EKI TECHNICAL PRESENTATION #30

COSUMNES SUBBASIN GSP DEVELOPMENT

21 JULY 2021

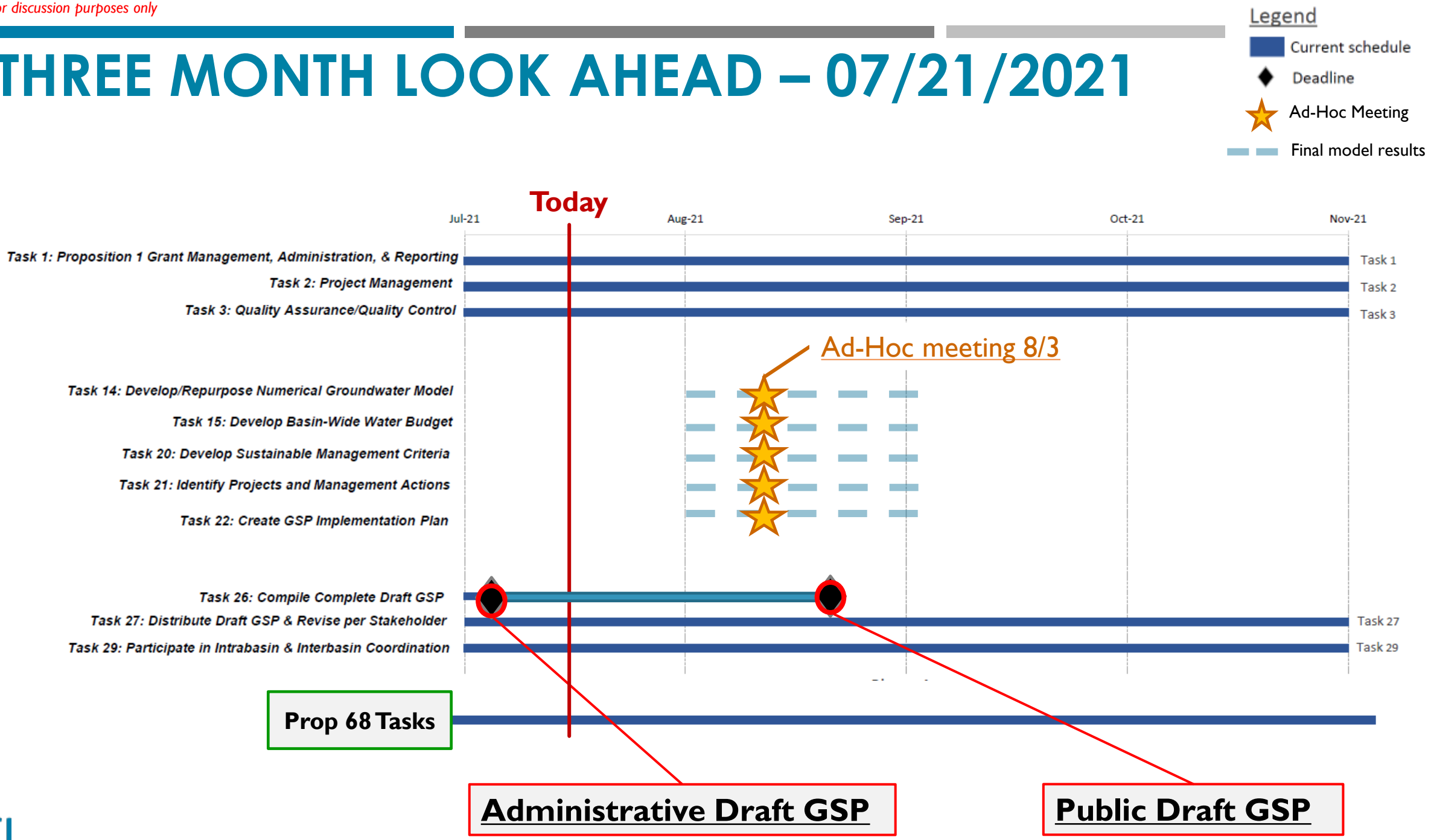
COSUMNES SUBBASIN WORKING GROUP MEETING

eki environment & water

AGENDA ITEM #2
GSP TECHNICAL WORK PROGRESS AND PLANNING

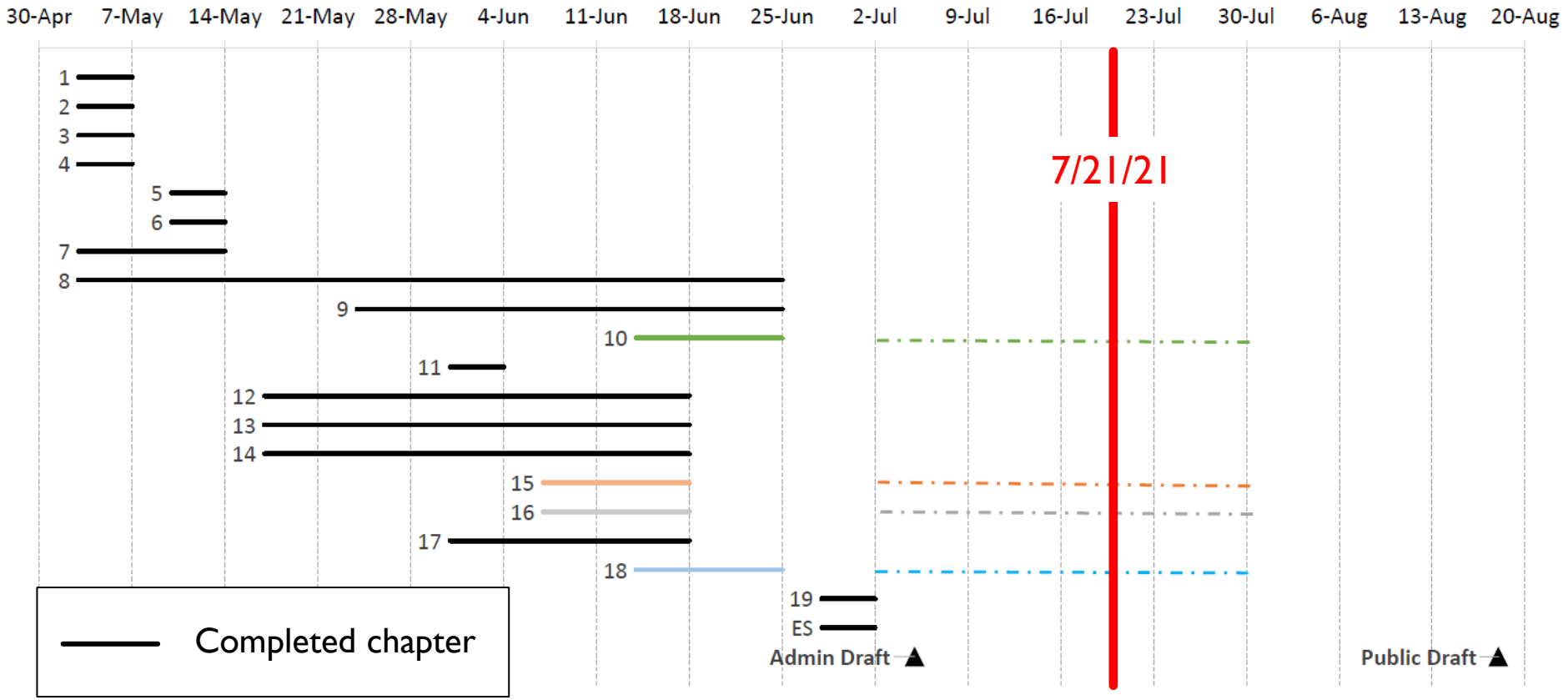
- 3-month, GSP Preparation Timeline
- GSP Review Draft
  - Water Budget Update
  - Sustainable Management Criteria Update
- GSP comments
  - GSA questions and comments on Administrative Draft
  - Issues to resolve for Public Draft GSP

THREE MONTH LOOK AHEAD – 07/21/2021



GSP UPDATES (1 OF 2)

GSP preparation timeline



Chapter	Chapter Title
1	Purpose of the Groundwater Sustainability Plan
2	Sustainability Goal
3	Agency Information
4	GSP Organization
5	Description of the Plan Area
6	Introduction to Basin Setting
7	Cosumnes Basin Data Management System
8	Hydrogeologic Conceptual Model
9	Current and Historical Groundwater Conditions
10	Water Budget Information
11	Management Area
12	Introduction to Sustainable Management Criteria
13	Sustainability Goal
14	Undesirable Results
15	Minimum Thresholds
16	Measurable Objectives and Interim Milestones
17	Monitoring Network
18	Projects and Management Actions
19	Plan Implementation
ES	Executive Summary

Public Draft scheduled for release 8/18/2021

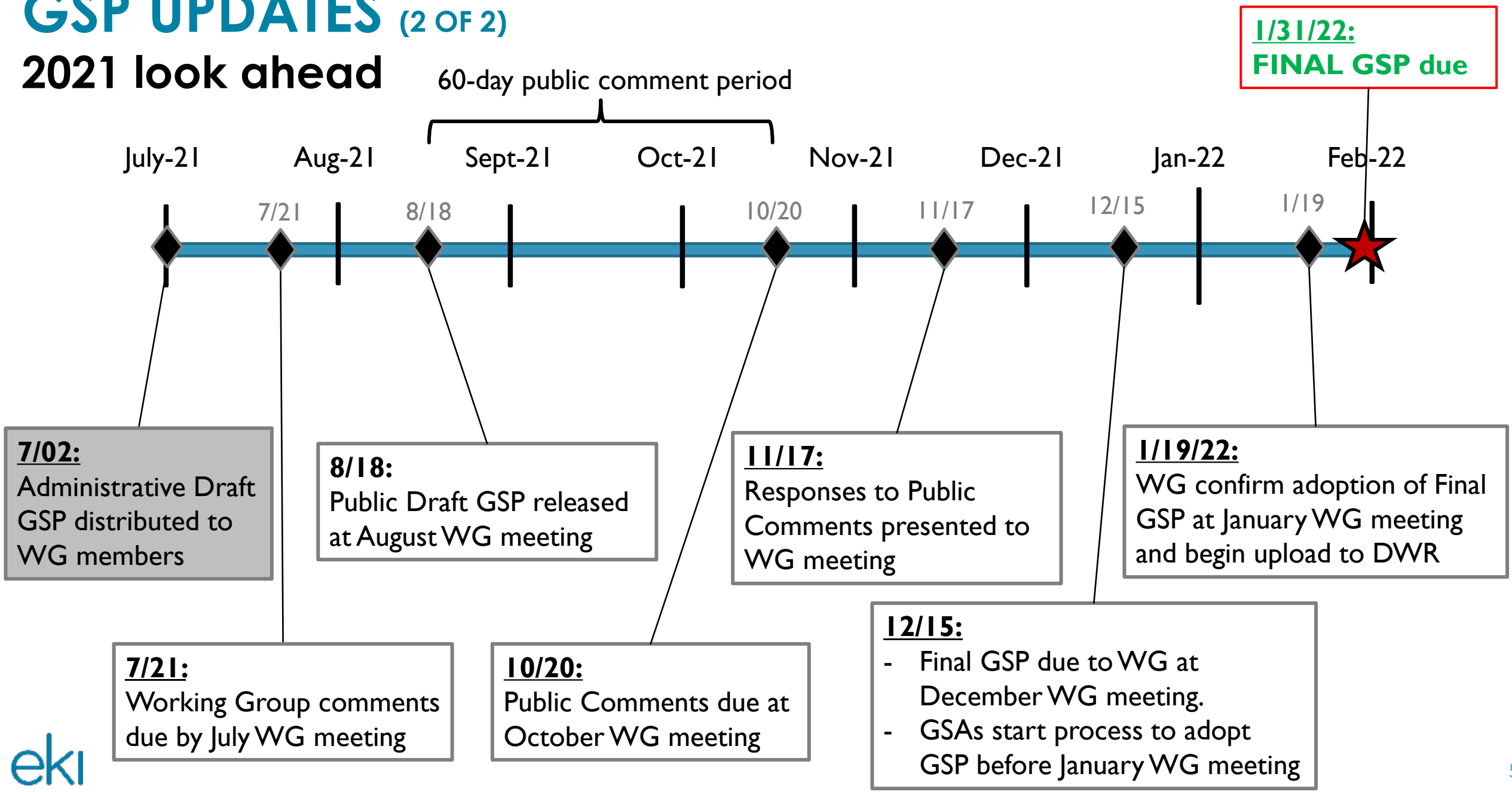
Finalize GSP chapters for Admin Draft

Finalize model runs for Public Draft GSP

Respond to Admin comments and update Draft GSP

GSP UPDATES (2 OF 2)

2021 look ahead



UPDATED COSUMNES SUBBASIN WATER BUDGETS (1 OF 3)

Sensitivity of CoSANA simulated water budget to climate change (Projected Conditions 50-year annual averages)

Budget Term (values rounded to nearest 100 AFY)	PCBL (2022-2072)			
	Historical Climate	Climate Change (ARBS CT)	Climate Change I (Dry Extreme Warming)	Climate Change II (Wet Moderate Warming)
Deep Percolation	108,000	101,500	94,500	120,300
Rivers and Creeks	16,900	21,100	24,500	15,500
Net Cross-Boundary Flow	1,800	4,500	9,000	-1,100
Wells	-128,300	-137,300	-144,300	-131,100
Storage Change	**-1,700**	**-10,200**	**-16,300**	**3,600**

UPDATED COSUMNES SUBBASIN WATER BUDGETS (2 OF 3)

Combined CoSb and SASb PMAs projected to provide almost 9,000 AFY storage benefit

Budget Term	Average Annual Flow (AFY)	
	PCBL	PCBL w/ PMAs[a]
Deep Percolation	108,000	116,600[b]
Rivers and Creeks	16,900	5,100
Net Cross-Boundary Flow	1,800	5,900
Wells	-128,300	-120,500[c]
Storage Change	-1,700	7,100
Undesirable Results (years)	6[d]	0

Notes:

a) Includes SASb PMAs.

b) Includes deep percolation from Flood-MAR.

c) PMA-related extractions are the net of water produced for sale from land fallowing and injection with dry wells.

d) With climate change (ARBS) and w/o PMAs, the number of years with URs increase from 6 to 24.

UPDATED COSUMNES SUBBASIN WATER BUDGETS (3 OF 3)

Most of the storage benefit (~70%) is provided by Flood-MAR projects

PMA	Proportional Contribution to Average Annual Storage Benefit
#1 OHWD Flood-MAR	8%
#2 SAFCA Flood-MAR (fields)	46%
#2 SAFCA Flood-MAR (dry wells)	23%
#3 OHWD CR Flow Augmentation	<1%
#4 City of Galt RW	3%
#5 Volunteer Land Fallowing	~0[a]
SASb PMAs (including Harvest Water)	19%
SUM	100%
Average Annual Storage Benefit	~8,700 AFY

*a) Land Fallowing includes net storage benefit (~0 AFY) from demand reduction **and** recovery of saved water for sale.*

UPDATED RMW-WL SMCs (1 of 5)

SMC Revisions

- Revised MTs based on modeled data ensuring long-term trends at each well are calculated over the same time periods.
- Changes in MT range from +57 to -42 feet.
- Increased Margin of Operational Flexibility (MoOF) from 5 to 10 ft.

MoOF = MT - MO

RMW	MT	MT Change	MoOF
WL1	-65	-7	10
WL2	-69	-15	10
WL3	-56	NA	10
WL4	-39	27	15
WL5	-84	NA	14
WL6	-78	2	27
WL7	-38	11	10
WL8	-48	NA	12
WL9	-89	NA	14
WL10	-32	16	10

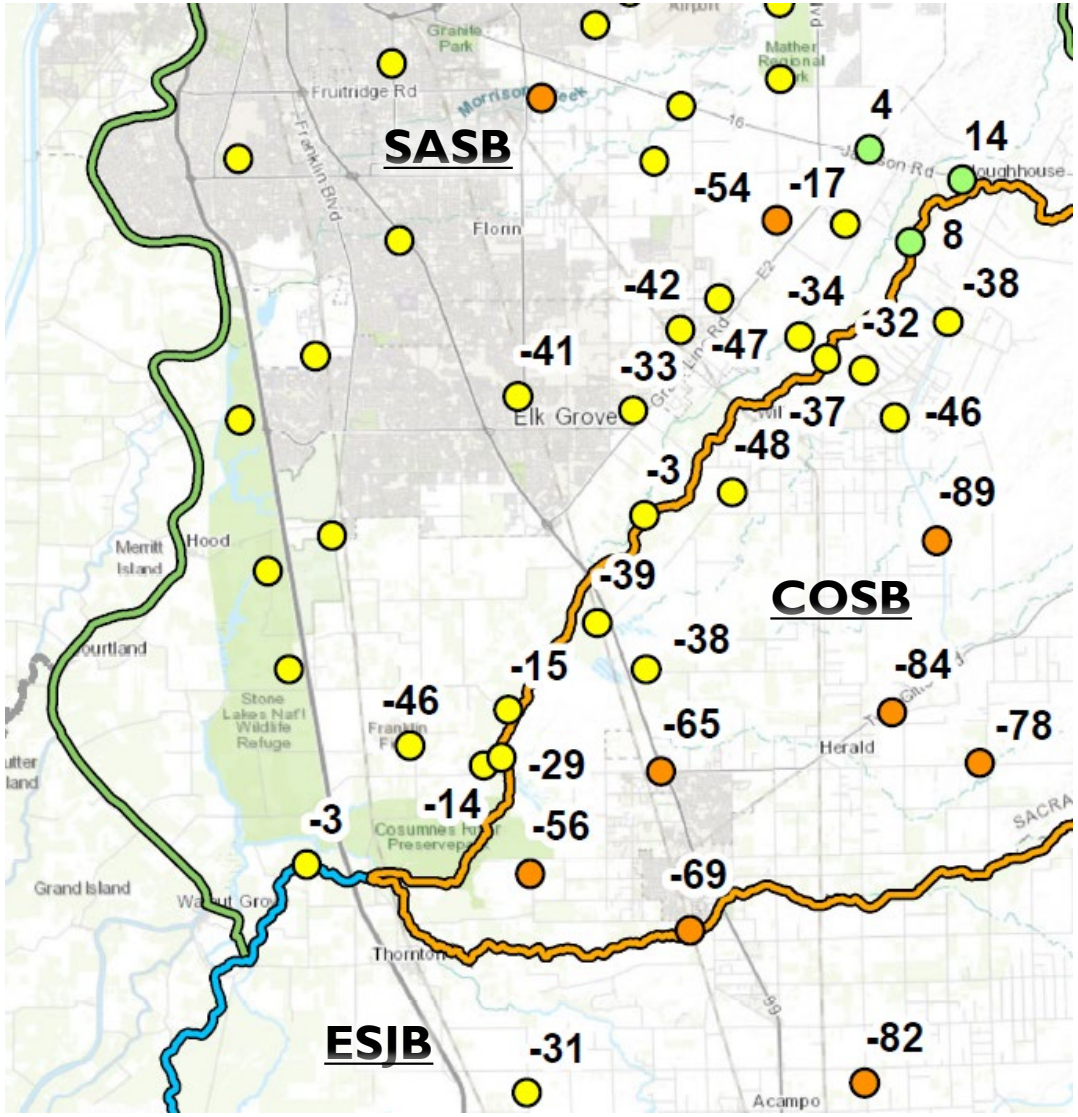
RMW	MT	MT Change	MoOF
WL11	-38	33	10
WL12	85	-20	21
WL13	-46	25	10
WL14	169	-6	10
WL15	232	1	18
WL16	119	57	22
WL17	259	8	10
WL18	89	4	27
WL19	185	-42	10
WL20	161	-26	10

Notes:
MT change is between Final MTs and MTs reported in SMC technical memo (Draft TM #11, Mar 2021).
NA denotes replacement wells that did not have original MTs for comparison.

UPDATED RMW-WL SMCs (2 OF 5)

Cosumnes/South American/ESJ Subbasins

- MT and MO approaches for each Basin are different but appropriate for their basin-specific groundwater conditions.
- Resulting values near the Basin boundaries are consistent with historical conditions (see analysis on slide 12).
- MTs and MOs are not expected to hinder neighboring basin sustainability efforts.

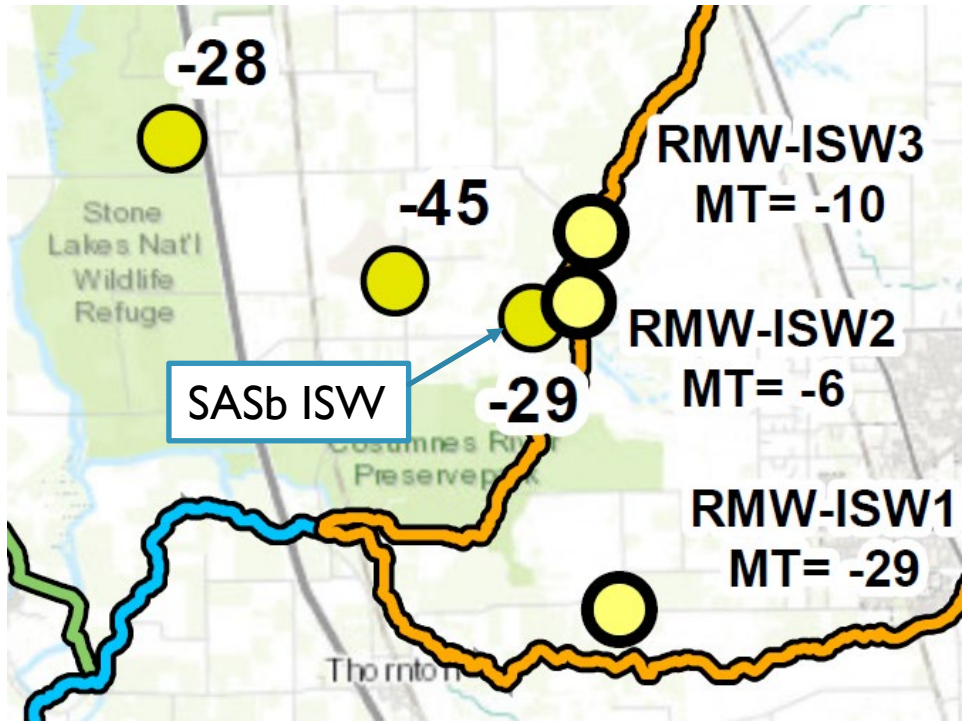


UPDATED RMW-WL SMCs (3 OF 5)

Cosumnes RMW-ISW MTs & MOs are shallow (higher) than the SASb ISW MTs & MOs.

	SASb ISW	RMW-ISW2	RMW-ISW3
MT	-29	-6	-10
MO	-13	-3	-4

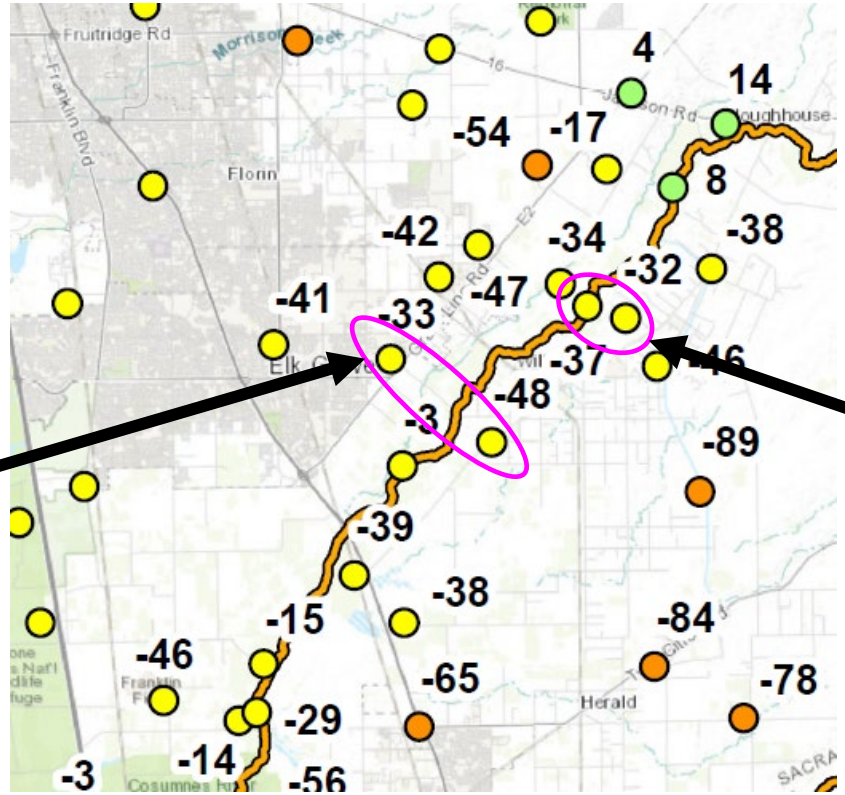
- South American Subbasin has only one ISW well along the Cosumnes River
- MT approaches:
  - SASb: lowest groundwater level elevation after 1/1/2015
  - CoSb: highest seasonal low groundwater elevation during below-average rainfall years from the start of monitoring through 2015
- MO approaches:
  - SASb: 50th percentile of observed groundwater elevations after 1/1/2015 (average of spring and fall levels)
  - CoSb: range in seasonal-low elevations over the period of record through 2015 added on top of the MT



UPDATED RMW-WL SMCs (4 OF 5)

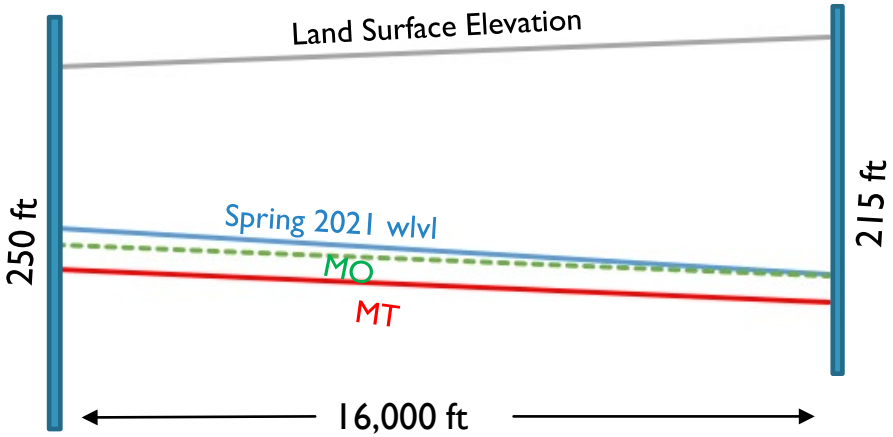
CoSb RMW-WL MTs and MOs are lower than the SASb WL MTs and MOs

- MT approaches:
  - SASb: lowest groundwater level elevation after 1/1/2015 (similar to CoSb MOs)
  - CoSb: Projected 20-year water level based on long-term trends for wells with negative trends; or historic low groundwater level for wells with positive trends.



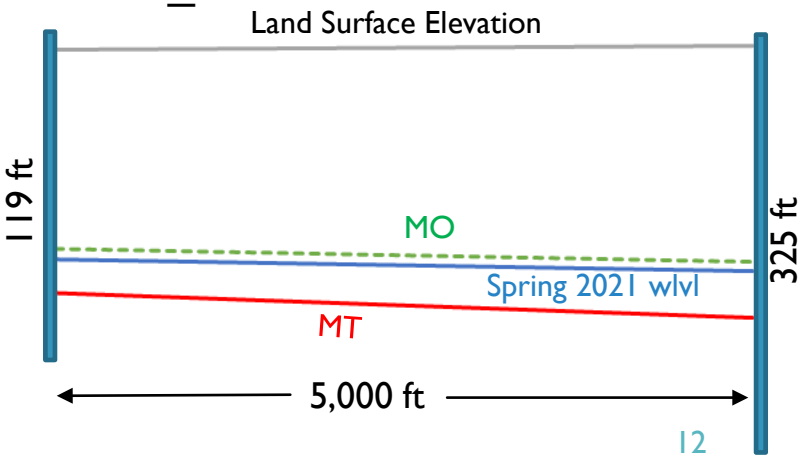
- MO approaches:
  - SASb: average post-2015 groundwater level
  - CoSb: Fall 2015 groundwater leve elevation.

384150N1213239W001 — RMW-WL8



CoSb MTs and MOs are lower than SASb, but values are consistent with the difference in the water level conditions of each Basin.

ACR_13 — RMW-WL10

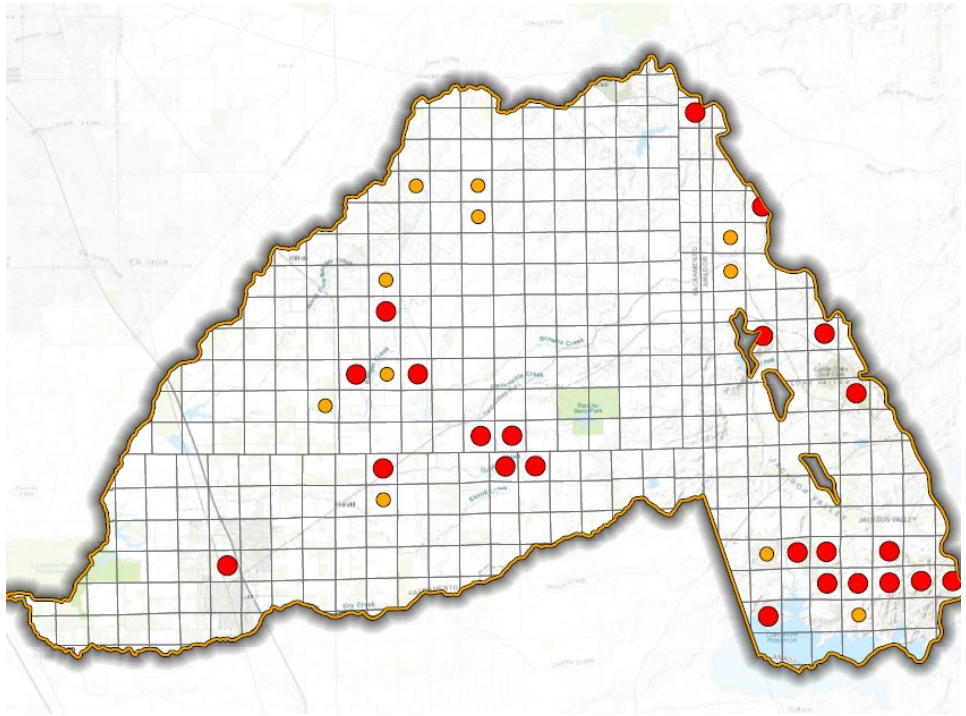


UPDATED RMW-WL SMCs (5 of 5)

Updated Well Impact Analysis

- Well impacts decreased with the updated MTs and MOs
  - Partially dewatered wells decreased by 122 wells
  - Fully dewatered wells decreased by 46 wells

Well Impact Condition	Wells Impacted at MT Level	
	Number	% of Total
Partially Dewatered	80	3.4%
Fully Dewatered	43	1.8%



UPDATED RMW-ISW SMCS

SMC Revisions

- Revised MTs based on modeled data ensuring long-term trends at each well are calculated over the same time periods
- Changes in MT range from +35 to -6 feet
- Added shallow RMW in "conservatively assumed GDE area" located in the Foothills
  - MO based on Fall 2015 WLE (DTW ~ 10 ft)
  - MT set at 10 ft below the MO (DTW of 20 ft) to ensure water levels stay 30 ft of land surface
- Prop 68 monitoring wells provide potential future ISW RMW sites for GDE areas in the Plain

RMW	MT	MT Change	MoOF
ISW1[D]	-33	-4	5
ISW2[I]	-6	0	3
ISW3[I]	-10	0	6
ISW4[D]	-19	15	5
ISW5[D]	78	35	5
ISW6[D]	-31	-6	5
ISW7[G]	247	NA	10

Notes:
"D" denotes well in the disconnected reach.
"I" denotes well in the assumed interconnected reach.
"G" denotes well in mapped GDE area.
"MT" change is between Final MTs and MTs reported in SMC technical memo (Draft TM #11, Mar 2021).
"NA" denotes replacement wells that did not have original MTs for comparison.

NEXT STEPS

- KJ Drilling install meters (7/22).
- EKI respond to GSA comments on admin draft GSP to finalize Public Draft GSP (8/18).
- GSAs to finish CEQA analysis for proposed monitoring well sites (ASAP).

COMMENTS ON ADMIN DRAFT GSP

- GSA comments on the Admin Draft GSP are due **today!**
- Any questions or comments on the Admin Draft GSP?
- Approach to resolve issues before release of the Public Draft GSP?
- Process for collecting and reviewing public comments on Draft GSP?

THE END