



**Fillmore and Piru Basins**  
Groundwater Sustainability Agency

**Board of Directors Meeting**  
**Thursday**  
February 18, 2021  
5:00p.m.

In accordance with the California Governor's Executive Stay at Home Order and the County of Ventura Health Officer Declared Local Health Emergency and Be Well at Home Order resulting from the novel coronavirus (COVID-19), the Fillmore City Hall is closed to the public. Therefore, the FPB GSA will be holding its Regular Board of Directors meeting virtually using the ZOOM video conferencing application.

If you are new to ZOOM video conferencing, please visit this help page in advance of the meeting date and time:  
<https://support.zoom.us/hc/en-us/articles/201362193-How-Do-I-Join-A-Meeting->

To participate in the Board of Directors meeting via Zoom, please access:

<https://us02web.zoom.us/j/82477092074?pwd=SkJoa2hhZk5pUG1wZzJLa3V5dGZsQT09>

Meeting ID: **824 7709 2074**

Password: **FPBGSA**

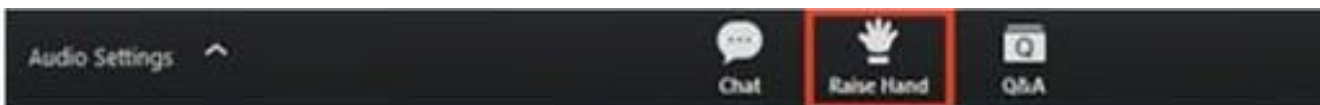
To hear just the audio portion of the meeting, phone into the toll-free number 877 853 5247

Meeting ID: **824 7709 2074**

All participants are asked to join the meeting at least five minutes in advance of the 5pm start time and be aware that all participants will be "muted" until recognized by the host. If your computer has a camera, please enable it so we can ensure better engagement between participants.

If you would like to address the Board with a question or offer a comment, please follow these simple instructions to engage the host (Clerk of the Board):

1. During a meeting, click on the icon labeled "Participants" at the bottom center of your computer screen.
2. At the bottom of the window on the right side of the screen, click the button labeled "Raise Hand."
3. Once you've been recognized by the Chair, please click on "Raise Hand" again to remove the signal.



Similarly, if you have a comment or question for the Board, you can use the "Chat" button to convey your question or comment to the HOST, who will put you in line to address the Board.

**The Fillmore and Piru Basins GSA Board of Directors appreciates your participation and patience in using Zoom to conduct its public meeting.**

## **AGENDA**

### **1. CALL TO ORDER – First Open**

Session 1A Pledge of Allegiance

1B Directors Roll Call

**1C Public Comments**

Fillmore and Piru Basins Groundwater Sustainability Agency (Agency) will accept public comment concerning agenda items at the time the item is considered and on any non-agenda item within the jurisdiction of the Board during the agendaized Public Comment period. No action will be taken by the Board on any non-agenda item. In accordance with Government Code § 54954.3(b)(1), public comment will be limited to three (3) minutes per speaker per issue.

**1D Approval of Agenda  
Motion**

**2. OATH OF OFFICE AND SELECTION OF OFFICERS**

**2A Board of Directors Oath of Office  
Ceremonial**

The Clerk of the Board will administer the oath of office to new Board member.

**2B Board of Directors Selection of Officers  
Motion**

The Board will accept nominations and elect officers for Calendar Year 2021.

**3. UPDATES**

**3A Director Announcements/Board Communications:**

Oral Reports from the Board

**Fillmore Pumpers Association Stakeholder Director Update**

**Piru Pumpers Association Stakeholder Director Update**

**Environmental Stakeholder Director Update**

**City of Fillmore Member Director Update**

**United Water Conservation District Member Director Update**

**County of Ventura Member Director Update**

**3B Executive Director Update  
Information Item**

The Executive Director will provide an informational update on Agency activities since the previous Board meeting of January 21, 2021.

**3C Legal Counsel Update  
Information Item**

Legal Counsel will provide an informational update on Agency's legal issues and concerns since the previous Board meeting of January 21, 2021.

**3D GSP Consultant Update  
Information Item**

Representatives from Daniel B Stephens & Associates and UWCD will provide an informational update on Agency's GSP development activities since the previous Board meeting of January 21, 2021.

**4. CONSENT CALENDAR**

All matters listed under the Consent Calendar are considered routine by the Board and will be enacted by one motion. There will be no separate discussion of these items unless a Board member pulls an item from the Calendar. Pulled items will be discussed and acted on separately by the Board. Members of the public who want to comment on a Consent Calendar item should do so under Public Comments. (ROLL CALL VOTE REQUIRED)

**4A Approval of Minutes**

The Board will consider approving the Minutes from the Board Meeting of January 21, 2021.

**4B Approval of Warrants**

The Board will consider approving payment of outstanding vendor invoices.

Daniel B. Stephens & Associates	\$40,720.63
United Water Conservation District	\$30,376.68
Olivarez Madruga Lemeiux O'Neill LLP	\$5,536.50
U.S. Postal Service	\$322.00
Somis Pacific Ag Mgt.	\$240.37
County of Ventura IT Services Dept.	\$219.60

**4C Monthly Financial Report**

The Board will receive the Agency's monthly profit and loss statement and balance sheet.

## 5. MOTION ITEMS

### 5A Waiver of Late Fees and Interest on Groundwater Charges

#### Motion

The Board will consider proposed amendment to the Agency Bylaws authorizing the Executive Director to approve waiver of certain late fees and interest charges associated with groundwater pumping fees and provide comments and direction to staff.

### 5B Sustainable Management Criteria Development

#### Motion

The Board will consider a draft Sustainable Management Criteria matrix and provide comments and direction to the consultant team.

### 5C Special Board Meeting on Sustainable Management Criteria

#### Motion

The Board will select a date for a Special Board Meeting in early March 2021 to receive public comments on the draft Sustainable Management Criteria matrix.

## FUTURE TOPICS FOR BOARD DISCUSSION

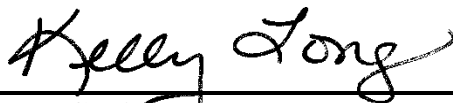
## ADJOURNMENT

The Board will adjourn to the next **Regular Board Meeting** on Thursday, **March 18, 2021** or call of the Chair

*Materials, which are non-exempt public records and are provided to the Board of Directors to be used in consideration of the above agenda items, including any documents provided subsequent to the publishing of this agenda, are available for inspection at UWCD's offices at 1701 N. Lombard Street in Oxnard during normal business hours.*

*The Americans with Disabilities Act provides that no qualified individual with a disability shall be excluded from participation in, or denied the benefits of, the District's services, programs or activities because of any disability. If you need special assistance to participate in this meeting, or if you require agenda materials in an alternative format, please contact the UWCD Office at (805) 525-4431 or the City of Fillmore at (805) 524-1500. Notification of at least 48 hours prior to the meeting will enable the District to make appropriate arrangements.*

Approved:



Board Chair Kelly Long

Posted: (date) February 12, 2021

(time) 4:30 pm

(attest) Eva Ibarra

At: <https://www.FPBGSA.org>

Posted: (date) February 12, 2021

(time) 4:45 pm

(attest) Eva Ibarra

At: <https://www.facebook.com/FPBGSA/>

Posted: (date) February 12, 2021

(time) 5:00 pm

(attest) Eva Ibarra

At: UWCD, 1701 N. Lombard Street, Oxnard CA 93030



**Board of Directors Meeting**  
**January 21, 2021, 5pm**  
**Via Zoom**

**MINUTES**

**Directors Present**

Director Kelly Long, Chair (arrived at the meeting at 5:26pm)  
Director Ed McFadden, Vice Chair  
Director Gordon Kimball  
Director Glen Pace  
Director Christina Villaseñor

**Directors Absent**

Director Candice Meneghin

**Staff Present**

Anthony Emmert, executive director  
Steve O'Neill, legal counsel  
Eva Ibarra, clerk of the board

**Public Present**

Lisa Ballin, CSUS/DBS&A  
Bryan Bondy, Fillmore Basin Pumpers Association, Piru Basin Pumpers Association  
Christian Brodrick, Stillwater Science  
Katie Brokaw  
Frank Brommenschenkel, Frank B & Associates  
Matt Carpenter, FivePoint  
Emilio Cervantes  
Guy Cole  
Dan Detmer, UWCD  
Burt Handy  
Dr. Zachary Hanson, UWCD  
Debbie Jackson  
Chris Kibler, University of California, Santa Barbara  
Rachel Laenen, Fillmore Basin Pumpers Association  
Murray McEachron - UWCD  
Tony Morgan, DBS&A  
Patrick O'Connell, DBS&A  
Andrew Pechlt  
Zachary Plummer, UWCD  
Steve Slack, CDFW  
Dr. Jason Sun, UWCD  
Richard Tate  
Jean Thirkettle

James Thurber  
Ambry Tibay, UWCD  
Jim Van de Water  
Gilead Wurman  
Steven Zimmer, FivePoint

**1. Call to Order – First Open Session 5:00 pm**

Vice Chair McFadden sitting in for Chair Kelly Long, called the meeting to order at 5:00 pm

**1A. Pledge of Allegiance**

Director Pace lead the group in the reciting of the Pledge of Allegiance.

**1B. Directors Roll Call**

Roll call: Four directors present (Kimball, Vice Chair McFadden, Pace, Villaseñor); two absent (Long, Meneghin).

**1C. Public Comments**

Vice Chair McFadden asked if there were any public comments; none were offered.

**1D. Approval of Agenda**

**Motion**

Motion to approve the agenda, Director Pace; Second, Director Villaseñor  
Roll call vote four ayes (Kimball, Vice Chair McFadden, Pace, Villaseñor) none opposed;  
Motion carries 4/0/2.

**2. Director Announcements/Board Communications**

**2A Fillmore Pumpers Association Stakeholder Director Update  
Information Item**

Director Kimball reported the Fillmore Pumpers Association held its monthly Board of Directors meeting on January 12 and mentioned the Association is waiting for the release of the Technical Memo on Subsidence, which it intends to use to complete its comments on the Sustainable Management Criteria.

**Piru Pumpers Association Stakeholder Director Update  
Information Item**

Director Pace echoed the same information as Fillmore Pumpers Association.

**Environmental Stakeholder Director Update  
Information Item**

Director Meneghin continues on leave.

### **City of Fillmore Member Director Update**

#### **Information Item**

Director Villaseñor stated she had nothing to report as she just recently assumed her office with the City of Fillmore City Council.

### **United Water Conservation District Member Director Update**

#### **Information Item**

Vice Chair McFadden stated nothing to report.

### **County of Ventura Member Director Update**

#### **Information Item**

Chair Long announced the Santa Clara Watershed Committee meeting on the 28<sup>th</sup> and reminded everyone to be on the lookout for the email. She stated that AWA had its WaterWise event with a guest speaker from NOAA who addressed La Nina and predicted two years of dry, hot weather. Chair Long also reported that the AWA meeting was recorded and is available on its website.

### **2B Executive Director Update**

#### **Information Item**

Executive Director Anthony Emmert reported on the Agency's receivables, groundwater fees and DWR grant. He stated that open groundwater invoices are down for November and December. Mr. Emmert also mentioned staff is preparing grant progress report seven and invoice seven for grant compliance, both due on February 15, 2021. Mr. Emmert provided an update on the UWCD Groundwater Model and also reminded the Board of the need to complete CFPPC Form 700, due before April 2021. Mr. Emmert mentioned that staff are working on a template for waiver of late fees and completed his update by mentioning four agenda items for February's Board of Director's Meeting.

### **2C Legal Counsel Update**

#### **Information Item**

Legal Counsel Steve O'Neill reported on his ongoing coordination with the County's legal counsel, exploring authorities that the County has regarding property taxation that could be utilized by the Agency for collection of delinquent groundwater fees. He stated that, in the end, County Counsel did not agree that any of the County's taxation authorities would be appropriate for the collection of delinquent groundwater fees. Mr. O'Neill stated that the tools available to the Agency to collect delinquent fees would be ordering the operator to cease extractions and then to file a lawsuit against the groundwater pumper.

Director Villaseñor asked Mr. O'Neill if he has reached out to other GSAs to see what they are doing to resolve delinquent collections. Mr. O'Neill stated he has not reached out to other GSAs, as this is a very new issue.

**2D. GSP Consultant Update**  
**Information Item**

Mr. Tony Morgan, representing DBS&A, made a presentation to the Board (see attached slides). Mr. Morgan mentioned he had hoped to distribute the Subsidence Technical Memo but discovered a bug in the university's screening tool that DBS&A was using to analyze potential subsidence. He stated that DBS&A is using other tools to analyze subsidence potential and expects to release the memo prior to February's Board Meeting.

Director Pace asked about the next Stakeholder Workshop and Mr. Morgan explained the plan for the next workshop. Director Pace also mentioned that dates keep slipping every month and the delay in the Subsidence Technical Memo release is holding up the process. Mr. Morgan explained the reason for the delay and stated that the consultant team was moving as quickly as possible.

A meeting participant asked via Zoom Participant Chat if both Groundwater Sustainability Plans are due at the same time and Mr. Morgan replied that yes, they are both working on the same timeline and due date.

**3. CONSENT CALENDAR**

**3A Approval of Minutes**

The Board will consider approving the Minutes from the Board Meeting of December 17, 2020. [Director Kimball requested a correction be made to the Minutes for November, changing his abstain to a vote of approval, which the Clerk had not heard.]

**3B Approval of Warrants**

The Board will consider approving the following invoices for payment:

- Daniel B. Stephens & Associates \$36,831.73
- Olivares Madruga Lemeiux O'Neill LLP \$2,445.00
- Insure Cal \$2,115.73
- County of Ventura IT \$219.60

**3C Monthly Financial Report**

The Board will receive a monthly profit and loss statement and balance sheet for the FPBGSA from UWCD's accounting staff.

Motion to approve the Minutes as amended per Director Kimball's request Vice Chair McFadden; Second, Director Pace. Roll call vote: Five ayes (Kimball, Chair Long, Vice Chair McFadden, Pace, Villaseñor); none opposed; one absent (Meneghin) Motion carries 5/0/1.



#### 4. MOTION ITEMS

##### 4A **Bartolotto & Breyfogle Request for Payment Plan and Waiver of Late Fees and Interest**

###### Motion

The Board considered Bartolotto & Breyfogle's request for a payment plan and waiver of late fees and interest at completion of the payment plan and bringing the account current.

Executive Director Tony Emmert explained the circumstances of the request for a payment plan and waiver of interest fees.

Vice Chair McFadden asked if pumping was ongoing for this user. Mr. Emmert confirmed that pumping is ongoing.

Motion to approve, Director Villaseñor; Second, Vice Chair McFadden. Roll call vote: Five ayes (Kimball, Chair Long, Vice Chair McFadden, Pace, Villaseñor); none opposed; one absent (Meneghin) Motion carries 5/0/1.

##### 4B. **Monitoring Wells Project**

###### Motion

The Board received a report from Dan Detmer of United Water Conservation District detailing desirable locations for new monitoring locations and existing private wells that appear to be good candidates for water level measurements (see attached slides).

Chair Long asked Mr. Detmer to share the dollar amount of the Agency's budget for the monitoring wells, for Director Villaseñor's information. Mr. Morgan and Mr. Emmert explained the details of the \$800,000 grant.

Mr. Emmert stated the DWR grant is providing seventy five percent of that amount, so the Agency is only responsible for twenty five percent of the cost.

Mr. Morgan provided a summary of cost for the monitoring wells and explained the process and draft schedule.

Mr. O'Neill mentioned that legal counsel will be involved in the preparing the contractual documents for the well drillers. He also stated that California Environmental Quality Act (CEQA) issues will need to be addressed, as well.

Director Villaseñor asked if the grant agreement allows any flexibility in the project schedule. Mr. Morgan replied yes, although the money needs to be spent by the end of the 2021 year.

Motion to approve the Monitoring Wells project, Vice Chair McFadden; Second, Director Pace. Roll call vote: Five ayes (Kimball, Chair Long, Vice Chair McFadden, Pace, Villaseñor); none opposed; one absent (Meneghin) Motion carries 5/0/1.

#### **4C. Sustainable Management Criteria**

##### Motion

The Board received a report from Mr. Morgan of Daniel B. Stephens & Associates, who asked Mr. Detmer to provide information at the beginning of the presentation. (see attached slides).

Mr. Detmer provided introductory comments on how United's groundwater flow model is being used to forecast a likely range of future groundwater conditions, including future climate change factors for rainfall and streamflow as determined by DWR.

Mr. Morgan continued the presentation with an explanation of all remaining slides.

Vice Chair McFadden asked how the cumulative departure red line on the graph relates to the actual basin water levels during the periods shown. Mr. Morgan clarified that the graph is depicting past trends in precipitation, not groundwater levels.

Zoom Participant chat asked "Is there any way to add a trend line to the cumulative mean?" Mr. Morgan stated yes, although not at this moment.

Mr. Detmer responded that adding a trend line would be inappropriate for this type of analysis.

Participant chat asked, "Is there a version of these slides available as they are different from the two emailed prior to the meeting?" Mr. Morgan stated this slide is different as he added the historic equivalent data and the analogous years to make it clearer, but that is the only difference.

Chair Long asked about the graph presented and requested an explanation of the red line. Mr. Morgan stated the red line represents the cumulative departure from the mean.

Participant chat asked "Did you consider the SPI?" Another participant asked "Was the Standard Precipitation Index used?" Mr. Morgan answered no, the SPI was not considered, just straight precipitation.

DBS&A's Patrick O'Connell continued with the presentation of slides related to the 2070 Modeling scenario files.

Vice Chair McFadden commented on how water users have become much more sophisticated and so much more efficient with how water is used in so many ways compared to a generation ago.

Director Kimball mentioned the various ways that water use has become more efficient with technology and that we expect to see more improvements to come, although less dramatic.

Participant chat asked, "Could we also see a trend line on these graphs?" Mr. O'Connell stated if he were to draw a trend line at this time, it would be a very flat line and explained why.

Mr. O'Connell mentioned that some Directors have asked about how many wells would go dry with the 2070 model run and he explained why DBS&A believes there is little risk of any production wells going dry and completed his presentation.

Mr. Morgan took over and presented additional slides relating to Sustainable Management Criteria (see attached slides).

Chair Long asked about GDE's (groundwater dependent ecosystems) that need to be considered and wanted Mr. Morgan to address. Mr. Morgan confirmed the information she shared and discussed in more detail.

Mr. Morgan asked Stillwater Science's Christian Broadrick for input. Mr. Broadrick stated that for most riparian trees, the roots are much shallower, more like 10 to 15 feet maximum, whereas oaks are the exception with roots at 30 feet, for clarification.

Vice Chair McFadden stated he believes the Fish Hatchery is one of the largest pumpers and uses the wells to pump water into the hatchery ponds. He also mentioned that he is curious to see what Stillwater has to say about the 270 acres of the Sespe Cienega Project development.

Chair Long wanted to ensure everyone is aware that the hatchery is pumping the water it uses and is not using surface water.

Mr. Detmer stated that the Fish Hatchery may currently be out of service due to construction. He stated that the wells used by the hatchery are more reflective of shallow water levels than might be expected. He added that he feels that using water levels from the Fish Hatchery wells may not have been the best to use as an example, although it is one of the closest wells to the Cienega.

Participants chat asked, "Has surface water in the fish hatchery area ever ceased during historical droughts and if so, for how long?" Mr. Morgan stated he did not have an answer for that question. UWCD's Principal Hydrologist Murray McEachron stated that he recalled the flow in the Fish Hatchery area did go dry in the early 1950's drought and recalled seeing some notes of zero flow. He stated that the flow in the river near Willard Road east of Santa Paula did not go dry during the same 1950s drought.

Participant chat asked, "Would the hatchery's well have gone dry with the recent droughts, without the United Water releases?" Mr. McEachron stated the river flow in the Sespe Cienega area did go dry in the recent drought, but that releases from the Santa Felicia Dam always help Piru basin groundwater levels. Mr. Detmer noted that the hatchery wells are deep wells and will not go dry.

Vice Chair McFadden asked Mr. McEachron if he had any idea how much the Fish Hatchery releases back to the river in normal production? Mr. McEachron stated he did not have those numbers but mentioned UWCD's Dr. Jason Sun should have those numbers.

Vice Chair McFadden stated the Board will have to decide what the undesirable result is, and Mr. Morgan agreed.

There was a lengthy discussion among Board members, consultants, staff and meeting participants regarding the variables of sustainable management criteria.

Motion to receive and file, Vice Chair McFadden; Second, Director Pace. Roll call vote: Five ayes (Kimball, Chair Long, Vice Chair McFadden, Pace, Villaseñor); none opposed; one absent (Meneghin) Motion carries 5/0/1.

## **5. INFORMATION ITEMS**

### **5A. Santa Clara River Riparian Vegetation Response to Drought Information Item**

University of California Santa Barbara PhD candidate Christopher Kibler provided a presentation regarding the effects of drought on riparian vegetation (see attached slides).

Chair Long had various questions regarding Dr. Kibler's presentation as did many of the participants and Dr. Kibler provided detailed responses for a clearer understanding.

Mr. Bryan Bondy mentioned the *Arundo donax* (giant reed) in the upper Ventura River, and said he is trying to estimate the water saving that could be achieved by removing it and wondered if *Arundo* is not using as much groundwater as is commonly perceived because the numbers are not adding up and asked if perhaps something else is going on with soil moisture. He continued, stating that there was a project in the upper Ventura River watershed that was to save up to 7,000 acre feet of water per year but he could not see it in the stream hydrograph, and the basin is small enough to where he should be able to see it. Mr. Bondy also stated that everyone needs to put their heads together and figure this out.

### **5B. United Water Conservation District 2020 Groundwater Recharging Release from Santa Felicia Dam.**

#### **Information Item**

UWCD Principal Hydrologist Murray McEachron provided a presentation on UWCD's recent three-month release from the Santa Felicia Dam and groundwater recharging efforts. (see attached slides).

Chair Long asked Mr. McEachron if the water mentioned was separate from State Water Project Table A water. Mr. McEachron explained that the majority of the released water was natural runoff from the Piru watershed.

**FUTURE TOPICS FOR BOARD DISCUSSION – None requested**

**ADJOURNMENT: 8:45 p.m.**

Chair Long adjourned the meeting at 8:45 p.m. to the next **Regular Board Meeting** on Thursday, **February 18, 2021** or call of the Chair.

ATTEST: \_\_\_\_\_  
Kelly Long, Chair, FPB GSA Board of Directors

I certify that the above is a true and correct copy of the minutes of the Fillmore and Piru Basins Groundwater Sustainability Agency's Board of Directors meeting of January 21, 2021.

ATTEST: \_\_\_\_\_  
Eva Ibarra, Clerk of the Board

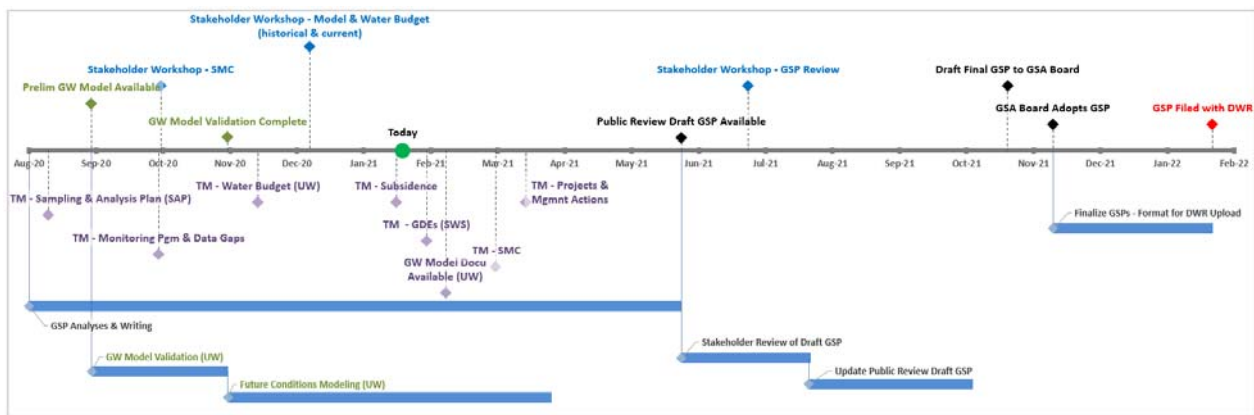
## Item 2D - GSP Consultant Update

- Monitoring Well Project Update - Agenda Item 4B
- Sustainable Management Criteria - Agenda Item 4C



## Item 2D - GSP Update

### FPB GSP Preparation (w/o Admin Draft) - Tentative Timeline



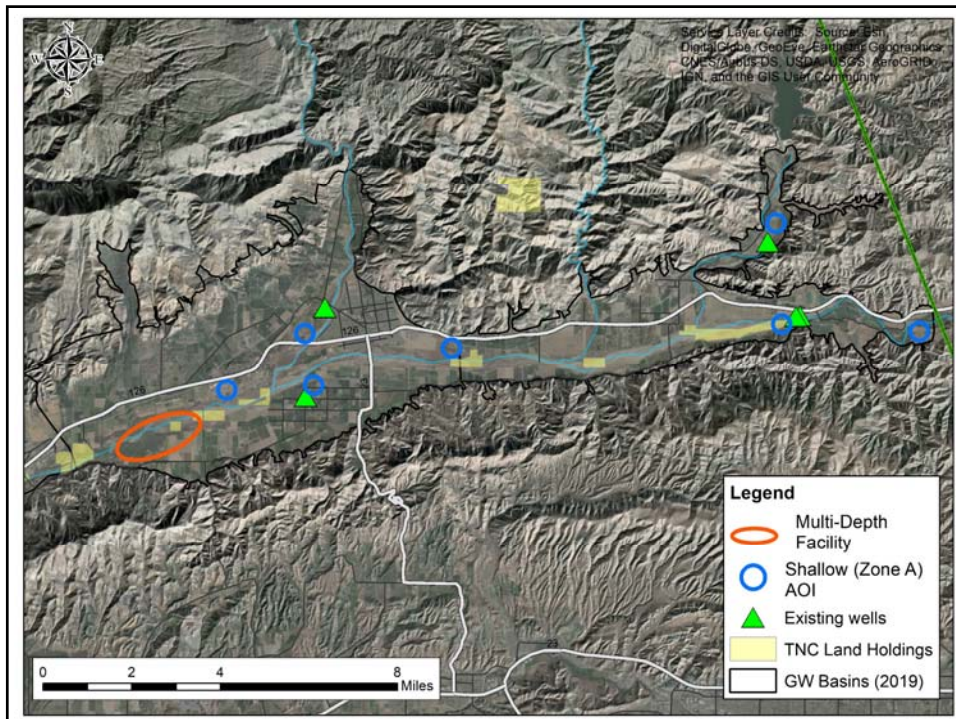


# Questions ?



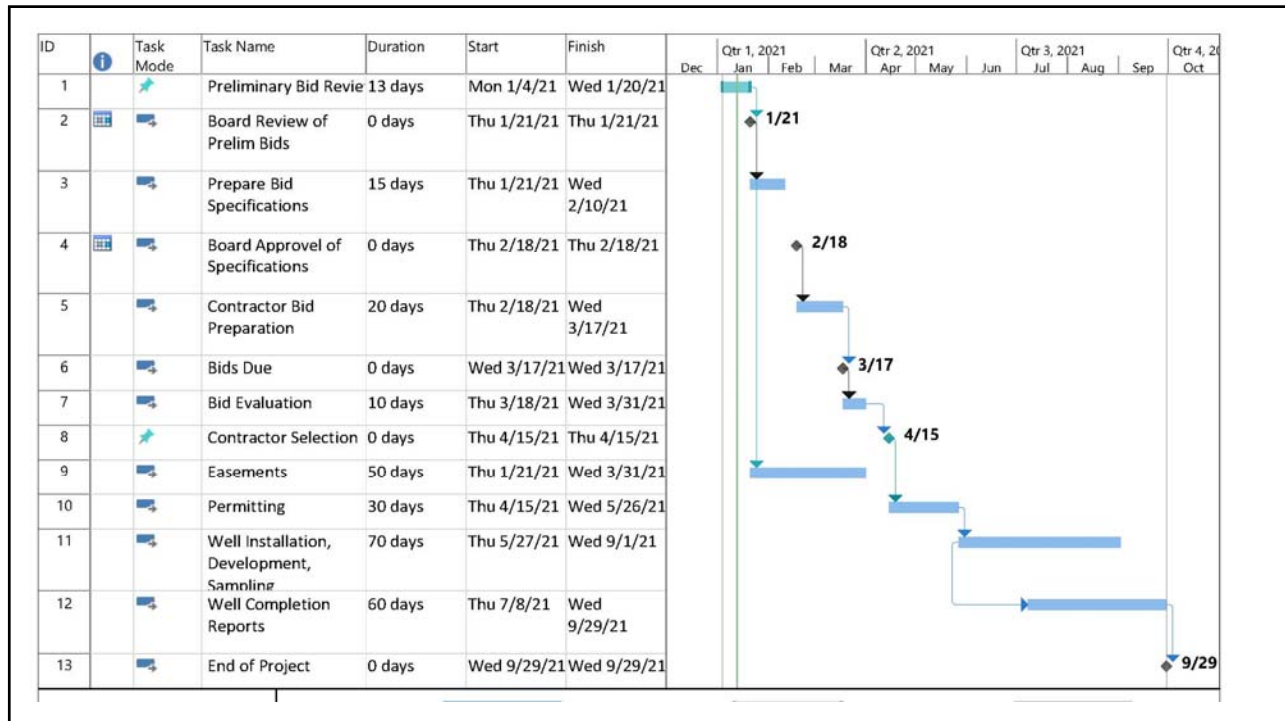
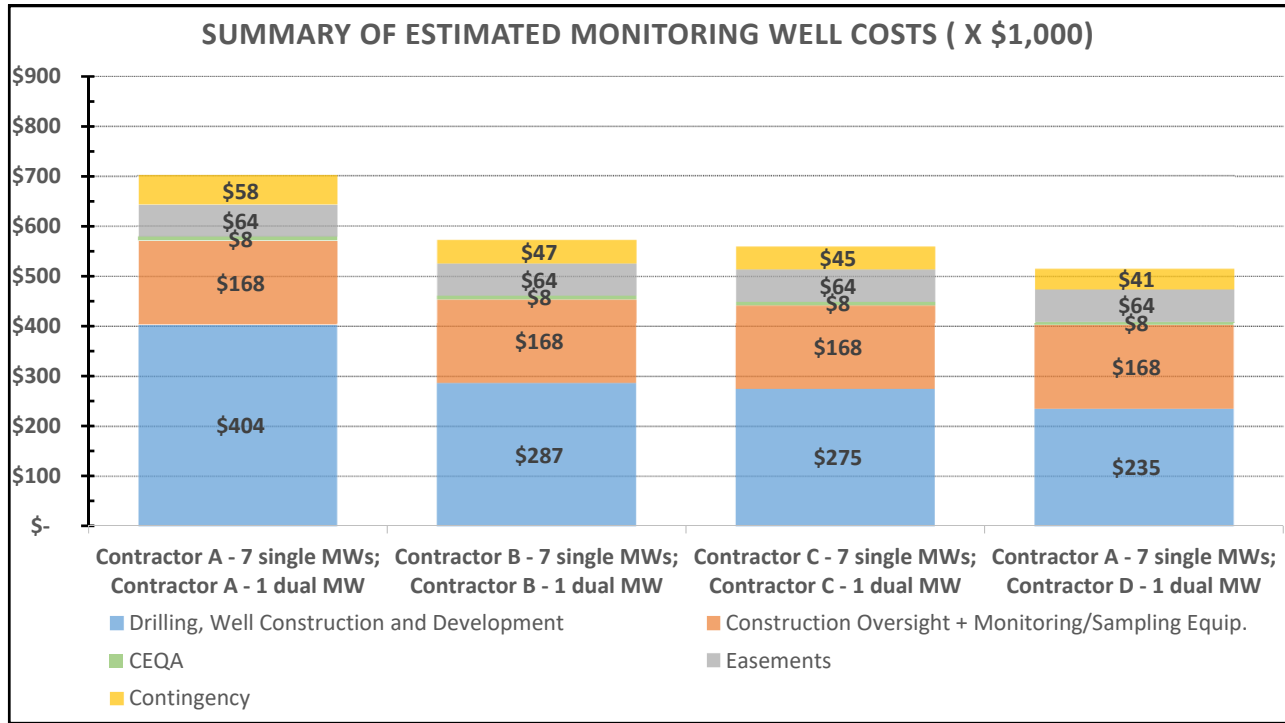
### Item 4B - Monitoring Well Program

- Possible Well Sites
- Preliminary Contractor Bids
- Tentative Number of Wells to Install
- Project Schedule



**Proposed Monitoring Well Locations**



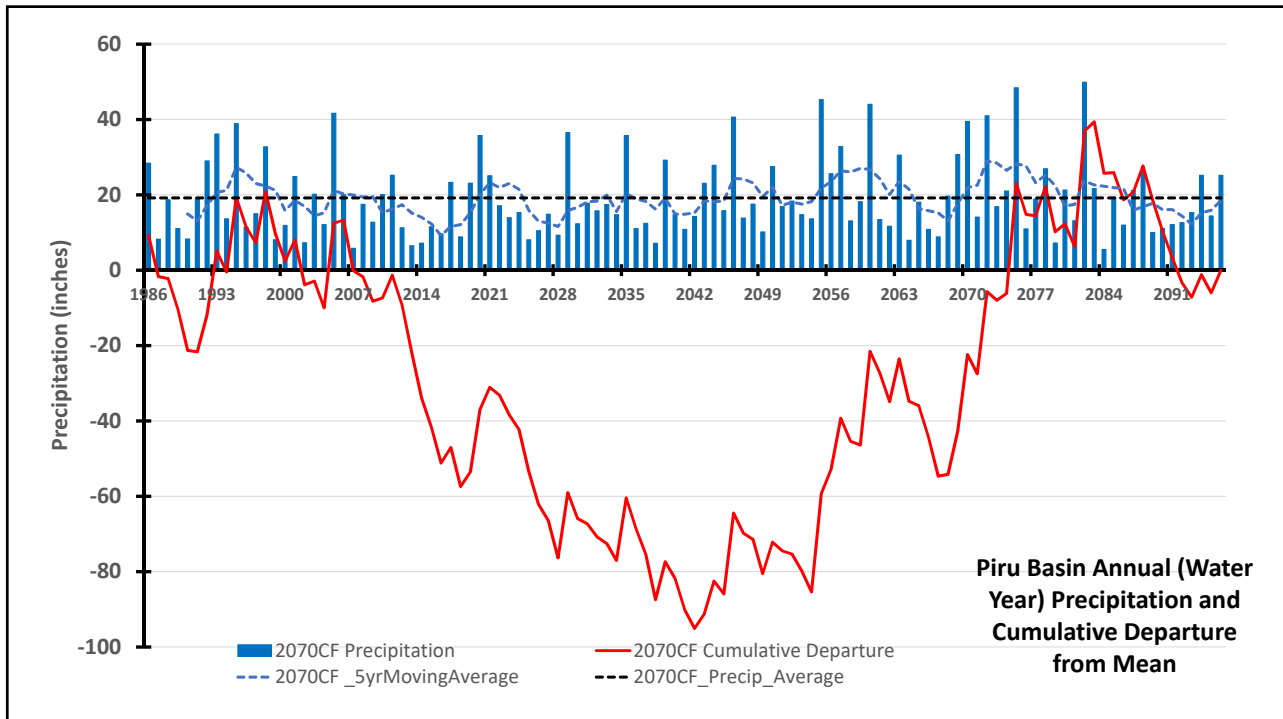


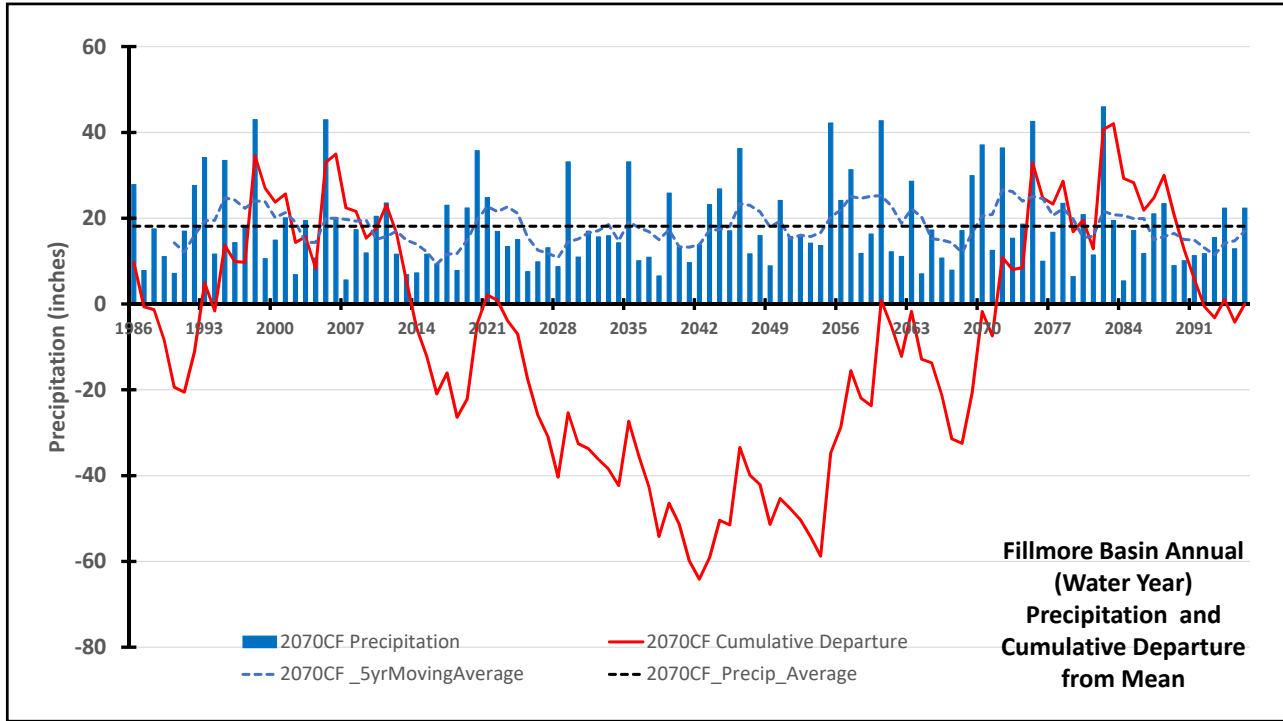
Questions?



### Item 4C - Sustainable Management Criteria

- Climate Change - 2070 Scenario
- SW Depletion from GW Pumping - Stream Flow Cross Over Analyses



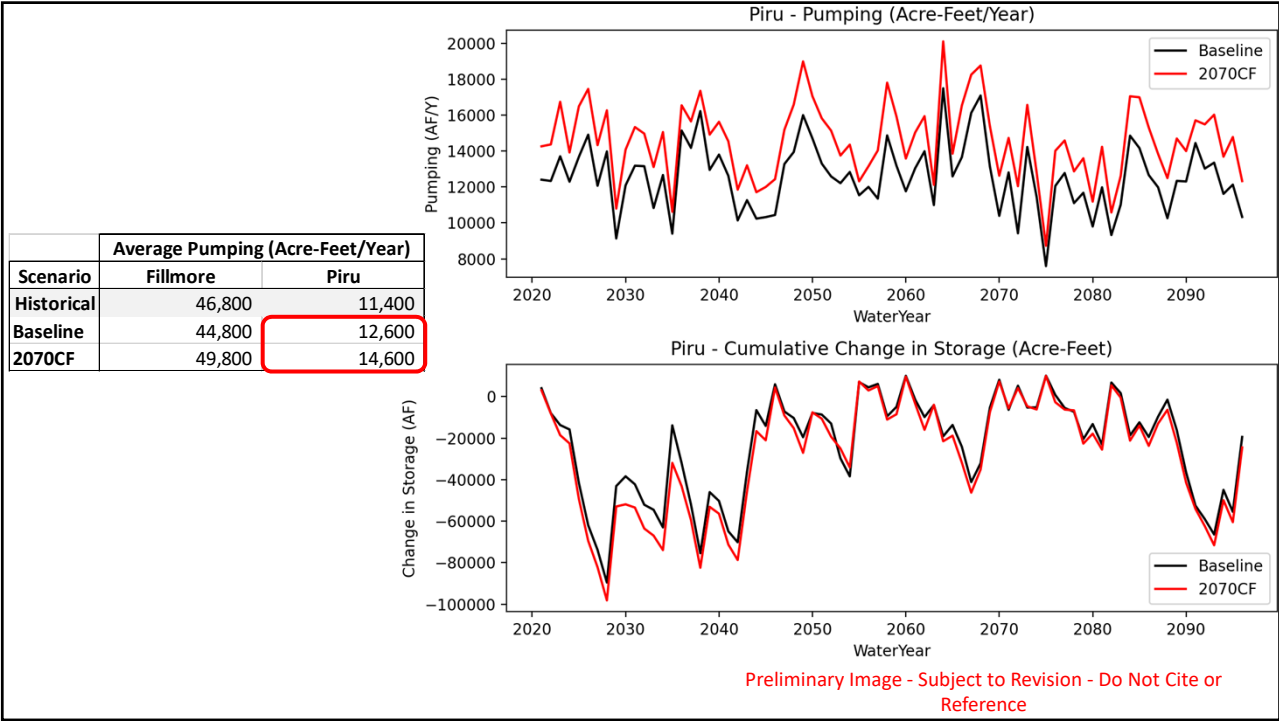
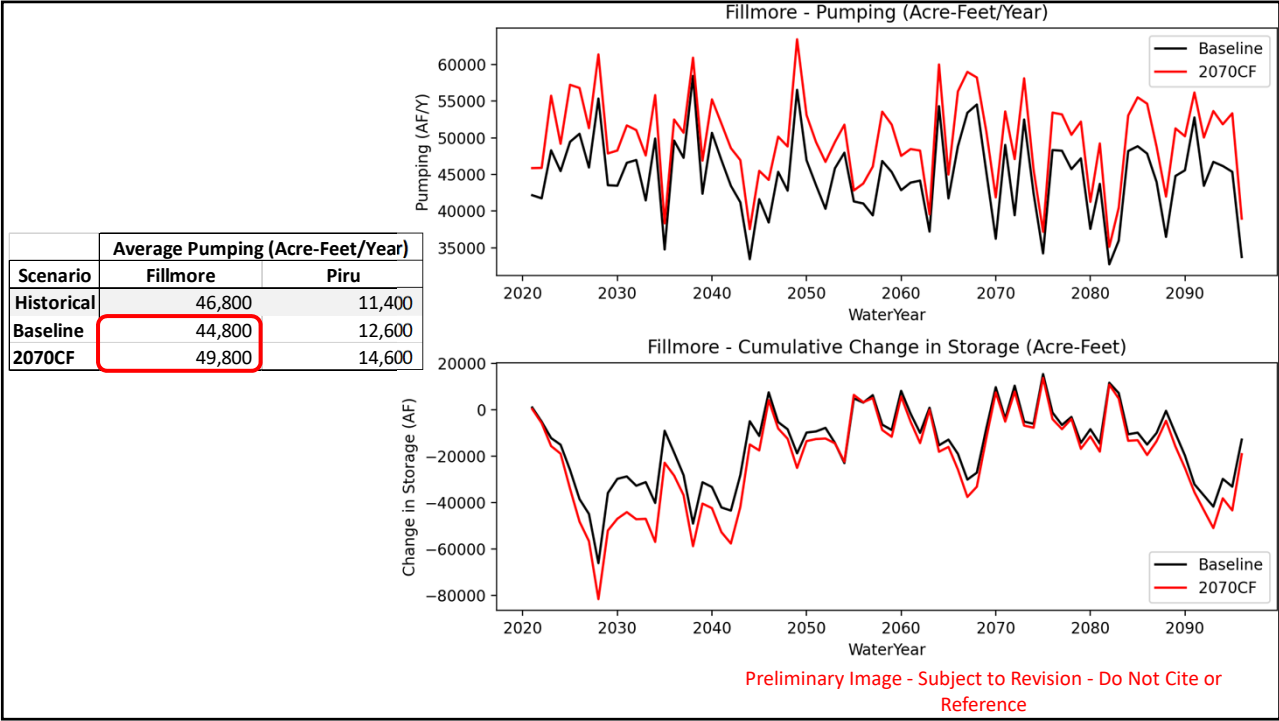


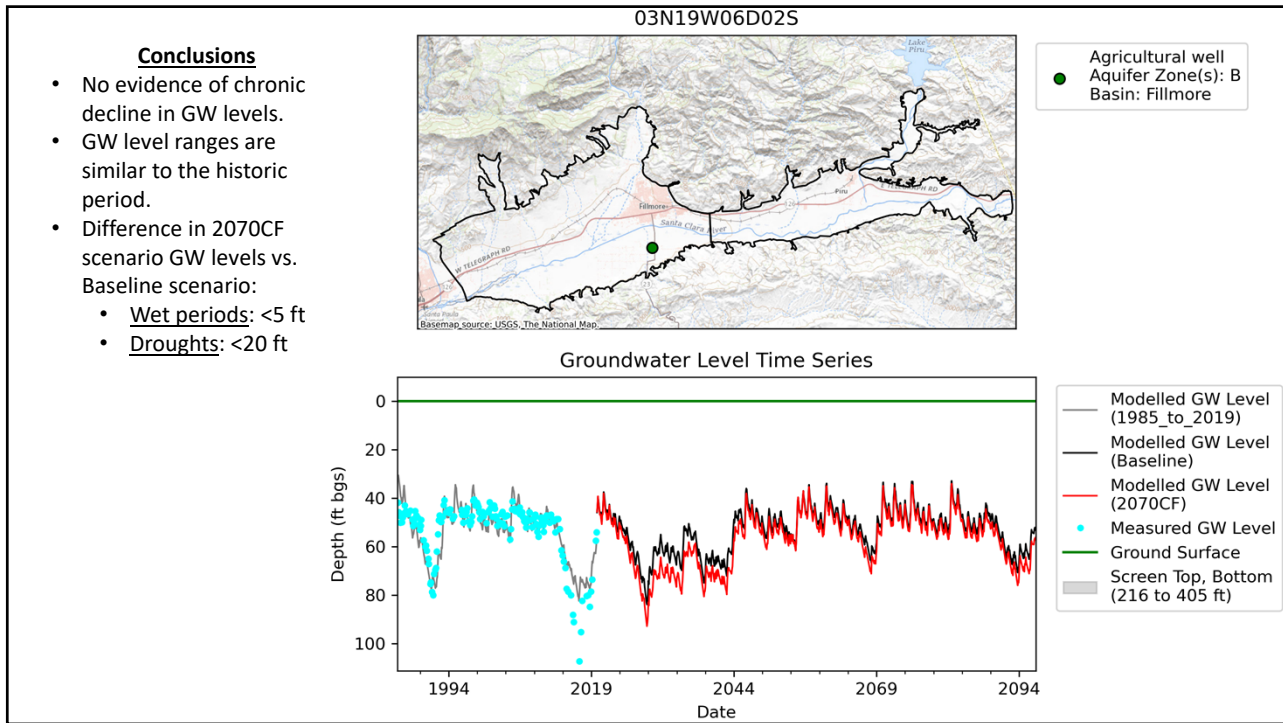
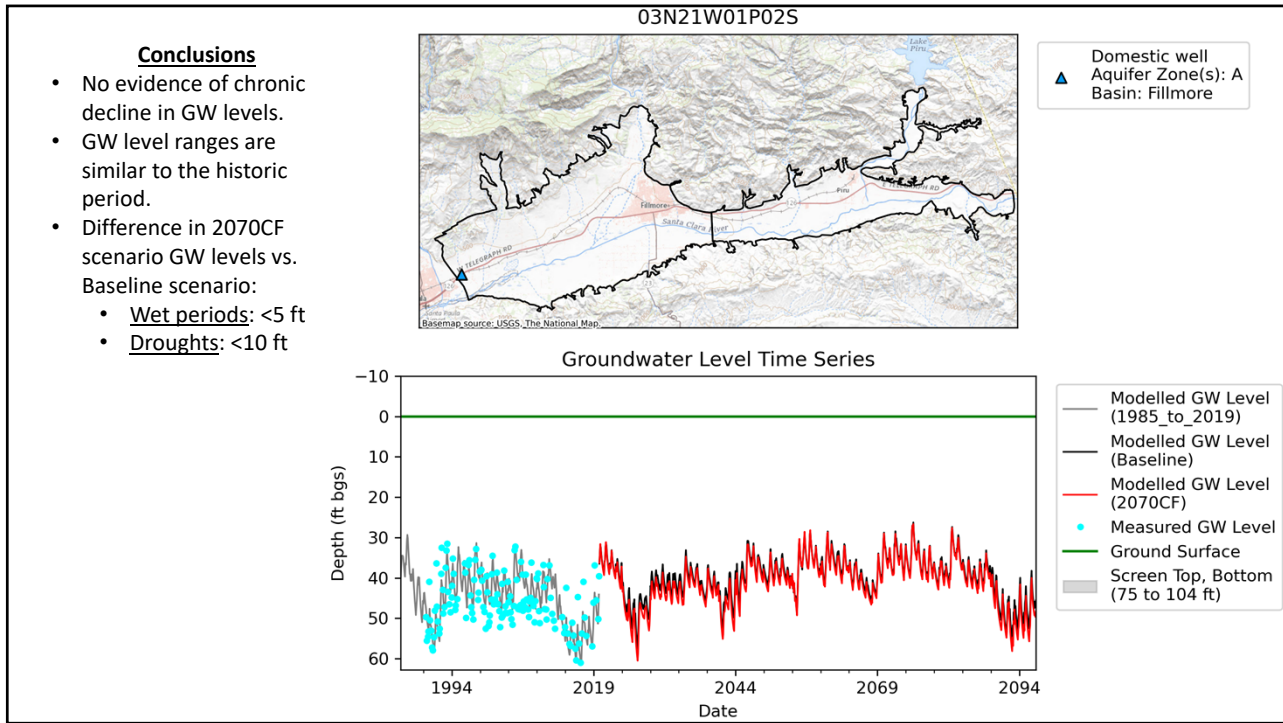
Scenario	Average Pumping (Acre-Feet/Year)		Time Period
	Fillmore	Piru	
Historical	46,800	11,400	(1985-2019)
Baseline	44,800	12,600	(2020-2096)
2070CF	49,800	14,600	

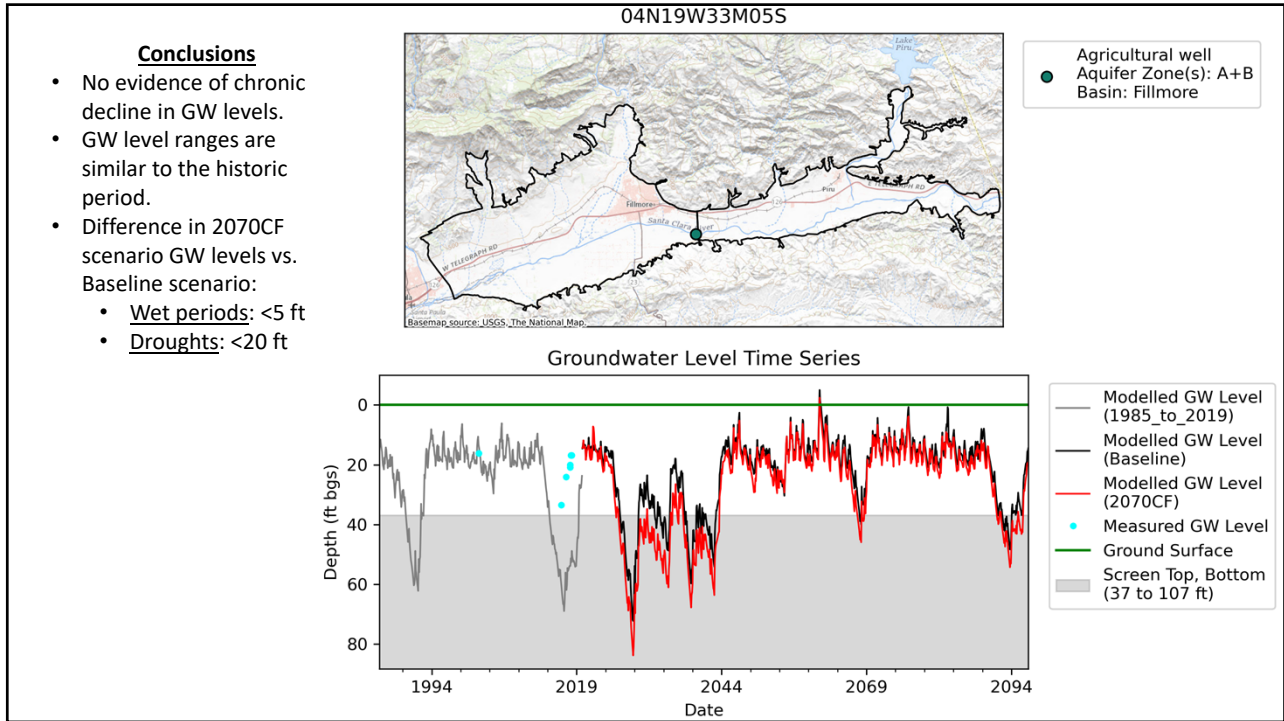
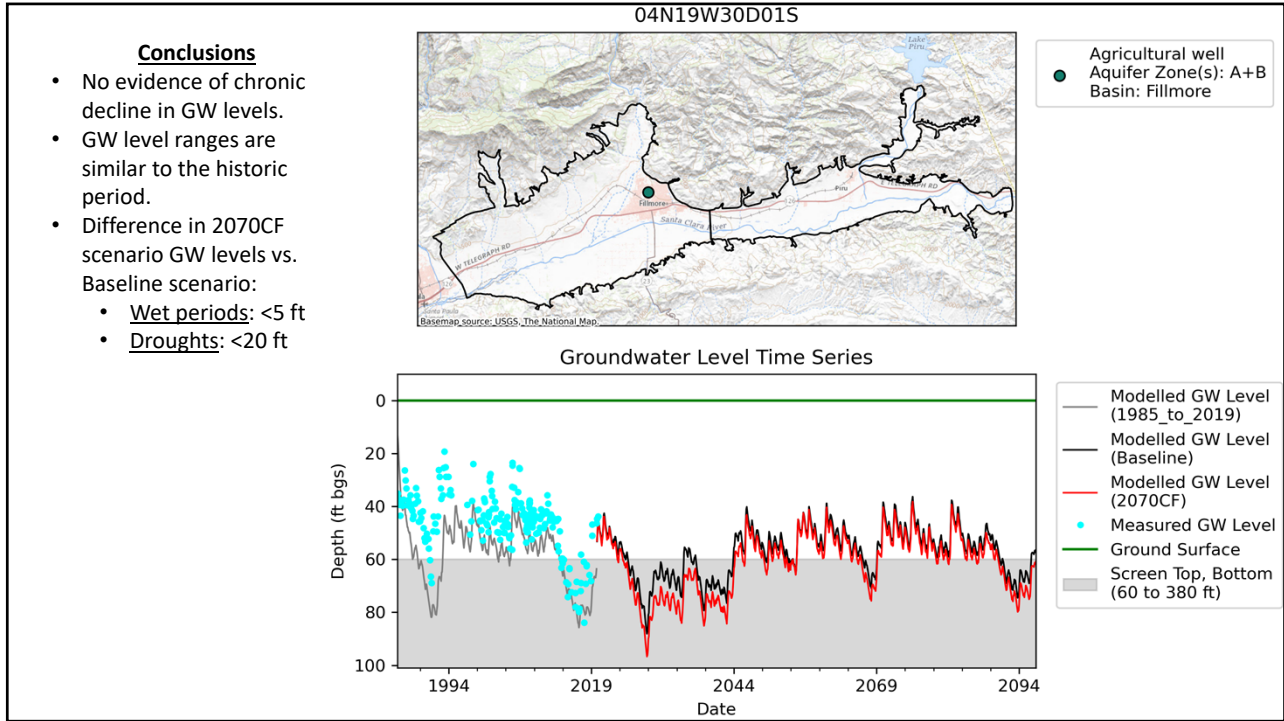
**Future Scenarios**

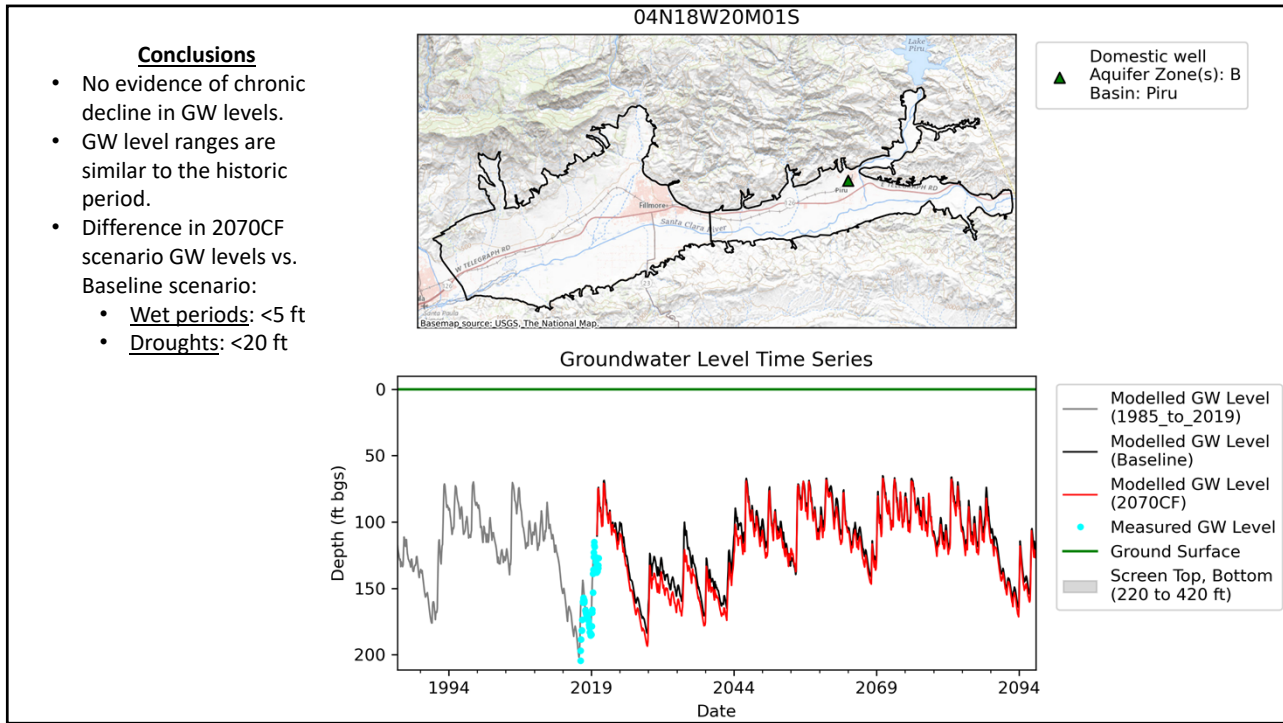
- We removed abandoned wells (~500 AFY on average) from Fillmore Basin.

**Historical Pumping (1985-2019)**









## Dry Wells Evaluation (of 2070CF Future Scenario)

# Bottom line: No production wells are predicted to go dry.

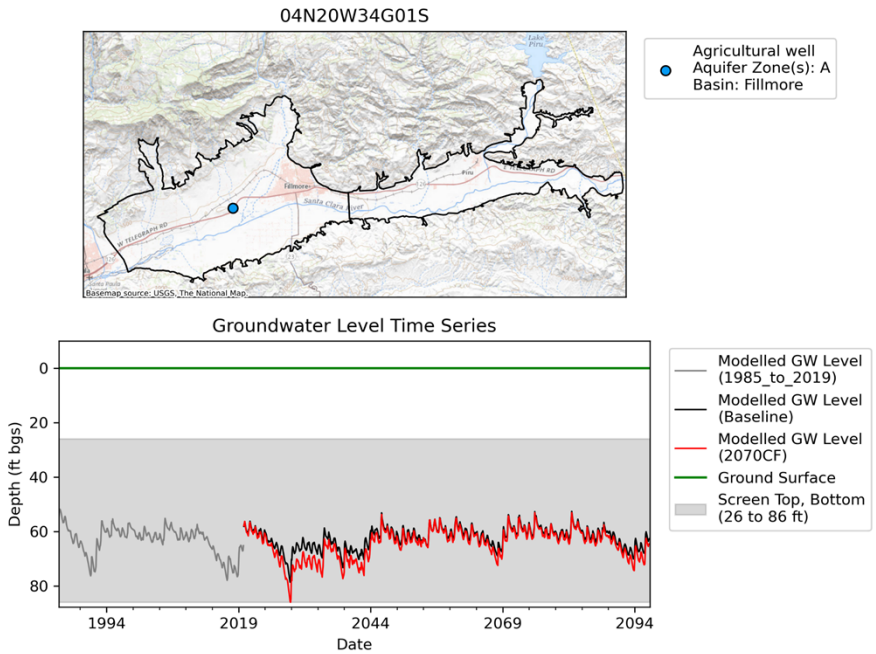
**Notes:**

- Based on comparison of modelled GW levels vs. bottom of screen...
- Some shallow monitoring wells (with screen <100 ft deep) will go dry during droughts.
- Manually inspected 3 agricultural wells and 2 domestic wells that modelled GW levels indicate would go dry:
  - Unlikely to go dry based on measured GW levels.
- Biases in modelled GW levels tends to underestimate measured GW levels - making this a cautious/conservative evaluation.



### Dry Wells Evaluation

**Example of a well with the highest risk of going dry**  
 (similar to Historical Baseline +20% from Dec. 2020 Board Meeting):



### Item 4C - Sustainable Management Criteria

## Water Level - Stream Flow Cross Over Analyses

- Updated relationship(s) between WLS in wells near rising GW areas and measured SW flow
- Impact of climate change on depth to water in drought
- Impact of climate change on SW flows



## Water Level - Stream Flow Cross Over Analyses

Results of the analyses done by United:

- cross over relationship between WLS and SW flow; and
- impact of pumping on SW flow

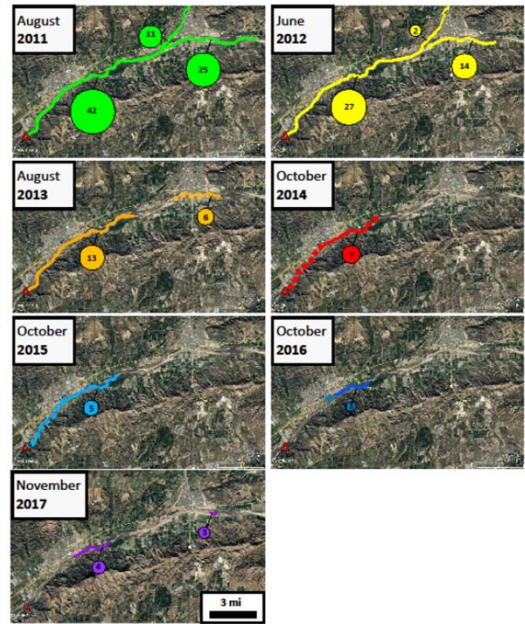
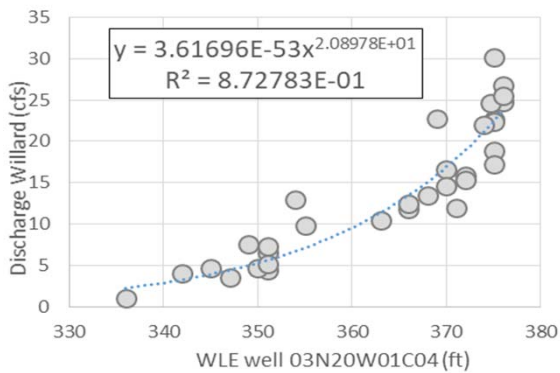


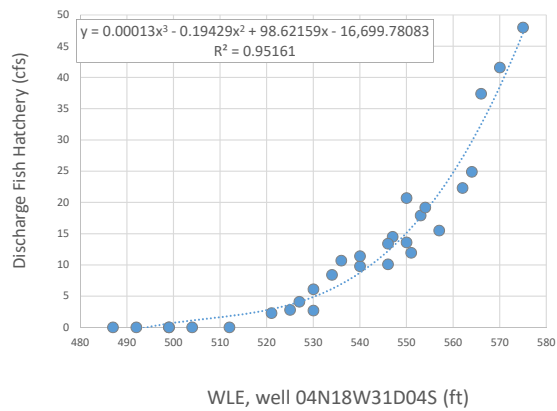
Figure 5.2-2. Length of wetted areas (colored lines) in the lower Santa Clara River, upstream of the Freeman Diversion (indicated by red triangle). Reaches where the end of the wetted area is uncertain are indicated by dotted lines. Flow rates (cfs) are indicated in circles, scaled according to magnitude.

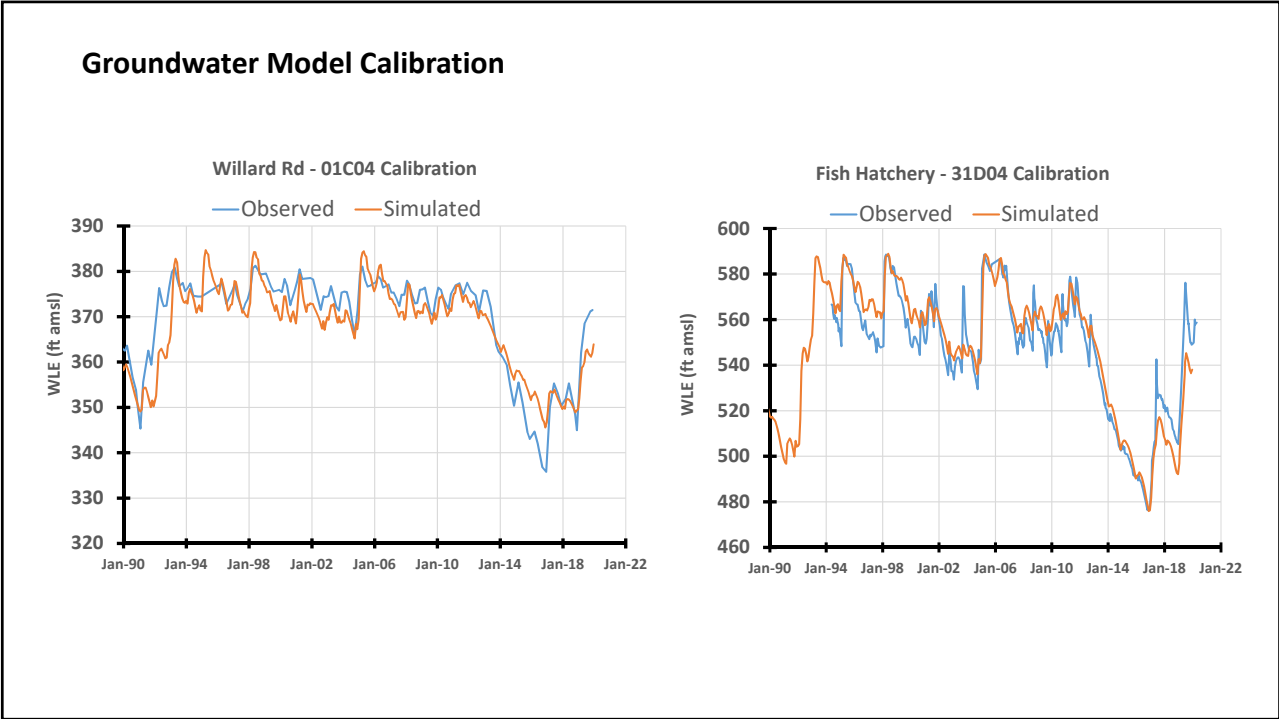
## Water Level - Stream Flow Cross Over Analyses

**Willard Road**



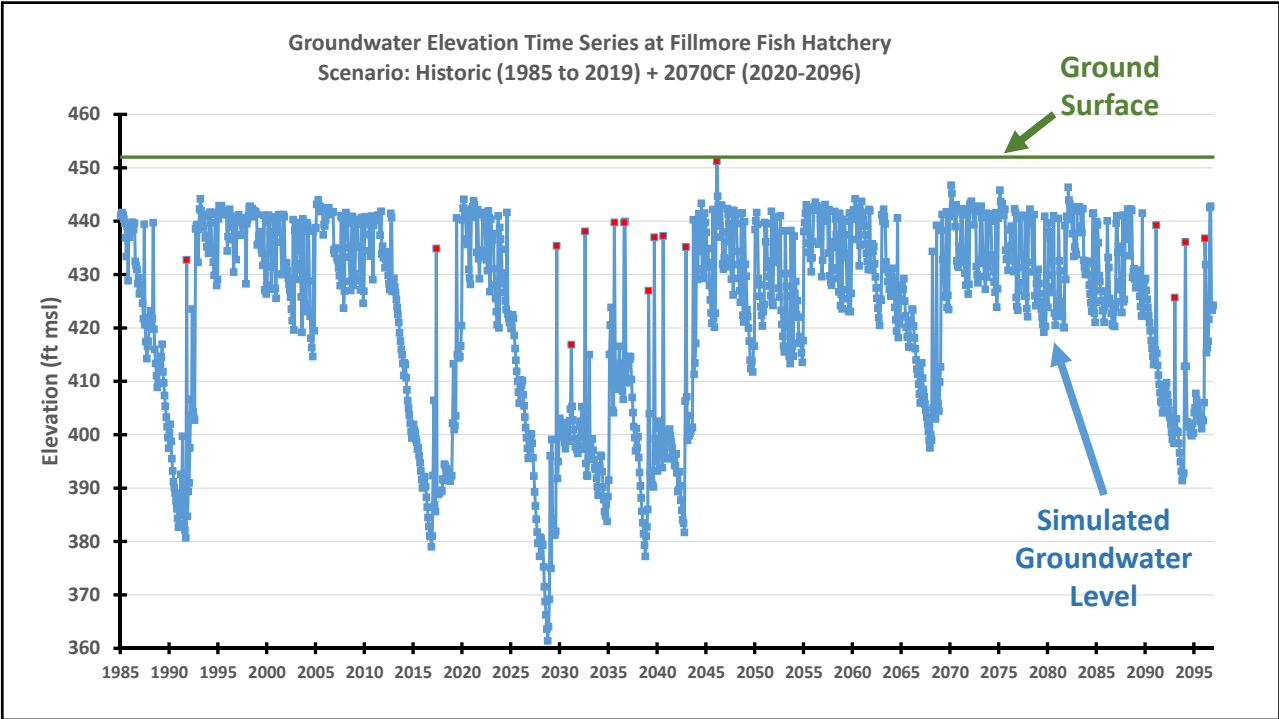
**Fish Hatchery**

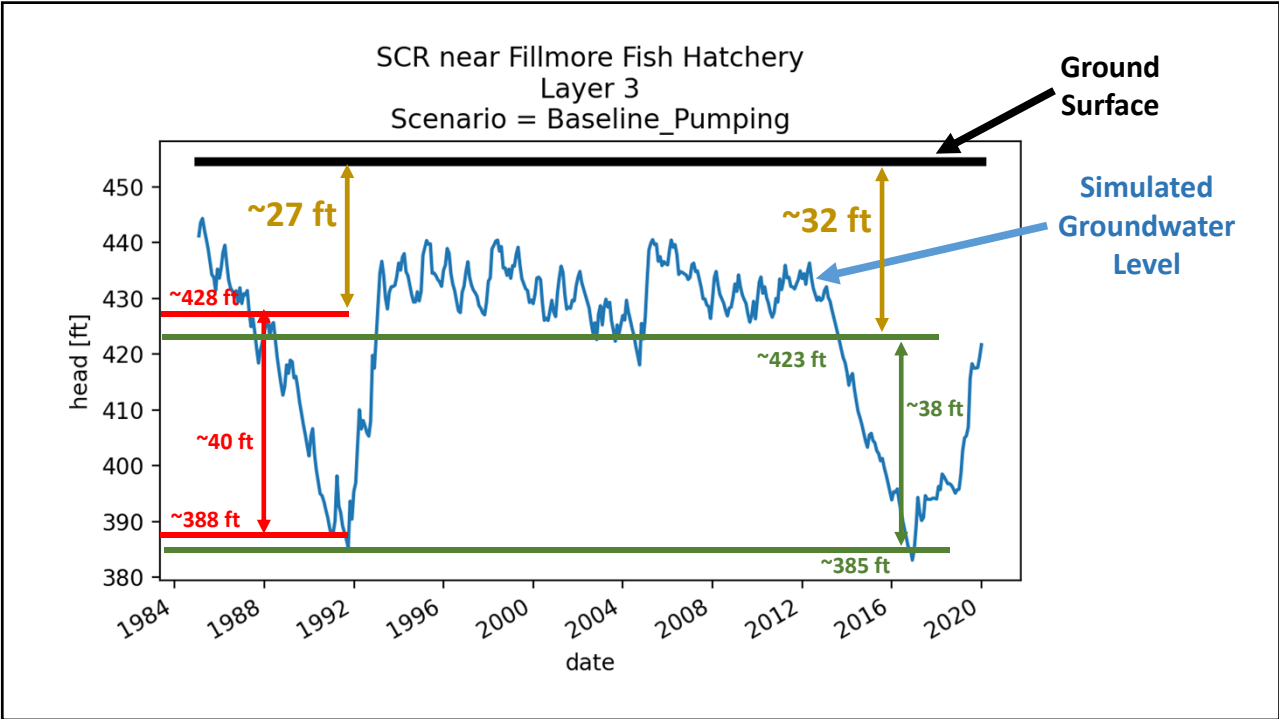
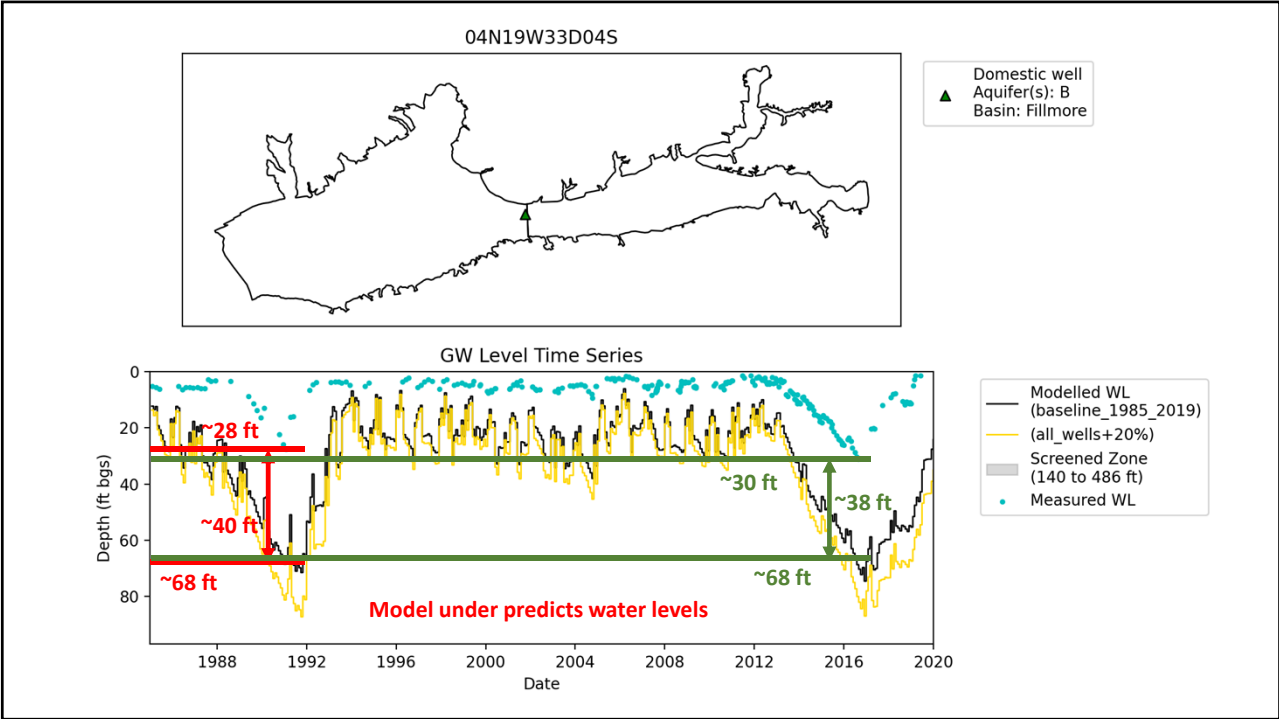


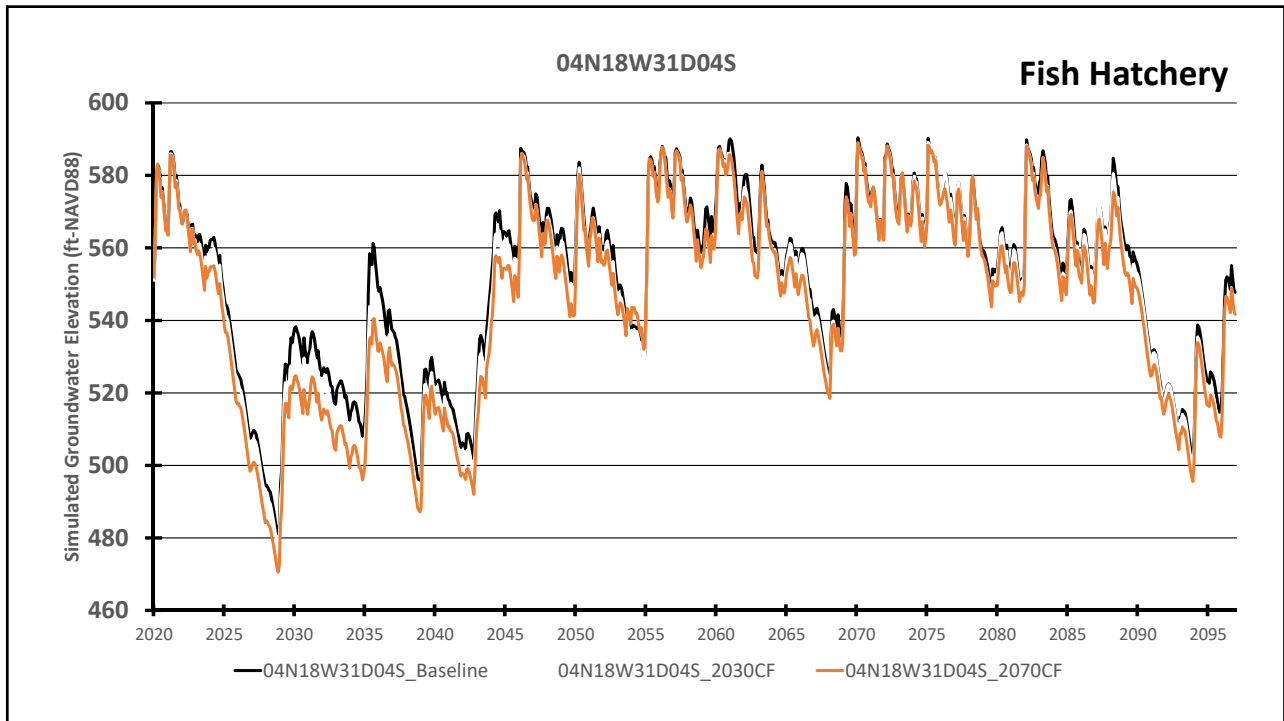
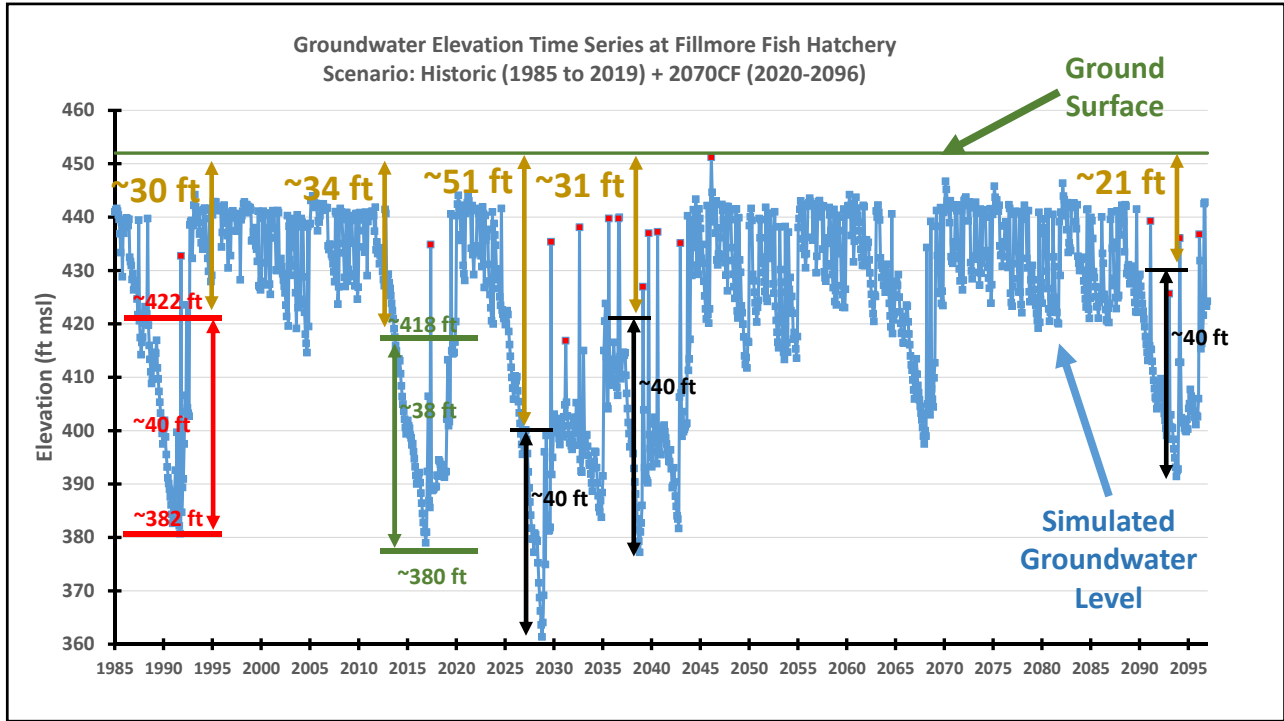


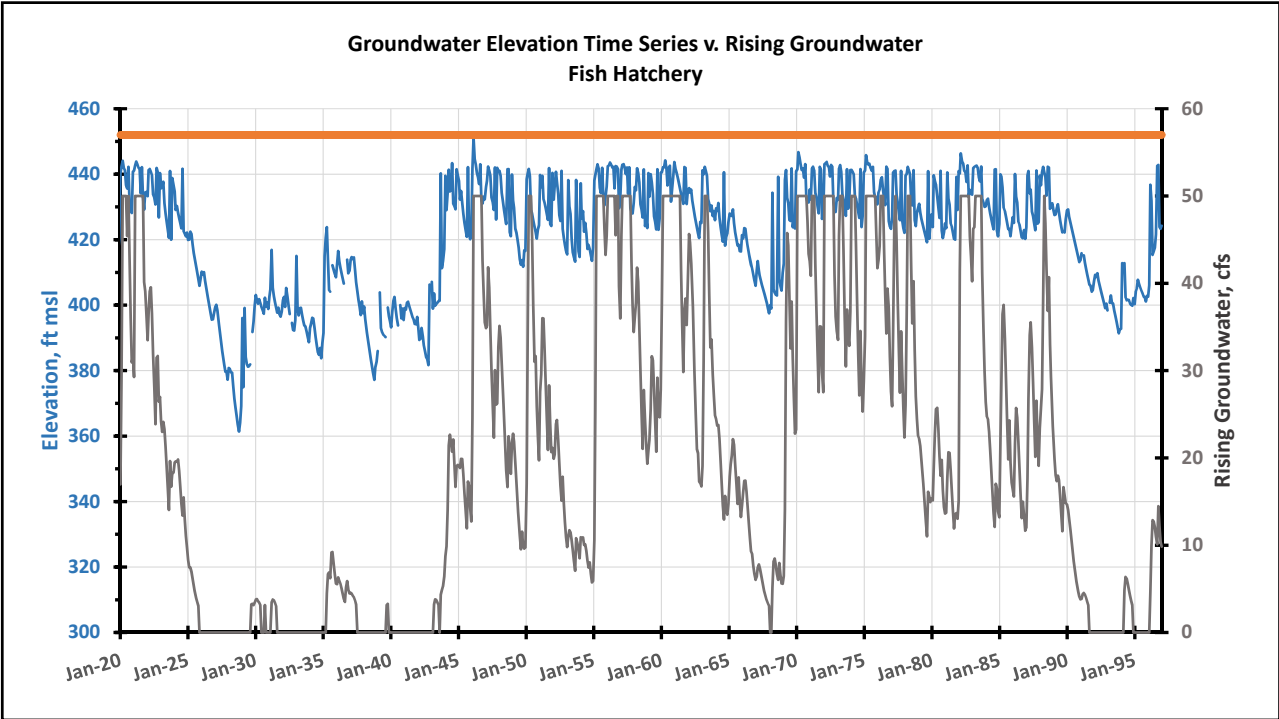
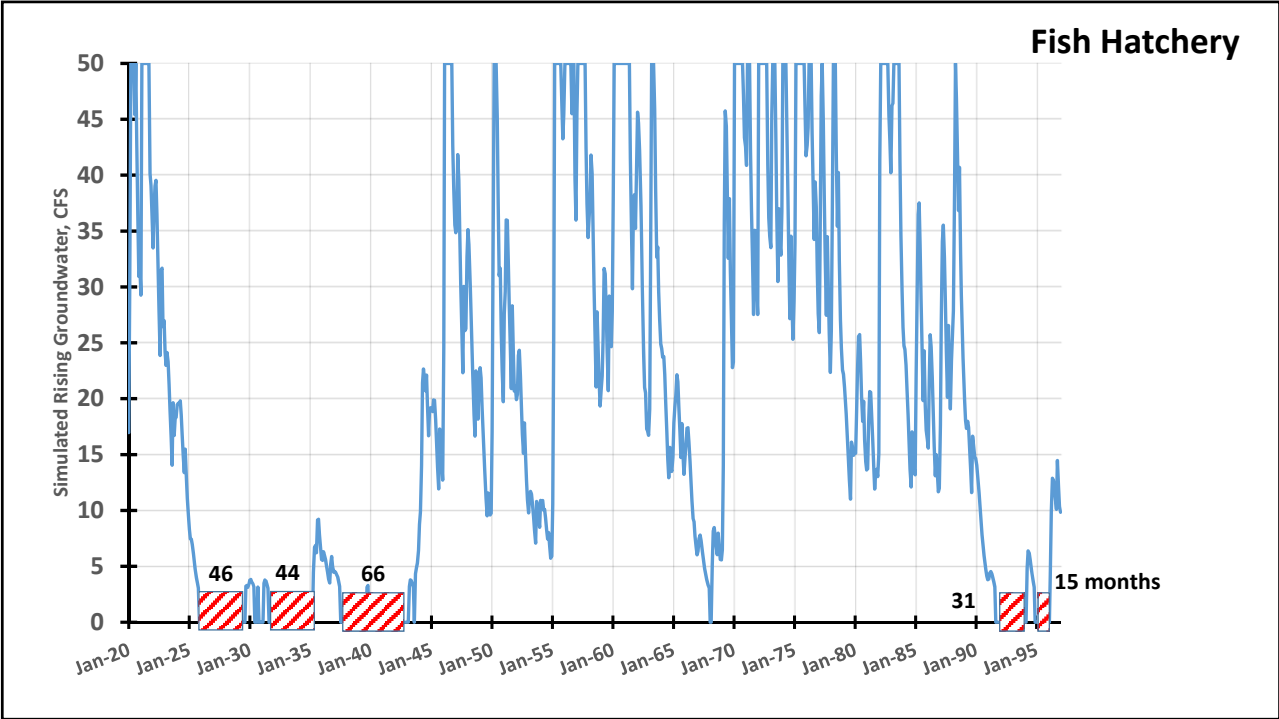
- **Important GDEs at basin boundaries**
- ~29 vegetation communities - cottonwoods & willows
- Special status animal species - Three-spine stickleback, western pond turtle, Least Bell's Vireo, Southwestern Willow Flycatcher, Bank Swallow
- ~4 Special status plants

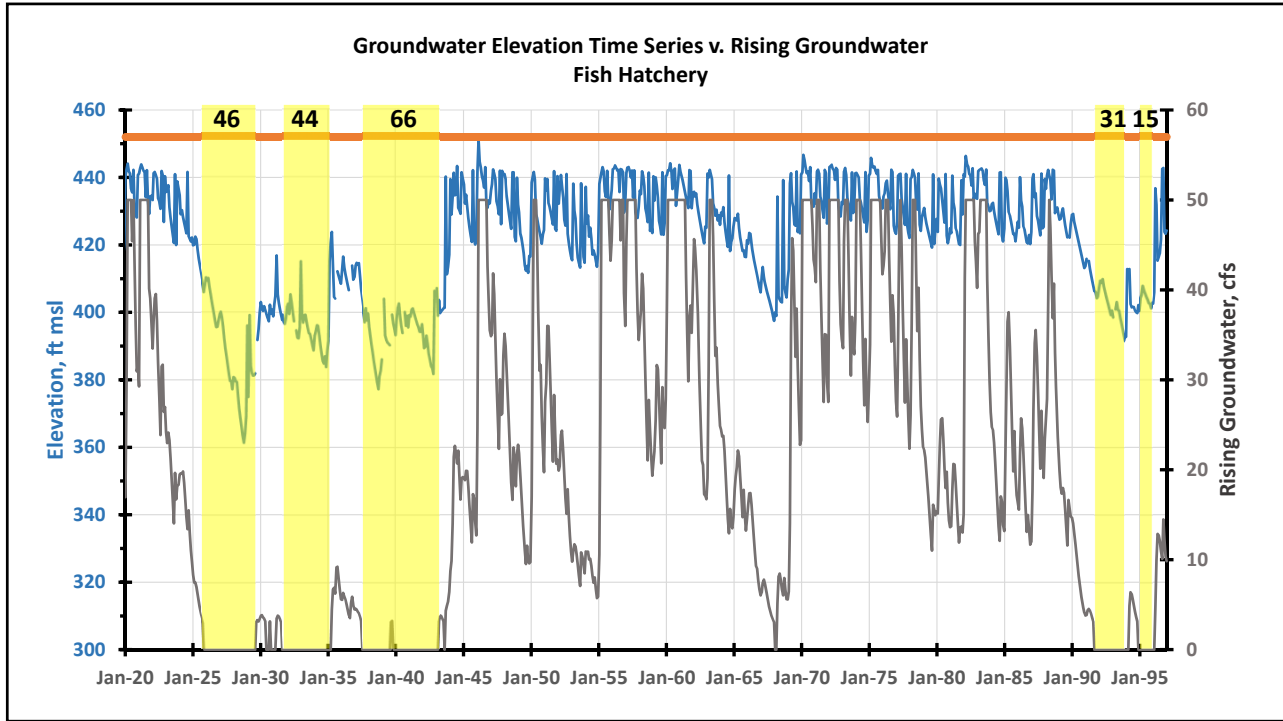
Preliminary Map - Subject to Revision - For City of Reference











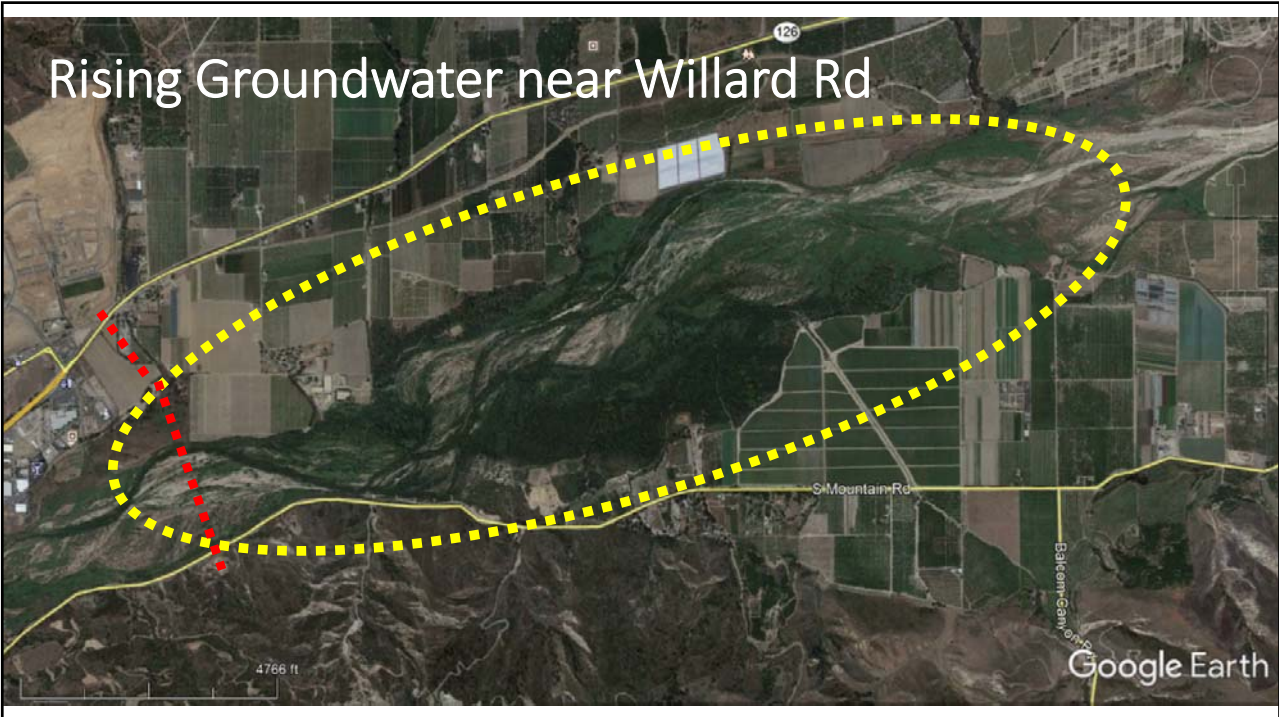
How quickly does Fish Hatchery reach of SCR go dry?

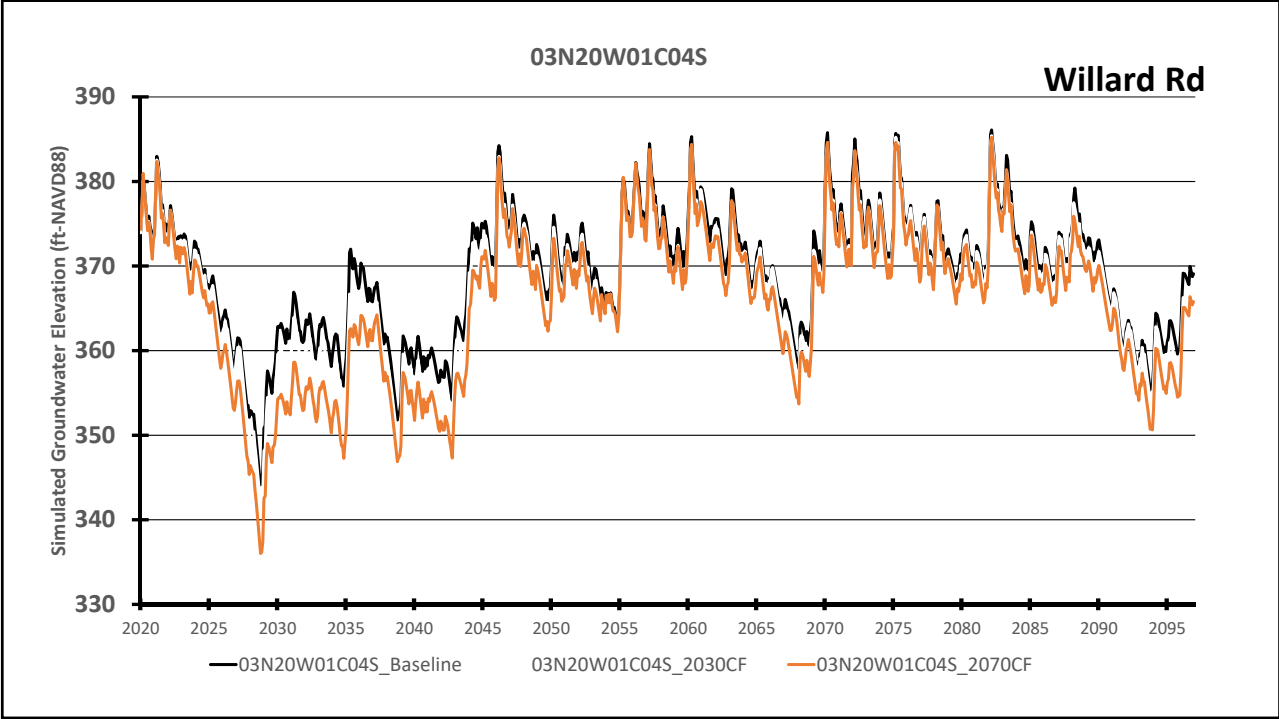
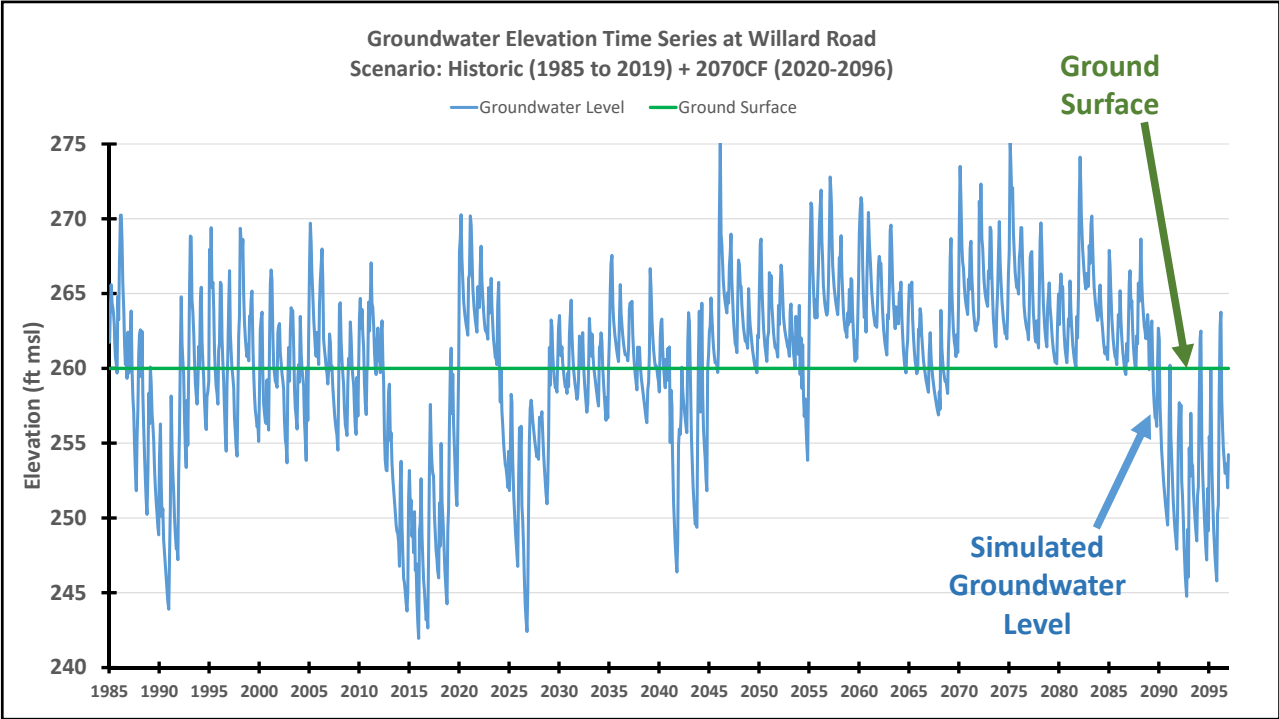
- Wetted reach begins to shrink within a year
- Probably dry within 2 years

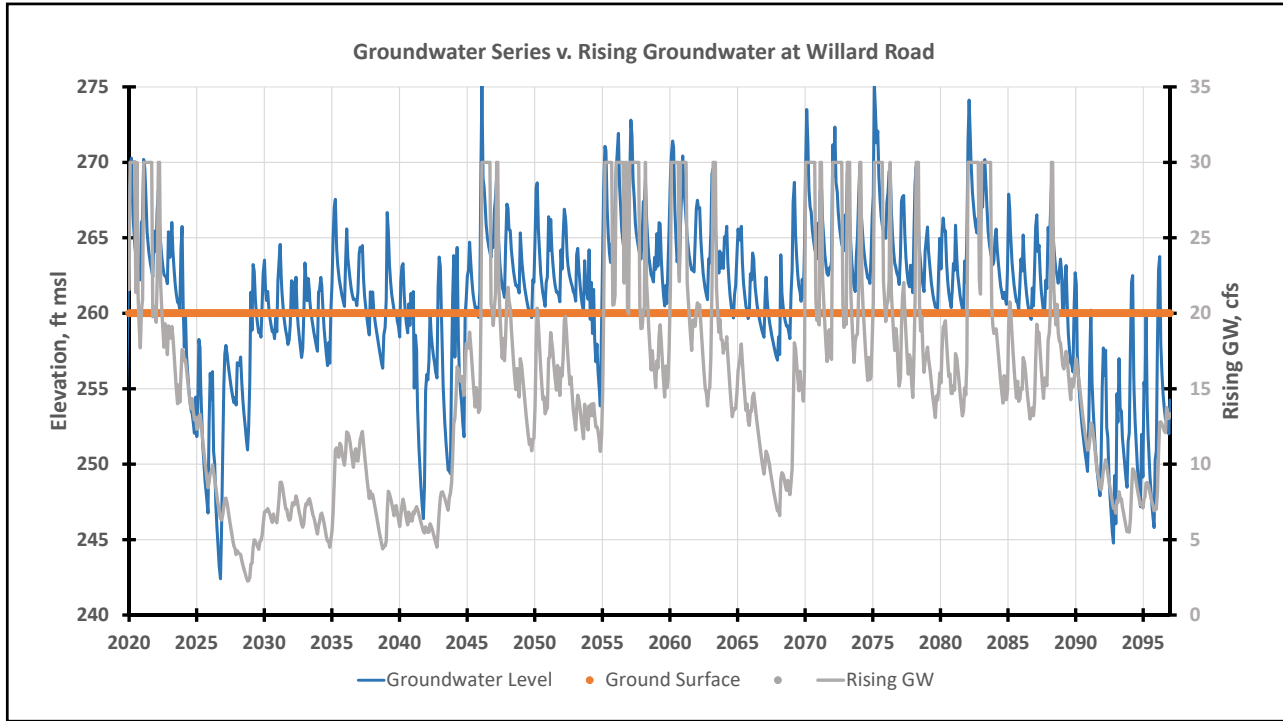


## What did we learn?

- Extended periods of below normal precipitation are possible in the 2070 future conditions modeling scenario
- Drought WIs under 2070 future climate change conditions are estimated to be ~21-51 ft bgs with most in ~30-35 ft bgs range
- Rising groundwater may cease during moderate to severe drought conditions and remain that way for many months or even a few years
- The wetted reach of the SCR near the Fish Hatchery begins to shrink within a year of drought initiation and will probably be dry within 2 years if the drought lasts that long

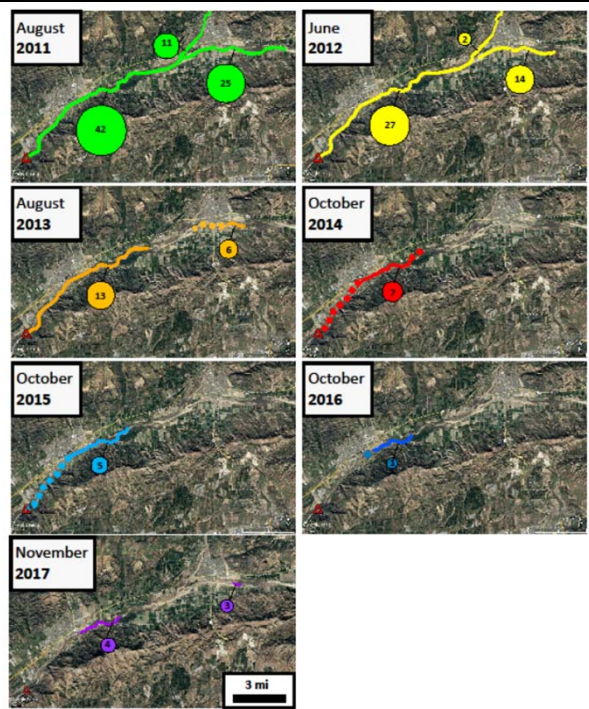






## How quickly does Willard Road reach of SCR go dry?

- Wetted reach begins to shrink within 2-3 years
- Probably dry within 5-6 years

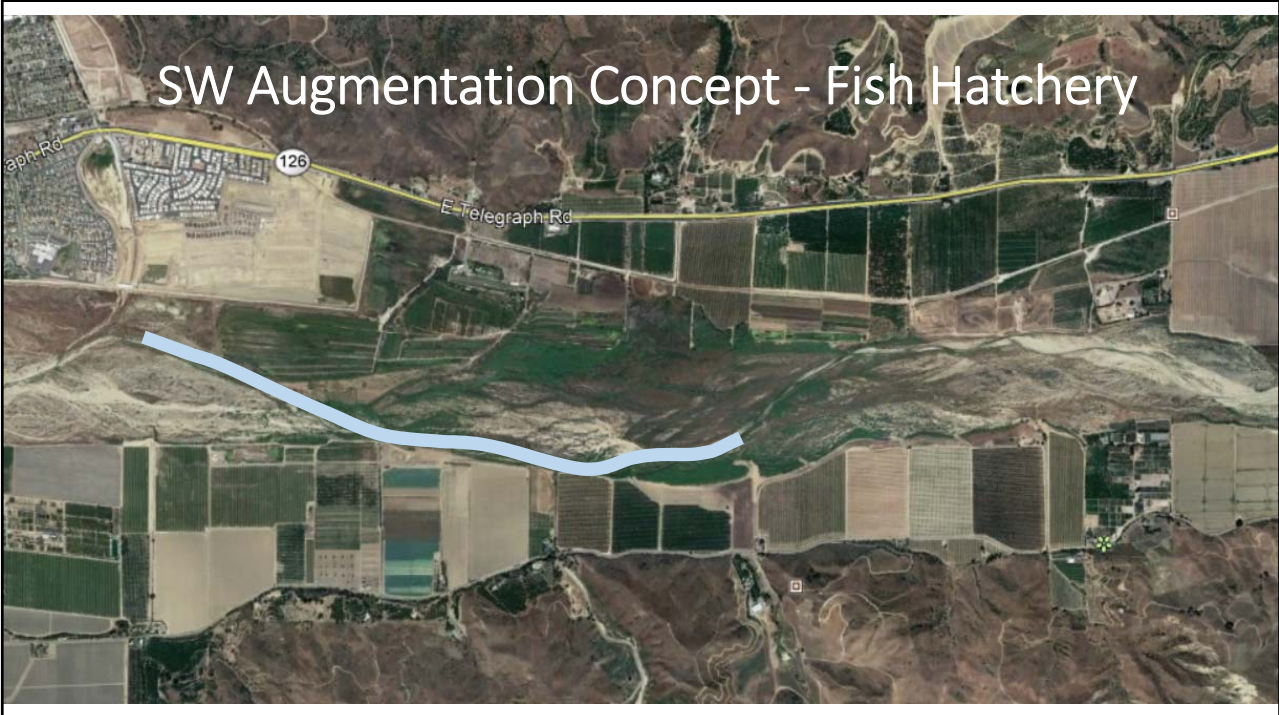
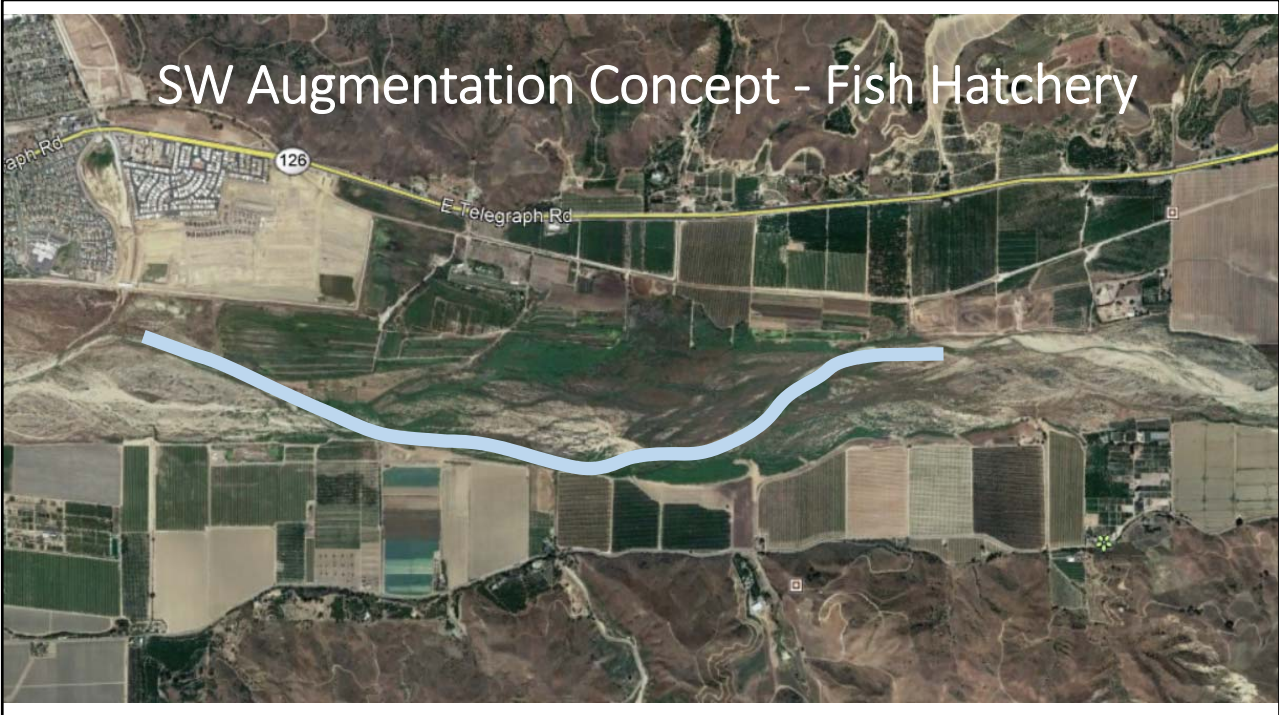


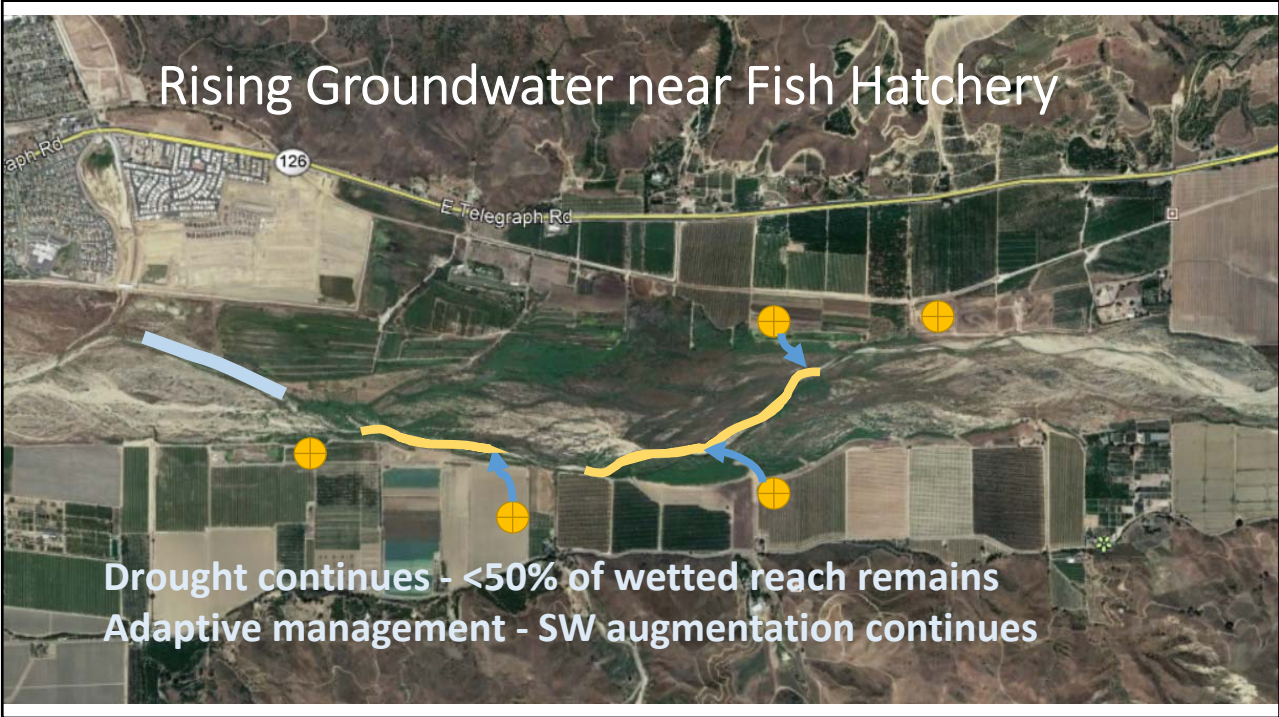
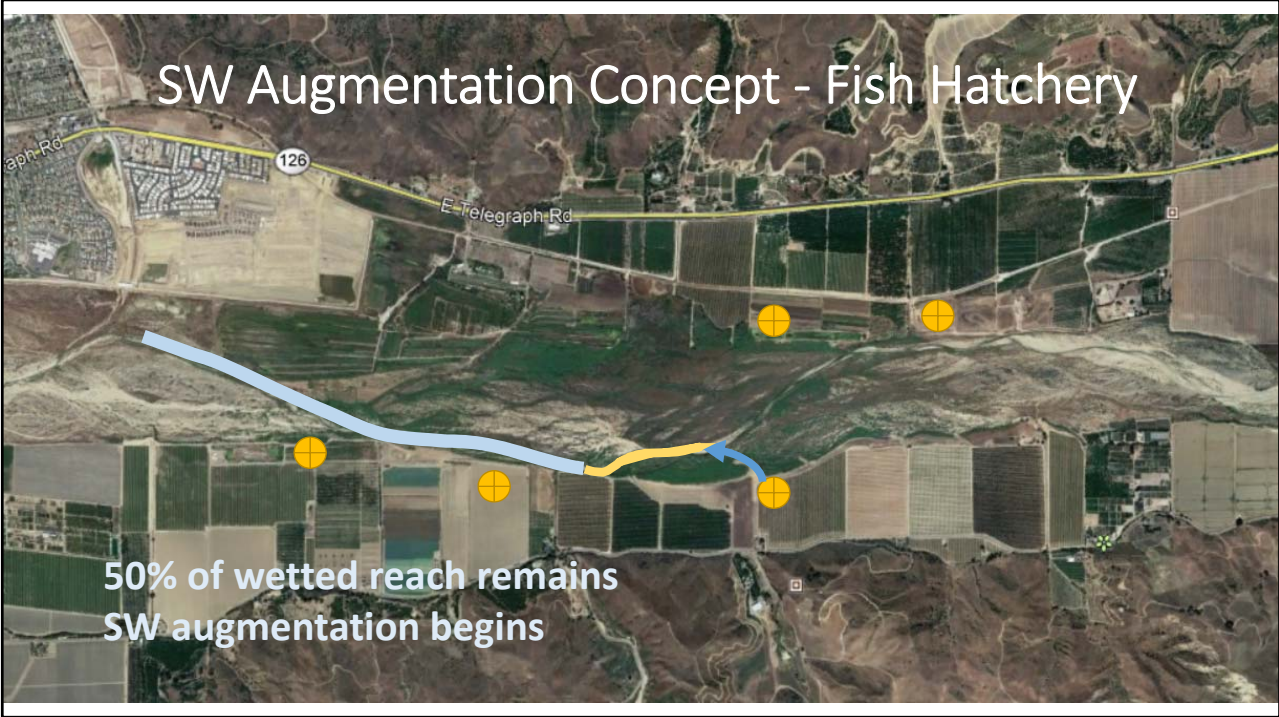
## What did we learn?

- Extended periods of below normal precipitation are possible in the 2070 future conditions modeling scenario
- Drought WLs under 2070 future climate change conditions are estimated to be 15 or less ft bgs
- Rising groundwater is expected to decrease to 5-10 cfs during droughts, but not cease near Willard Road
- The field observations of the SCR reach near the Willard Road records that the wetted reach begins to shrink within ~ 2 years of the beginning of a drought and could go dry within ~ 5 years

### Summary

	Fish Hatchery	Willard Road	Comments
<b>Rising GW (Surface Water Flows)</b>	<ul style="list-style-type: none"> <li>✓ GW extractions decrease SW flows by 5-10 cfs which creates periods of no flow that can last ~2-5 yrs</li> <li>✓ Modeling suggests future flows during droughts could cease and remain that way for many months to a few yrs</li> </ul>	<ul style="list-style-type: none"> <li>✓ GW extractions decrease SW flows by 5-10 cfs</li> <li>✓ Modeling suggests future flows will decrease 5-10 cfs but not go dry</li> </ul>	<ul style="list-style-type: none"> <li>✓ Are periods of no rising GW a <i>Significant and Unreasonable</i> impact to SW beneficial uses/users?</li> <li>✓ Are modeled water levels of 30-35 ft bgs during a drought a <i>Significant and Unreasonable</i> impact?</li> </ul> <p>If so, what mitigation measures should/could be considered (e.g., reduce GW extractions near SCR? engineered solutions - Article 21 water, SW augmentation with GW, or ?)</p>
<b>Depth to GW during droughts</b>	<ul style="list-style-type: none"> <li>✓ Water levels during droughts modeled to be mostly in 30-35 ft bgs range, but could extend from 21-51 ft bgs</li> </ul>	<ul style="list-style-type: none"> <li>✓ Water levels during droughts modeled to be 15 ft bgs or less</li> </ul>	





## Key Elements SW Augmentation Concept

- *Goals: Use GW to support ecosystem survival through the drought. Water provides some water to the root zone for GW dependent vegetation and creates SW pools for amphibians, etc.*
- *The SW augmentation system would be implemented only during drought conditions when the length of the wetted reach declines below the trigger value.*
- *What is the minimum amount of wetted reach to maintain? This length becomes a trigger value that, when exceeded, initiates the use of GW to augment SW flows.*
- *GW used for SW flow augmentation comes from wells perforated in deeper aquifers (not the shallow aquifer supplying the rising GW).*
- *If possible, no new wells would be drilled. Excess capacity from existing wells would be “crowd sourced” from multiple wells. Wells would likely be used sequentially to maintain the trigger length of wetted reach.*

## Key Elements SW Augmentation Concept

- *FPBGSA would be responsible for any well retrofitting (e.g., discharge piping), metering, power costs for pumping the well, and a contribution towards maintenance costs of the well.*
- *The number of wells needed depends on the length of the wetted interval to be re-established, stream bed percolation rate, and quantity of water needed for re-establishment.*
- *What amount of water should be added for augmentation purposes?*
  - ✓ *1 cfs = ~ 450 gal/min (1 well)*
  - ✓ *5 cfs = ~ 2,250 gal/min (2-4 wells)*
  - ✓ *10 cfs = ~4,500 gal/min (4-7 wells)*
- *The length of time the SW augmentation program could be in use might be *multiple years*. The amount of GW pumped could be extensive, for example:*
  - ✓ *450 gal/min = 726 AFY*

Questions?





# Sensitivity of Groundwater-Dependent Riparian Woodlands to Water Table Declines

Christopher Kibler

University of California, Santa Barbara

January 21, 2021

**DRAFT**

1

## Introduction

- Riparian woodlands are important vegetation communities
  - Serve as habitat for sensitive animal species
  - Promote plant biodiversity
  - Regulate water and sediment fluxes in floodplains
- Riparian woodlands are groundwater-dependent ecosystems
  - Root systems 0-3 m
  - Draw water from the alluvial water table
  - Exceptionally vulnerable to water stress if water table declines
- Prolonged water stress leads to plant mortality

2



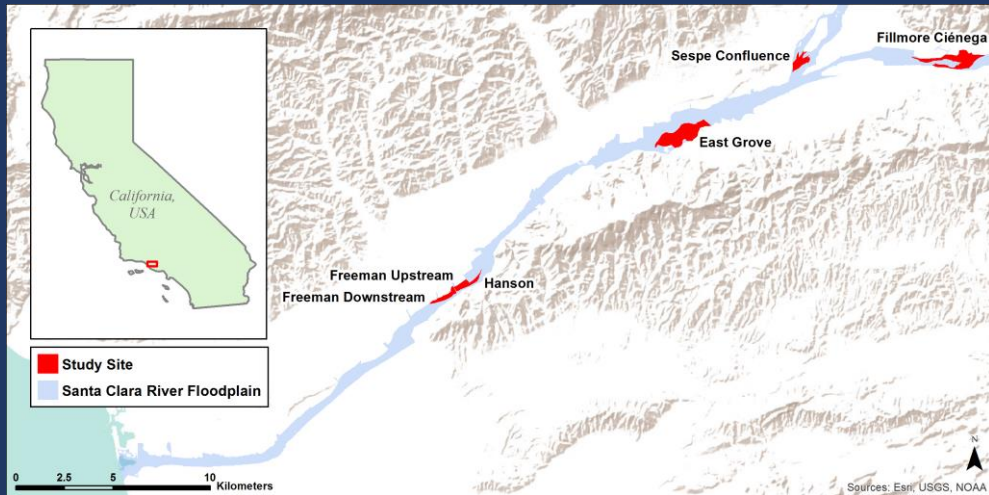
3

## Research Questions

1. What are the general trends of tree health in the Santa Clara River floodplain during the 2012-2019 California drought?
2. How strong is the relationship between changes in groundwater and changes in land cover in riparian woodlands?
3. Are there critical thresholds where water table declines cause stress and mortality in the riparian woodlands?

4

# Lower Santa Clara River



Introduction | Motivation | Research Questions | **Methods** | Results | Discussion

5

5

## Groundwater

- For each study site, identified a well that indicated water table trends in the shallow aquifer
- The shallow aquifer is where trees access their water
- Calculated change in groundwater elevation compared to June 2011 baseline
- 2010-2011 was a wet winter, 2012-2019 drought conditions

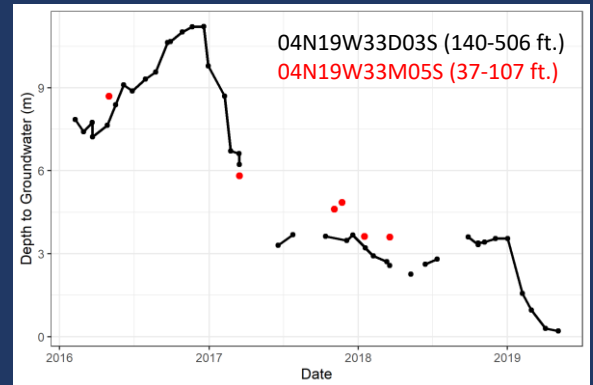
Introduction | Motivation | Research Questions | **Methods** | Results | Discussion

6

6

# Groundwater

- Selected shallow wells with complete time series when possible
- Otherwise, benchmarked deeper wells against shallow wells with limited data
- Fillmore Cienega: 04N19W33D03S
- Sespe Confluence: 03N20W02A01S
- East Grove: 03N21W12B02S



Introduction | Motivation | Research Questions | **Methods** | Results | Discussion

7

7

# Remote Sensing

- Remote sensing is the analysis of satellite and aerial imagery
- Landsat satellite imagery acquired in June from 2011 to 2016
- 30-meter pixels
- Calculated change in land cover compared to 2011 baseline
- Analyzed the relationship between change in groundwater elevation and change in land cover
- Pooled observations across sites and years (n = 24 site-years)

Introduction | Motivation | Research Questions | **Methods** | Results | Discussion

8

8

# Remote Sensing

Green vegetation fraction:

- Percent land cover of healthy green plants

Non-photosynthetic vegetation fraction:

- Percent land cover of dead and woody plant material

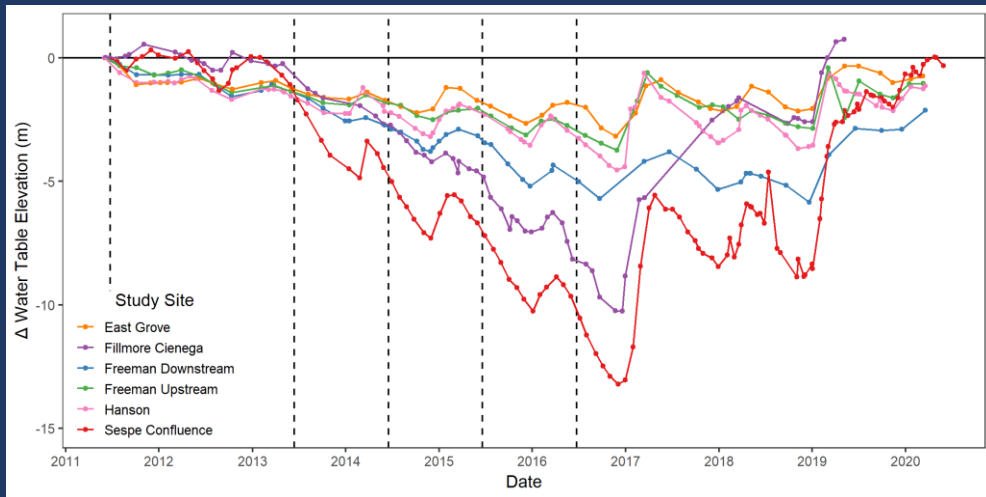
Soil fraction:

- Percent land cover of soil

$$\mathbf{GV + NPV + Soil = 100\%}$$

# Results

# Results

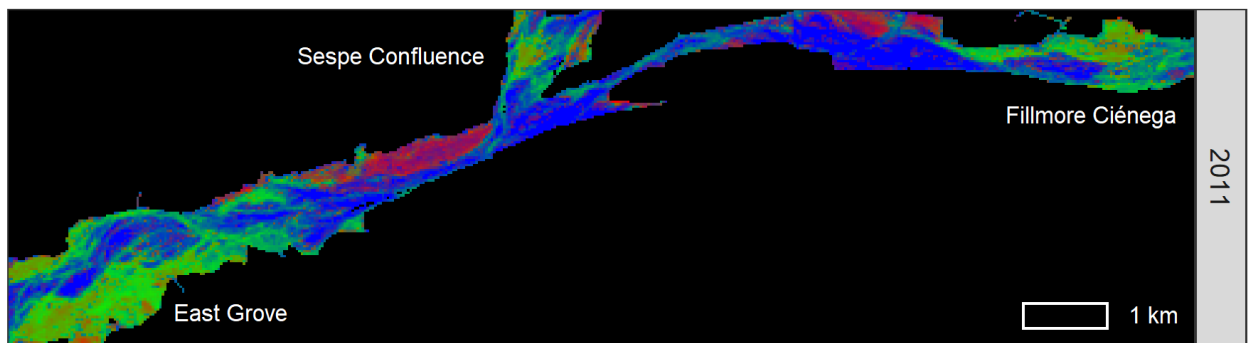


Introduction | Motivation | Research Questions | Methods | **Results** | Discussion

11

11

# Results: Fillmore Basin

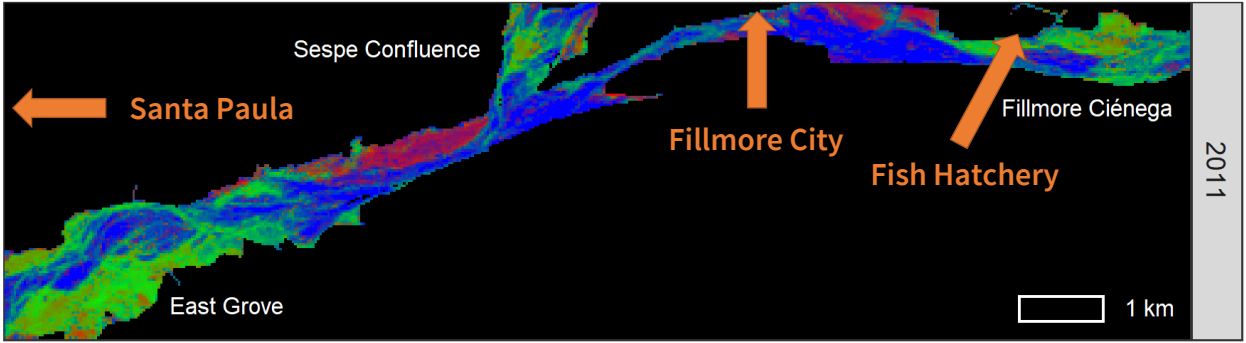


Introduction | Motivation | Research Questions | Methods | **Results** | Discussion

12

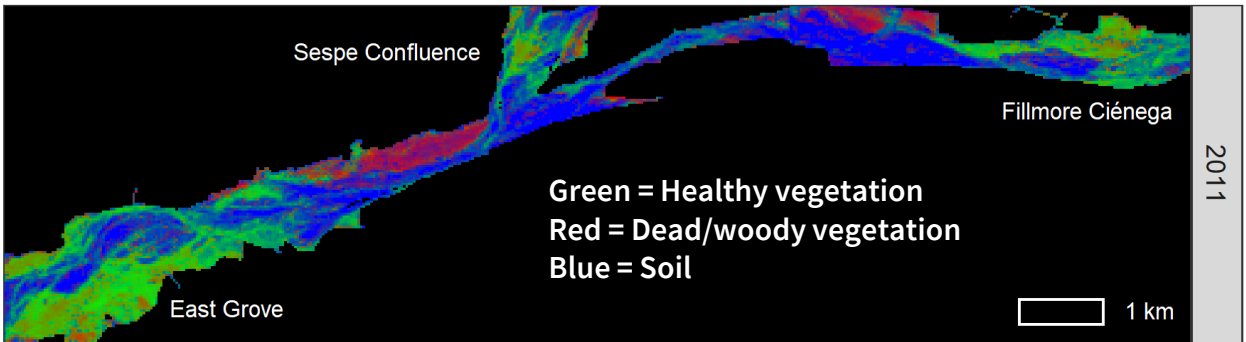
12

# Results: Fillmore Basin



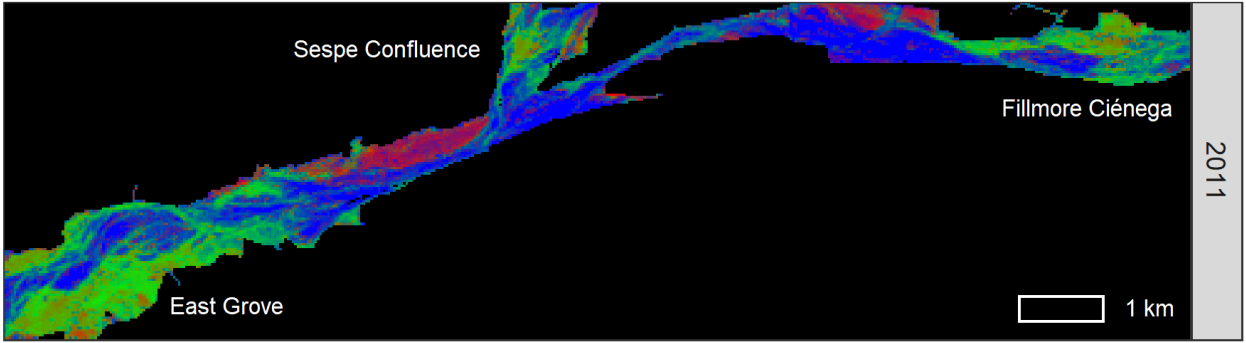
13

# Results: Fillmore Basin



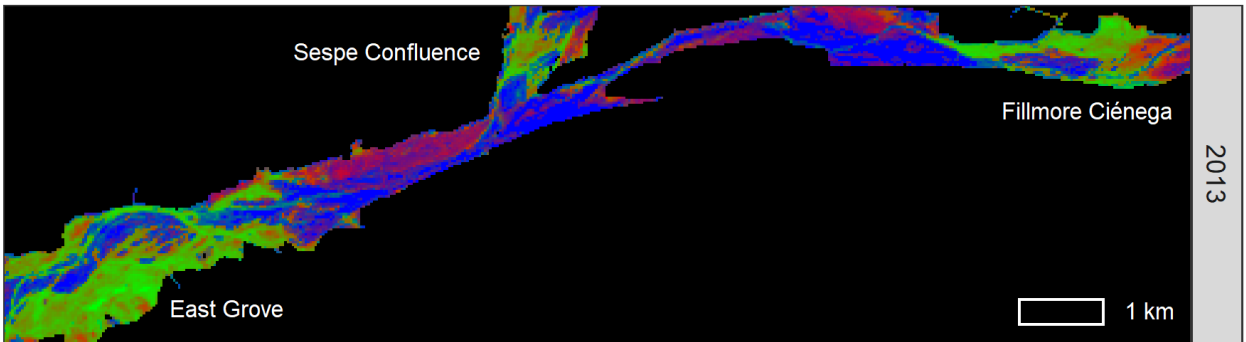
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# Results: Fillmore Basin



15

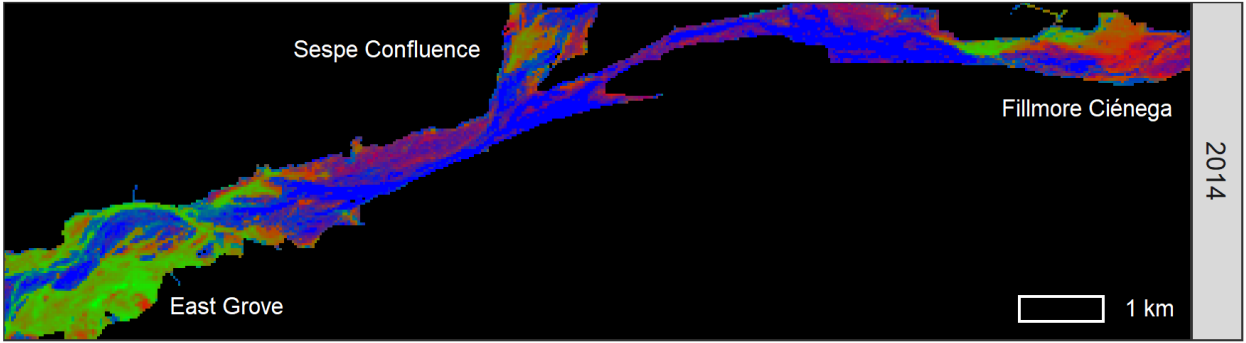
# Results: Fillmore Basin



16

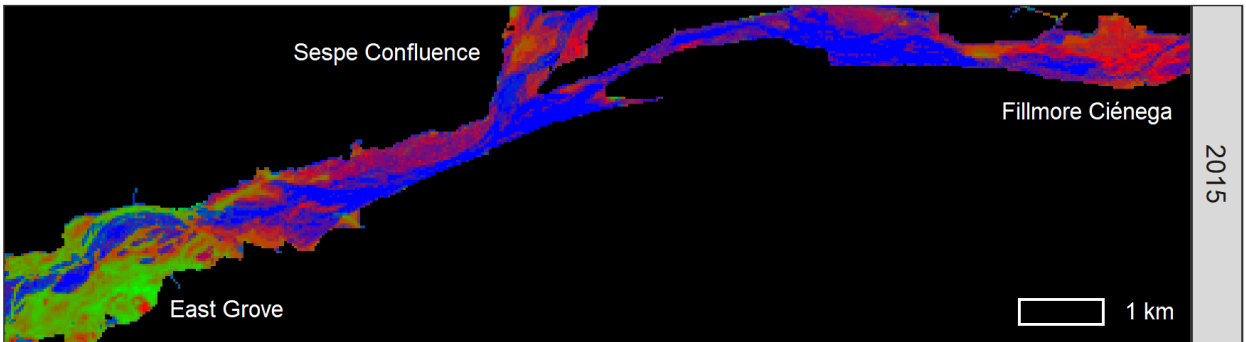


# Results: Fillmore Basin



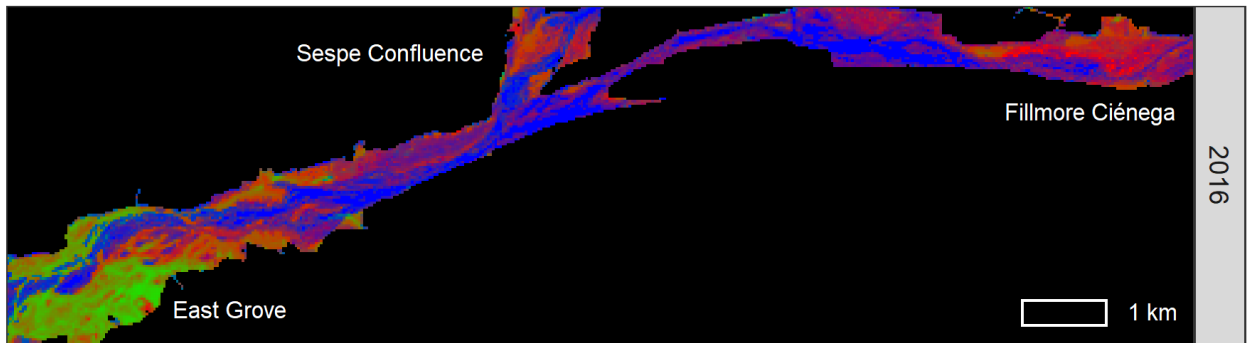
17

# Results: Fillmore Basin



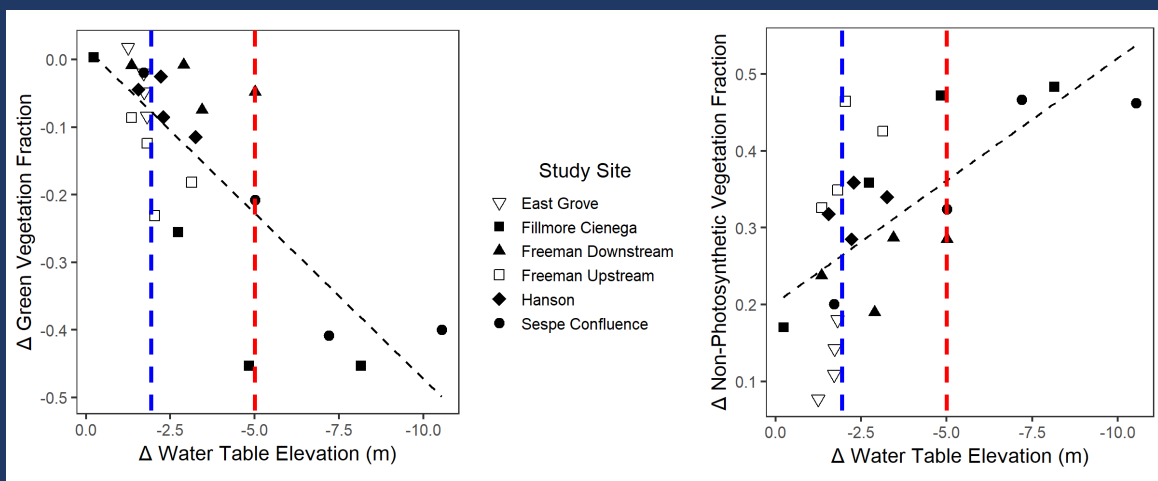
18

# Results: Fillmore Basin



19

# Results



20

## Discussion

- Groundwater declines drove widespread mortality of riparian trees between 2011 and 2016
- Limited impact at sites with  $<2$  m water table decline
- Widespread mortality at sites with  $>5$  m water table decline
- Observed threshold may be related to changes in subsurface water fluxes, and not just tree root systems

## Discussion

- Floods and scouring events needed for riparian tree species to regenerate
- Increased prevalence of droughts, decreased prevalence of floods could lead to less natives and more invasives
- Trees might not recover in the same way that they have in the past
- Potential for permanent loss of riparian woodlands

# Questions?

Introduction | Motivation | Research Questions | Methods | Results | **Discussion**

23

23

# United's 2020 Conservation Release Results

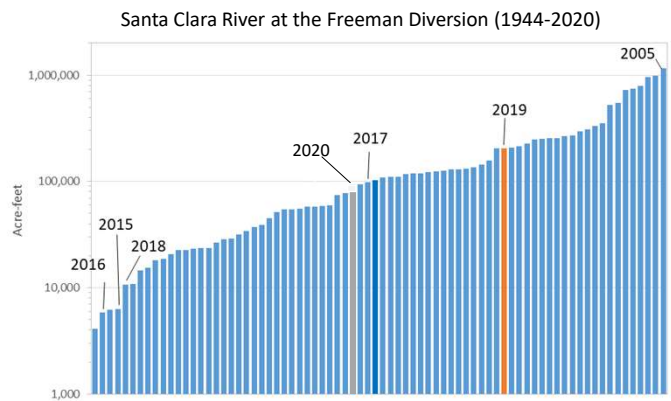
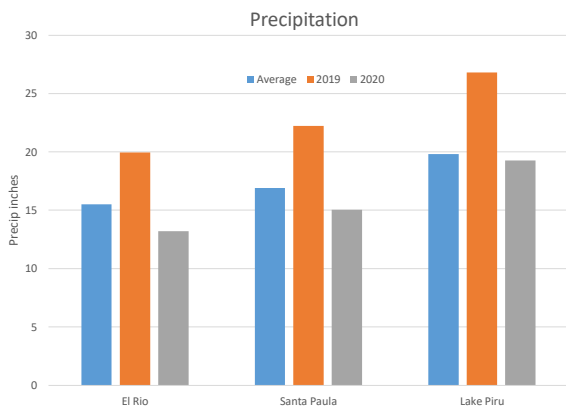
**Operations at Santa Felicia Dam**  
 Current Storage Capacity = 83,200 AF  
 (currently 14,800AF)



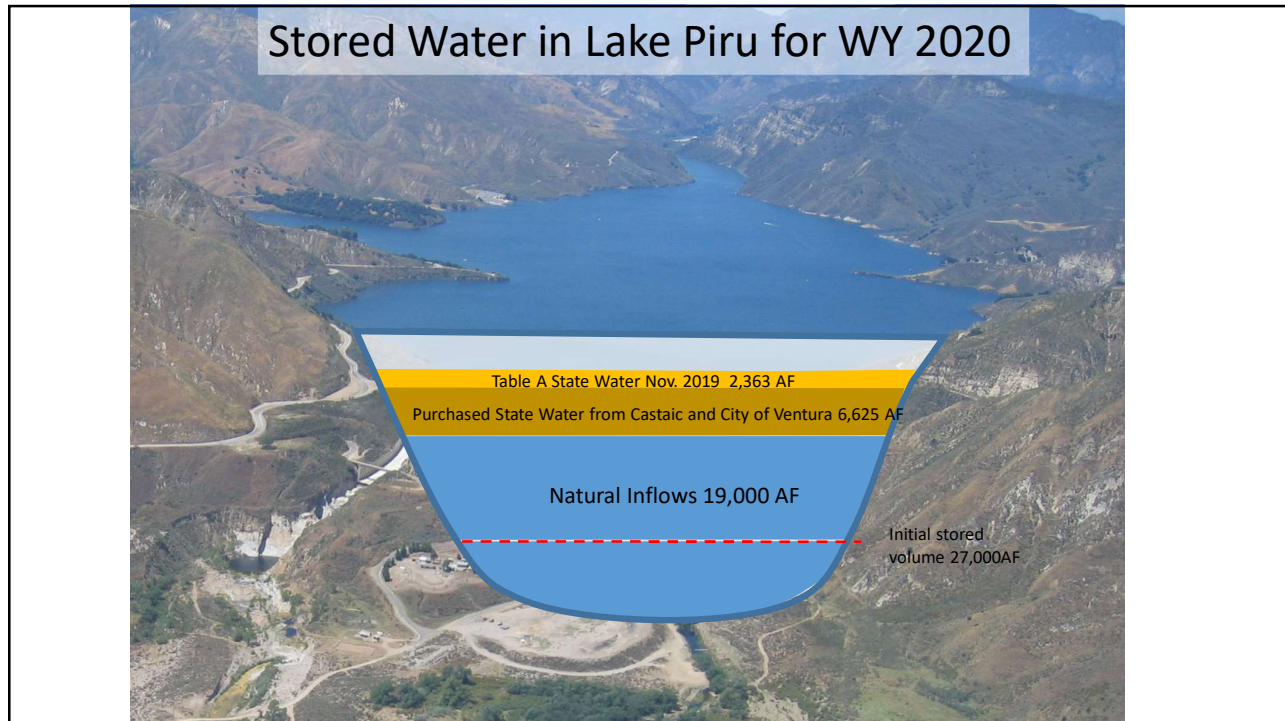
1

## Precipitation and Runoff for recent years

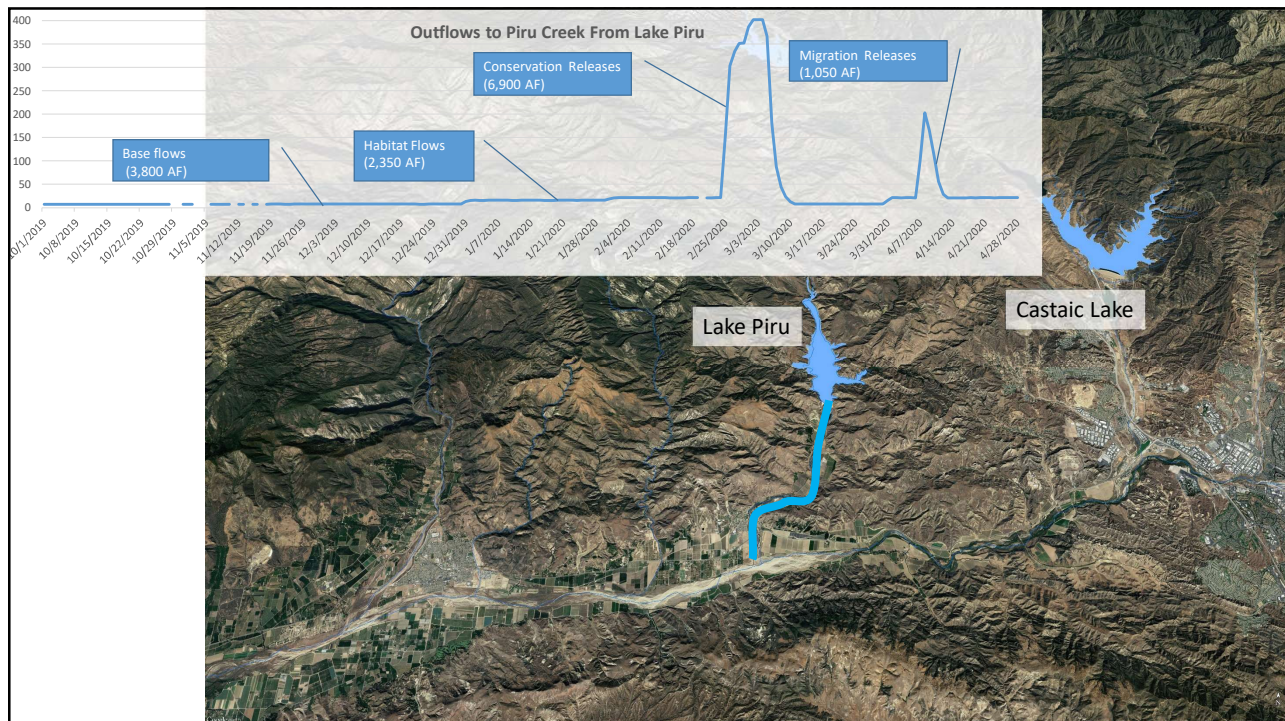
➡ Sufficient water for significant releases



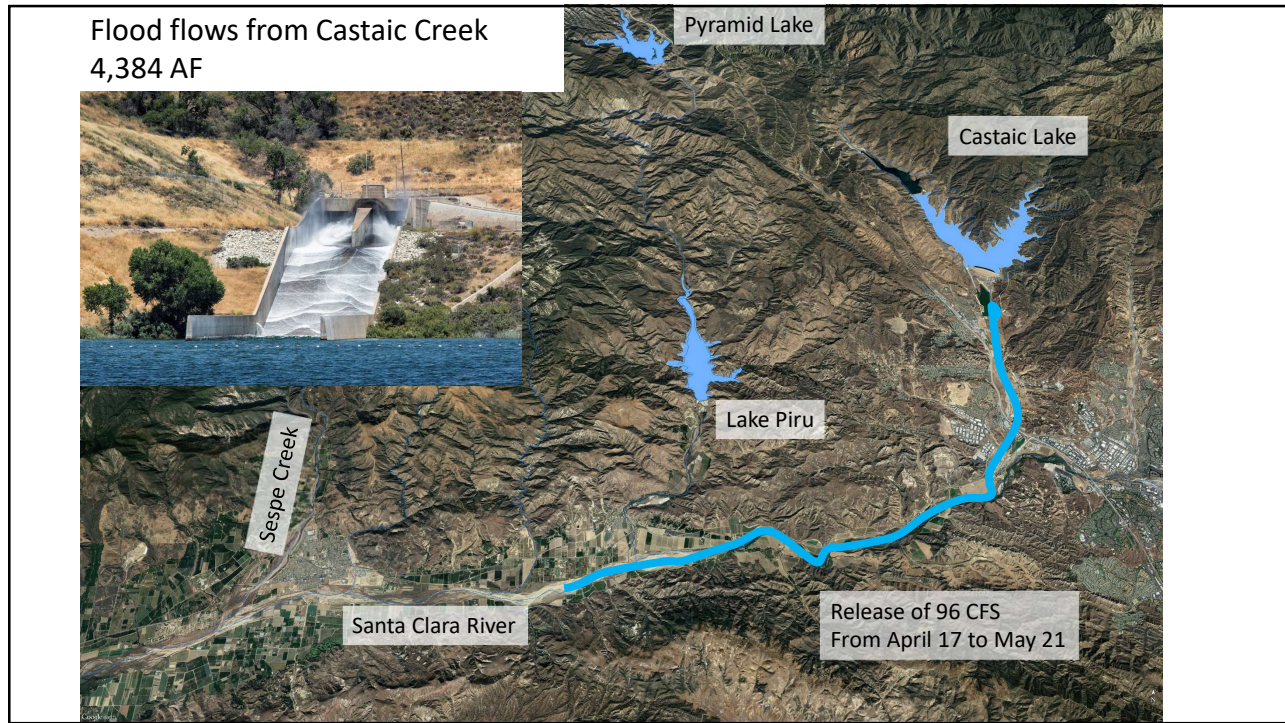
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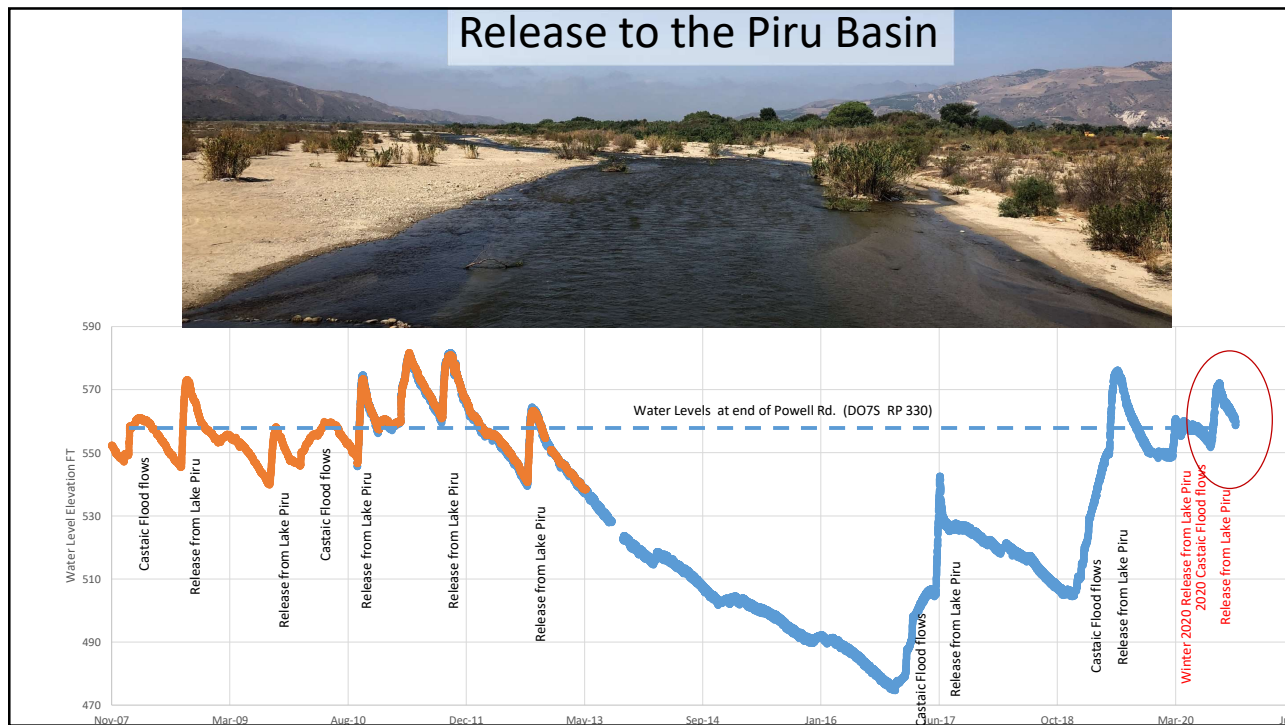
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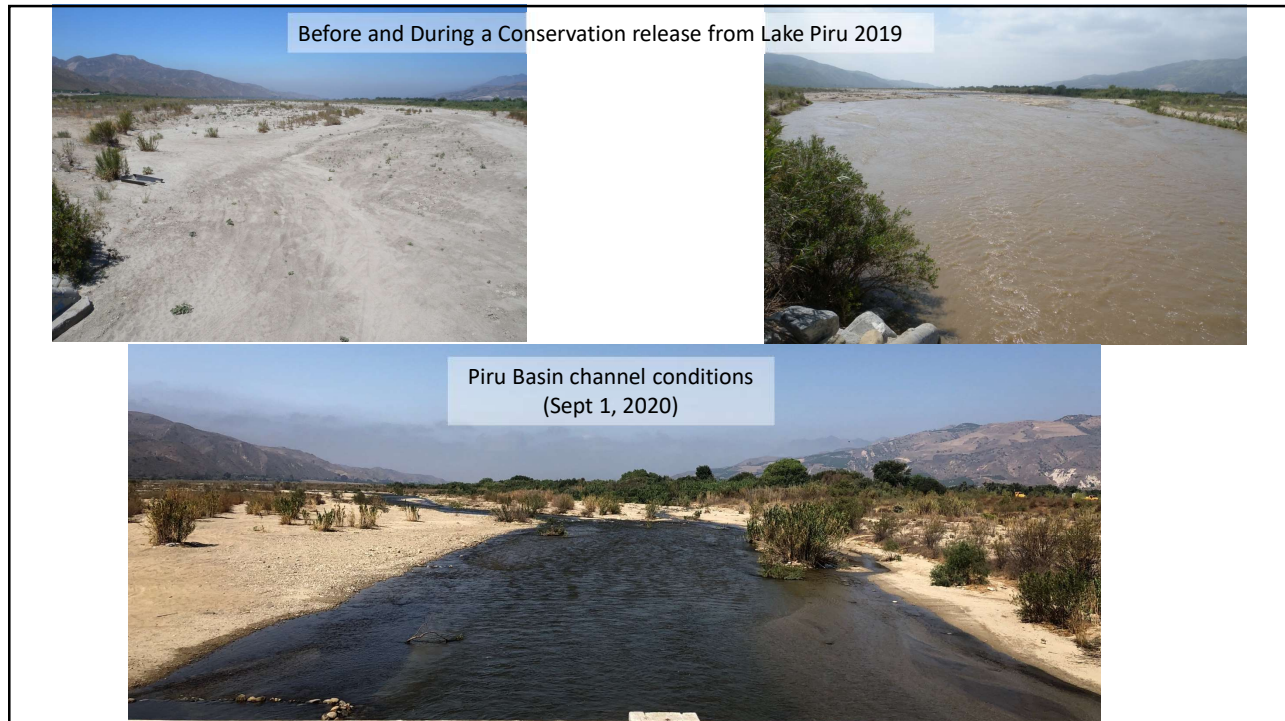
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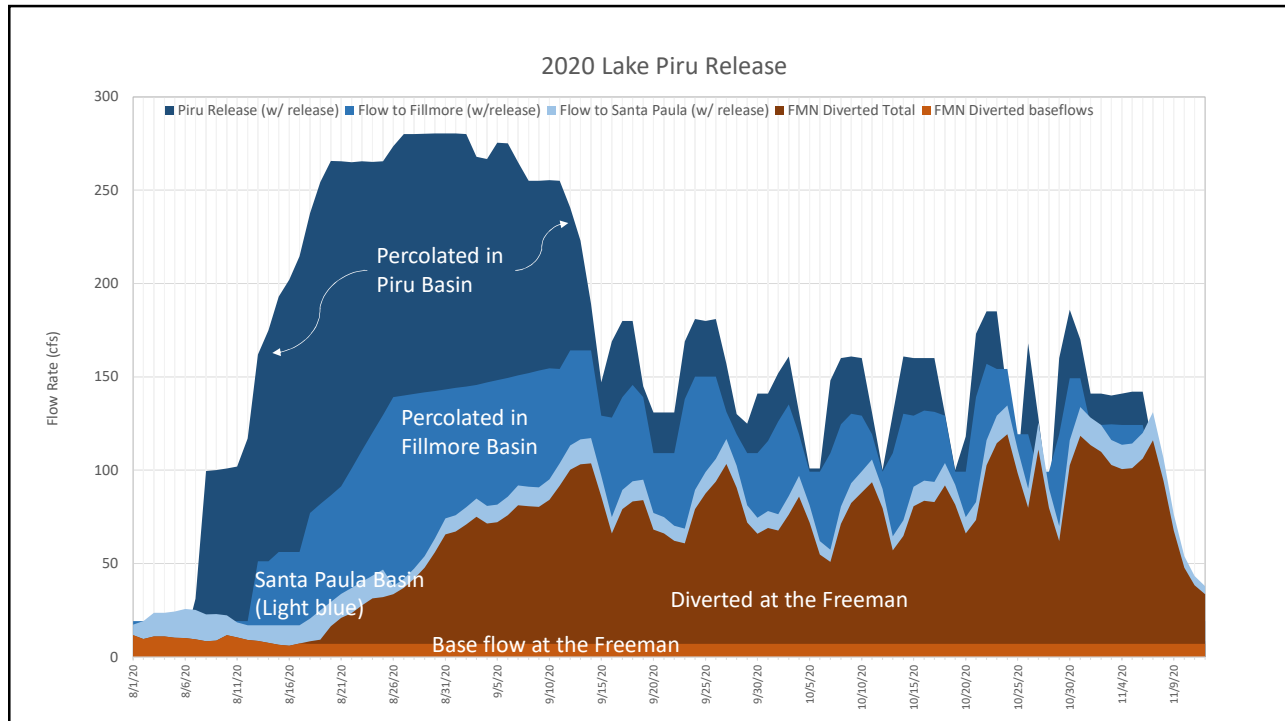


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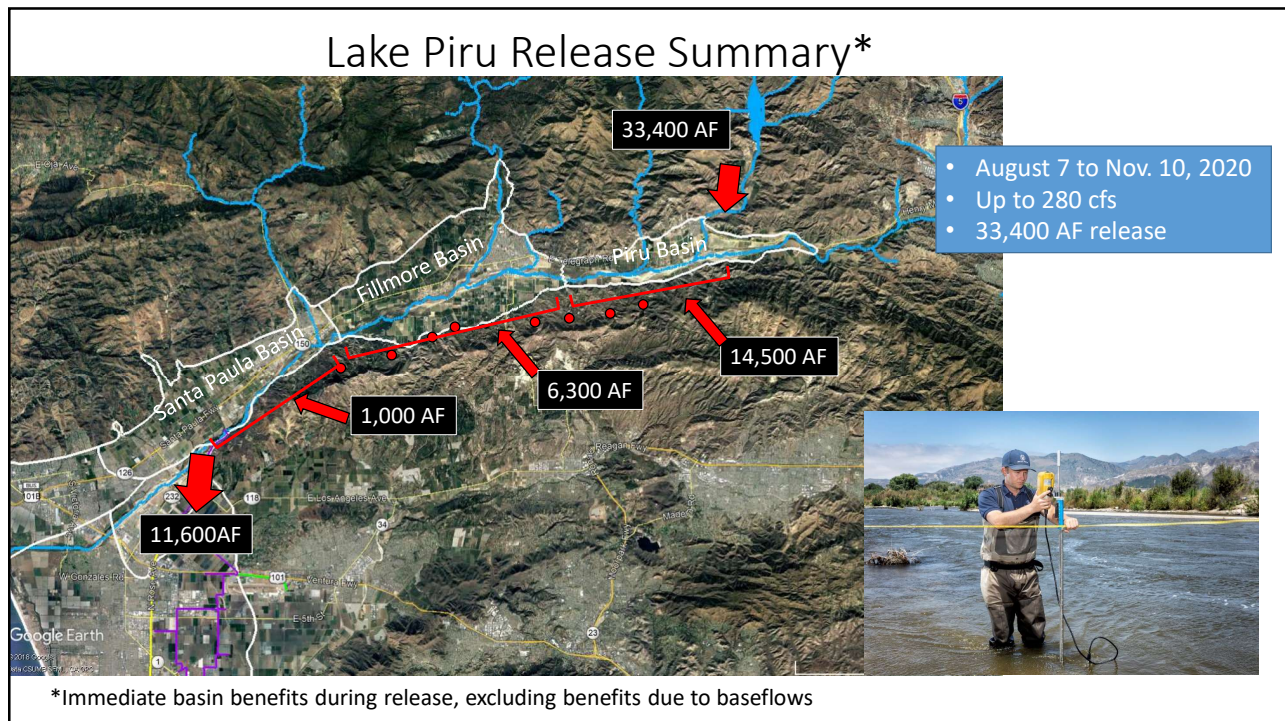


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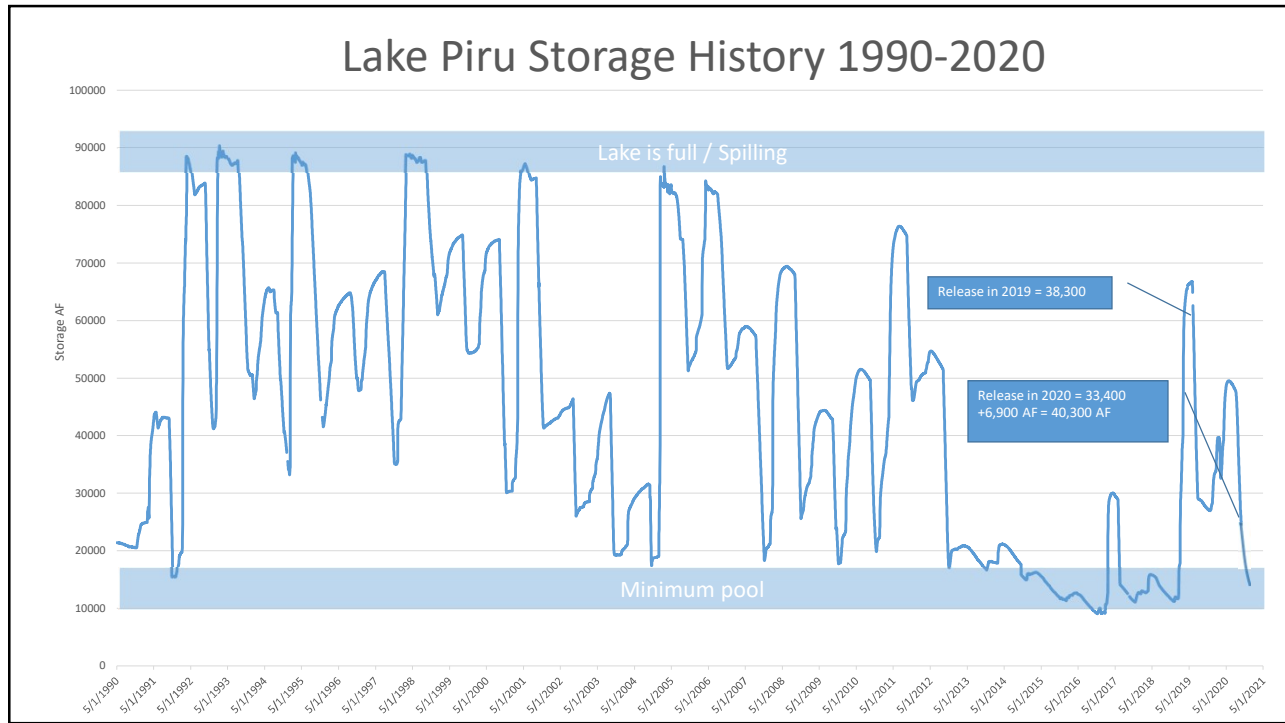




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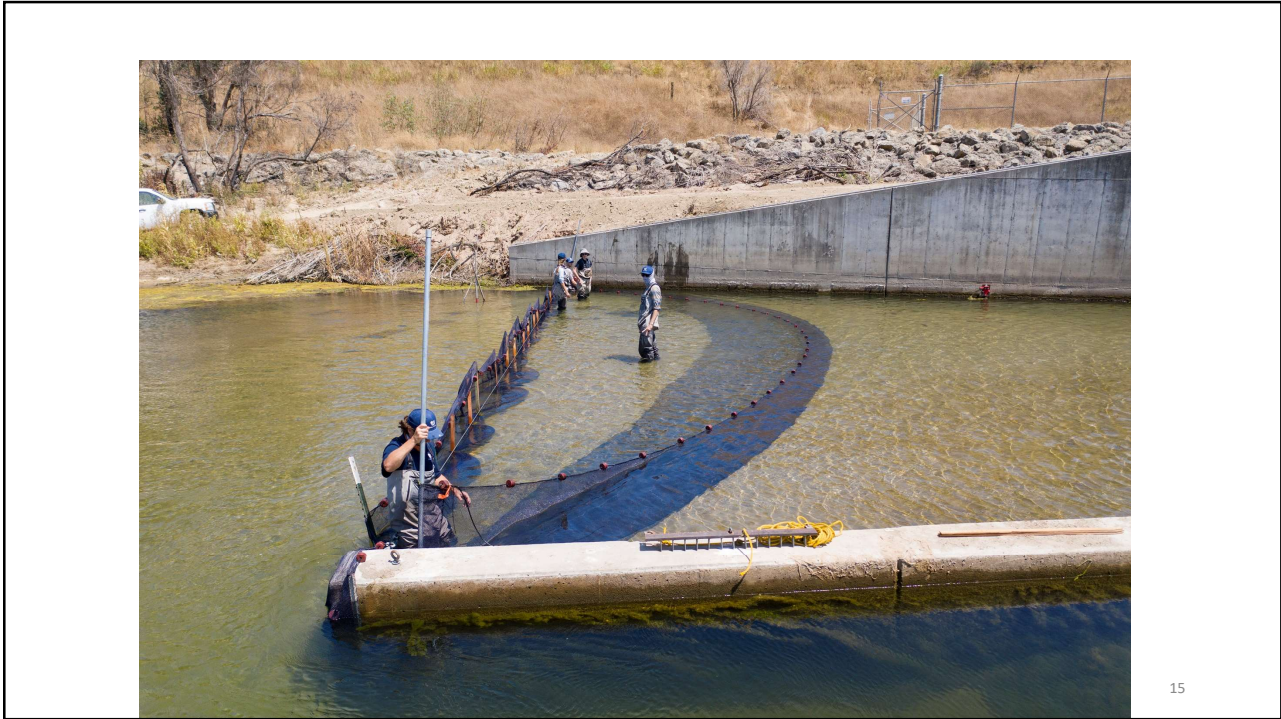
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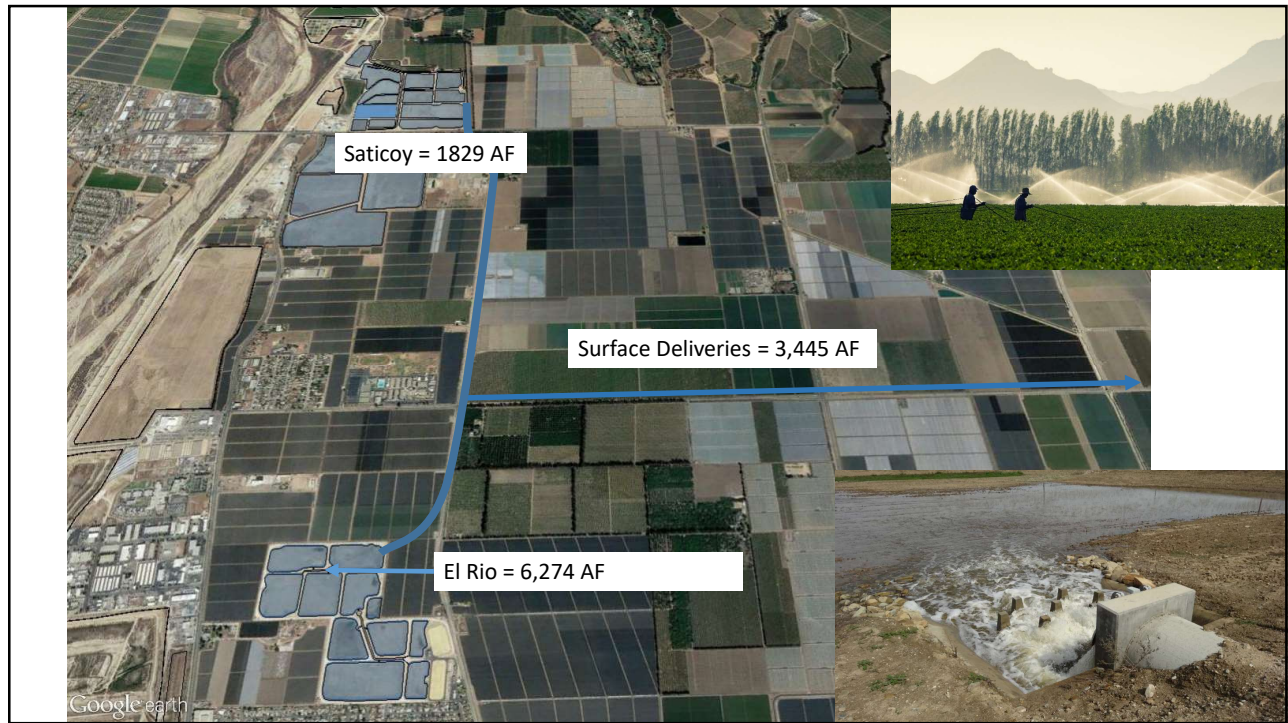


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**Item No. 2A Board of Directors Oath of Office**

**DATE: February 18, 2021**

**TO: Board of Directors**

**FROM: Eva Ibarra - Clerk of the Board**

**SUBJECT: Board of Directors Oath of Office**

**SUMMARY:**

Members of the GSA, a JPA that is a distinct public entity, are required to take the oath of office in accordance with the Government Code and California Constitution.

**RECOMMENDATION:**

Have the Clerk of the Board administer the oath of office to the newly appointed Board member Christina Villaseñor.

**BACKGROUND:**

Under Government Code section 6507, a JPA is a public entity distinct from the members of the JPA. Government Code 1360 says, "Unless otherwise provided, following any election or appointment and before any officer enters on the duties of his or her office, he or she shall take and subscribe the oath or affirmation set forth in Section 3 of Article XX of the Constitution of California." It is our belief the members of the GSA Board of Directors are public officials required to take the oath of office even if they have already taken the oath for their member agency

**FISCAL IMPACT**

**None**

**ATTACHMENTS**

**A – Oath of Office**



# Fillmore and Piru Basins

## Groundwater Sustainability Agency

Board of Directors

Oath of Office

“I, \_\_\_\_\_, do solemnly swear (or affirm) that I will support and defend the Constitution of the United States and the Constitution of the State of California against all enemies, foreign and domestic; that I will bear true faith and allegiance to the Constitution of the United States and the Constitution of the State of California; that I take this obligation freely, without any mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties upon which I am about to enter.”



**Item No.** 2B  
**DATE:** February 11, 2021 (for February 18, 2021 meeting)  
**TO:** Board of Directors  
**FROM:** Anthony A. Emmert, Executive Director  
**SUBJECT:** Board of Directors Selection of Officers

**RECOMMENDED ACTION**

The Board will accept nominations and elect officers for Calendar Year 2021.

**BACKGROUND**

The Agency's Bylaws require the election of officers annually. The Agency's officers include a Chair, A Vice Chair/Secretary, and a Treasurer.

**FISCAL IMPACT**

Waiving

Proposed Motion:

1<sup>st</sup>: Director \_\_\_\_\_ 2<sup>nd</sup>: Director \_\_\_\_\_  
Voice/Roll call vote: Director Kimball: Director Long: Director McFadden:  
Director Meneghin: Director Pace: Director Villasenor:



Fillmore and Piru Basins GSA  
Check Detail  
February 10, 2021

Type	Num	Date	Name	Account	Original Amount
Bill Pmt -Check	DEBIT01	02/10/2021	1099 Online	10000 · Bank of the Sierra	-4.99
Bill Pmt -Check	11106	02/10/2021	County of Ventura IT Services Department	10000 · Bank of the Sierra	-219.60
Bill Pmt -Check	11107	02/10/2021	Daniel B Stephens & Associates, Inc.	10000 · Bank of the Sierra	-40,720.63
Bill Pmt -Check	11108	02/10/2021	Olivarez Madruga Lemeiux O'Neill LLP	10000 · Bank of the Sierra	-5,536.50
Bill Pmt -Check	11109	02/10/2021	U.S. Postal Service	10000 · Bank of the Sierra	-322.00
Bill Pmt -Check	11110	02/10/2021	United Water Conservation District	10000 · Bank of the Sierra	-30,376.68
Check	11112	02/10/2021	100-00310-00	10000 · Bank of the Sierra	-240.37
<b>TOTAL</b>					<b>-77,420.77</b>



**Fillmore and Piru Basins**  
Groundwater Sustainability Agency

**Item No.**        **4C Consent Calendar**  
**DATE:**         **February 18, 2021**  
**TO:**             **Board of Directors**  
**SUBJECT:**      **Monthly Financial Report**

**SUMMARY**

The Board will receive the monthly financial report for the Fillmore and Piru Basins Groundwater Sustainability Agency (Agency).

**BACKGROUND**

UWCD accounting staff has prepared financial reports based on the Agency revenue and expenses for the month of January 2021.

**FISCAL IMPACT**

None

Attachments:    January 31, 2021 P/L Budget Performance  
                          January 31, 2021 Balance Sheet

**Fillmore and Piru Basins GSA**  
**Profit & Loss Budget Performance**  
 July through January 2021

	<u>Jul - Jan 21</u>	<u>Annual Budget</u>	<u>Budget</u>
<b>Income</b>			
40001 · Groundwater Extraction Charge	0.00	540,000.00	
<b>41000 · Grant Revenue</b>			
41001 · State Grants	122,926.26	698,246.00	17.61%
<b>Total 41000 · Grant Revenue</b>	<u>122,926.26</u>	<u>698,246.00</u>	
<b>47000 · Other Revenue</b>			
47001 · Late Fees	3,532.67	0.00	
47012 · Returned Check Charges	20.00	0.00	
<b>Total 47000 · Other Revenue</b>	<u>3,552.67</u>	<u>0.00</u>	
<b>Total Income</b>	<u>126,478.93</u>	<u>1,238,246.00</u>	
<b>Gross Profit</b>	126,478.93	1,238,246.00	10.21%
<b>Expense</b>			
<b>52200 · Professional Services</b>			
52240 · Prof Svcs - IT Consulting	439.20	980.00	44.82%
<b>52250 · Prof Svcs - Groundwtr/GSP Prep</b>			
52251 · Prof Svcs - UWCD GW Services	2,490.67	50,000.00	4.98%
52252 · Prof Svcs - GSP Consultant	229,270.82	350,814.00	65.35%
<b>Total 52250 · Prof Svcs - Groundwtr/GSP Prep</b>	<u>231,761.49</u>	<u>400,814.00</u>	<u>57.82%</u>
52270 · Prof Svcs - Accounting	9,654.92	10,000.00	96.55%
52275 · Prof Svcs - Admin/Clerk of Bd	16,728.87	10,000.00	167.29%
52280 · Prof Svcs - Executive Director	21,271.54	40,000.00	53.18%
52290 · Prof Svcs - Other	0.00	1,000.00	
<b>Total 52200 · Professional Services</b>	<u>279,856.02</u>	<u>462,794.00</u>	<u>60.47%</u>
<b>52500 · Legal Fees</b>			
52501 · Legal Counsel	16,097.60	20,000.00	
<b>Total 52500 · Legal Fees</b>	<u>16,097.60</u>	<u>20,000.00</u>	<u>80.49%</u>
<b>53000 · Office Expenses</b>			
53010 · Public Information	0.00	1,000.00	
53020 · Office Supplies	47.48	500.00	9.50%
53026 · Postage & Mailing	855.85	2,000.00	42.79%
53040 · Membership Dues	0.00	0.00	
53060 · Computer Software	0.00	0.00	
53110 · Travel & Training	11.91	4,000.00	
<b>Total 53000 · Office Expenses</b>	<u>915.24</u>	<u>7,500.00</u>	<u>12.20%</u>
<b>53500 · Insurance</b>			
53510 · Liability Insurance	2,115.73	2,500.00	84.63%
<b>Total 53500 · Insurance</b>	<u>2,115.73</u>	<u>2,500.00</u>	
<b>70000 · Interest &amp; Debt Service</b>			
70120 · Interest Expense	0.00	0.00	
<b>Total 70000 · Interest &amp; Debt Service</b>	<u>0.00</u>	<u>0.00</u>	
70130 · Bank Service Charges	20.00	0.00	
80000 · AR Write-Offs - Bad Debt Exp.	0.00	0.00	
81000 · Capital Expenditures	0.00	200,000.00	
<b>Total Expense</b>	<u>299,004.59</u>	<u>692,794.00</u>	<u>43.16%</u>
<b>Net Income</b>	<u><u>-172,525.66</u></u>	<u><u>545,452.00</u></u>	<u><u>-31.63%</u></u>

# Fillmore and Piru Basins GSA

## Balance Sheet

As of January 31, 2021

	<u>Jan 31, 21</u>
<b>ASSETS</b>	
<b>Current Assets</b>	
<b>Checking/Savings</b>	
10000 · Bank of the Sierra	381,855.96
<b>Total Checking/Savings</b>	<u>381,855.96</u>
<b>Accounts Receivable</b>	
11000 · Accounts Receivable	273,549.10
<b>Total Accounts Receivable</b>	<u>273,549.10</u>
<b>Total Current Assets</b>	<u>655,405.06</u>
<b>TOTAL ASSETS</b>	<u><u>655,405.06</u></u>
<b>LIABILITIES &amp; EQUITY</b>	
<b>Liabilities</b>	
<b>Current Liabilities</b>	
<b>Accounts Payable</b>	
20000 · Accounts Payable	77,180.40
<b>Total Accounts Payable</b>	<u>77,180.40</u>
<b>Total Current Liabilities</b>	<u>77,180.40</u>
<b>Total Liabilities</b>	<u>77,180.40</u>
<b>Equity</b>	
32000 · Retained Earnings	750,750.32
Net Income	-172,525.66
<b>Total Equity</b>	<u>578,224.66</u>
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<u><u>655,405.06</u></u>



**Item No.** 5A  
**DATE:** February 11, 2021 (for February 18, 2021 meeting)  
**TO:** Board of Directors  
**FROM:** Anthony A. Emmert, Executive Director  
**SUBJECT:** **Waiver of Late Fees and Interest on Groundwater Charges**

### **RECOMMENDED ACTION**

The Board will consider proposed amendment to the Agency Bylaws authorizing the Executive Director to approve waiver of certain late fees and interest charges associated with groundwater pumping fees and provide comments and direction to staff.

### **BACKGROUND**

The Agency's Bylaws provide for the waiver of late fees and interest associated with groundwater charges. Currently, all requests must be brought before the Board of Directors.

The Agency has recently received several requests for waivers of late fees and interest. Reasons for the recent late fees include deaths of the primary property owner or well operator; changes of property owner or well operator due to property sale or terminations of lease; financial hardship due to the COVID-19 incident; and mistaken payment sent to the wrong groundwater sustainability agency. Most of these recent requests have involved small dollar values. Each request brought to the Board for consideration requires the preparation of an agenda staff report. For many, the cost of staff time to prepare the agenda staff report exceeds the value of the penalty and interest. For these smaller value waiver requests, staff recommends that the Agency establish a process by which they could be approved without bringing them to the Board, thereby saving the Agency the cost of the staff time to prepare the agenda staff report and presentation before the Board. Doing so would also shorten the time between the pumper requesting the waiver and receiving a response from the Agency.

Staff proposes an amendment to the Agency's Bylaws, Article 10(f):

By an affirmative vote of four (4) Directors, or three (3) Directors in the event a Director is absent, conflicted or prohibited from voting pursuant to 9.3 of the JPAA agreement, the Agency may, in its sole discretion, waive any interest payments, penalties, or overdue fees. *The Executive Director is authorized to waive delinquent payments and associated penalties if the combined amount of the payment due and associated penalty does not exceed \$250. The Executive Director is also authorized to engage a collection agency to collect all accounts delinquent over three months where District collection efforts have proven unsuccessful.*

Should the Board wish to make the proposed change to the Bylaws, staff will prepare a resolution for consideration during the March 18, 2021 regular meeting.

**FISCAL IMPACT**

Waiving late fees and interest will result in less revenue received by the Agency; however, some savings will result in lower expenditures for staff's time to prepare the request for Board consideration. Additionally, late fees and interest are not budgeted by the Agency and waiving the fees and interest will not materially impact the Agency's financial position.

Proposed Motion: Provide comments and direction regarding the proposed edits to the Agency Bylaws.

1<sup>st</sup>: Director \_\_\_\_\_

2<sup>nd</sup>: Director \_\_\_\_\_

Voice/Roll call vote: Director Kimball:

Director Long:

Director McFadden:

Director Meneghin:

Director Pace:

Director Villasenor:



**Item No.**        **5B Motion Item**

**DATE:**        February 11, 2021 (for February 18, 2021 meeting)

**TO:**            Board of Directors

**FROM:**        Anthony Emmert, Executive Director

**SUBJECT:**     **Sustainable Management Criteria**

**SUMMARY:**

The Agency will continue to develop its Sustainable Management Criteria with the assistance of its Daniel B. Stephens and Associates consultant team. The focus of the discussion will be review of an updated draft Sustainable Management Criteria matrix, based upon recent forward looking model runs, with the objective of finalizing the matrix during March 2021.

**RECOMMENDATION:**

The Board will consider a draft Sustainable Management Criteria matrix and provide comments and direction to the consultant team.

**BACKGROUND**

At the November 4, 2020 special meeting, the DBS&A team provided a presentation on the “Straw Man” SMC, with emphasis on the sustainability indicators: 1) chronic lowering of groundwater levels, 2) land subsidence, 3 ) degradation of water quality, and 4) reduction of groundwater storage. The Board agreed that the seawater intrusion sustainability indicator is not applicable to the Fillmore Basin or Piru Basin. The Board and stakeholders provided feedback to the DBS&A team regarding the Undesirable Results and Sustainability Goals and recommended that staff and DBS&A revise the groundwater sustainability planning schedule to lengthen the time that the Board and stakeholders can develop the SMC in a public process.

At the November 19, 2020 meeting, the DBS&A team provided a presentation on the “Stress-Test” model scenarios, illustrating the effects of potential future pumping increases during severe droughts and recoveries during subsequent wetter periods. The DBS&A team also presented a summary of the future conditions that it recommends including in the plans. The Board and stakeholders provided feedback to staff and consultants from presentations from the November 4 and November 19, 2020 meetings. DBS&A staff also provided the Board with an updated planning schedule that removed the administrative draft milestone and lengthened the stakeholder engagement period for development of the SMC.

During the December 17, 2020 meeting, DBS&A staff provided additional findings from the “Stress-Test” model scenarios, including correlation of observed stream flow with observed water levels in wells adjacent to rising groundwater areas; and provided a presentation on the

groundwater dependent ecosystems and impacts from recent drought periods and impacts of scouring from large flood events.

During the January 21, 2021 meeting, DBS&A staff presented observations from the recent 2070 future model run, using the California Department of Water Resources' climate change factors. The observations included impacts of future droughts. Comparison of modeled water levels to bottom of well screen data indicated that no production water wells are projected to go dry during future droughts. Water level-stream flow cross over analysis showed that future droughts are projected to lead to reduction or cessation of rising groundwater in the Piru basin-Fillmore basin boundary zone within a relatively short time period. Water level-stream flow cross over analysis showed that future droughts are projected to lead to reduction of rising groundwater in the Fillmore basin-Santa Paula basin boundary zone over several years, but flows are unlikely to completely cease. DBS&A staff also presented a conceptual project to pump groundwater to augment stream flow in the Piru basin-Fillmore basin boundary area and associated riparian during multi-year droughts.

During the February 18, 2021 meeting, DBS&A will review the findings of the Land Subsidence Technical Memorandum, which has recently been posted to the Agency's website. The consultant team will also provide additional observations regarding potential future droughts to groundwater dependent ecosystem areas. Finally, DBS&A will present an updated Sustainable Management Criteria matrix of minimum thresholds and measurable objectives for Board consideration.

The current revision of the presentation is attached to this report; however, staff anticipates that the slides on the Sustainable Management Criteria will be updated with the most recent findings and observations prior to the meeting date.

For the Agency to maintain its groundwater sustainability planning schedule and produce Sustainable Groundwater Management Act (SGMA) compliant groundwater sustainability plans by December 2021, the Agency must finalize its draft SMCs by mid-March 2021.

**FISCAL IMPACT**

None.

**ATTACHMENTS**

Presentation.

Proposed Motion:			
1 <sup>st</sup> : Director _____		2 <sup>nd</sup> : Director _____	
Voice/Roll call vote: Director Kimball:	Director Long:	Director McFadden	
Director Meneghin:	Director Villasenor:		



Item 5B - Sustainable Management Criteria

- Subsidence
- SMC Matrix
- SW Depletion from GW Pumping - Stream Flow Cross Over Analyses

**Preliminary Draft  
Subject to Revision**



**DBS&A**  
Daniel B. Stephens & Associates, Inc.

### Land Subsidence Evaluation

- Previous investigations and reports;
- Geodetic surveys;
- Interferometric Synthetic Aperture Radar (InSAR) data;
- Subsidence evaluations / potentials.

**Preliminary Draft  
Subject to Revision**


*Draft*

Fillmore and Piru Basins  
Land Subsidence Evaluation  
Technical Memorandum

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Submitted to  
Fillmore and Piru Basins Groundwater Sustainability  
Agency

Prepared by

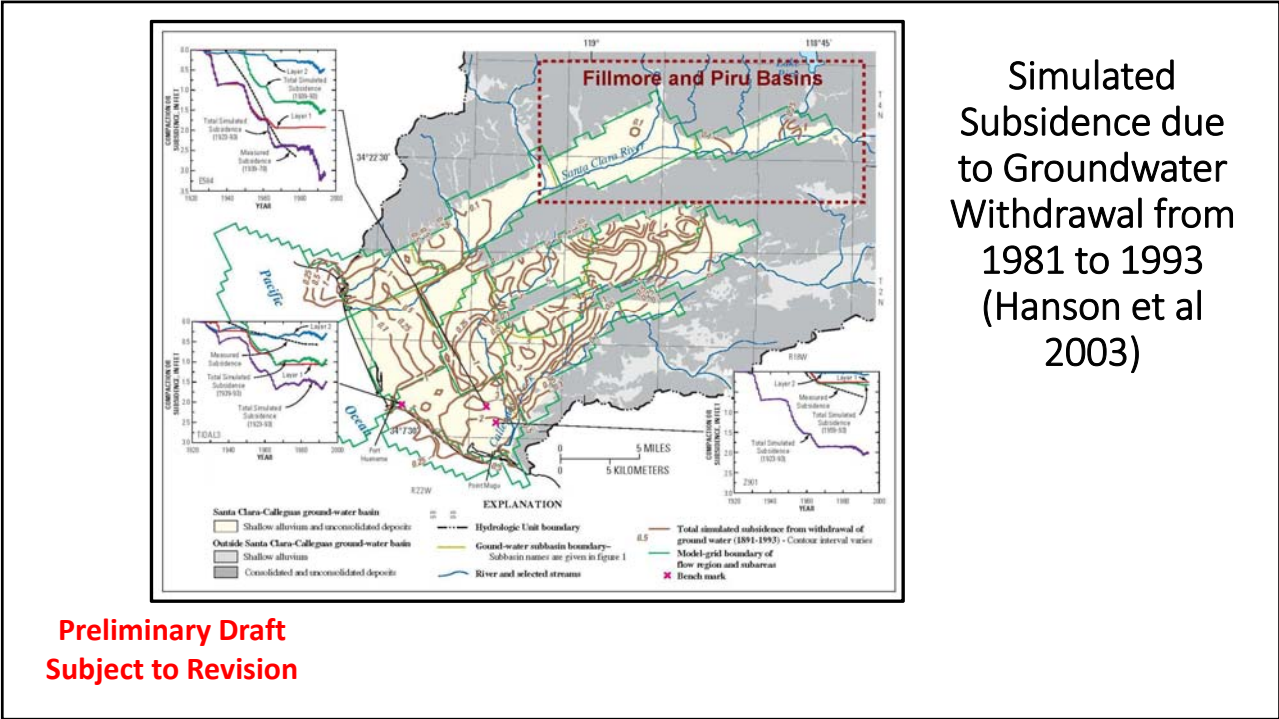


**DBS&A**  
Daniel B. Stephens & Associates, Inc.  
a Geo-Logic Company

3916 State Street, Garden Suite  
Santa Barbara, CA 93105  
www.dbsandassociates.com  
Project # DB18-1084.00

February 4, 2021

*This is a DRAFT document for internal and stakeholder review. The FINAL document will be included in the Groundwater Sustainability Plan.*

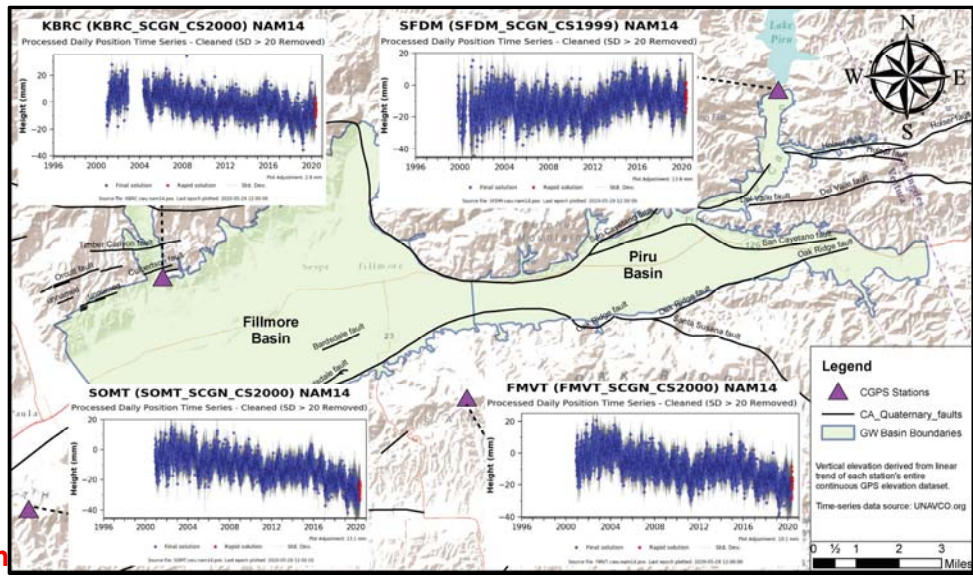


## Continuous Global Positioning Systems (CGPS)

- Geodetic surveys
- 3D positions (N-S, E-W, Elevation) every 15-30 seconds
- Four CGPS stations w/in 5 miles of basins
- Mounted on bedrock

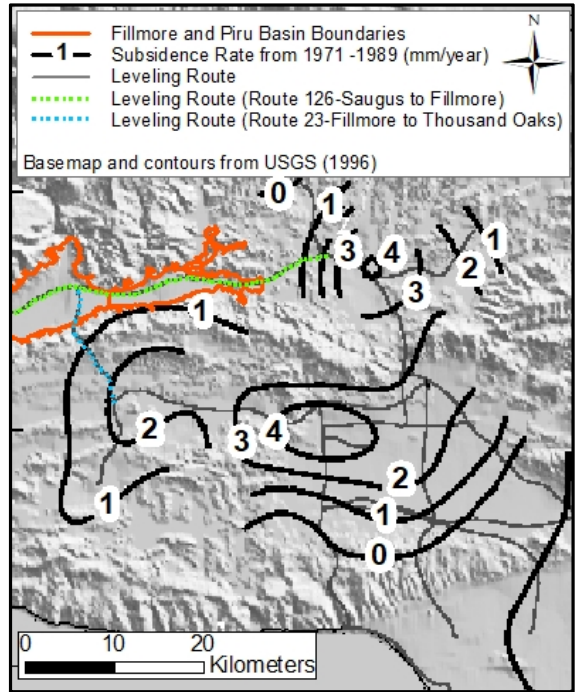
**Preliminary Draft  
Subject to Revision**

### CGPS Locations and Vertical Movement Time-Series (UNAVCO)



**Preliminary Draft  
Subject to Revision**

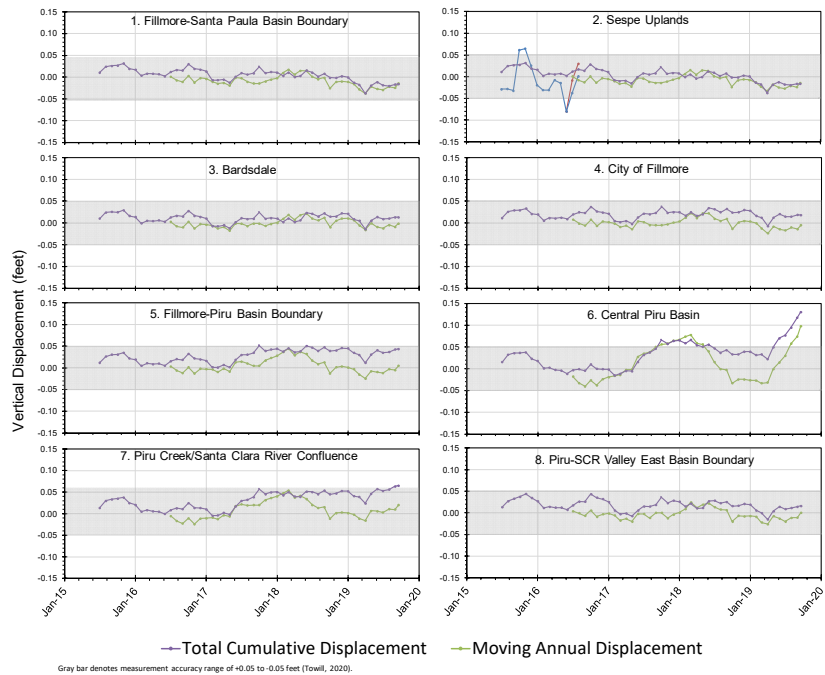
### USGS 1994 NGS Leveling Routes and Measured Pre-Seismic Subsidence Rates (mm/year) from 1971 to 1989



**Preliminary Draft  
Subject to Revision**

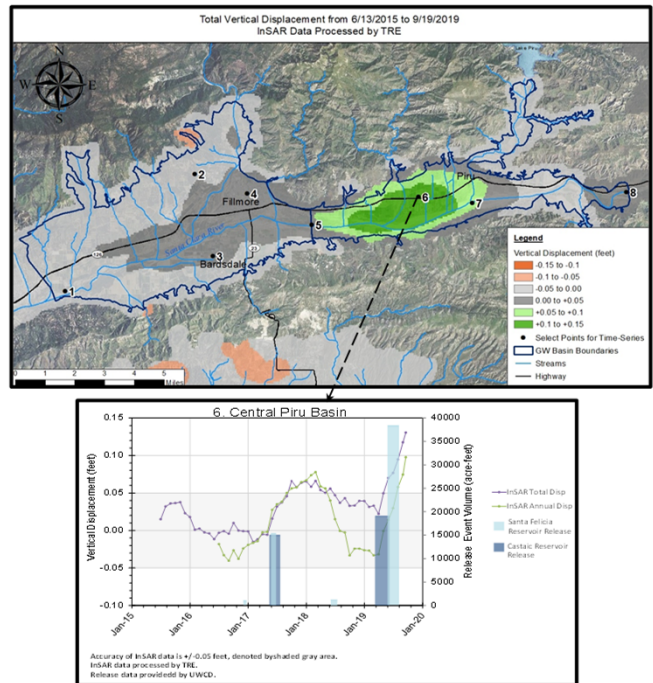
### Time-Series Graphs of Annual and Total Land Surface Elevation Changes derived from InSAR

**Preliminary Draft  
Subject to Revision**



### InSAR Data showing Total Vertical Displacement within the Basins.

**Preliminary Draft  
Subject to Revision**



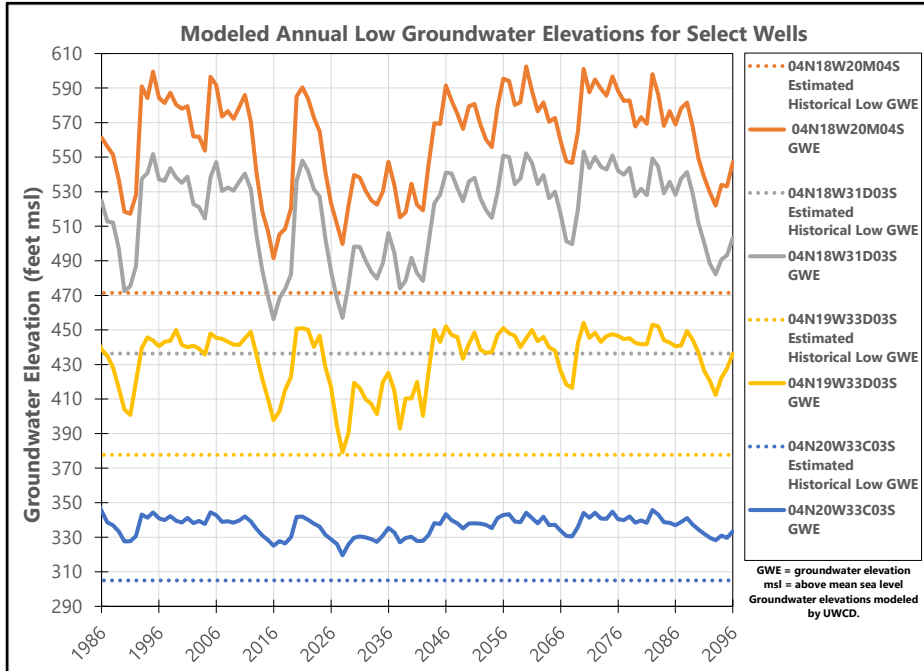
### Future Subsidence Potential - Representative Wells



**Preliminary Draft  
Subject to Revision**

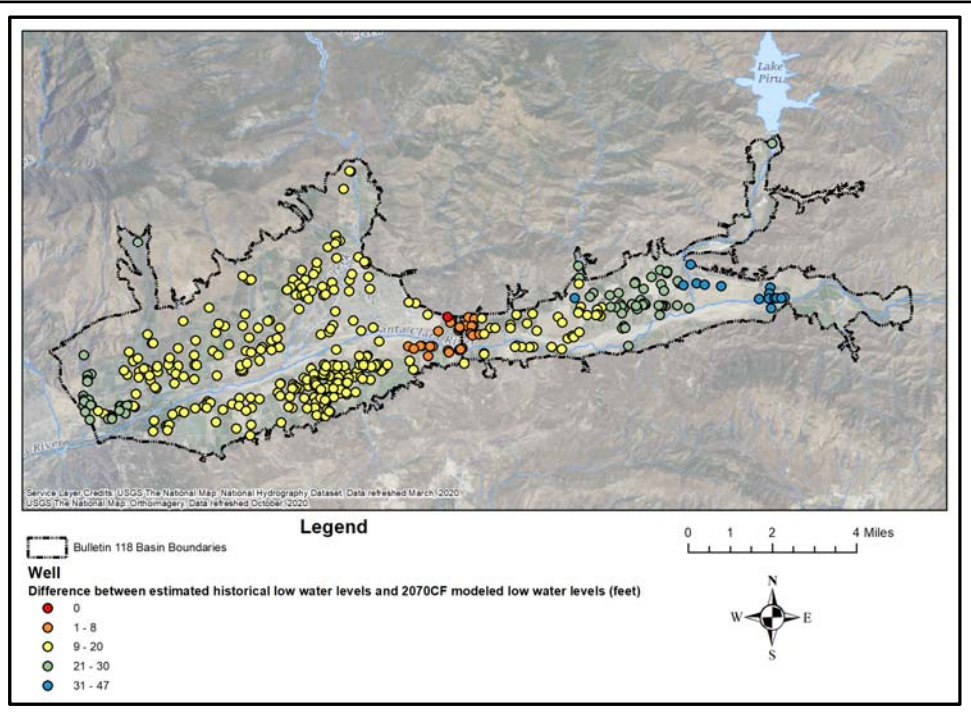
### 2070CF Modeled Water Levels v. Estimated Historical Low Water Level at Representative Wells

**Preliminary Draft  
Subject to Revision**



Difference between Estimated Historical Low Water Levels and 2070CF Modeled Low Water Level

**Preliminary Draft  
Subject to Revision**



## Summary of Subsidence Evaluations

Study / Investigator	Fillmore Basin	Piru Basin	Comments
USGS, 1996	maximum subsidence of 0.03 feet (8 mm, 0.6 mm/yr) near City of Fillmore	maximum subsidence zone up to 0.05 feet (15 mm, ~1 mm/year) around the Town of Piru	1975-1989 study period
Hanson, 2003	maximum value of just over 0.1 feet (0.00098 ft/yr) of subsidence	0.25 feet (0.0024 ft/yr) in the eastern portion of Piru Basin	1891 to 1993 study period
Ventura County, 2013 and 2020	Lies within subsidence hazard zone	Lies within subsidence hazard zone	No technical analyses conducted.
DWR, 2014	Low potential	Insufficient data	
InSAR	Less than +/-0.05 ft	Generally, less than +/-0.05 ft except during periods of artificial recharge, then up to +0.14 ft of rebound in Piru basin	June 2015 – Sept 2019 study period
2070 Climate Change Modeling by UWCD	No subsidence anticipated	No subsidence anticipated	1986 to 2096 model timeframe

## Summary of (Inelastic) Subsidence Potential

Basin	Hydro-stratigraphic Setting Susceptibility	Chronic Declines in Groundwater Levels	Geodetic / Extensometer / Tiltmeter Evidence of Subsidence	InSAR Evidence of Subsidence	Subsidence Susceptibility Ranking
Fillmore	Low to Moderate	No	No	No	Low
Piru	Low	No	No	No	Low

**Preliminary Draft  
Subject to Revision**

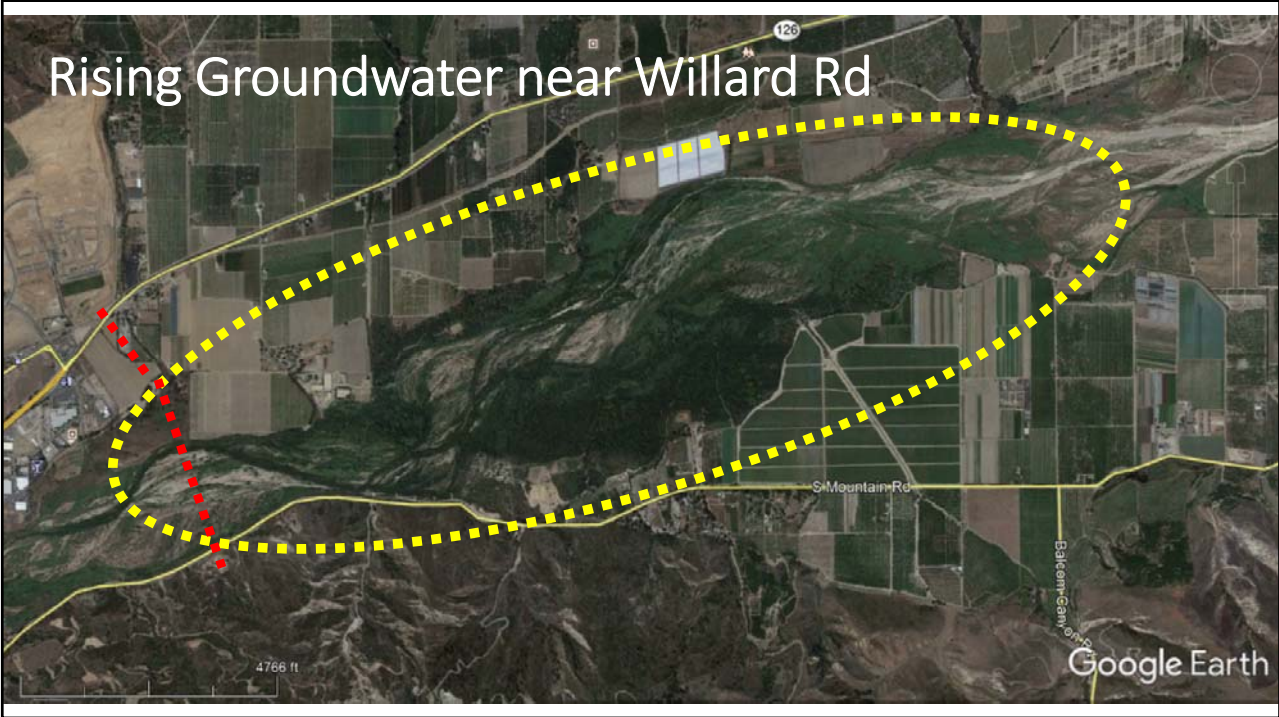
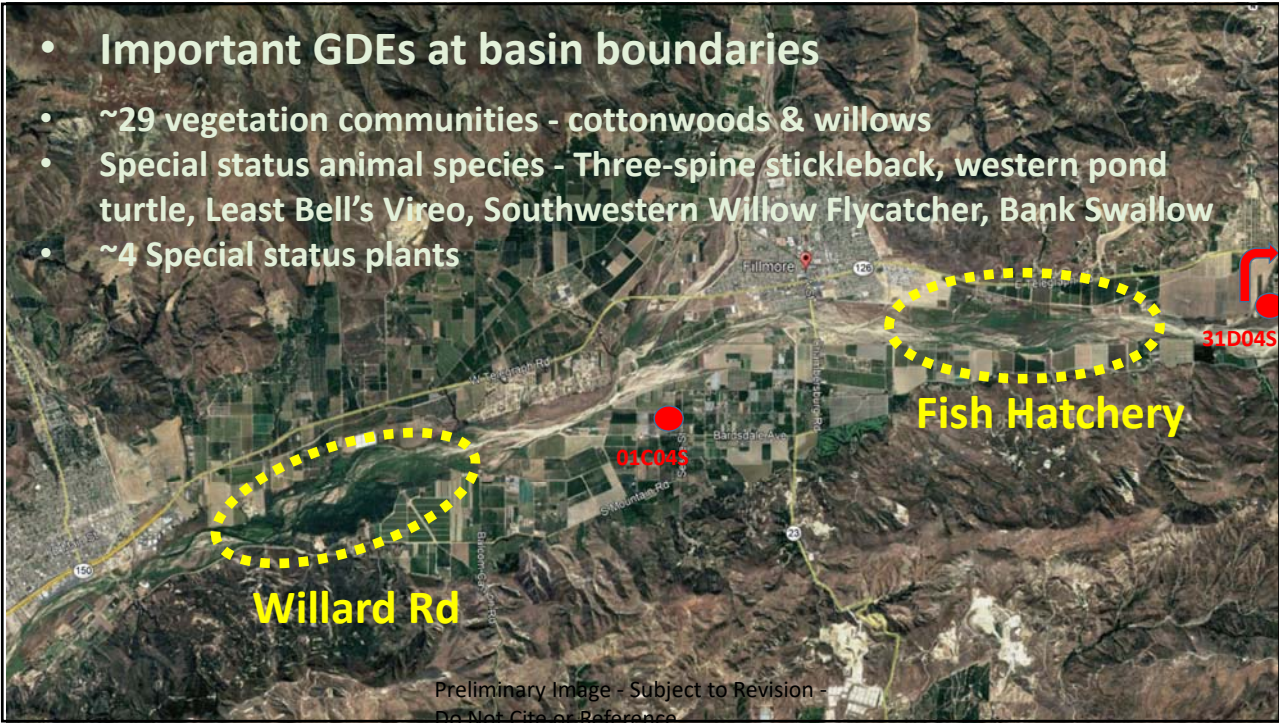
### Item 5B - Sustainable Management Criteria

## Water Level - Stream Flow Cross Over Analyses

- Updated relationship(s) between WLS in wells near rising GW areas and measured SW flow
- Impact of climate change on SW flows

**Preliminary Draft  
Subject to Revision**

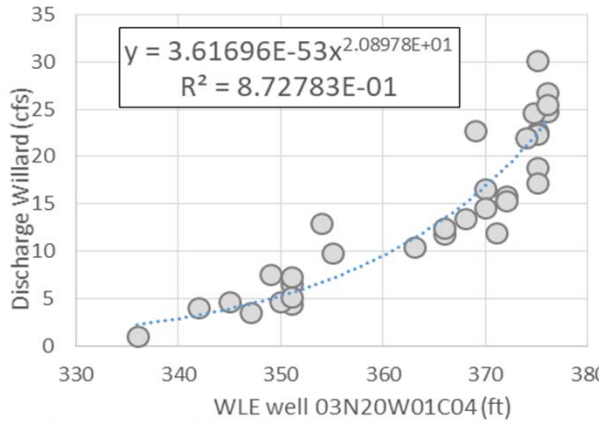




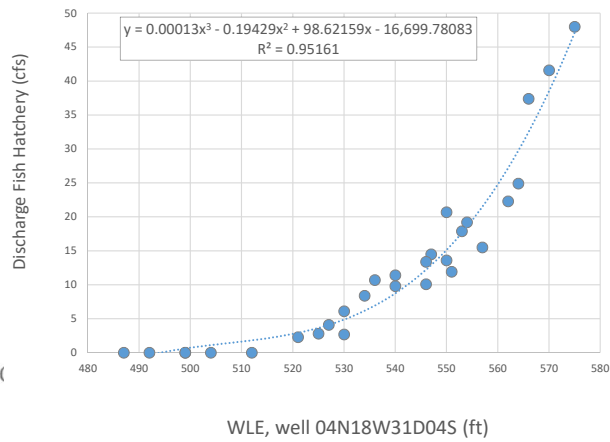


# Water Level - Stream Flow Cross Over Analyses

**Willard Road**

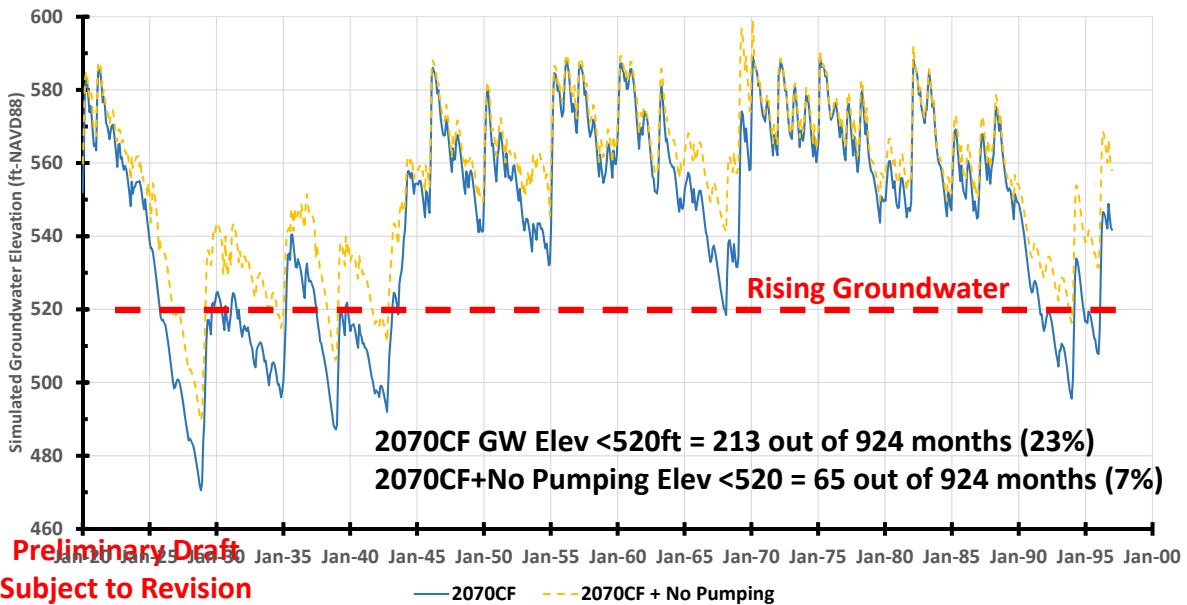


**Fish Hatchery**

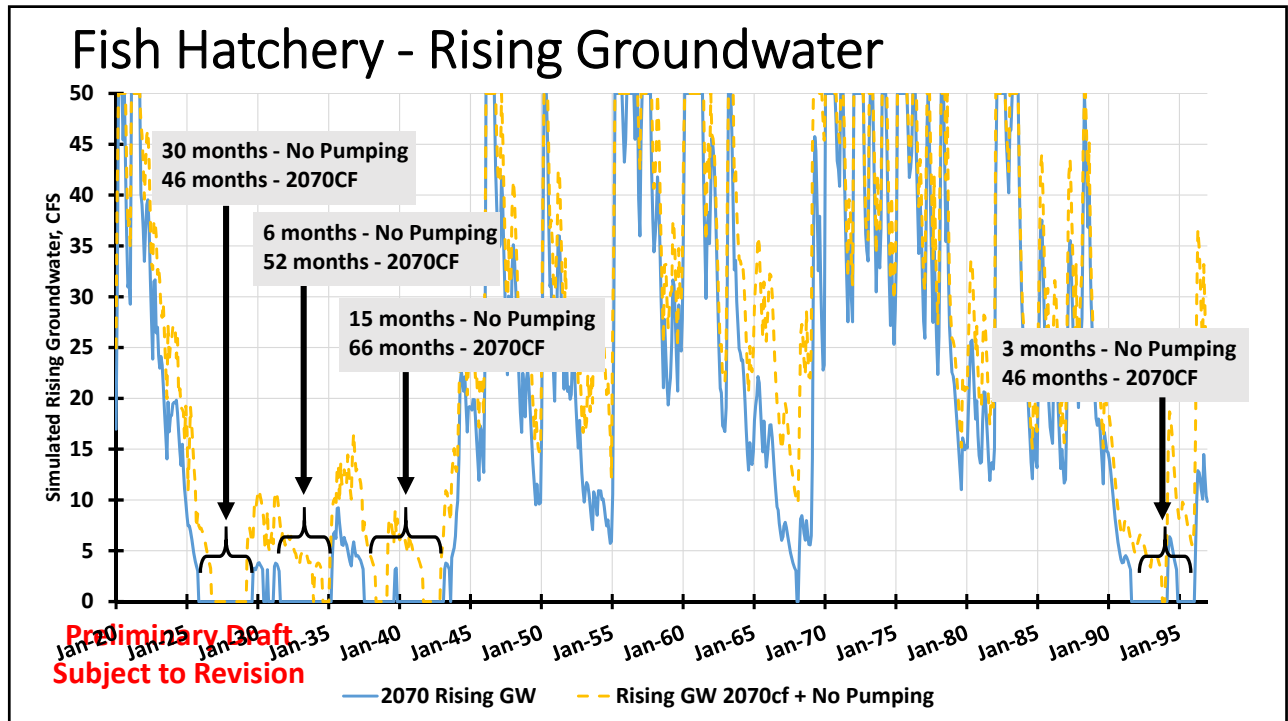
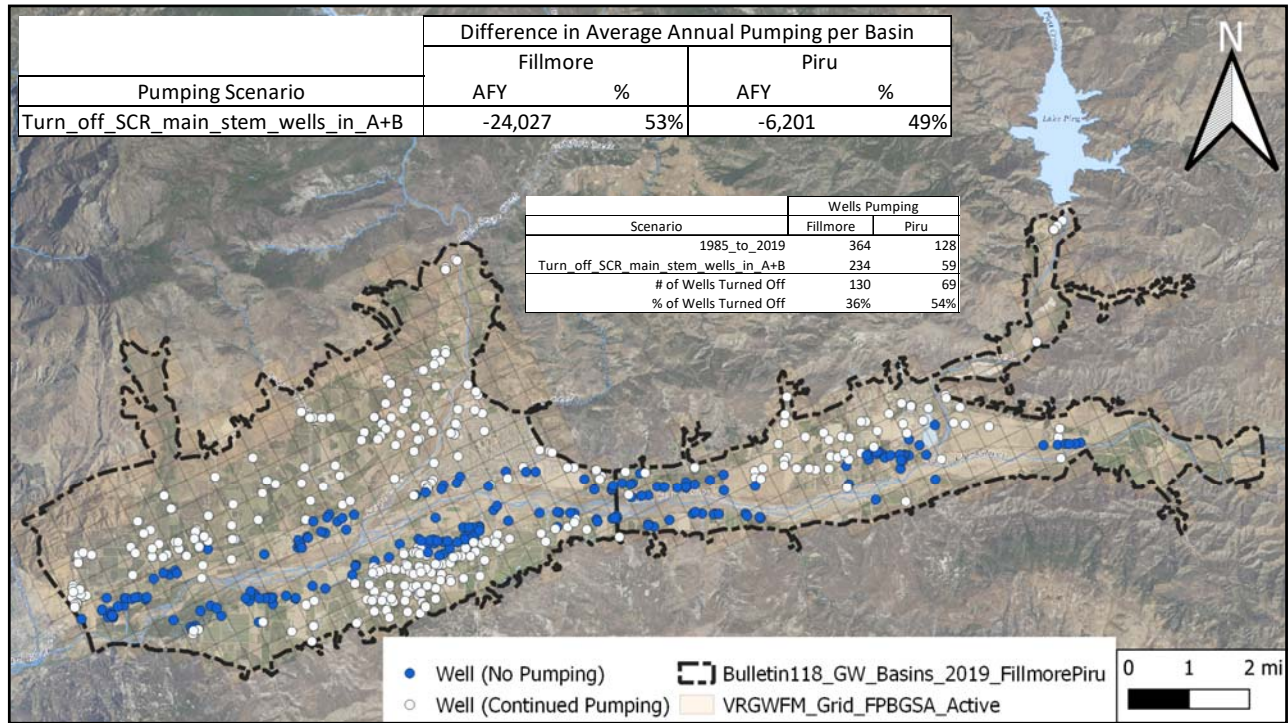


**Preliminary Draft**  
**Subject to Revision**

**Fish Hatchery - 04N18W31D045**



**Preliminary Draft**  
**Subject to Revision**



### Item 5B - Sustainable Management Criteria

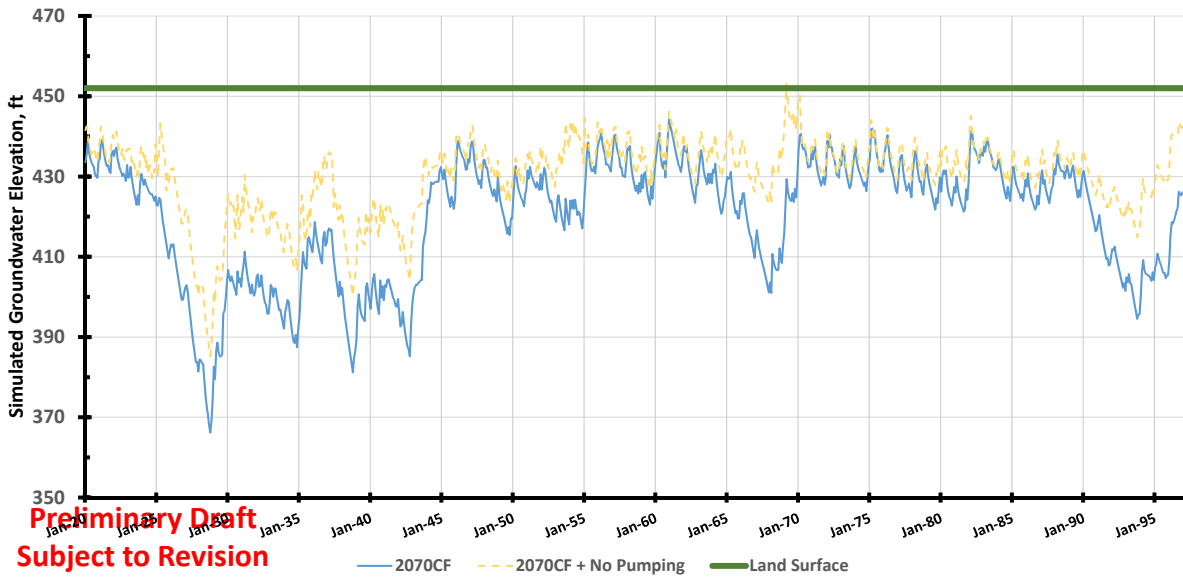
## Groundwater Level - Rising Groundwater

- Updated relationship(s) between simulated WLs near the Fish Hatchery under the 2070CF conditions
- Impact of groundwater pumping on groundwater levels

**Preliminary Draft  
Subject to Revision**



### 2070CF & 2070CF(No Pumping) Hydrographs - Fish Hatchery



**Preliminary Draft  
Subject to Revision**

Item 5B - Sustainable Management Criteria

# Minimum Thresholds & Measurable Objectives

- Updated SMC matrices

**Preliminary Draft  
Subject to Revision**



## SMCs - General Framework



- **Lowering GW Levels** - no chronic decline in water levels
- **Reduction of GW Storage** - no chronic decline in GW storage
- **Seawater Intrusion** - not applicable
- **Degraded Water Quality** - no regulatory authority over WQ / work with existing agencies with appropriate regulatory authority
- **Land Subsidence** - not anticipated during future climate & pumping conditions
- **Surface Water Depletion** - no chronic decline in SW flows (rising GW areas)

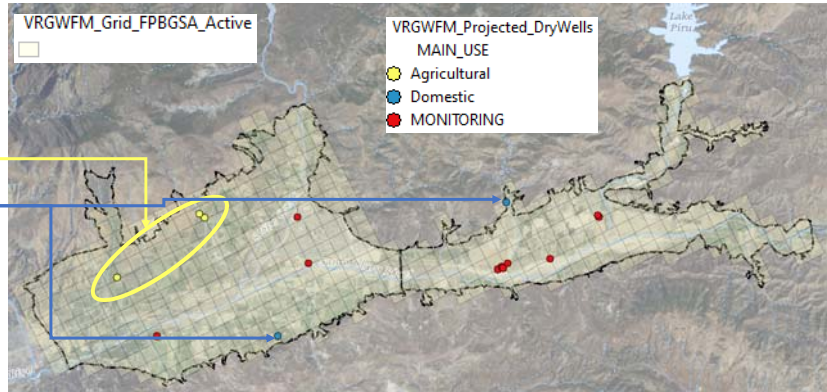
**Preliminary Draft  
Subject to Revision**

### Dry Wells Evaluation (for 2070CF Future Scenario)

***Bottom line: No production wells are predicted to go dry - Only 3 AG and 2 DOM wells modelled to go dry***

**Notes:**

- Based on comparison of modelled GW levels vs. bottom of screen...
- Some shallow monitoring wells (with screen <100 ft deep) will go dry during droughts.
- Manually inspected 3 agricultural wells and 2 domestic wells that modelled GW levels indicate would go dry:
  - Unlikely to go dry based on measured GW levels.
- Biases in modelled GW levels tends to underestimate measured GW levels making this a cautious/conservative evaluation.



**Preliminary Draft  
Subject to Revision**

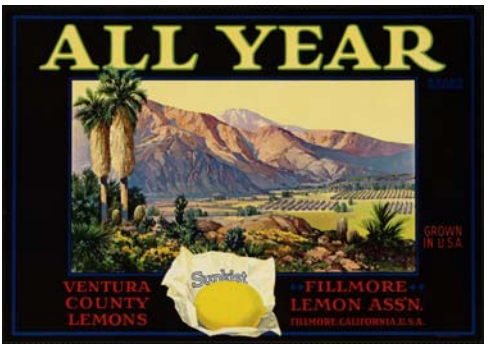
### SMC Matrix - TBS

**Preliminary Draft  
Subject to Revision**

Questions?



Preliminary Draft  
Subject to Revision





**Item No. 5C Motion**

**DATE:** February 11, 2021 (for February 18, 2020 meeting)

**TO:** Board of Directors

**FROM:** Anthony A. Emmert, Executive Director

**SUBJECT: Special Board Meeting for Sustainable Management Criteria**

**RECOMMENDED ACTION**

The Board will select a date for a Special Board Meeting in early March 2021 to receive public comments on the draft Sustainable Management Criteria matrix.

**BACKGROUND**

The Agency Board, stakeholders, the Agency’s consultant team and staff have worked for several months to develop a Sustainable Management Criteria (SMC) matrix, which will serve as the basis for preparing the Sustainable Management Plans. The purpose of the Special Board Meeting will be to receive comments from stakeholders, leading toward approval of a SMC matrix in March 2021. Approval of the SMC in March is critical to meeting the SGMA deadlines.

**FISCAL IMPACT**

There are no fiscal impacts.

**ATTACHMENTS**

Proposed Motion:

1<sup>st</sup>: Director \_\_\_\_\_ 2<sup>nd</sup>: Director \_\_\_\_\_

Voice/Roll call vote: Director Kimball: Director Long: Director McFadden:

Director Meneghin: Director Pace: Director Villasenor: