United Water
CONSERVATION DISTRICT

AGENDA
WATER RESOURCES COMMITTEE
Tuesday, January 5, 2021 at 9 a.m.
UNITED WATER CONSERVATION DISTRICT
Boardroom, 1701 N. Lombard Street, Oxnard CA 93030

Meeting attendees should be aware that the meetings of the Committee are, as required by law, open to the public and the District has very limited powers to regulate who attends Committee meetings. Therefore, attendees must exercise their own judgement with respect to protecting themselves from exposure to COVID-19, as the District cannot ensure that all attendees at public meetings will be free from COVID-19.

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Meeting number: 126 808 7595 Password: H2O1 (4261 from phones)
Join by phone (audio only) call +1-408-418-9388 (toll rates apply)
Access code: 126 808 7595

OPEN SESSION:

Committee Members roll call

1. **Public Comment**
   The public may address the Water Resources Committee on any matter on the agenda or within the jurisdiction of the Committee. All comments are subject to a five-minute time limit.

2. **Approval of Minutes - Motion**
   The Committee will review and consider approving the minutes from the November 3, 2020 Water Resources Committee meeting.

3. **Basin Optimization and Water Sustainability Projects** (20 minutes: Lindquist)
   The committee will receive updates on the recommendations set forth by the OPV Projects Committee related to proposed basin optimization water sustainability projects and follow up steps related to initial feasibility assessment of selected projects.

4. **Future Hydrology and Water Management Actions; Considerations for Future Modeling Efforts** (20 minutes: Sercu)
   The Committee will be briefed on staff's recent progress on activities related to applying climate change factors to historic streamflow records, including the influence of urbanization in Los Angeles County and releases from Castaic Lake. Staff will explain the decision criteria to distribute water diverted at the Freeman, and how this surface water routing is incorporated in the groundwater flow model.

5. Water Resources Department Update (5 minutes: Detmer)
Staff is available to provide updates to the Committee on the Department's recent activities and projects.

6. Groundwater Sustainability Agencies Update (10 minutes: Detmer)
The Committee will be briefed on recent activities of the Groundwater Sustainability Agencies (GSAs) within or adjacent to the District's service area.

FUTRE AGENDA ITEMS

ADJOURNMENT

Committee Members:
Edwin T. McFadden III, Chair
Daniel C. Naumann
Lynn Maulhardt

Staff:
Mauricio E. Guardado, Jr., General Manager
Maryam Bral, Chief Engineer
Dan Detmer, Supervising Hydrogeologist
Dr. Jason Sun, Senior Hydrogeologist/Modeler
John Lindquist, Senior Hydrogeologist
Dr. Zachary Hanson, Hydrogeologist
Kathleen Kuepper, Hydrogeologist
Eric Elliott, Associate Hydrogeologist
Murray McEachron, Principal Hydrologist
Dr. Bram Sercu, Senior Hydrologist

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Approved: _____ _____
Mauricio E. Guardado, General Manager Dr. Maryam Bral, Chief Engineer

Posted (Date): December 31, 2020 (time) 1:00pm (attest) *Eva Ibarra*
At: UWCD Headquarters, 1701 N. Lombard Street, Oxnard, CA 93030

Posted (Date): December 31, 2020 (time) 1:00pm (attest) *Eva Ibarra*
At: www.unitedwater.org

MINUTES
WATER RESOURCES COMMITTEE
Tuesday, November 3, 2020 at 9a.m.
UNITED WATER CONSERVATION DISTRICT
Boardroom, 1701 N. Lombard Street, Oxnard CA 93030

Committee Members Present:
Chair Edwin McFadden
Director Patrick Kelley
Director Dan Naumann

Staff Present:
Mauricio E. Guardado, Jr., General Manager
Dr. Maryam Bral, Chief Engineer
Dan Detmer, Supervising Hydrogeologist
Eric Elliot, Associate Hydrogeologist
Tony Emmert, Assistant General Manager
Dr. Zachary Hanson, Hydrogeologist
Eva Ibarra, Administrative Assistant II
Kathleen Kuepper, Hydrogeologist
Tessa Lenz, Associate Environmental Scientist
John Lindquist, Senior Hydrogeologist
Murray McEachron, Principal Hydrologist
Josh Perez, Human Resources Manager
Zachary Plummer, IT Administrator
Robert Richardson, Senior Engineer
Dr. Bram Sercu, Senior Hydrologist
Dr. Jason Sun, Senior Hydrogeologist/Modeler

Public Present:
Frank Brommenschenkel, Frank B. & Associates
Burt Handy
Curtis Hopkins, Hopkins Groundwater Consultants, Inc.
Monica Noeng
Rod Paniagua

OPEN SESSION: 9:00am
Chair McFadden called the meeting to order at 9a.m.

Committee Members roll call
Chair McFadden and Director Kelley (participated virtually), Director Naumann (was in attendance in the Boardroom) Chair McFadden called roll call and confirmed all present.

1. Public Comment

Chair McFadden asked if there were any public comments for the Water Resources Committee; none were offered.

2. Approval of Minutes - Motion

Motion to approve the October 6, 2020 Water Resources Committee Meeting Minutes, Chair McFadden; Second, Director Naumann. Roll call vote: two ayes (Kelley and Naumann); none opposed Motion carries 2/0.

3. Update on Groundwater Flow Model

Dr. Jason Sun presented (see slides) an update on the District's groundwater flow model and proclaimed that the Model validation has been completed. Dr. Sun also wanted to acknowledge Dr. Zachary Hanson for all his work on the data collection.

Chair McFadden asked about the monitoring wells planned for the Piru Basin. Dr. Sun explained what is planned for the basin. Chair McFadden stated that understanding is critical as the FPBGSA will be relying on groundwater levels to help with the forming of SMCs for the GSPs.

Chair McFadden mentioned that having the state-of-the-art tool developed by United makes the work of the GSA's possible and thanked United staff.

Director Kelley asked about the limitation of rising water levels for the model, and what will happen when rain increases flows. Dr. Sun replied he does not think there is a problem and explained the process.

Director Naumann asked if the model accounted for water coming from the east or Los Angeles County, and if there was data regarding how much water is coming into Ventura County from that area. Dr. Sun said yes, the amount of water coming into the County from the east/Los Angeles County is measured and mentioned he was invited to compare United's model with the one being used by Santa Clarita Valley Water Agency..

Director Kelley voiced his concern about the contaminates from Los Angeles County and asked if those levels were getting better. Dr. Sun stated he is not fully informed on this issue but did feel the situation has improved.

General Manager Mr. Mauricio Guardado stated there is quite a bit going on with flood flow releases and precipitation, and that the upper basin does benefit from the water quality of the release.

Mr. Guardado stated that the District is collaborating with the Santa Clarita GSA, and that Dr. Jason Sun is on the GSA's panel, as they value his reputation and are seeking his expertise.

Mr. Tony Emmert reported that United has been meeting with Santa Clarita Water Agency on a regular basis and they have been very forthcoming on their assumptions and future scenarios that are in their plans.

Chair McFadden stated this is good news and sharing information with Fillmore Piru Basin GSA will be beneficial.

4. Future Hydrology and Climate change Factors; Considerations for future Modeling Efforts
Dr. Bram Sercu presented (see slides) to the Committee.

Chair McFadden, Director Naumann said they found the cumulative graph presented by Dr. Sercu was very interesting and informational.

Director Naumann asked various questions regarding the DWR streamflow change factor charts presented by Dr. Bram, which Dr. Bram answered.

Chair McFadden asked if the same work has been done for the streamflow precipitation runoff from the LA County line to the ocean. Dr. Bram stated yes, the model is available for all of Santa Clara River Watershed. Chair McFadden stated this is exactly what is needed for the planning of the GSPs.

Director Naumann asked if the other water basins are doing similar information studies or is United the only one doing this, as this is very important for the future of the GSP plan. Dr. Sercu stated he is not too sure as other basins are on a different schedule.

Chair McFadden asked if there were any further questions for Dr. Bram, none were offered.

5. SFD Release and Diversion update for Fall 2020
Mr. Murray McEachron presented slides (see attached)

Director Naumann asked when shutting down the release, how long before it hits the Freeman Diversion. Mr. McEachron stated it would be seen the very next day. Director Naumann also asked what the depth and capacity of the lake is at this time. Mr. McEachron explained the lake dropped about 48 feet during the release and is at 14,000-acre foot capacity.

Chair McFadden asked what is the scale for the size of the mussels shown on slide. Mr. McEachron stated they are approximately one inch in size.

Director Kelley asked if the quagga mussels in fact do dry out and die, or if they fall off and regenerate back into the water. Mr. McEachron explained that they dry out and die with sun exposure. Director Kelley suggested that the lake should be lowered off and on to control the quagga mussels. Mr. McEachron mentioned it is in the plan to drop the lake level for the purpose of controlling the quagga mussels.

6. Water Resources Department Update
John Lindquist presented an update from the Department (see slides)

Director Naumann asked if Water Resources has created any videos to be displayed on United's website for outreach purposes, especially now with Covid-19. Mr. Lindquist stated he believes that Water Resources has not created any videos for the website to date.

7. Groundwater Sustainability Agencies Update
John Lindquist presented an update on the GSAs (see slides)

Chair McFadden echoed the announcement that the Fillmore Piru Basin Groundwater Sustainability Agency will be having their Board meeting tomorrow, which will be a very critical meeting, as they will be getting into the Sustainable Management Criteria, that is a crucial part of what the agency will be working towards.

Chair McFadden asked if there were any additional comments or questions. None were offered.

FUTURE AGENDA ITEMS
None were mentioned

ADJOURNMENT 10:25a.m.
Chair McFadden adjourned the meeting at 10:25 am.

I certify that the above is a true and correct copy of the Minutes of the UWCD Water Resources Committee Meeting of November 3, 2020.

_____
Chair Edwin T. McFadden, III

United Water CONSERVATION DISTRICT

Update on Groundwater Flow Model – Model Validation

Jason Sun, PhD, PE

Tuesday, November 3rd, 2020

1

UWCD Model Simulation from 2016 to 2019

(From October Water Resources Committee Meeting)

- All the 2016-2019 data from precipitation, stream flows, pumping records, and water level data are implemented into the UWCD model except a small number of data yet to collect/verify
- Use the parameters from the 1985-2015 calibrated model to simulate the 2016 to 2019 water level
- Preliminary result is prepared

2

UWCD Model Simulation from 2016 to 2019

- All the 2016-2019 data from precipitation, stream flows, pumping records, and water level data are implemented into the UWCD model
- Use the parameters from the 1985-2015 calibrated model to simulate the 2016 to 2019 water level
- The staff has completed the model validation

3

2016-2019 Dataset

- Monthly precipitation data
- Pumping records
- Stream flow and diversions
- Surface water import/delivery
- Water level data

The above data collection was made possible by Dr. Zach Hansen, FCGMA, cities, and other agencies/organizations

4

4

Model Validation

- The GW model remains well calibrated with the 2016-2019 groundwater level data
- The UWCD hydrologist has reviewed the surface water result and concluded the 2016-2019 surface water validation is good

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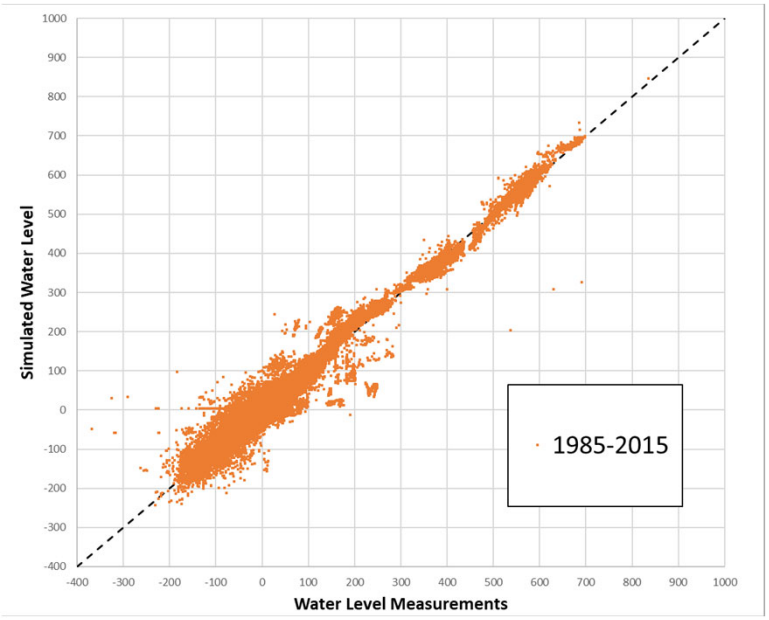
Scatter Plot

- The overall comparison shows no significant outlier data points in 2016-2019
- The model validation is good



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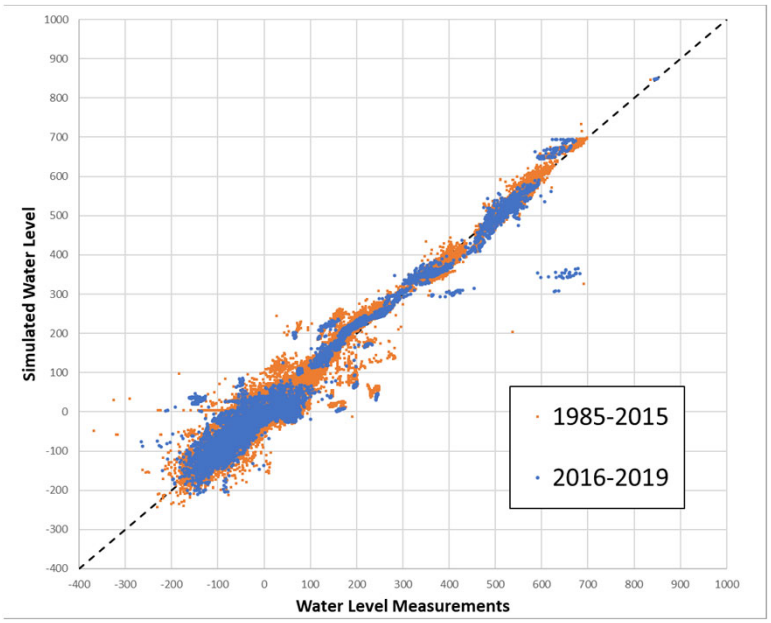
Scatter Plot

- The overall comparison shows no significant outlier data points in 2016-2019
- The model validation is good



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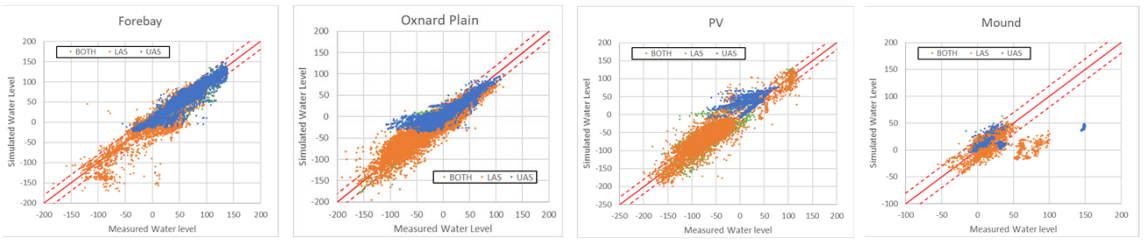
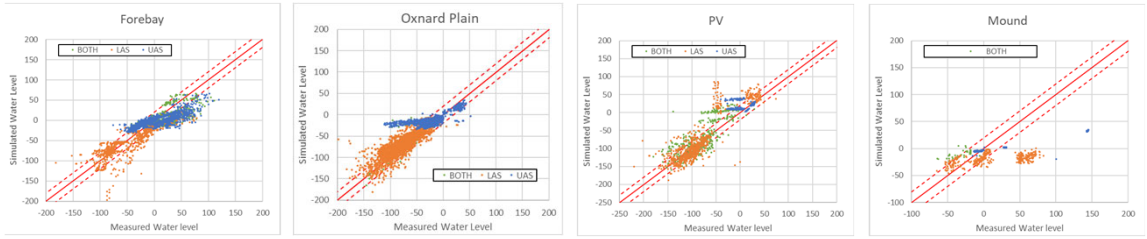
1985 - 2015



2016 - 2019



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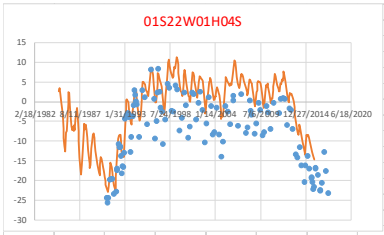
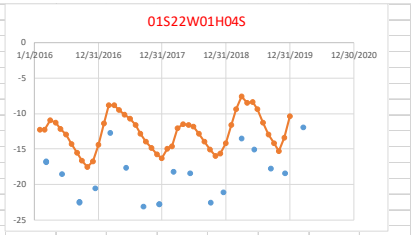
Oxnard Plain





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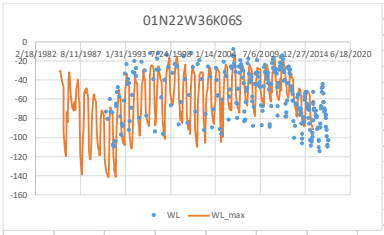
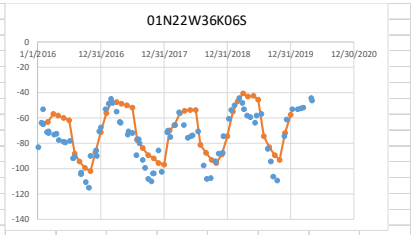
01S22W01H04S	3	3	-5.3	6.0	5.3
01S22W01H04S	5		-5.2	6.0	5.3
	G.S.	9.126	OBS #	119	

01S22W01H04S	180	0	200	0	200
01S22W01H04S	3	3	-6.1	6.2	6.1
01S22W01H04S	5		-5.9	6.1	5.9
	G.S.	9.126	OBS #	19	





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01N22W36K06S	7		1.4	15.8	12.5
	G.S.	9.735	OBS #	237	

01N22W36K06S	540	0	580	0	580
01N22W36K06S	9	11	-7.1	11.8	9.8
01N22W36K06S	11		-6.9	11.7	9.8
	G.S.	9.735	OBS #	78	

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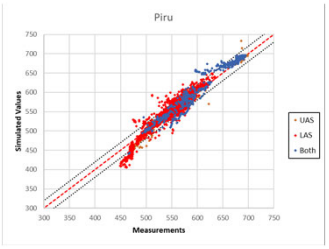
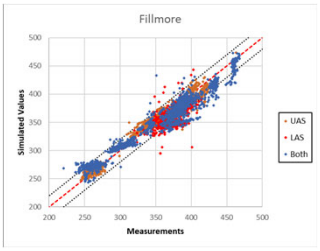
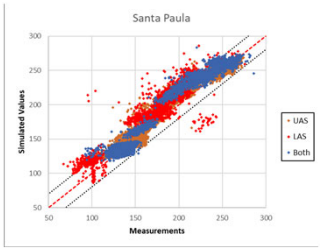
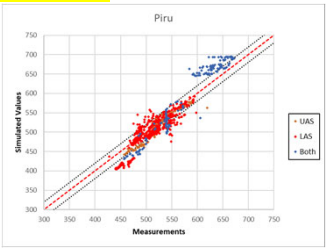
1985 - 2015

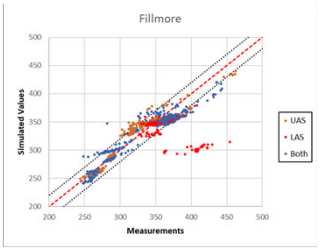


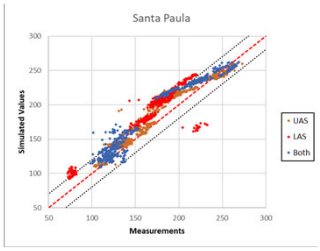




2016 - 2019







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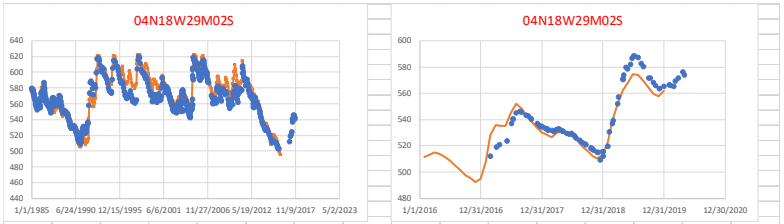
Piru



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04N18W29M02S	3		-4.4	8.5	6.8
	G.S.	635.856	OBS #	932	

	0	0	0	142	-142
04N18W29M02S	1	5	2.6	7.0	5.6
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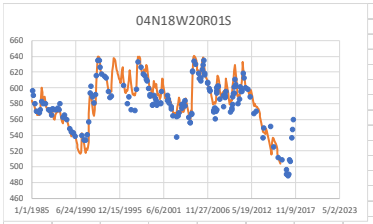
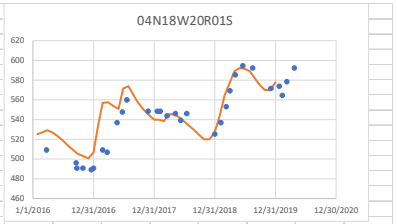
	G.S.	635.856	OBS #	74	





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	G.S.	677.229	OBS #	163	

	190	0	319	0	364
04N18W20R01S	7	7	-9.2	17.2	12.6
04N18W20R01S	7		-9.2	17.2	12.6
	G.S.	677.229	OBS #	26	

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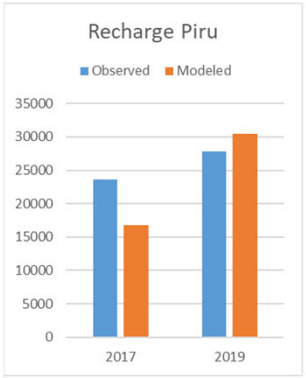
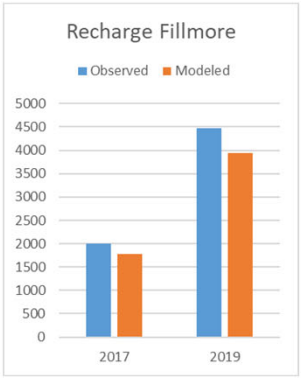
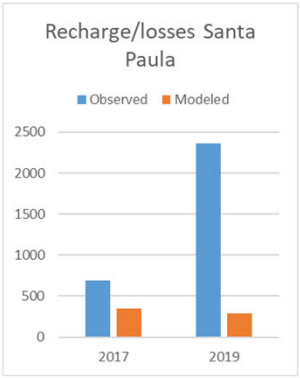
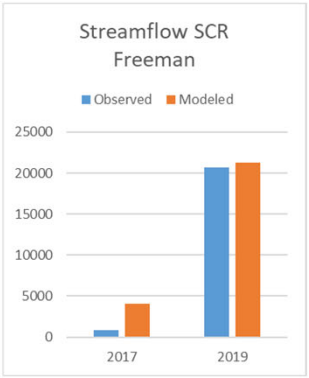
Surface Water

There were 2 releases (2017 and 2019)









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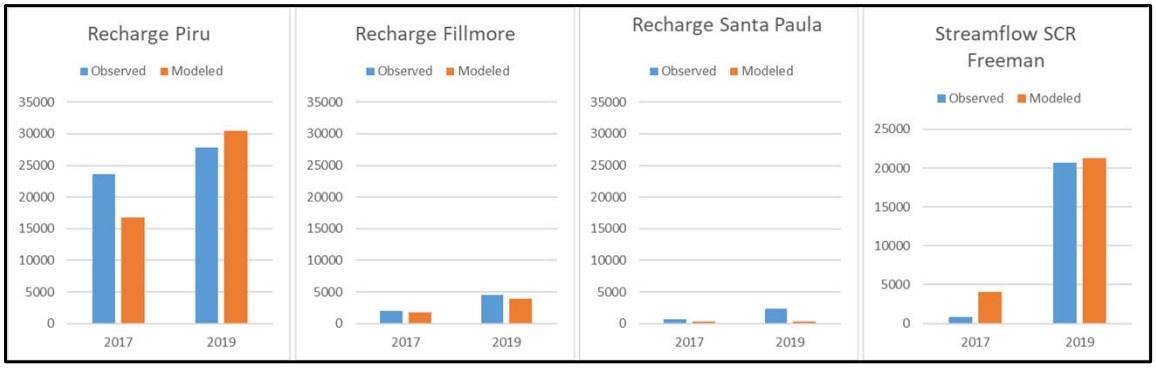
Surface Water



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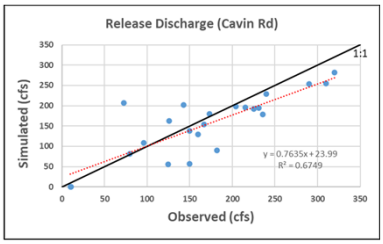
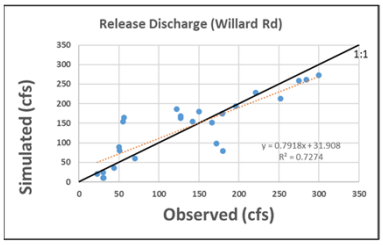
Stream Flows at Basin Boundary



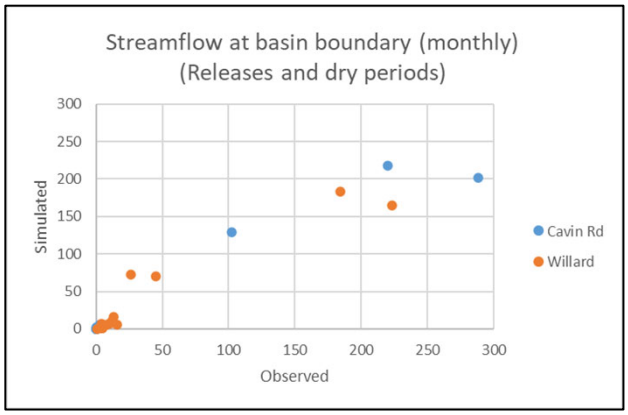
Between Piru and Fillmore Basins



Between Fillmore and Santa Paula Basins

1985 - 2015

The stream flows at basin boundary are well correlated in 2016-2019



2016 - 2019

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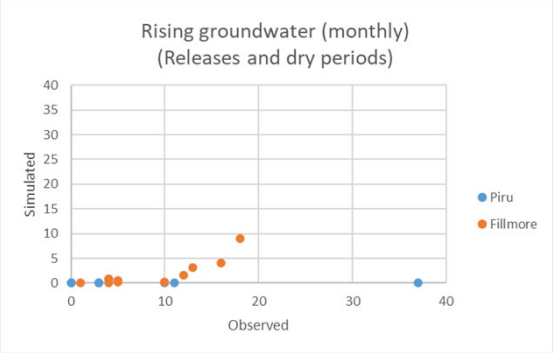
Stream Gaining/Losing



- The GW model underestimates the rising groundwater both in 1985-2015 and 2016-2019
- **The effect of underestimation** on the basin flow budget and GSP analysis is **minimal** as the stream flows at basin boundary are good
- The rising groundwater is very sensitive to the groundwater level.
- A few feet difference can change stream from rising to losing, and vice versa

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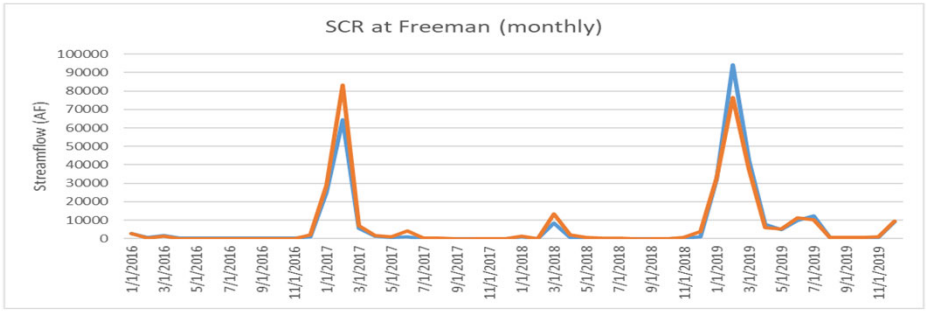
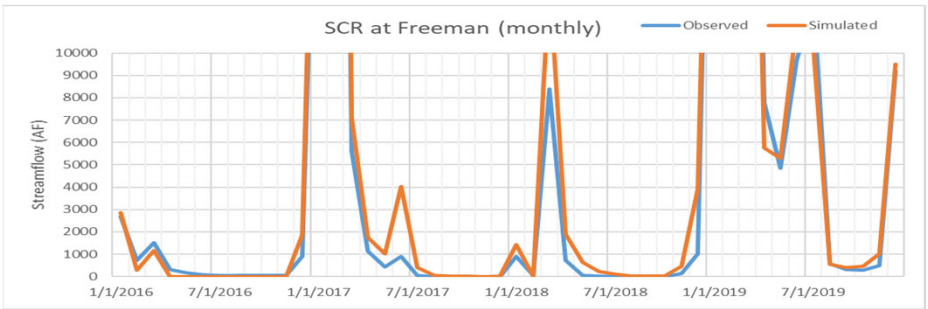
Stream Flow at Freeman Diversion





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Conclusions

- The model validation is good. No change to the model
- The UWCD Model is now extended to 2019 (1985 to 2019)
- There are model limitations on SCR gaining/losing reaches
- The GW model is adequate for the GSP analysis

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Ongoing/Future Work

- GSP model simulations for Fillmore, Piru, and Mound GSAs
- Brackish water model simulation
- Model documentation
- Sensitivity Analysis/Uncertainty Analysis
- The groundwater model improvement will continue whenever we have better understanding or more data

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Thank you

Questions/Comments/Discussion?

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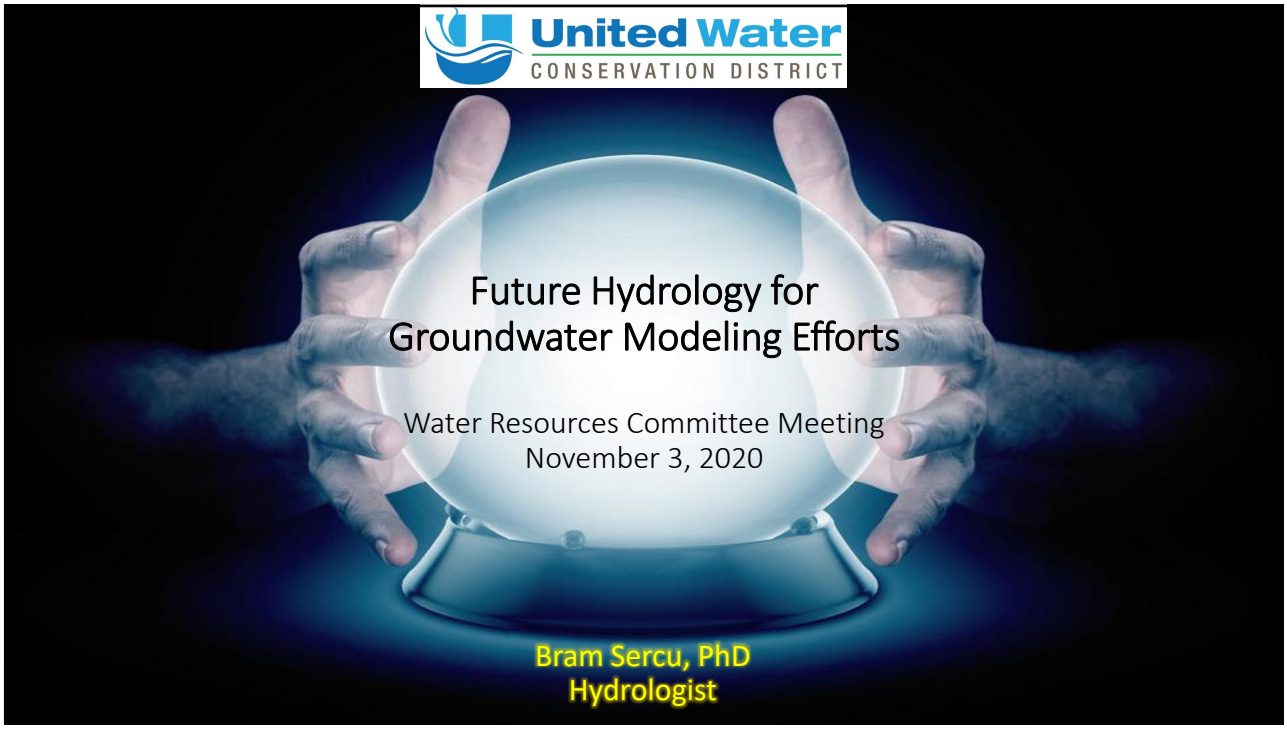

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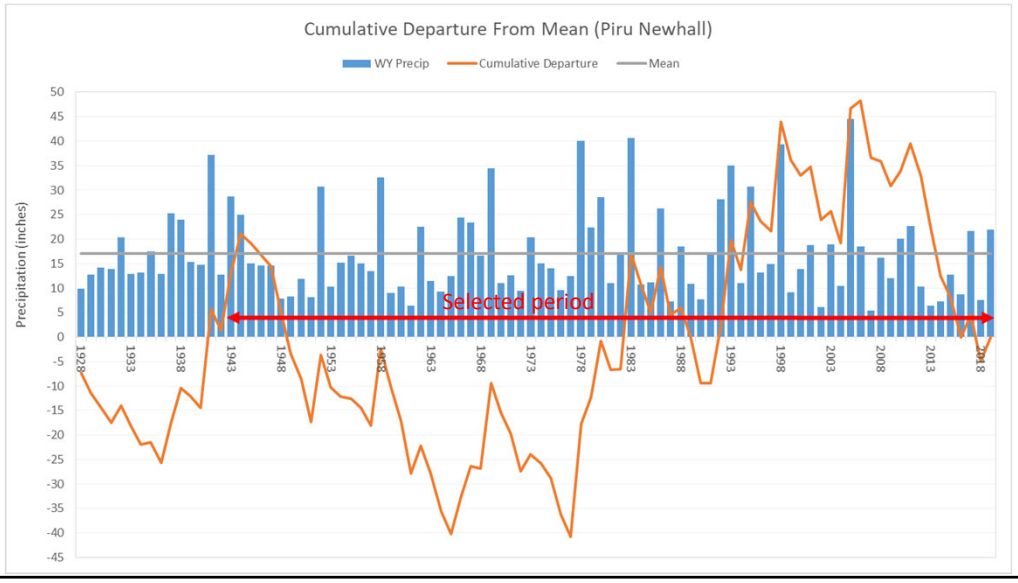
Modeling Future Conditions

- SGMA requires water budget representing
  - At least 50 years of historical conditions
  - Current conditions
  - Projected conditions over 50-yr planning and implementation horizon
- Run calibrated GW model with future hydrology
- Goal is to represent range of potential future conditions
  1. Streamflow
     - Use historic records
     - Adjust for climate change
     - Consider State Water Project imports, reservoir operations
     - Consider Land Use changes where relevant
  2. Precipitation

  } Today's focus
- Consensus for United historical/future conditions model: 1943 - 2019

2

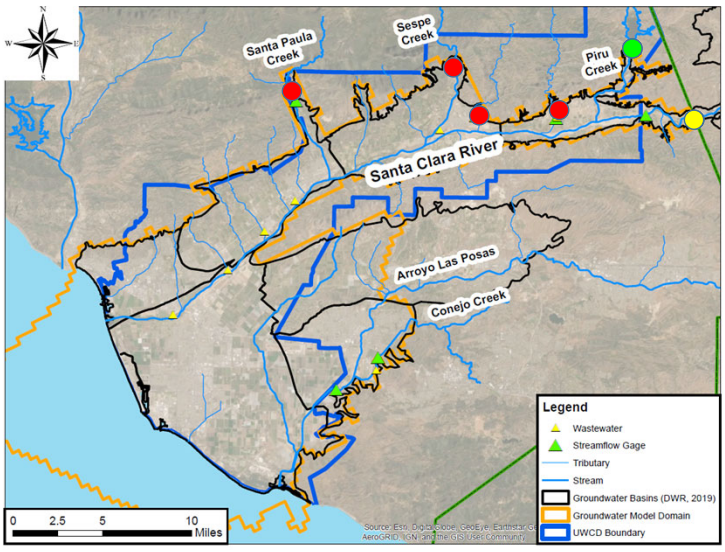
Future Conditions Hydrology (1943-2019)



3

Streamflow records 1943-2019

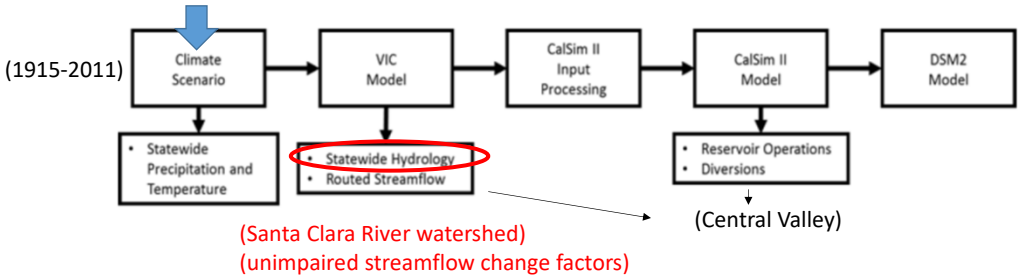
- All streamflow:
  - →Apply DWR climate change streamflow change factors
- Piru Creek:
  - →Apply SFD operations
- Countyline:
  - →Fill data gap 1943-1952
  - →Model Castaic Lake operations
  - →Address impact LU changes



4

DWR streamflow change factors

- Selection of 20 global climate projections for California
- Downscale to ~3.75 mile spatial resolution
- Climate projections for 2030 and 2070 conditions (temp, precip)



5

DWR streamflow change factors

- 2030 (near future):
  - Central tendency of the ensemble of general circulation models (GCMs)
- 2070 (late future):
  - Central tendency of the ensemble of GCMs
  - Drier with extreme warming (2070 DEW) conditions (extreme scenario, single GCM: HadGEM2-ES with representative concentration pathway [RCP] 8.5)
  - Wetter with moderate warming (2070 WMW) conditions (extreme scenario, single GCM: CNRM-CM5 with RCP 4.5)

→ Apply 2030 and 2070 factors to all streamflow records

→ Change factors available for 1915-2011

→ Select change factors for 2012-2019 based on analogous years in record

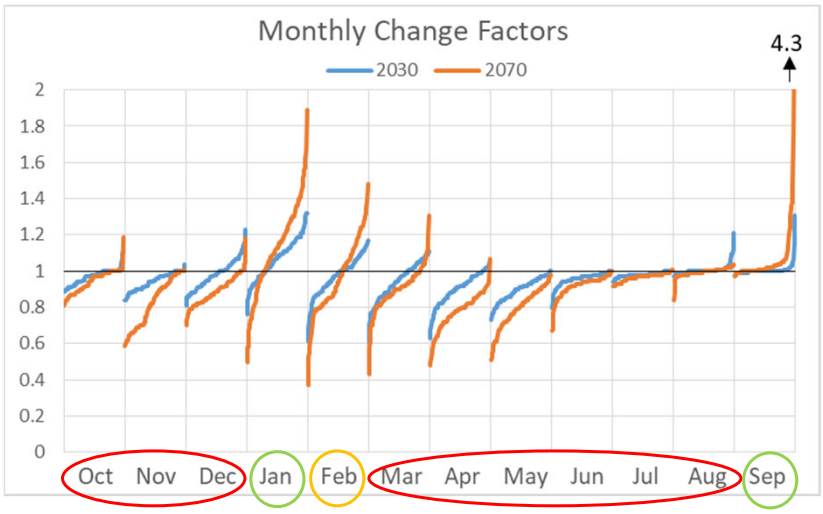
6

Trends in Monthly Streamflow Change Factors

Mostly decreasing

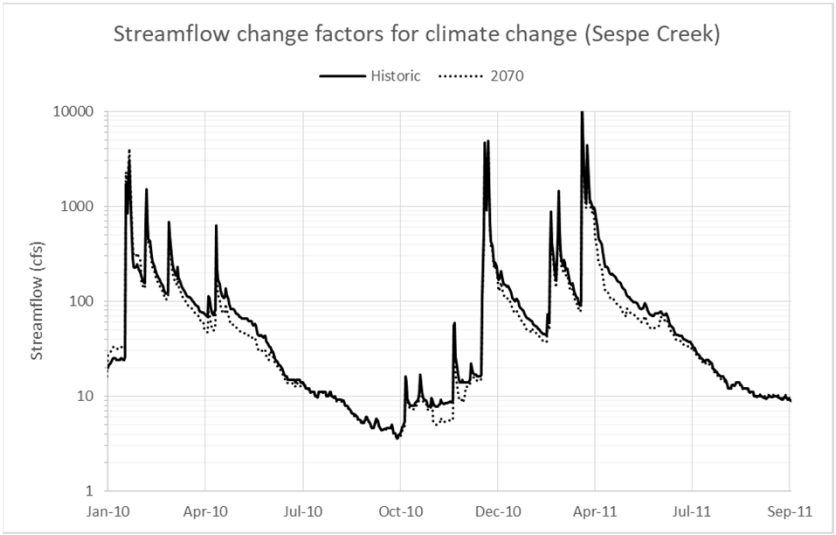
Mostly increasing

Increasing/decreasing



7

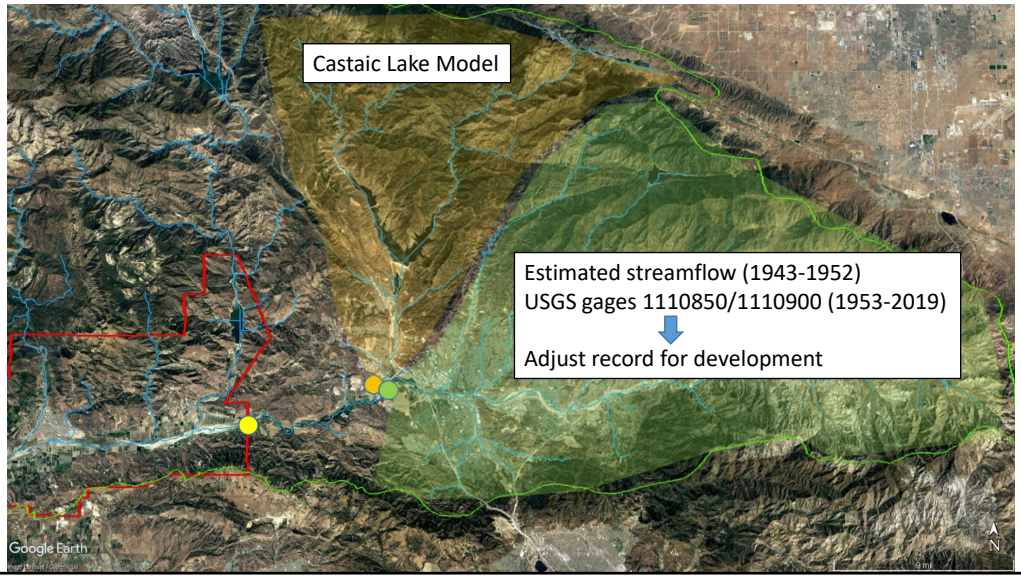
Example DWR streamflow change factors (2070 CC)



- Average annual streamflow decreases by 3%
- Receding limb decreases more quickly
- Peak flow higher/lower

8

Streamflow inputs from LA County

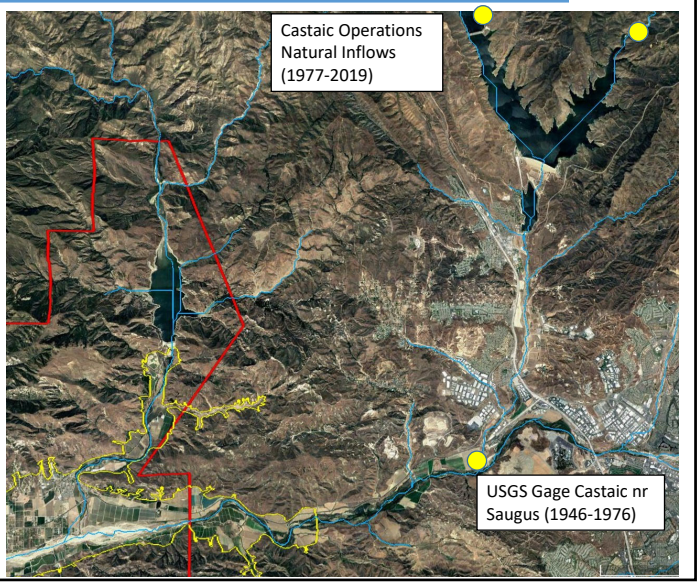


9

Castaic Lake Flood Flow Release Model

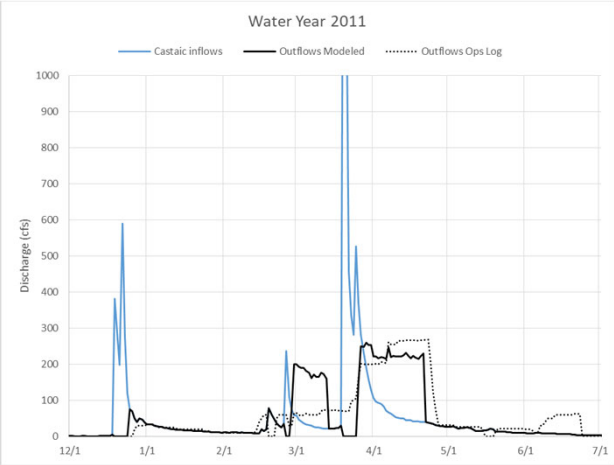
1978 Agreement with DWUs:

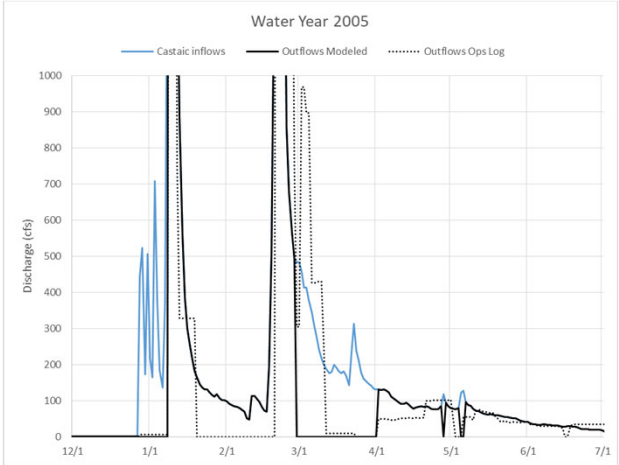
- Store "flood flows" > 100 cfs
- Release stored flood flows by May 1 to benefit DWUs
- Subject to storage availability



10

Castaic Lake Flood Flow Release Model





→Castaic outflows sufficiently calibrated

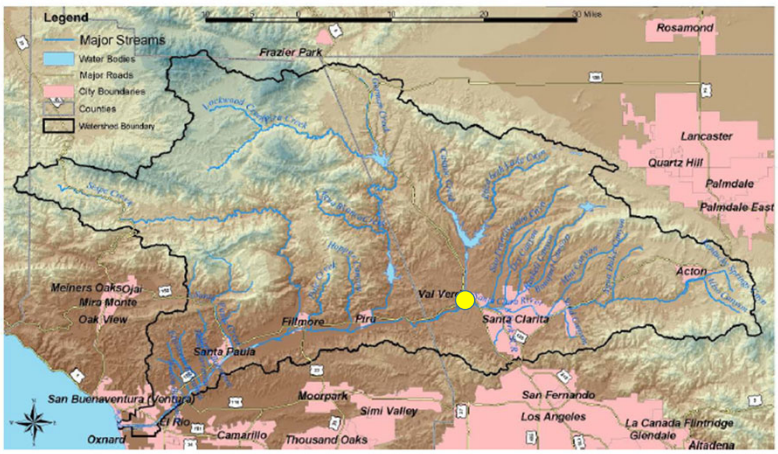
→Not all operational decisions can be captured by model

11

Address Impacts of Urbanization on Historic LA County Streamflows

- Rainfall-runoff relation has changed since 1943
- Historic records needs adjustments to reflect urbanization trends

- VCWPD HSPF model
- Simulates hydrology for SCR watershed (1960-2005)
- Model effects of LU changes
- United staff received training/files from VCWPD



(Aqua Terra Report to VCWPD, 2009; Figure 1.1)

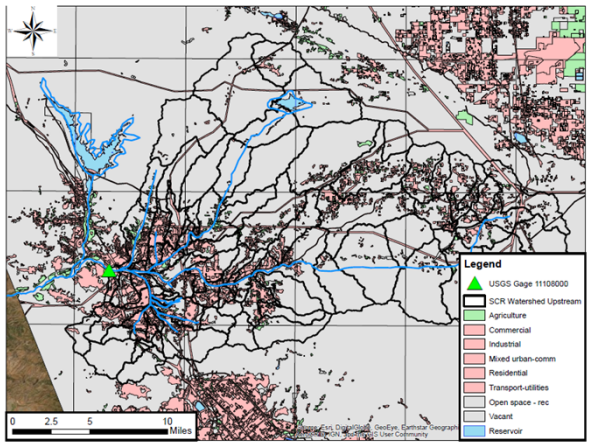
12

Modifying from "2000s" to "1960s" Land Use

- 2000s

Southern California Association of Governments (SCAG) 2001 land use data

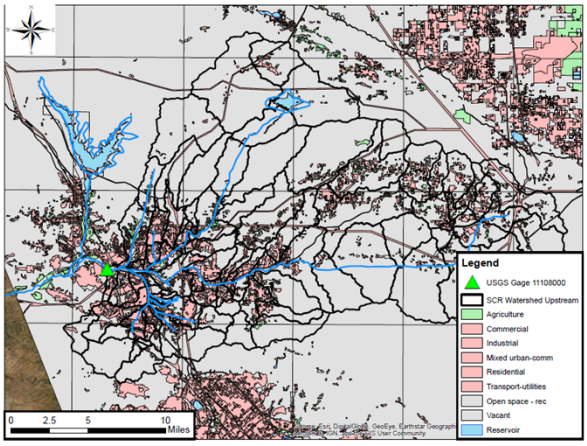
- 1960s
  1. Reduce Urban/Impervious LU according to Valley population (by 90%).
  2. Increase Open/Ag LU by 90%, according to
     - USGS "1970s/1980s" data (Price et al., 2007)
     - USGS 1945-67 Ag data (Robson, 1972)



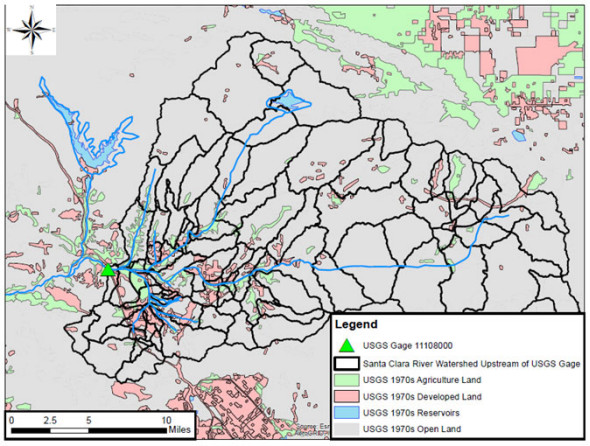
13

Modifying from "2000s" to "1960s" Land Use

- 2000s



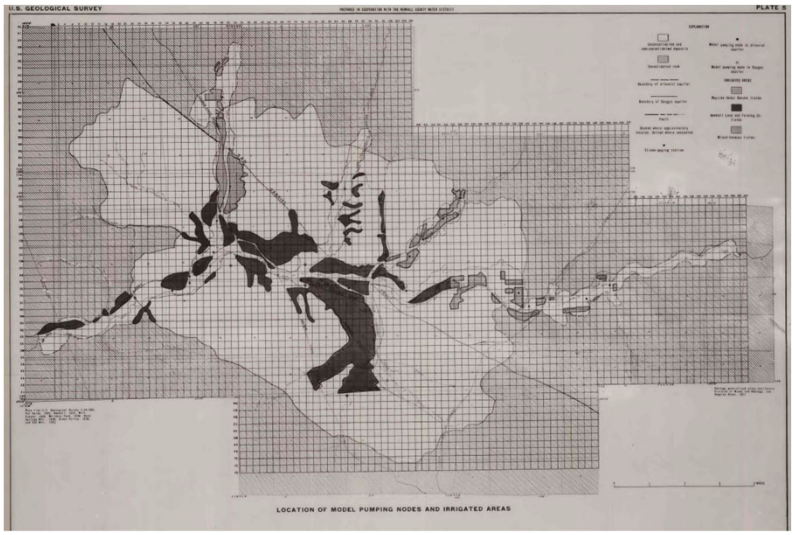
- 1970/80s (Price et al., 2007)



14

Modifying from "2000s" to "1960s" Land Use

- Agriculture irrigated lands representing 1945-67 USGS groundwater model simulation (Robson, 1972)
- Used to refine Open/Ag distribution



15

Modifying from "2000s" to "1960s" Land Use

- 2000s

Summary		
Land use	**Acreage***	**Percent**
Open	223,200	85.1%
AG	700	0.3%
Urban	27,300	10.4%
Impervious	11,200	4.3%
Total	262,400	100 %

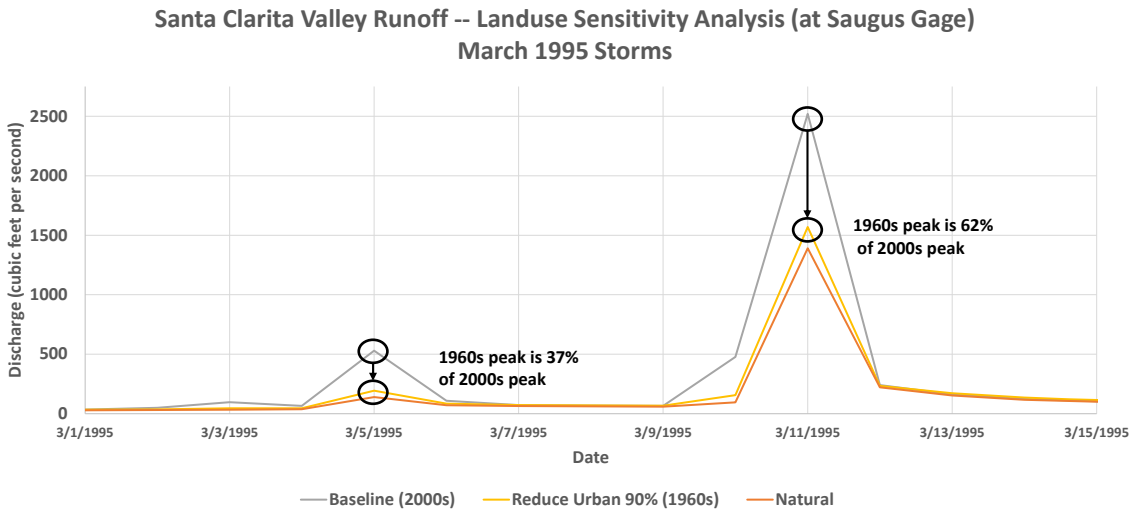
*rounded to nearest 100 acres

- 1960s

Summary		
Land use	**Acreage***	**Percent**
Open	249,400	95.0%
AG	9,200	3.5%
Urban	2,700	1.0%
Impervious	1,100	0.4%
Total	262,400	100%

16

Preliminary Streamflow Results with LU Changes



17

Next steps addressing impacts of urbanization on LA County streamflows

- Run HSPF using LU estimates for 1950/1970/1990
- Determine streamflow adjustment method for each 20-yr period
- Adjust historic streamflow record to reflect current LU
- Consider further adjustments for future land use

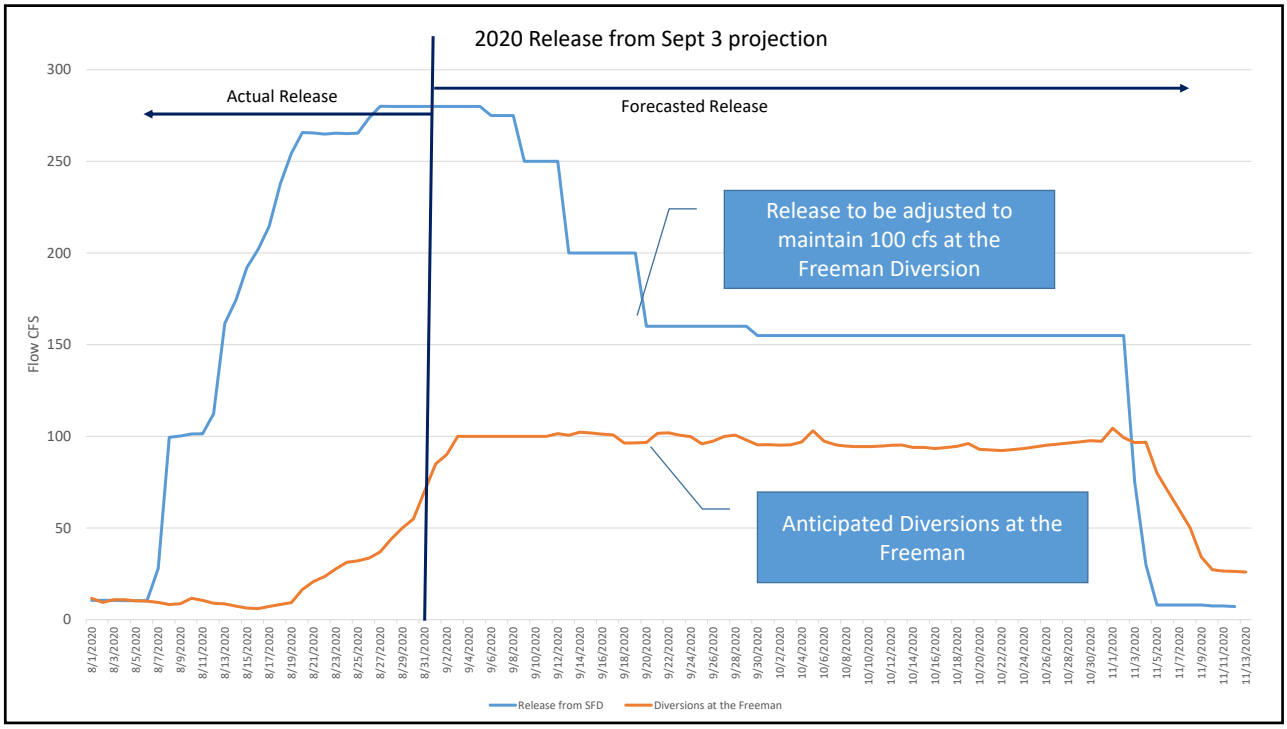
18

Questions?

19

2020 Conservation Release Update November 3, 2020

1



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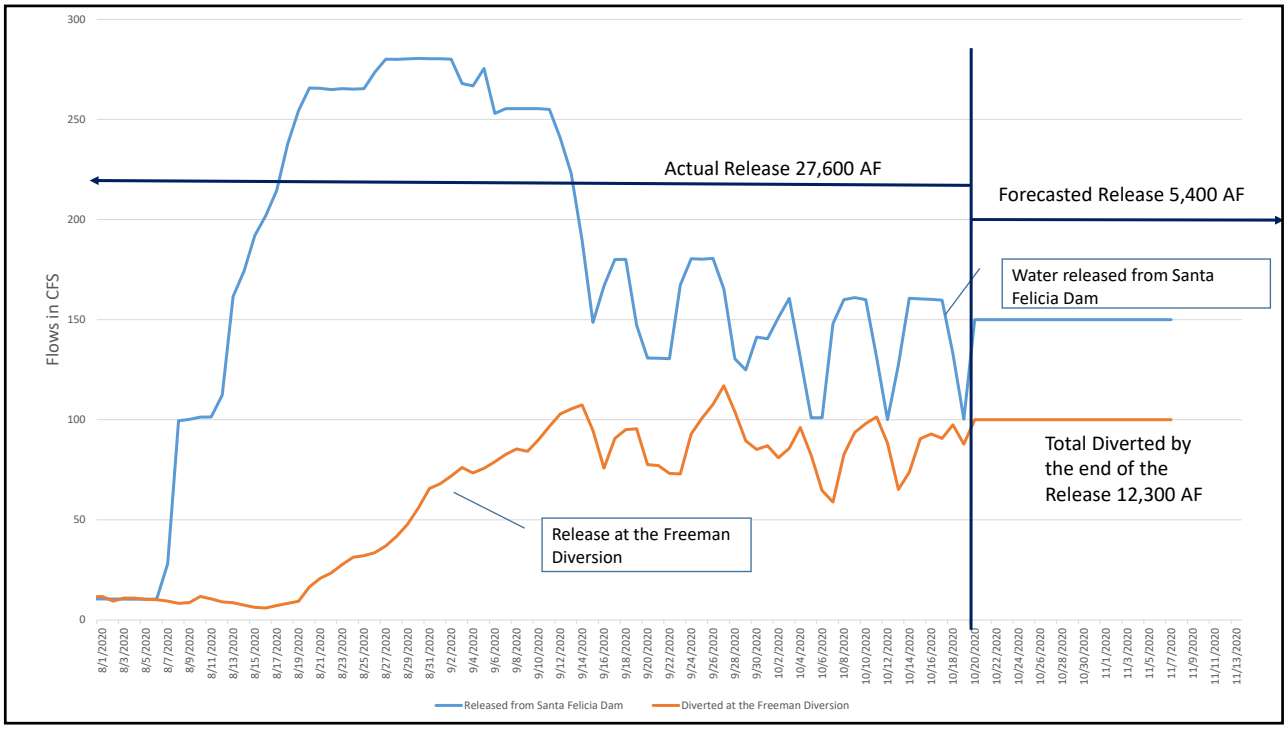
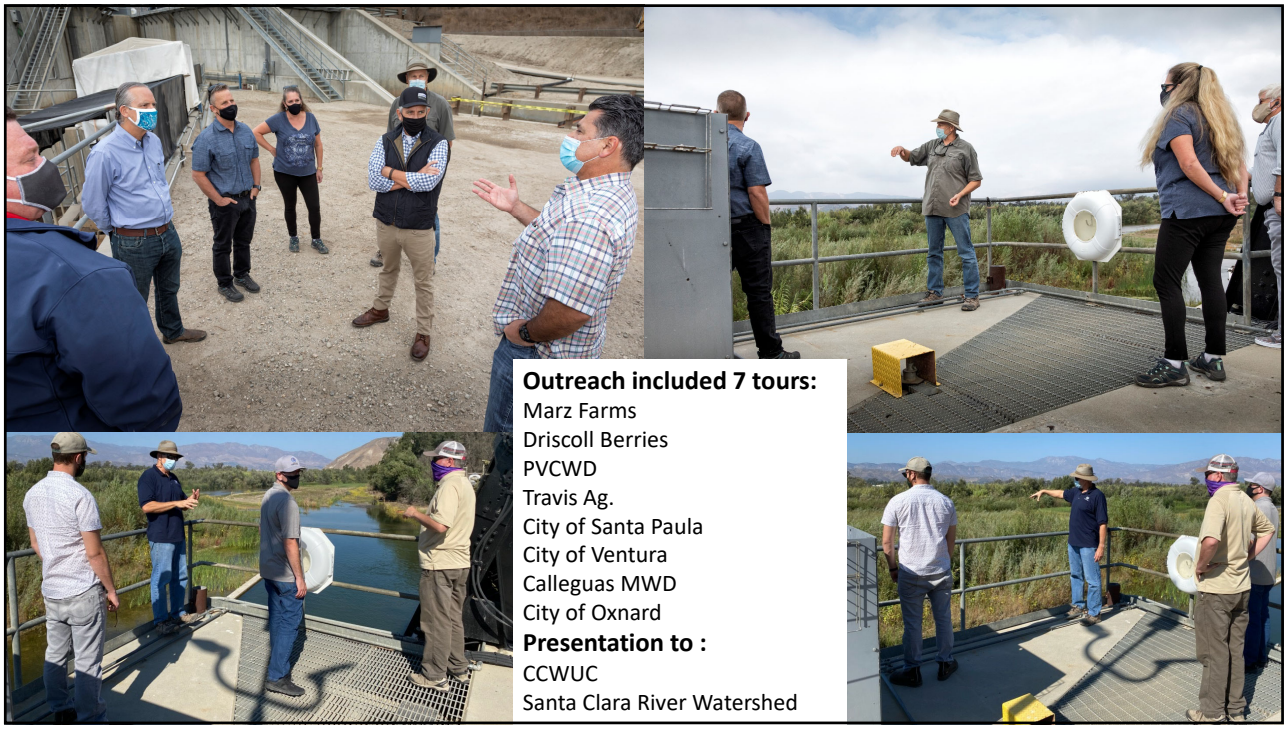

Flows in CFS
Actual Release 27,600 AF
Forecasted Release 5,400 AF
Water released from Santa Felicia Dam
Total Diverted by the end of the Release 12,300 AF
Release at the Freeman Diversion
Released from Santa Felicia Dam
Diverted at the Freeman Diversion

3


Outreach included 7 tours:
Marz Farms
Driscoll Berries
PVCWD
Travis Ag.
City of Santa Paula
City of Ventura
Calleguas MWD
City of Oxnard
Presentation to :
CCWUC
Santa Clara River Watershed

4

Photos of Lake at start of the release

Photos of Lake on November 2, 2020

5

The End

6

United Water CONSERVATION DISTRICT

Staff Report

To: **Water Resources Committee**

Through: Mauricio E. Guardado, Jr., General Manager

From: Maryam Bral, Chief Engineer
Dan Detmer, Supervising Hydrogeologist

Date: December 21, 2020 (prepared for January 5, 2021, meeting)

Agenda Item: **6. Monthly Water Resources Department Report**
Information Item

Staff Recommendation:
Receive a summary report on various Water Resources departmental activities.

Discussion:

As noted in our previous staff reports, the majority of staff continue to work from home and communicate via teleconferencing during the Covid-19 pandemic.

Staff Activities

In addition to the Department's routine, ongoing groundwater monitoring and reporting program and its support of Groundwater Sustainability Agencies (summarized in a separate staff report), notable efforts and activities conducted by staff during the past month included the following:

- Groundwater modeling:
  - Staff has expanded the active domain of United's numerical groundwater flow model to incorporate the Piru, Fillmore and Santa Paula basins. The model was calibrated through 2015 and validated through the 2016-2019 period. Now that the expanded model has been validated, staff are preparing model documentation and applying the model for a number of urgent tasks, as described below and in the SGMA update staff report.
  - Staff has worked with Ventura County Watershed Protection District staff to use their existing HSPF surface water flow model to simulate runoff from the upper Santa Clara River watershed for future model runs in support of area Groundwater Sustainability Agencies.

  - Staff has completed the work required to apply climate change factors to historical streamflow records, as required to simulated future hydrology for the local GSAs.

- Staff continue to help the Environmental Services Department (ESD) evaluate effects of existing and potential future surface-water flow conditions at the Freeman Diversion.
  - Staff are assisting ESD in evaluating fish passage modifications under consideration for United's Habitat Conservation Plan (HCP).
- Staff continue to assist with planning and coordination for release of Table A water and supplemental State Water Project water acquired from the Santa Clarita Valley Water Agency and the City of San Buenaventura.
- Staff has entered available lithologic information from wells in the Mugu area into a RockWorks database and has constructed cross-sections in order to map the continuity of confining units in the vicinity of the proposed Coastal Brackish Treatment Project. Staff participated in a site visit on December 17.
- Staff are analyzing sediment load at the Freeman Diversion and removal options for accumulated sediment from the desilting basin.
- Staff continue to support the Engineering Department with development and design of water-supply projects within the District's service area. This month, United staff (together with staff from the Pleasant Valley Water Conservation District, Camrosa Water District, and City of Camarillo) began considering a potential new water-supply project proposed by Camrosa Water District for maximizing use of Conejo Creek water (potentially yielding 2,500 acre-feet per year).
- Field staff completed the monthly monitoring run for groundwater elevations and sampling of the coastal monitoring wells.
- Staff led or participated in the following public outreach activities:
  - A presentation of the history of steelhead and related impacts on water resources management activities to the Ventura County Special Districts Association
- Staff participated in the Castaic Winter Operations meeting on December 22, 2020. The Department of Water Resources Southern Field Division Staff discussed the Castaic Reservoir operations mode and the current field investigations at Castaic.

United Water CONSERVATION DISTRICT

Staff Report

To: **Water Resources Committee**

Through: Mauricio E. Guardado, Jr., General Manager

From: Maryam Bral, Chief Engineer
Dan Detmer, Supervising Hydrogeologist

Date: December 21, 2020 (prepared for January 5, 2021, meeting)

Agenda Item: **7. Update on Groundwater Sustainability Agencies (GSAs) and Sustainable Groundwater Management Act (SGMA)**
Information Item

Staff Recommendation:
Receive a summary report of Water Resources Department activities related to the Sustainable Groundwater Management Act (SGMA) and Groundwater Sustainability Agencies (GSAs) for the groundwater basins within District boundaries.

Discussion:

Fox Canyon Groundwater Management Agency (FCGMA)
Staff continue to monitor and, where appropriate, participate in the FCGMA's groundwater sustainability planning and implementation efforts in the Oxnard, Pleasant Valley, and Las Posas Valley (western management area) basins, as follows:

Board of Directors meetings – The FCGMA Board held a regular meeting online on December 2. Notable topics included:

- The Board considered executing a contract modification with consultant Jarvis Fay & Gibson to provide legal and consulting services related to development and implementation of groundwater augmentation fees. Following discussion, the Board asked staff for more information regarding the scope of services under consideration and their cost.
- The Board adopted the staff-proposed 2021 schedule for regular meetings and committee meetings. However, they postponed a decision on the 2021 schedule for special meetings until a future meeting.
- The Board ratified a contract with consultant CBI to continue supporting the Oxnard and Pleasant Valley (OPV) facilitation process through December 2020 for future groundwater pumping from the basins.

- The Board adopted Resolution 2020-07, increasing the tiered groundwater extraction surcharge rates for pumping in excess of allocations to align with new Calleguas Municipal Water District rate increases.

The FCGMA held a special Board meeting on December 14. Notable topics included:

- The Board adopted a revised schedule proposed by staff for holding 2021's special meetings on the second Monday of each month (in the afternoon).
- The Board again considered executing a contract modification with consultant Jarvis Fay & Gibson to provide legal and consulting services related to development and implementation of groundwater augmentation fees and the required rate studies to satisfy Prop 26 and Prop 218 requirements. Following discussion, the Board directed staff to return this item at a later date with more detail regarding phases of work and options for Board review following each phase.
- The Board authorized the Executive Officer to execute a contract with a consultant (Farallon Geographics, Inc.) to analyze the FCGMA's existing data management system and provide recommendations for solutions capable of supporting the FCGMA's automated metering infrastructure (AMI), water-market allocations, monthly extraction data, and intent to transition to land-based allocations.
- The Board held a public hearing and adopted an ordinance to establish a new pumping allocation for the Las Posas Valley Basin.
- The Board determined that an ordinance to adjust extraction allocations for agricultural operators in the Las Posas Valley Basin to facilitate a transition from calendar year to water year reporting was no longer relevant, given changes to the allocation ordinance for Las Posas Valley Basin adopted earlier in this meeting. Therefore, a public hearing for this proposed ordinance was not held.
- The Board directed staff to continue discussions with the OPV Core Stakeholder Group after the FCGMA's contract with facilitation consultant CBI concludes (in December 2020), establish regular meetings with the stakeholder group, and allowing staff to propose contracting for administrative support services as needed.

The next regular FCGMA Board meeting is scheduled for January 27 at 1:30 pm.

OPV Core Stakeholder Group meetings –

The OPV Core Stakeholder Group held teleconferences on December 1 and 15. The main topics of discussion at the December 1 meeting were:

- Potential replenishment fee structures (for purchasing supplemental water or building new water-supply projects)
- Extraction-allocation ramp down options

- Refining the definition of the "One Water" concept for the purpose of quantifying future allocations.

The main topics of discussion at the December 15 meeting were:

- Finalizing recommendations for initial evaluation (modeling) of potential future water-supply projects that could increase sustainable yield of the OPV basins and/or provide additional supplies to the region.
- Further development of a proposal by the OPV Stakeholders for establishing replenishment fees to pay for potential supplemental water supplies and basin yield enhancements.

The Projects Committee of the OPV Core Stakeholder Group held virtual meetings on December 3 and 17. The main topics of discussion at these meetings were better defining the set of projects and optimization measures that the Committee would recommend for advancement to the main OPV Stakeholders group and considering new water-supply/optimization project proposals recently brought forward by some of the Committee members.

Selected United staff and counsel also attended the December 9 meeting of the Legal *Ad Hoc* Committee of the OPV Core Stakeholder Group. Discussions by this committee are subject to a non-disclosure agreement.

Fillmore and Piru Basins Groundwater Sustainability Agency (FPBGSA)

Staff continue to participate in FPBGSA activities supporting SGMA compliance and GSP preparation for the Fillmore and Piru basins, as follows:

Board of Directors meetings – The FPBGSA held a regular Board meeting on December 17 at 5:00 pm. Notable topics included:

- A discussion about late fees for pump charges for various parties. Staff was directed to propose a policy that would allow staff some discretion to waive fees below some threshold value.
- A report from Daniel B. Stephens & Associates on development of the draft Sustainable Groundwater Management Criteria. Discussion centered on whether the potential dewatering of shallow wells in some parts of the basin might be considered "reasonable," as well as observations and simulations of surface water/groundwater interaction at the basin boundaries.
- A brief update from Daniel B. Stephens & Associates on progress related to the Monitoring Well Project.

Communication and Outreach – A third Stakeholder Workshop was held on December 9 to discuss historical and current water budgets for the basins. Dr. Jason Sun presented an update on United's groundwater model, including expert panel review, input parameters, and model validation.

GSP preparation – Consultant DBS&A have reported progress on various work products in support of GSP development and noted the availability of a web-based data management and mapping system that includes well construction information and available water level and water quality records for wells within the Piru and Fillmore basins.

Modeling – Staff have completed the hydrostratigraphic conceptual model for the Santa Paula, Fillmore, and Piru basins, and have completed calibration of the active domain of United's numerical groundwater flow model for the base period years 1985-2015. Staff has completed a model update for the years 2016-2019 and performed a model validation exercise. Staff has worked with Ventura County Watershed Protection District staff to use their existing HSPF surface water flow model to simulate runoff from the upper Santa Clara River watershed for future model runs in support of area Groundwater Sustainability Agencies. Staff has completed the work required to apply climate change factors to historical streamflow records, as required to simulated future hydrology in the study area. The initial future run applying 2070 climate change factors has been completed and the preliminary results are being evaluated by staff.

Mound Basin Groundwater Sustainability Agency (MBGSA)

Staff continue to participate in MBGSA activities supporting SGMA compliance and GSP development for the Mound basin, as follows:

Board of Directors meetings –

The MBGSA Board held a regular meeting on December 17. Notable topics of discussion included:

- The Board received a status update from Executive Director Bryan Bondy on GSP development and schedule.
- The Board discussed options for establishing sustainable management criteria (minimum thresholds and measurable objectives) for the water quality sustainability indicator.

GSP preparation – United staff continue to compile and review data to support preparation of the Mound basin GSP, in general accordance with United's agreement with the MBGSA. United is currently modeling potential future groundwater levels and flows in Mound Basin, and developing draft text, tables, and figures in support of the water-budget section of the GSP.

Santa Paula Basin Technical Advisory Committee (TAC)

Staff continue to participate in the Santa Paula basin TAC in support of the Santa Paula Basin Judgment and in conformance with SGMA reporting requirements for adjudicated basins, as follows:

- Staff are preparing a draft version of the Santa Paula Basin Annual Report for 2020.

- The TAC meeting scheduled for June 2020 has been postponed; a specific date and time have not been selected yet. It is anticipated that the Technical Working Group of the TAC will meet prior to the next TAC meeting, to discuss the current status of United's groundwater flow model expansion and how the effectiveness of the proposed yield-enhancement measures might be forecasted using the model. The Technical Working Group is also expected to discuss the "Triggers" proposal/memorandum at an upcoming meeting.