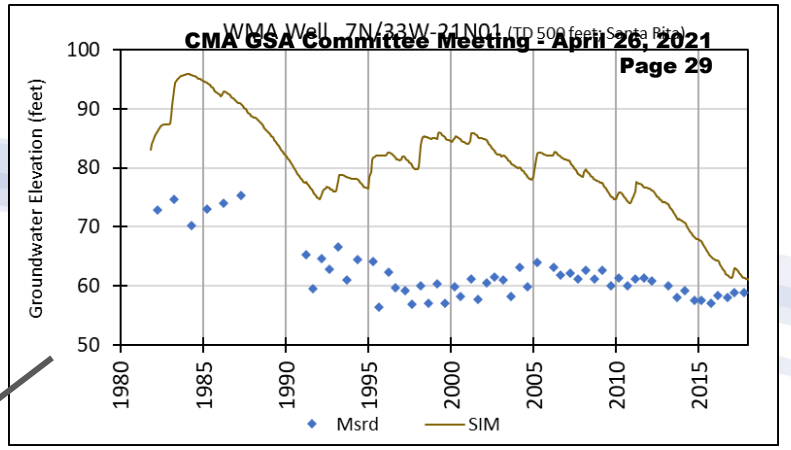


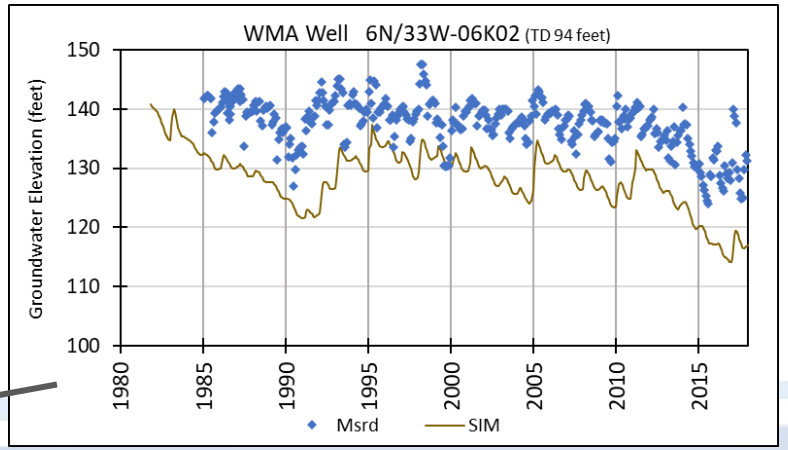


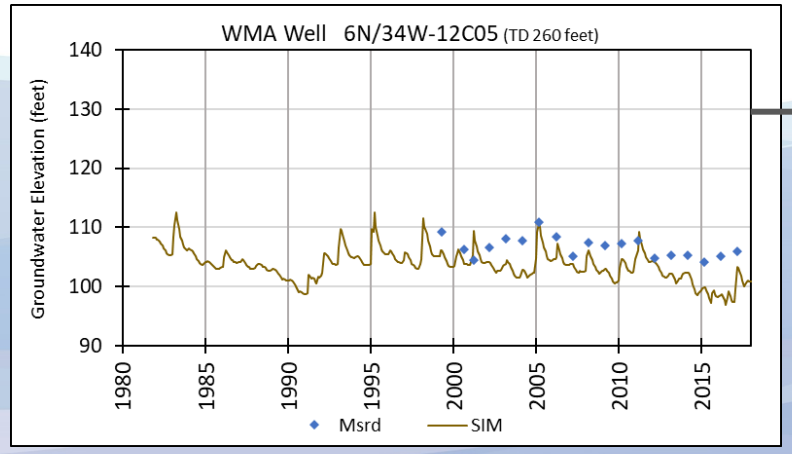
Measured/Simulated Hydrographs

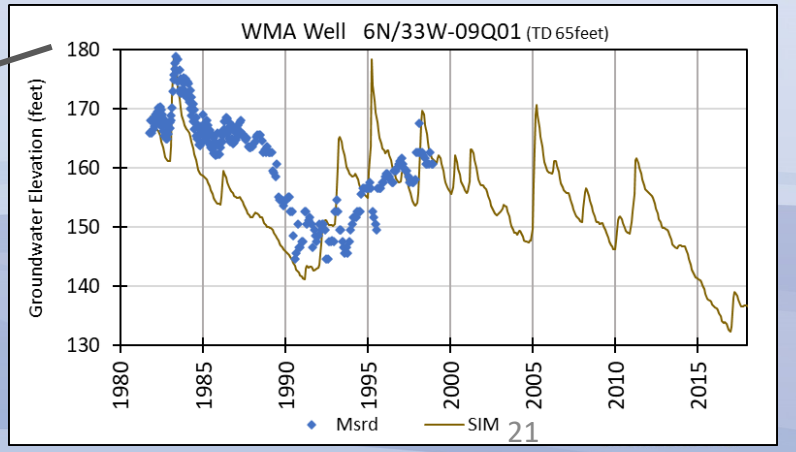




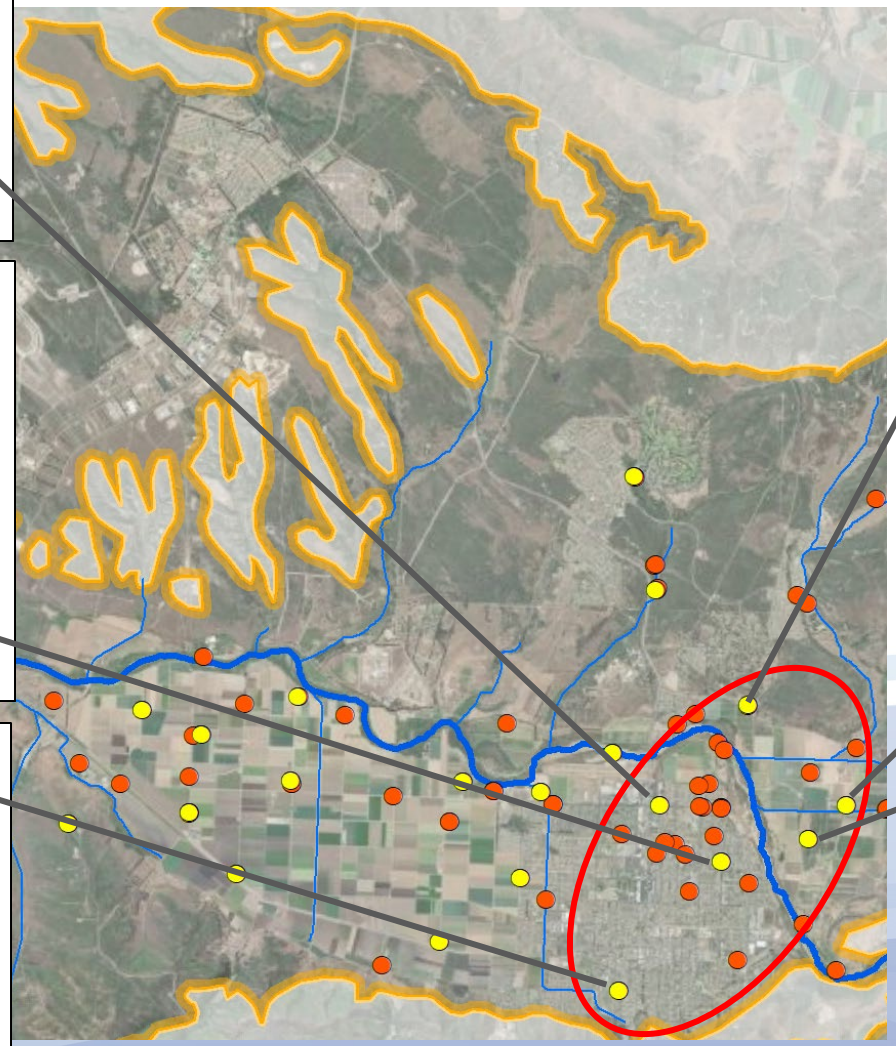


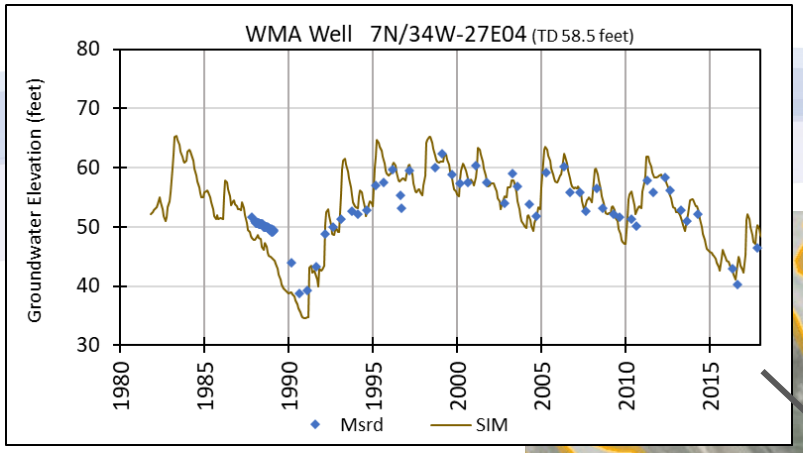


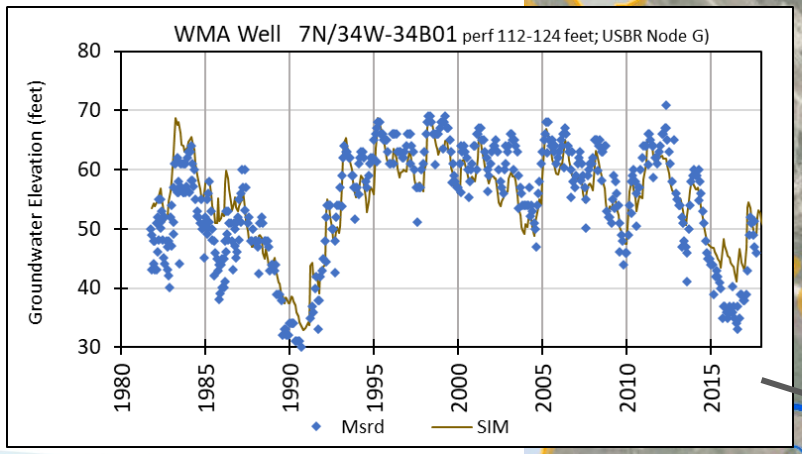


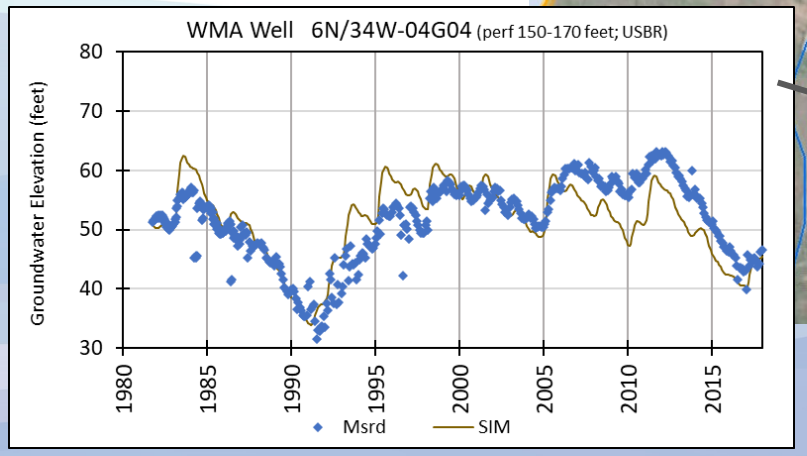


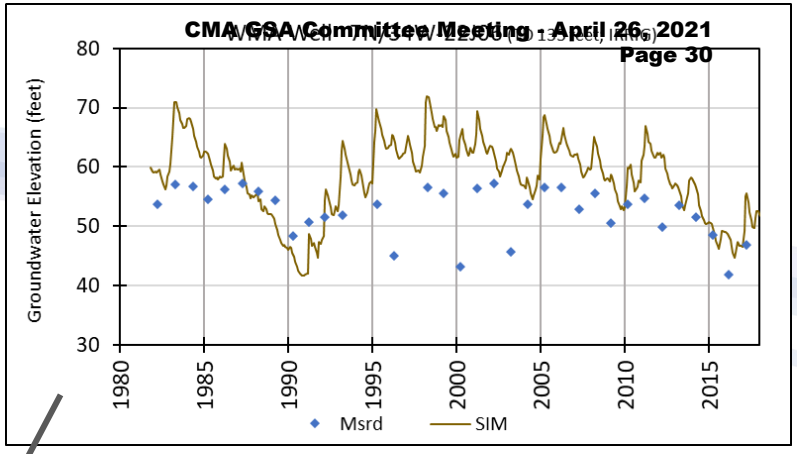
Measured/Simulated Hydrographs

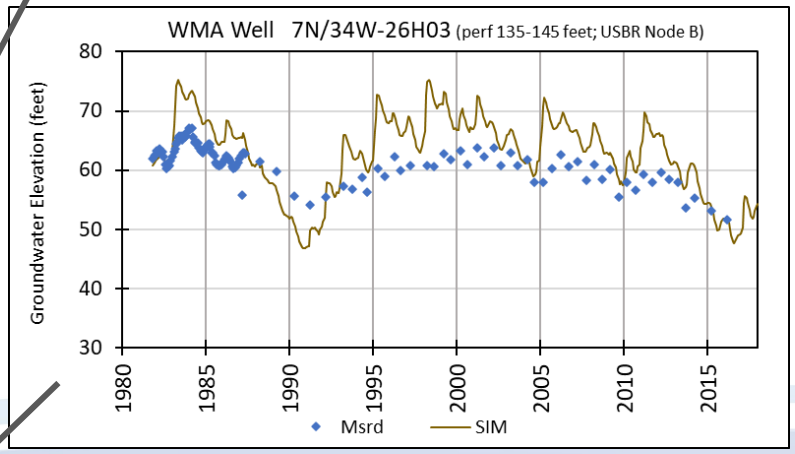


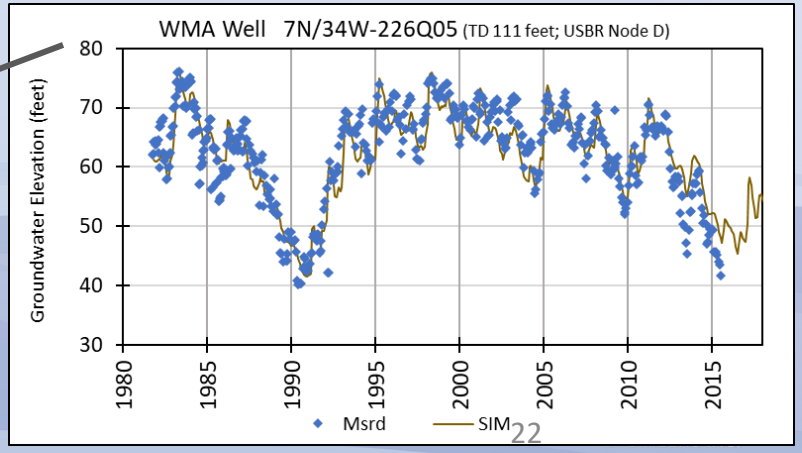




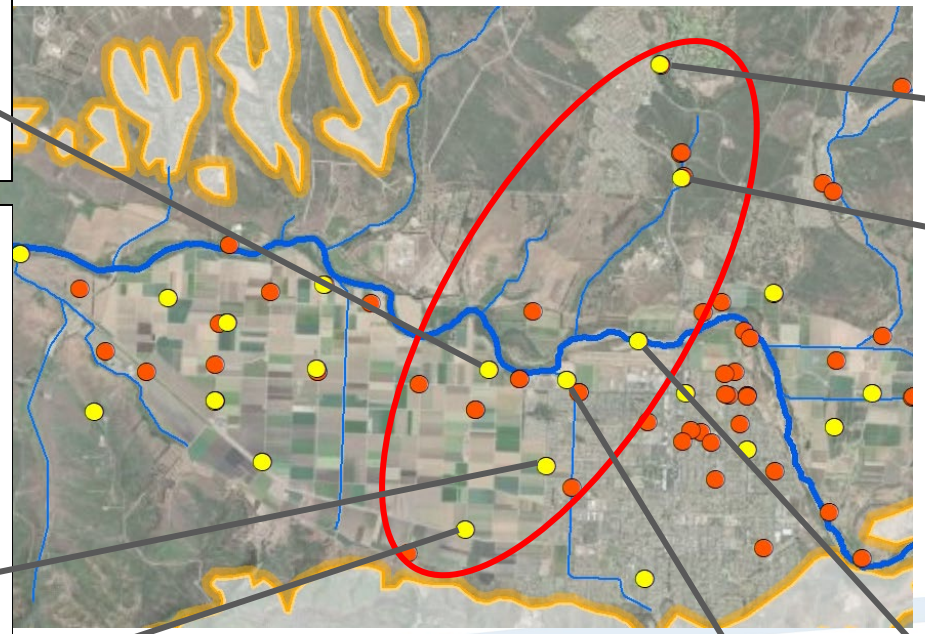


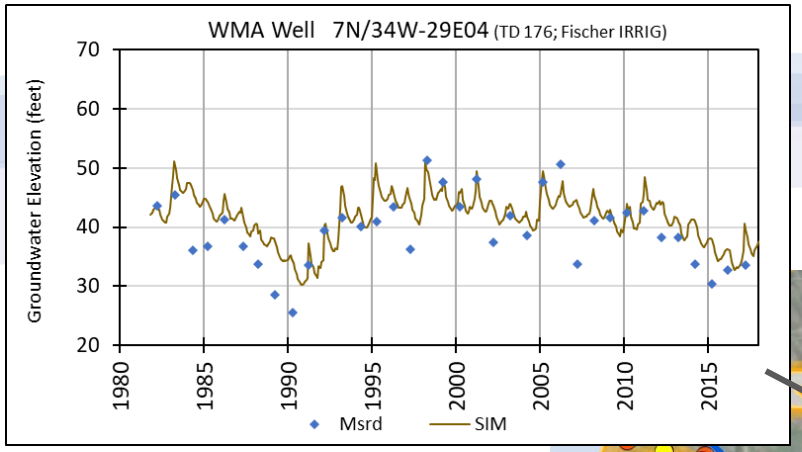


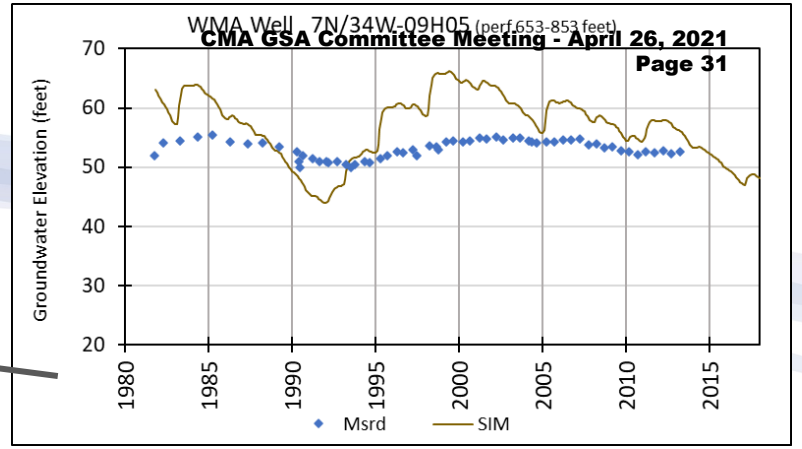


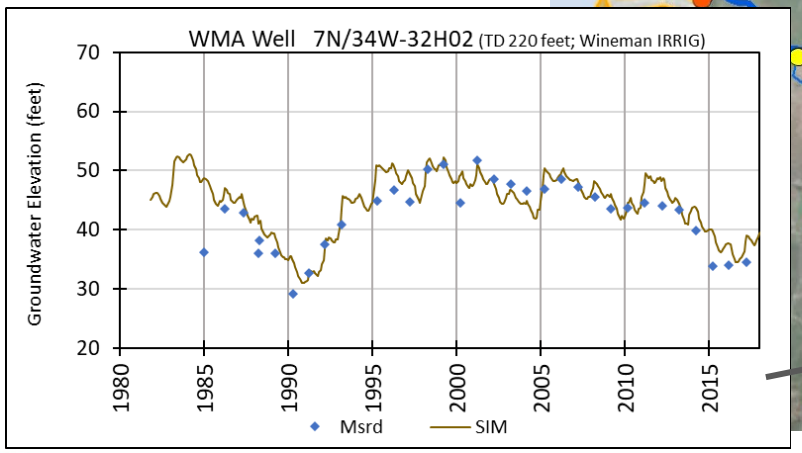


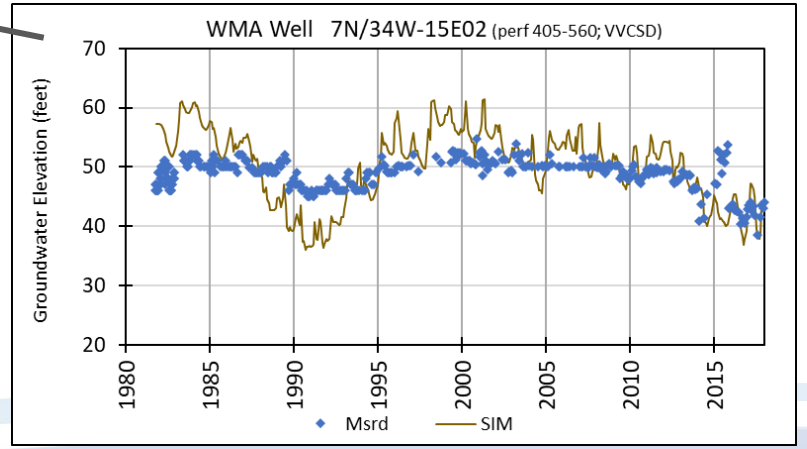
Measured/Simulated Hydrographs

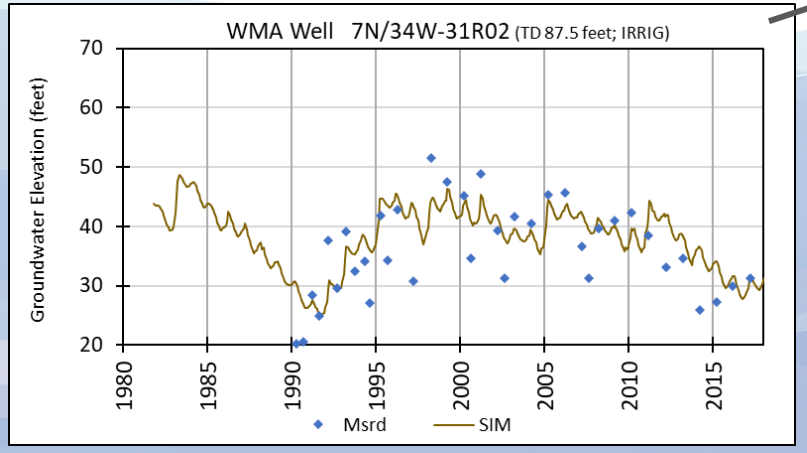


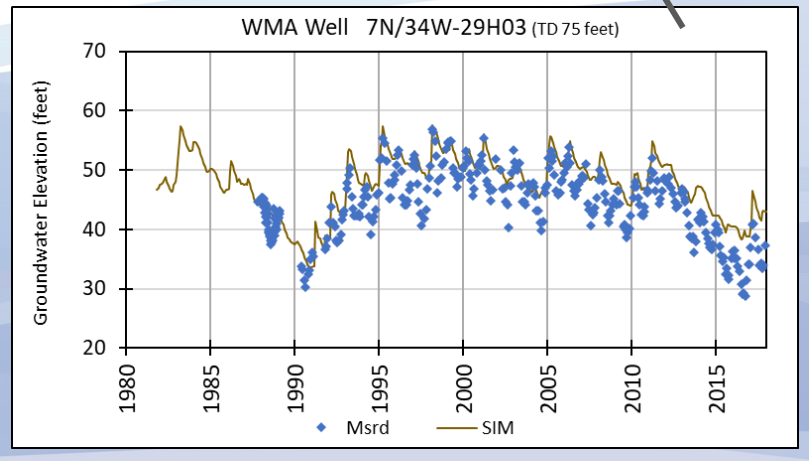


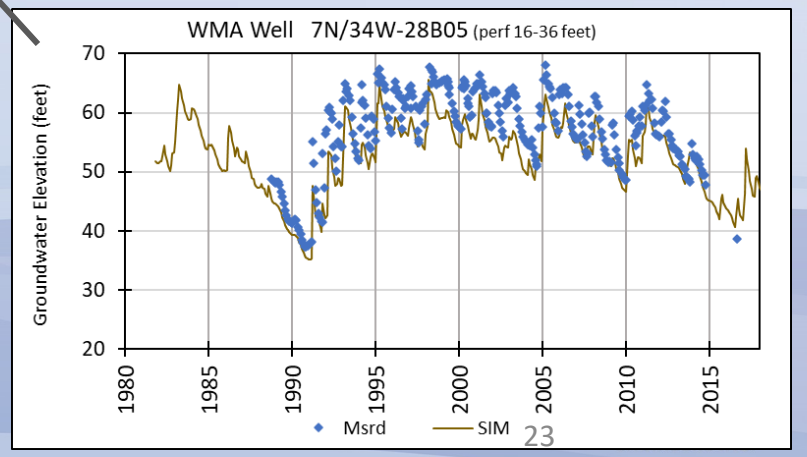




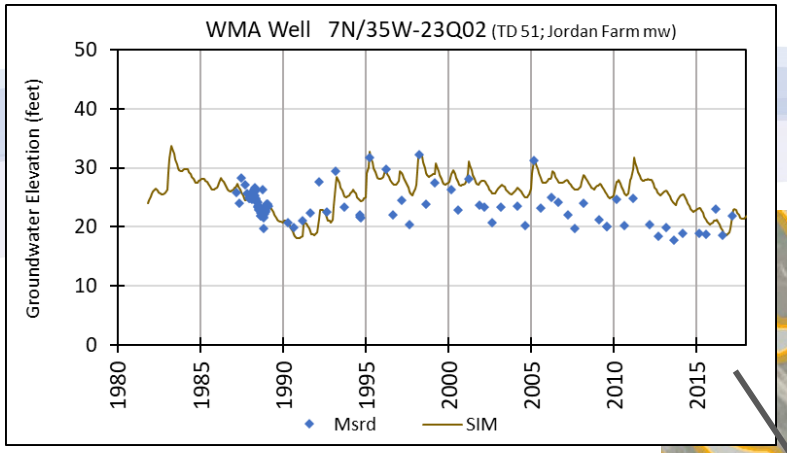


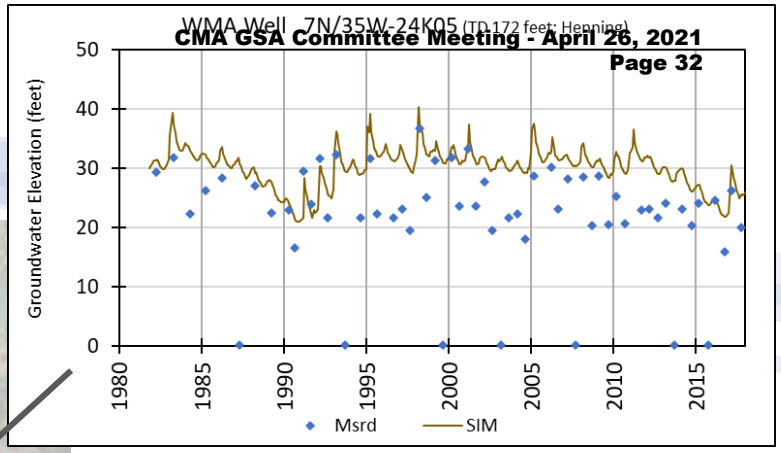


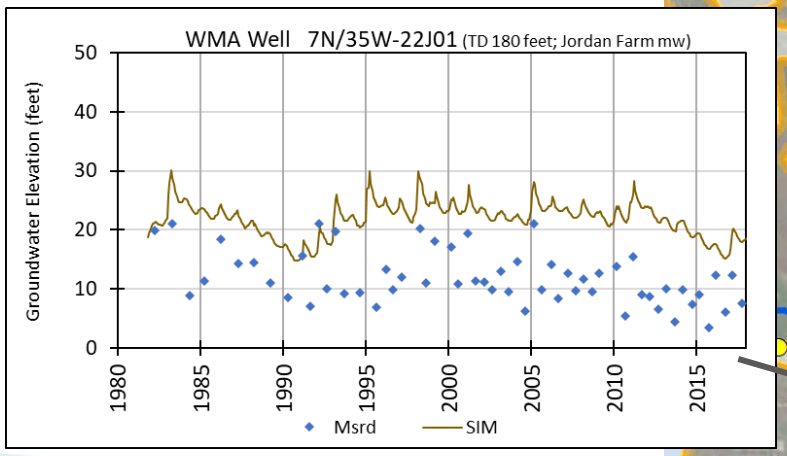


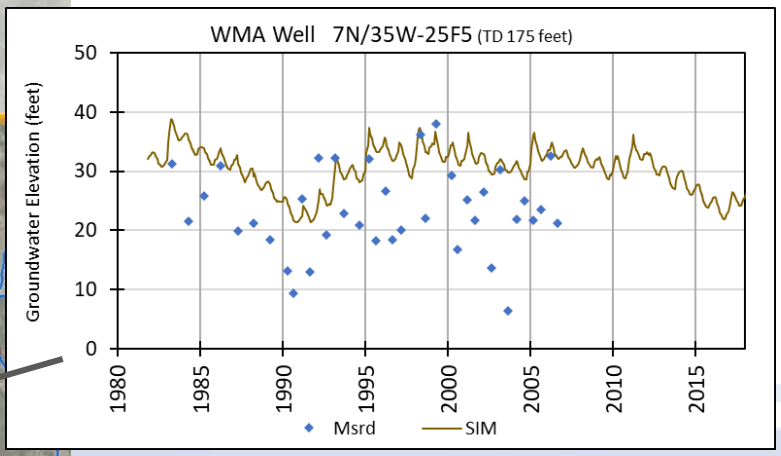


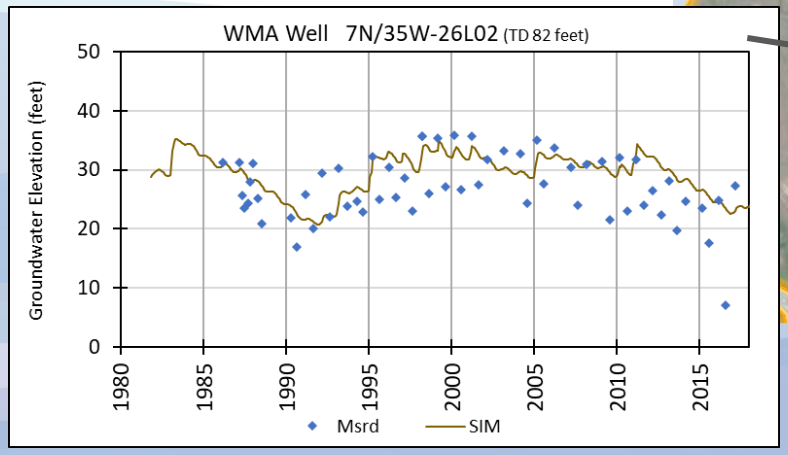
Measured/Simulated Hydrographs

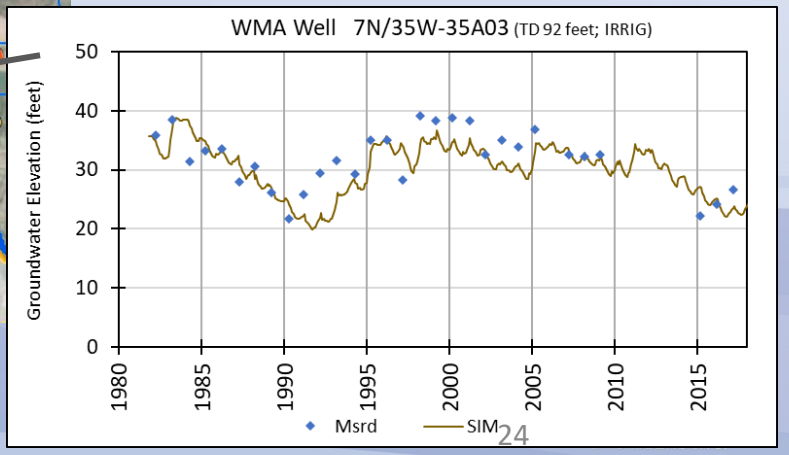


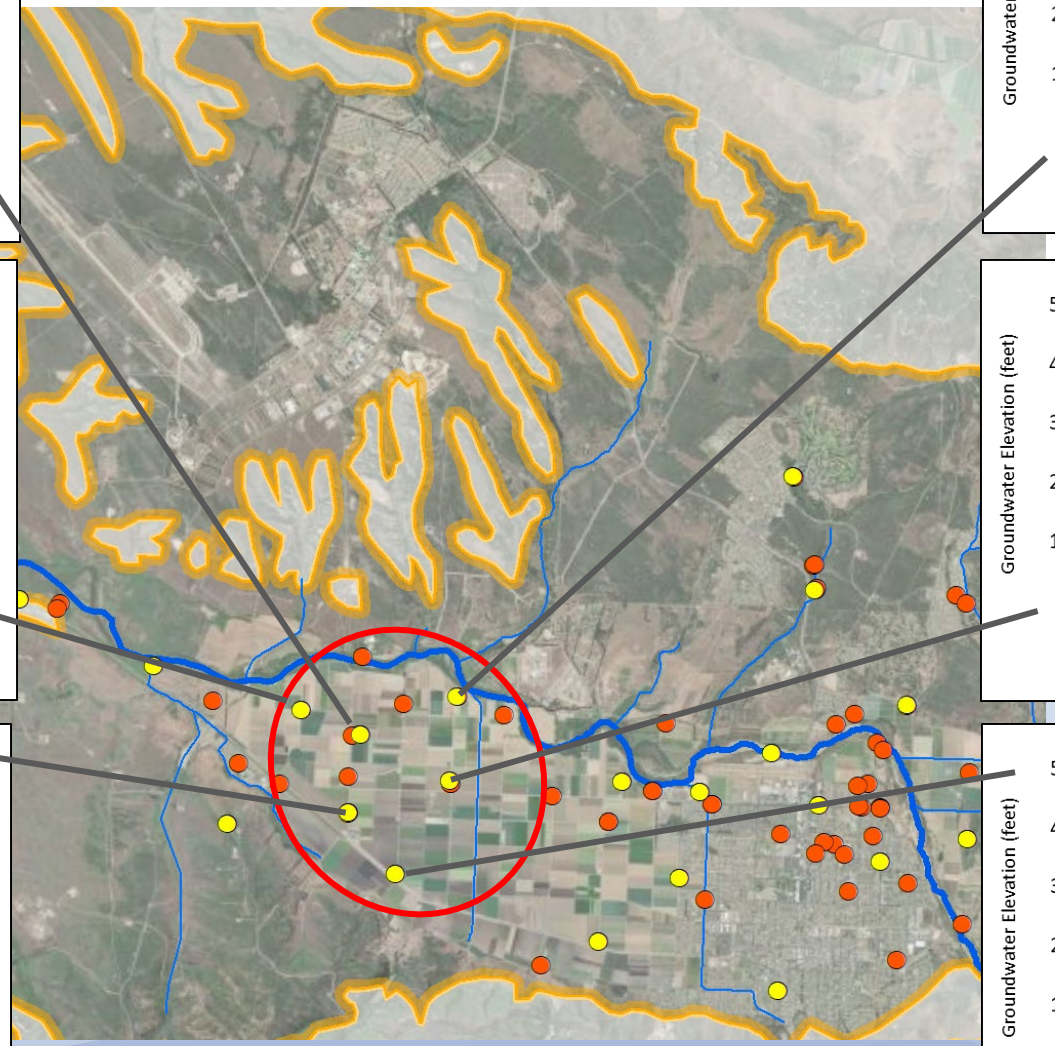




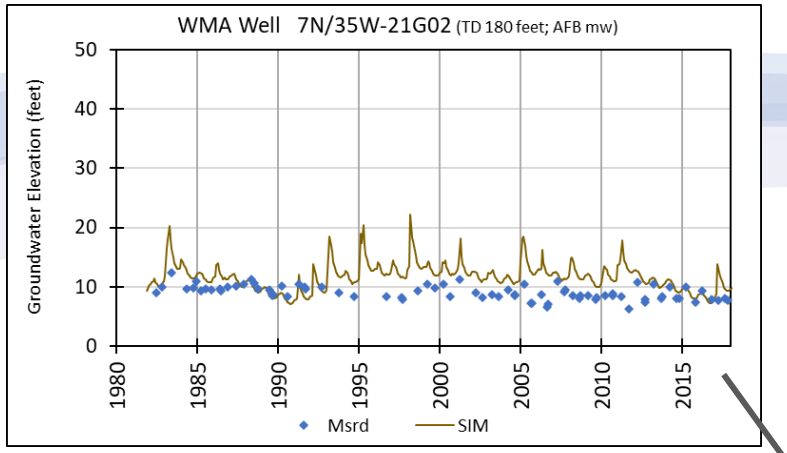


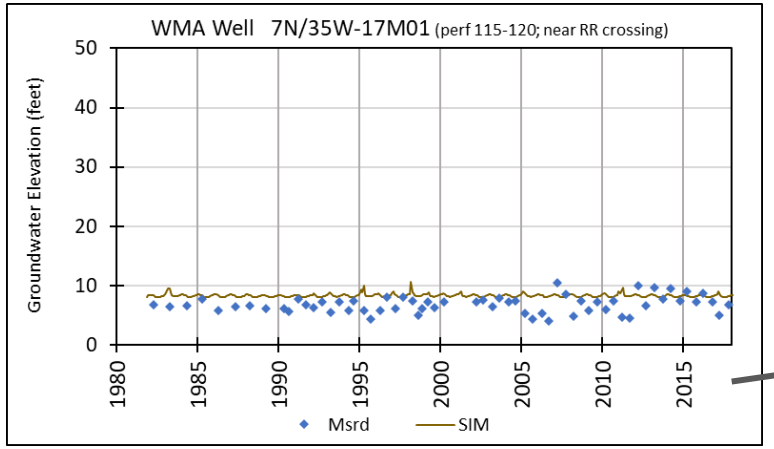


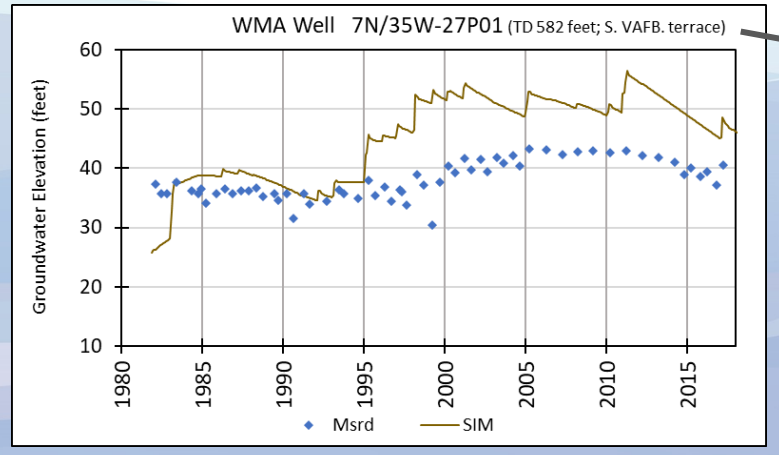


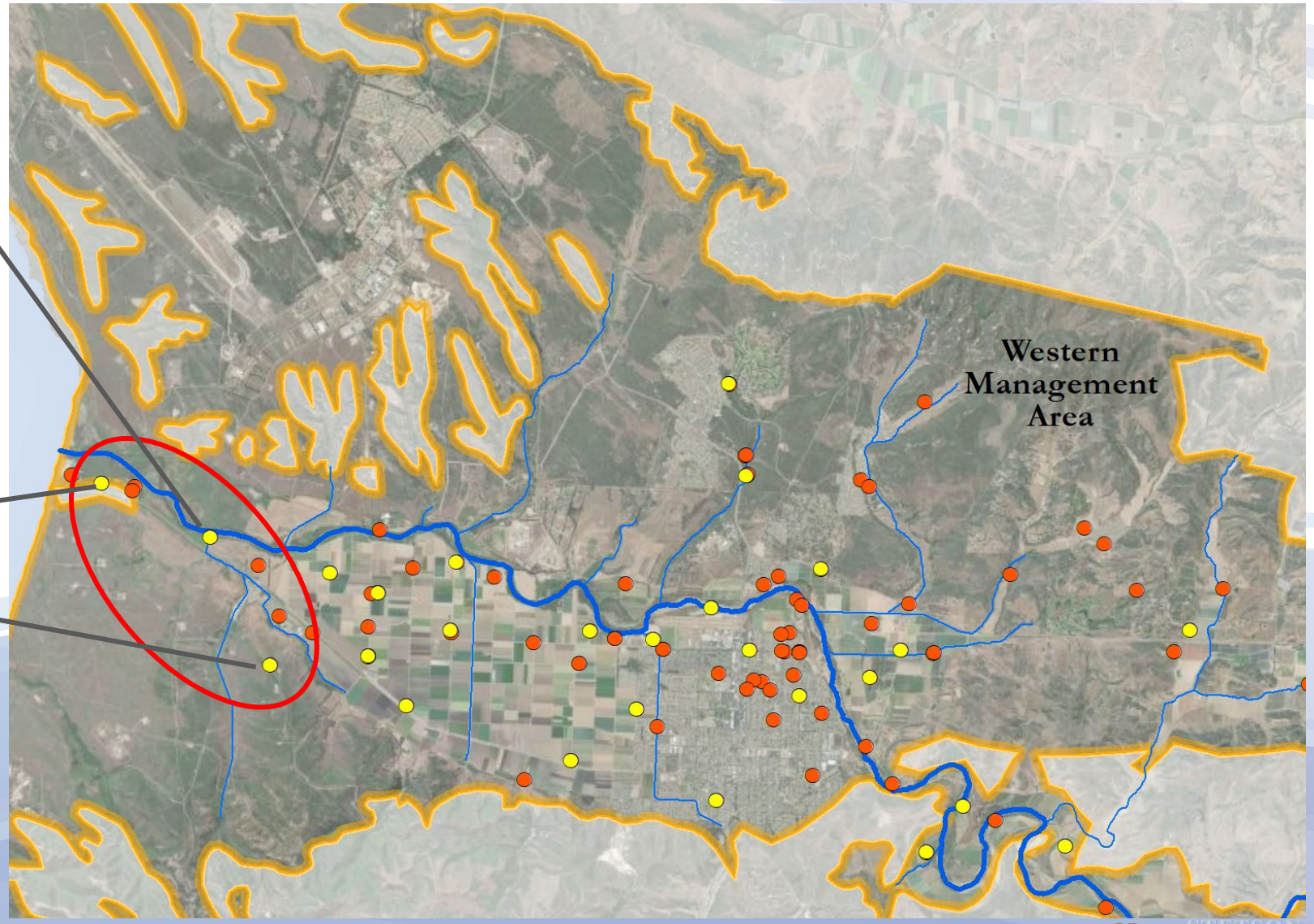


Measured/Simulated Hydrographs









Model Calibration: Sub-Area Groundwater Budgets

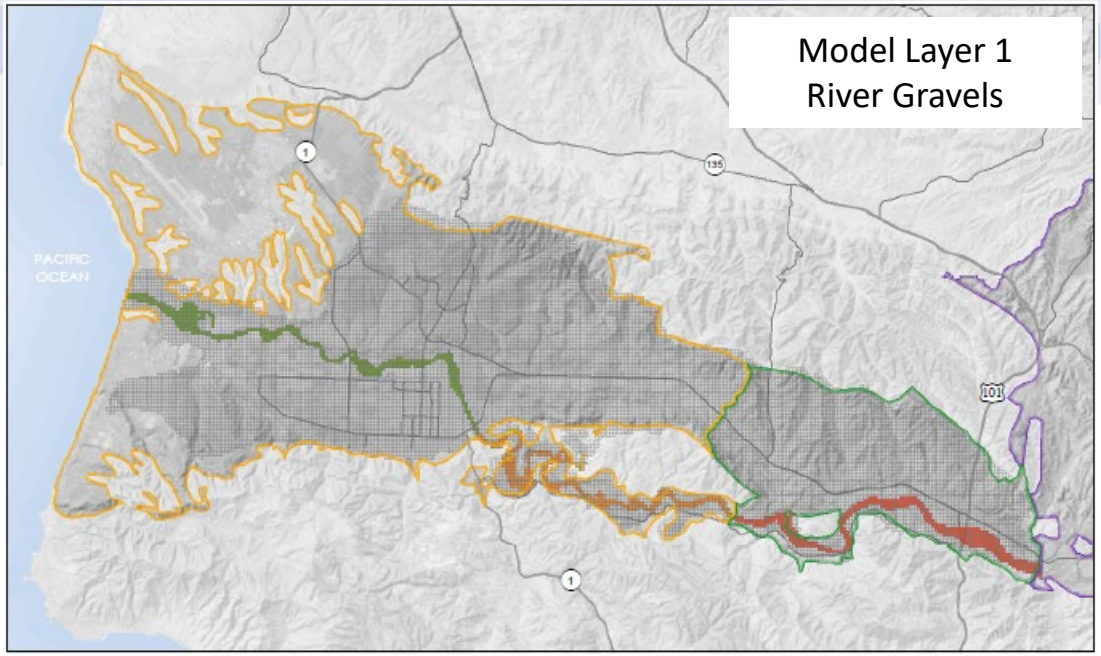
CMA Subarea

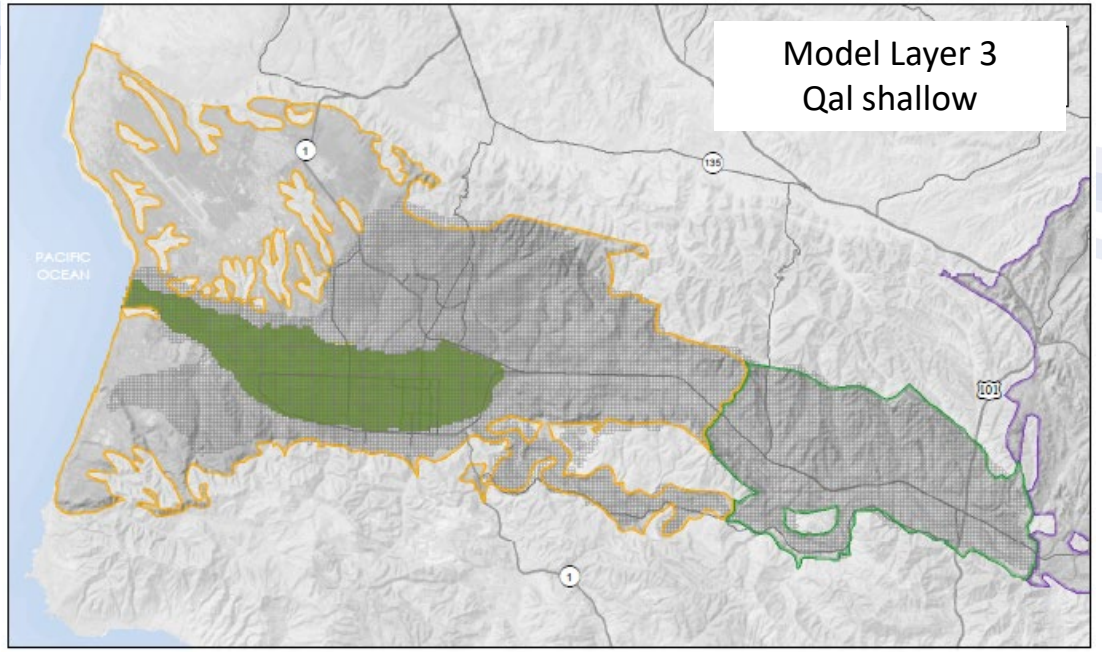
- Santa Ynez River Alluvium
- CMA Lower Aquifer
- Buellton Upland

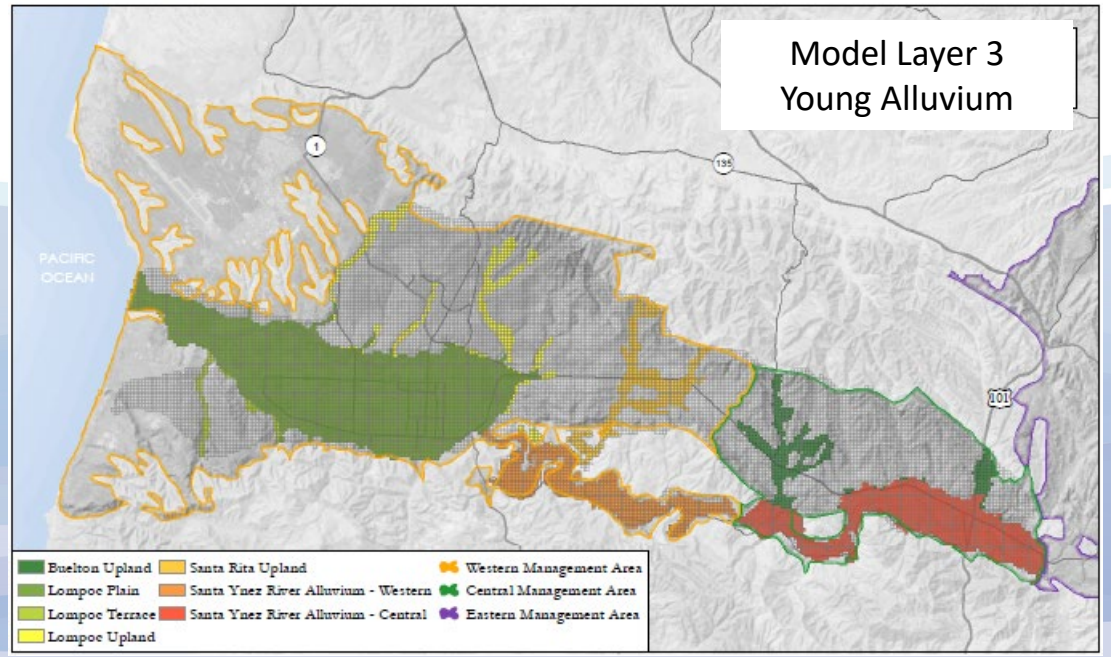
WMA Subarea

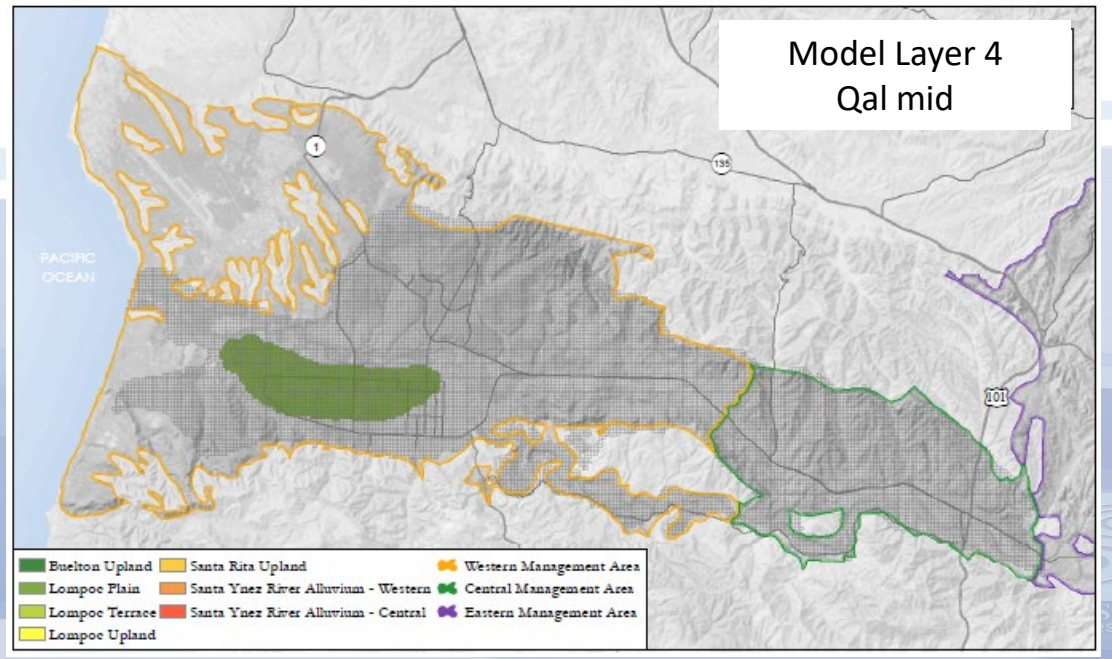
- Santa Ynez River Alluvium
- Lompoc Plain
- Santa Rita Upland
- Lompoc Upland
- Lompoc Terrace

Sub-Areas: Model Layers 1 - 4

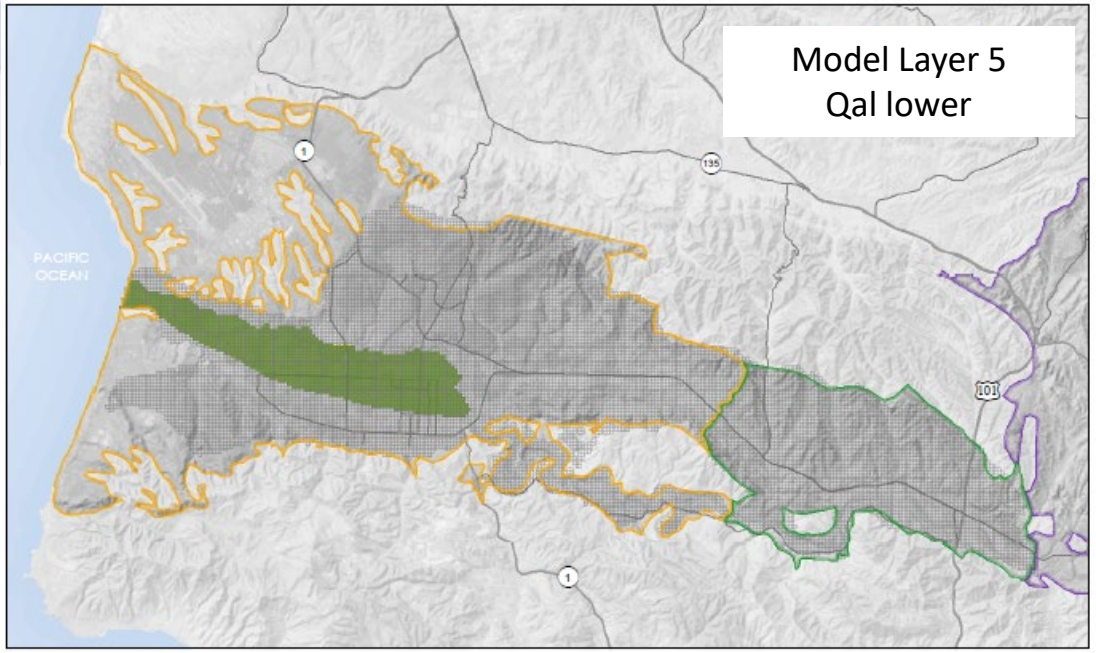


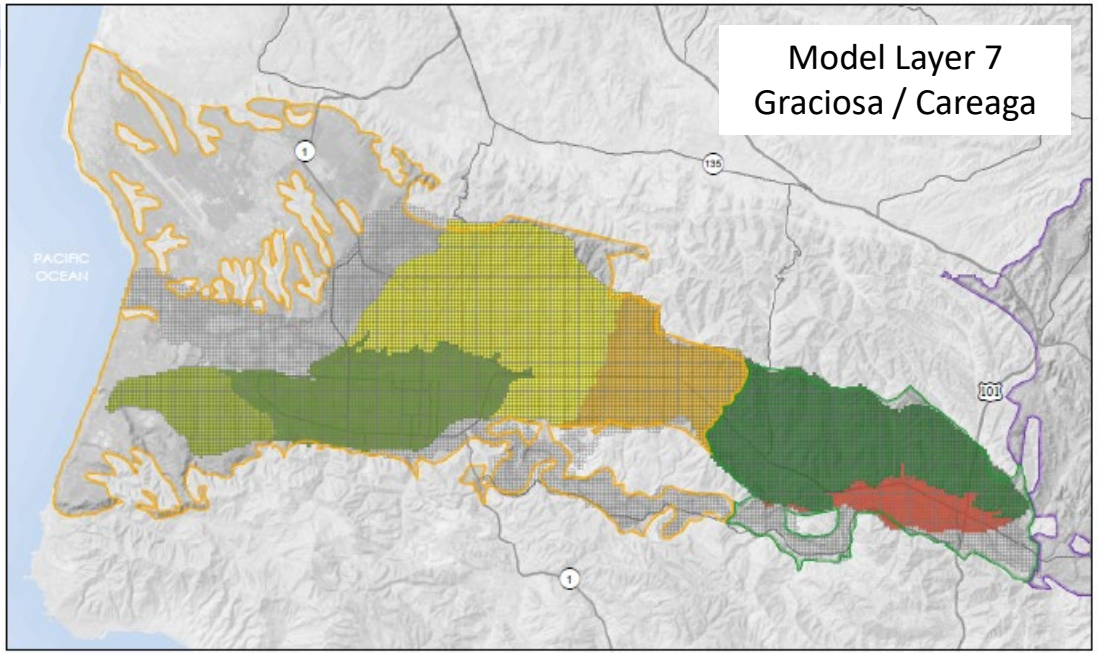


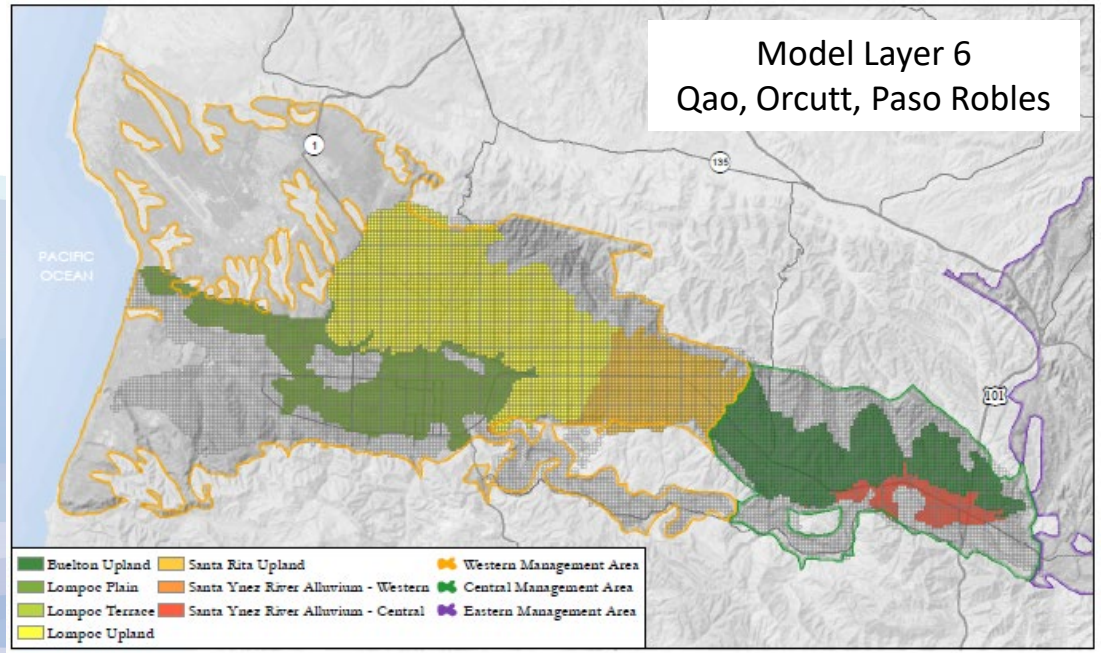


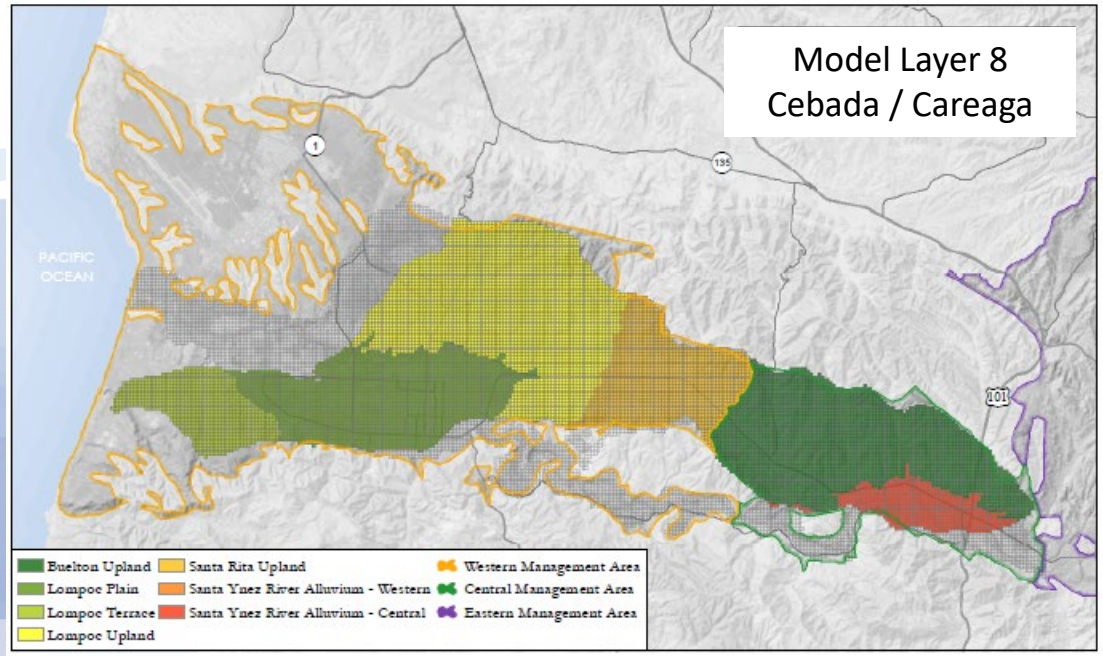


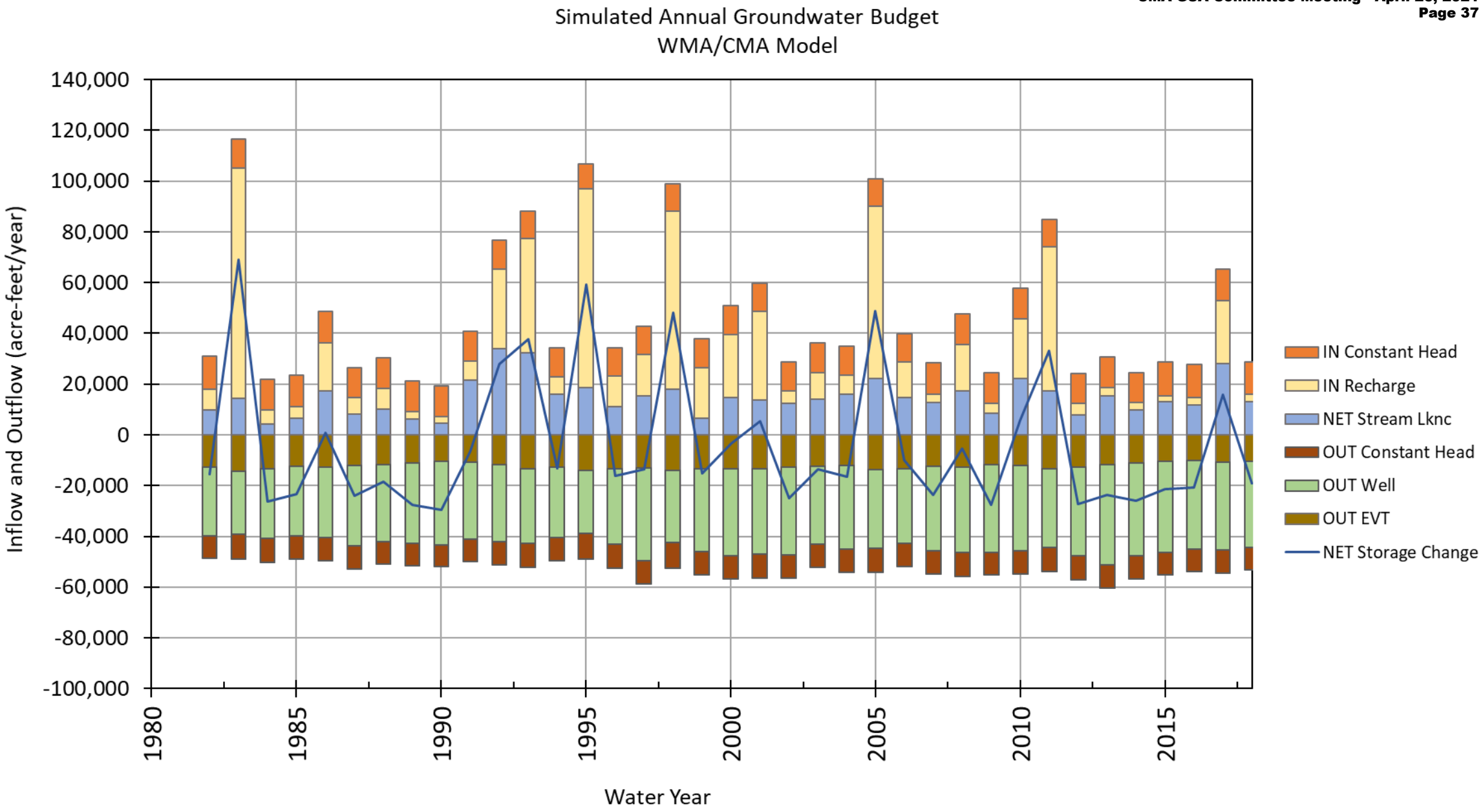
Sub-Areas: Model Layers 5 - 8










Simulated Annual Groundwater Budget
WMA/CMA Model
Inflow and Outflow (acre-feet/year)
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
-20,000
-40,000
-60,000
-80,000
-100,000
1980
1985
1990
1995
2000
2005
2010
2015
Water Year
IN Constant Head
IN Recharge
NET Stream Lknc
OUT Constant Head
OUT Well
OUT EVT
NET Storage Change

Model Documentation (GSP Appendix)

Introduction and Objectives

Model Development

- Code Selection and Documentation
- USG Structure and Construction
  - Hydrologic Properties
  - Boundary Conditions
  - Model Input Parameters
- Calibration Process
  - Simulated/Measured Groundwater Levels
  - Simulated/Measured Streamflow
- Historical Model Results
  - Regional and Sub-Area Groundwater Budgets

Timeline for Completion of Draft Model Documentation

- April 23rd Internal Client Review
- April 30th Public Review

Groundwater Modeling Steps:

The model is a GSP Management Tool to estimate groundwater flow velocities, recharge rates, and model scenarios to predict future groundwater supply and demand based on current groundwater uses.

- Construct and Calibrate (historical measured data)
- Develop Future Baseline (recent conditions, projected growth; balanced hydrology)
- Future Management Scenarios (potential projects, climate change)