UPPER VENTURA RIVER GROUNDWATER AGENCY

Upper Ventura River
GROUNDWATER AGENCY
SUSTAINABLE MANAGEMENT

MAY 13, 2021

PREFACE TO ITEMS 10B & 10C

- SGMA allows 20 years to achieve sustainability
  - UVRGA does not need to meet the SMC overnight
- The proposed SMC should be viewed as a starting point
- We have important data gaps that need to be addressed
- SGMA requires GSAs to adaptively manage the basins
  - SMC and actions to meet them will evolve as more is learned
- The proposed SMCs are based on the best available data and information
- The proposals are based on where the science has led the GSP Development Team.

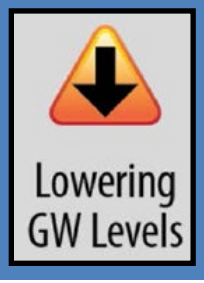
SUSTAINABLE MANAGEMENT CRITERIA

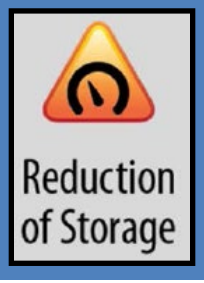
- The following criteria must be developed for each applicable sustainability indicator:
  - Undesirable Results
    - Significant and unreasonable effects for sustainability indicators caused by groundwater conditions occurring throughout the basin that the GSA seeks to avoid
  - Minimum Thresholds
    - Quantitative metrics indicating significant and unreasonable effects likely exist in a particular area
  - Measureable Objectives
    - Quantitative metrics that provide a margin of operational flexibility to prevent minimum threshold exceedances

UPPER VENTURA RIVER GROUNDWATER AGENCY

Upper Ventura River
GROUNDWATER AGENCY
SUSTAINABLE MANAGEMENT

MAY 13, 2021
ITEM 10B
GW LEVELS & STORAGE SMC





CASITAS Municipal Water District

We Serve Water

MEINERS OAKS WATER DISTRICT
VENTURA COUNTY SINCE 1949

COUNTY OF VENTURA CALIFORNIA

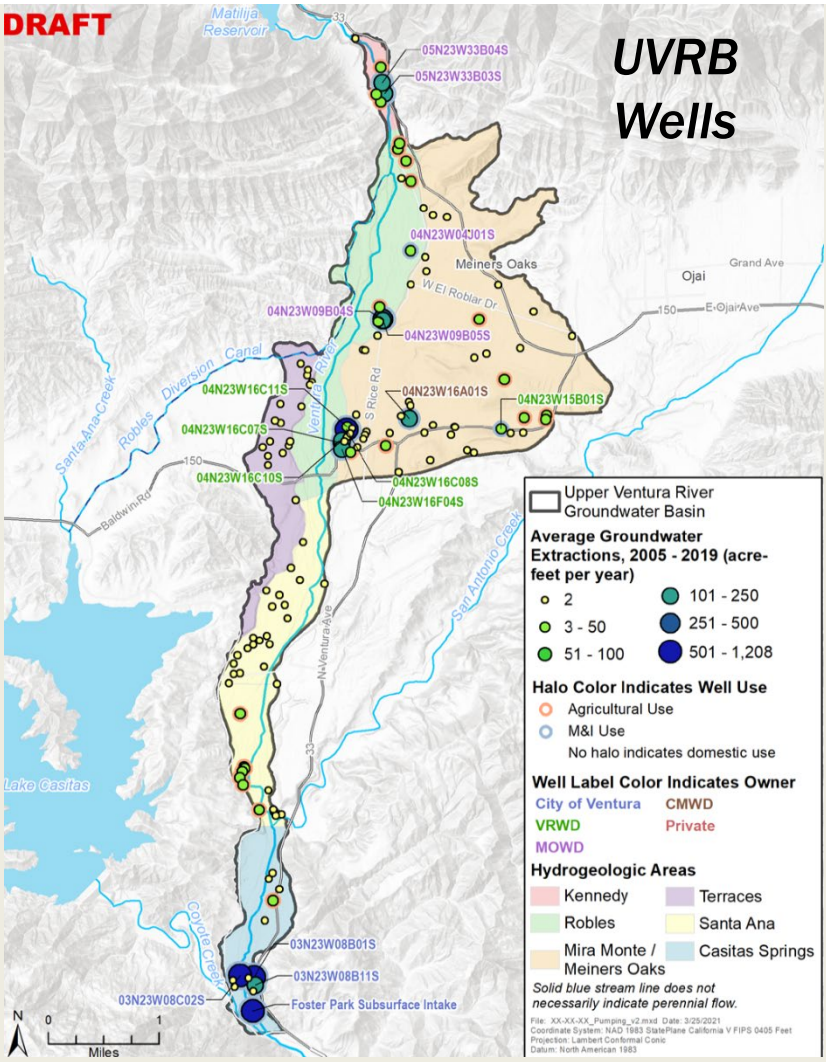
VENTURA WATER

WHAT DOES SGMA REQUIRE THE GSA TO ADDRESS?

- Groundwater levels:
  - *Significant and unreasonable depletion of supply (i.e. the beneficial users who rely on groundwater supply)*
- Groundwater Storage:
  - *Directly related to groundwater levels – same URs as groundwater levels*

BENEFICIAL USERS

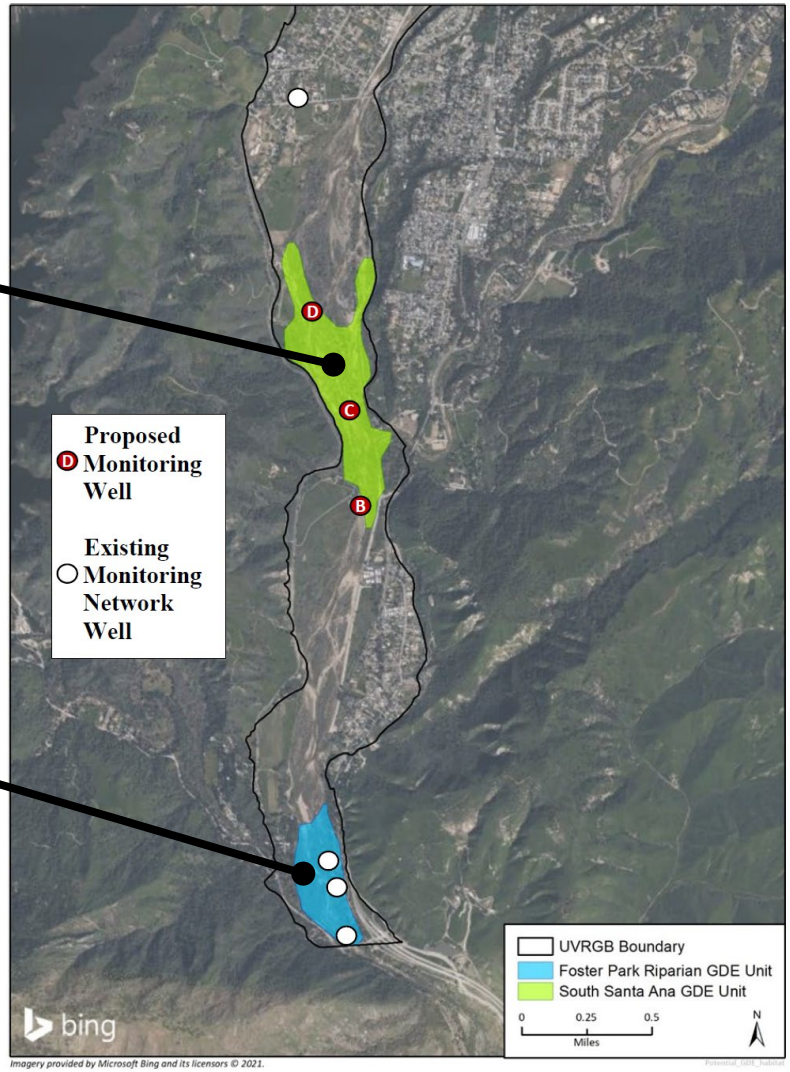
- *Municipal water supply*
- *Agricultural water supply*
- *Domestic water supply*



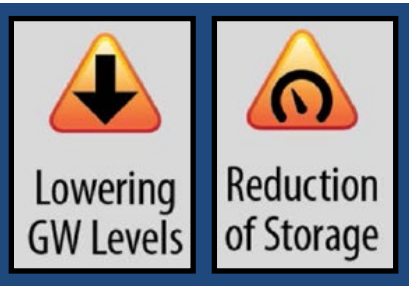
BENEFICIAL USERS

Riparian Groundwater Dependent Ecosystems (GDEs)

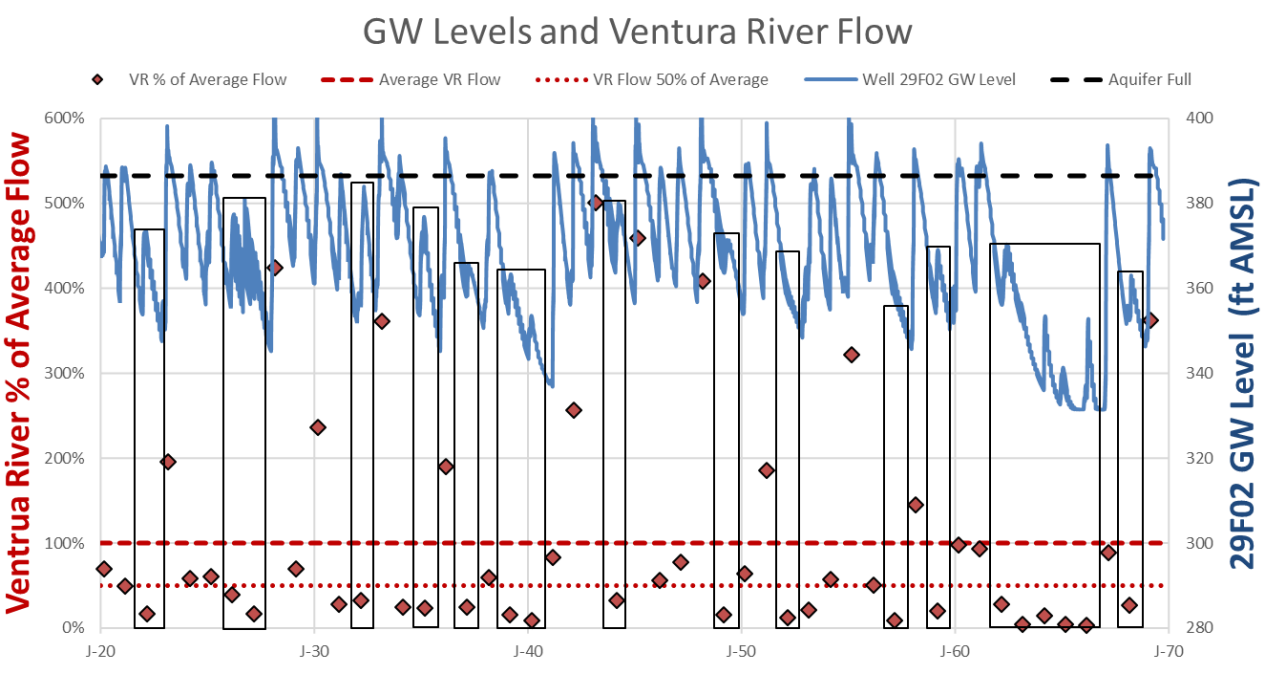
Two riparian GDE units retained after screening groundwater dependency



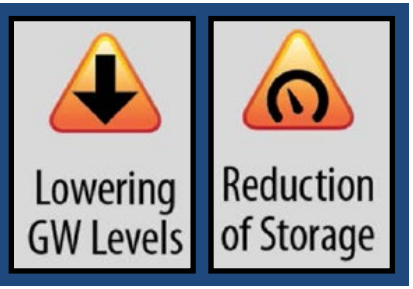
WHAT DO WE KNOW?



- Basin refills in years when Ventura River flow is ~>=50% of average flow
- Potential for significant and unreasonable effects related to pumping most likely to occur during periods of low GW levels

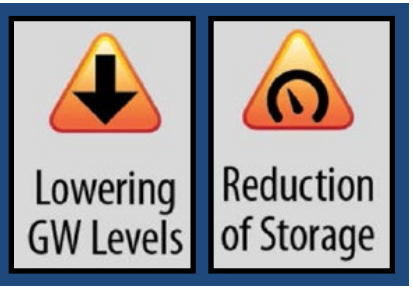


WHAT DO WE KNOW?



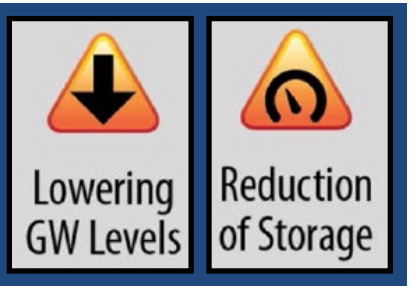
- Pumping Effects on Beneficial Users:
  - Water Supply Wells
    - No reported S&U effects on well users at low GW levels (adequate supply or used alternative supplies)
    - Wells may be impacted at lower GW levels
  - Riparian GDEs
    - Experienced stress during periods of low groundwater levels historically but rebounded without a noticeable change in the predominant plant species.
    - If pumping causes more prolonged stress, potential permanent or prolonged impacts could occur, which may be significant and unreasonable.

WHAT DON'T WE KNOW?



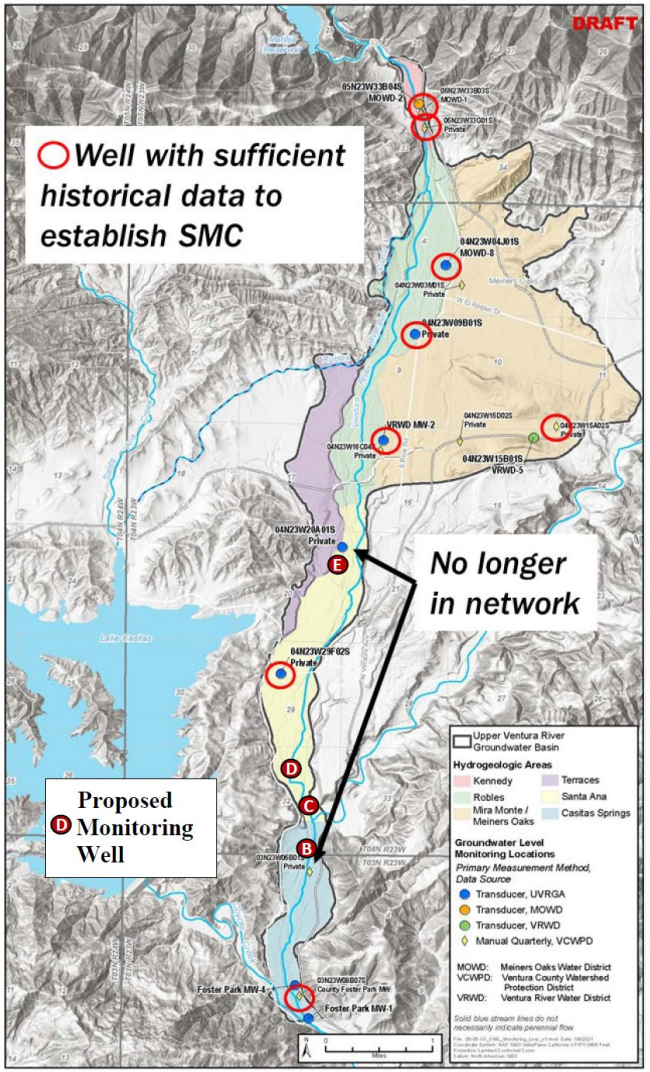
- Domestic well owner participation has been limited – we may not have heard about potential S&U effects
  - Recommend post-GSP domestic well owner survey
- GW levels within and upstream of the South Santa Ana Riparian GDE Unit
- Impact of proposed GW level and storage SMC on achieving measurable objective for the ISW depletion sustainability indicator
  - Need more GW level and stream flow data and modeling

ADDRESSING GW LEVEL DATA GAPS

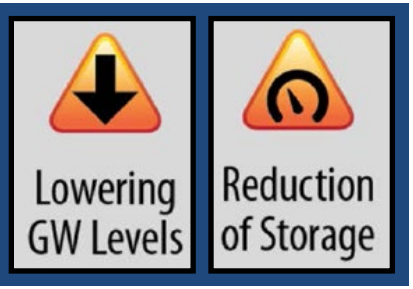


- Sites B and C monitoring GW levels within the South Santa Ana Riparian GDE Unit straddling the San Antonio Creek confluence.

- Sites D and E monitor groundwater levels and flow entering South Santa Ana Riparian GDE Unit



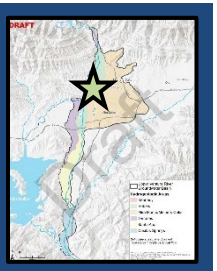
WHAT IS PROPOSED?

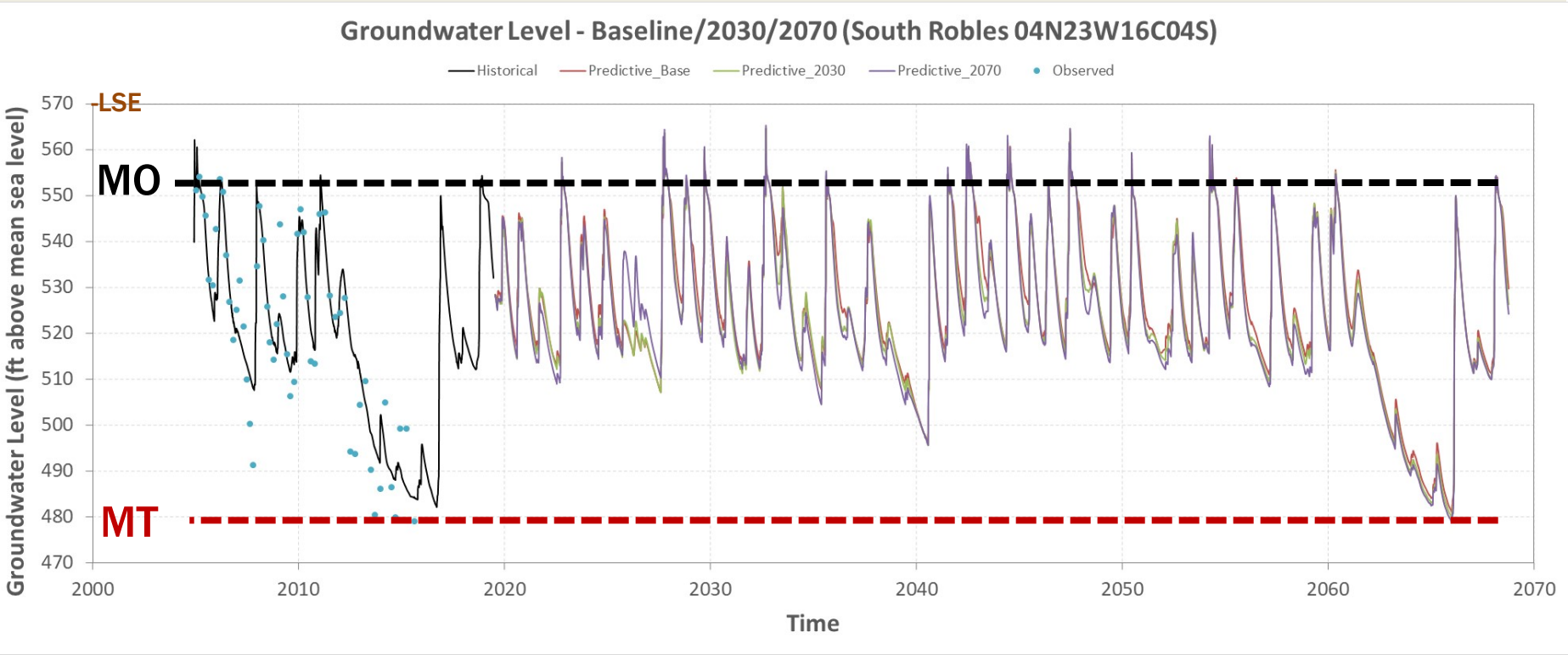


- Minimum Thresholds: Conclude that, because significant and unreasonable effects on beneficial users have not been observed historically, ***preventing undesirable results can be achieved by setting at minimum thresholds at historical low GW levels.***

- Measurable Objectives: Ensure the basin continues to refill under conditions seen historically.
  - MOs = typical high GW level historically observed in years when aquifer fills
  - MO usually should be met with spring high GW level when VR flow is > 50% of mean

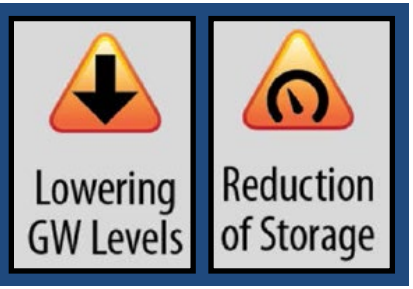
EXAMPLE SMC: SOUTHERN ROBLES AREA WELL





DRAFT

WHAT IS PROPOSED?



- Undesirable results must be defined quantitatively as:

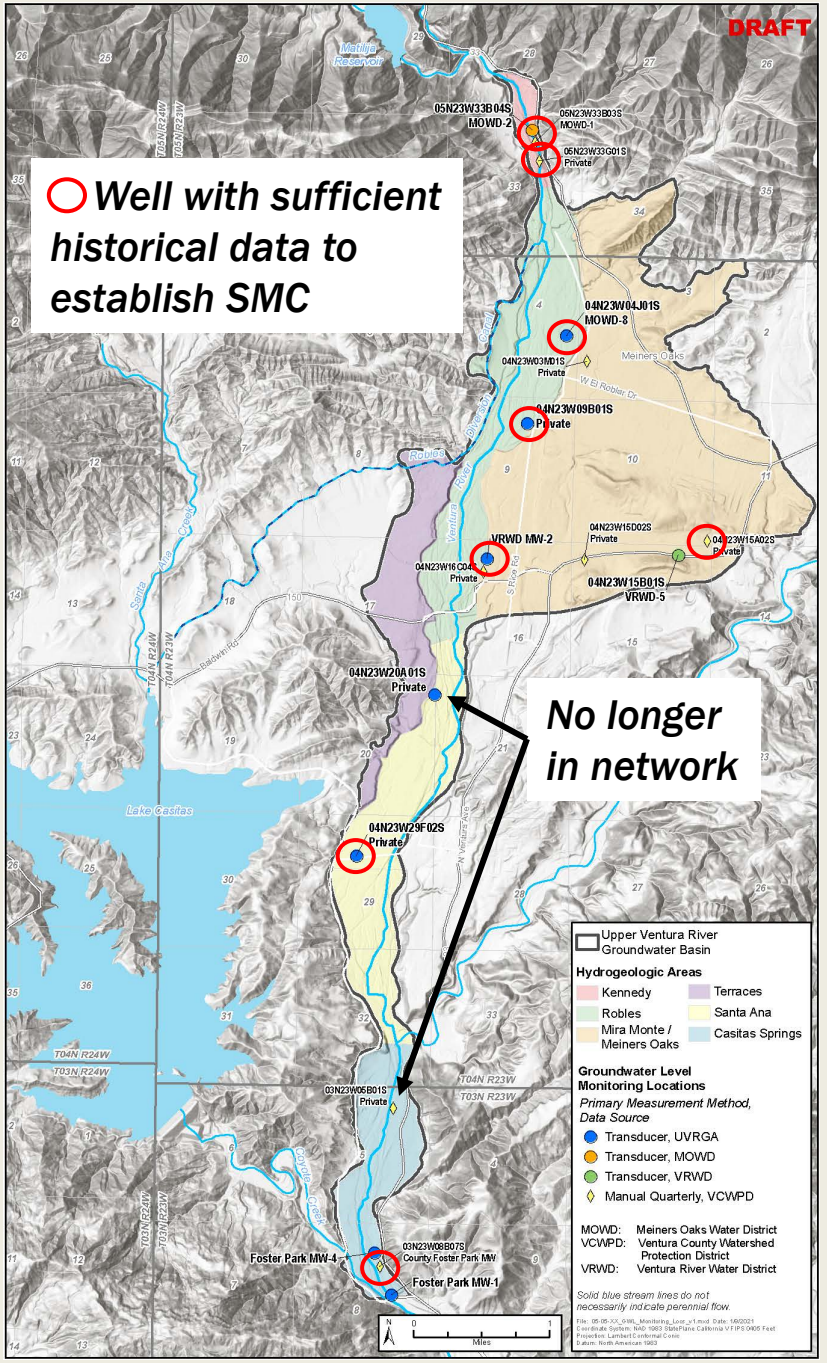
  "The combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin."

- The following slides explain the proposed approach for quantitatively defining URs

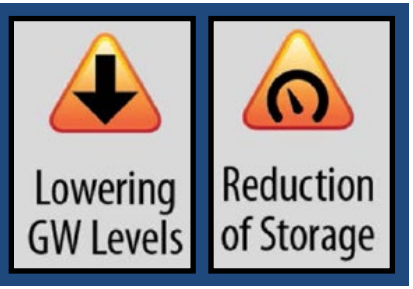
Degraded Quality

GROUNDWATER LEVEL MONITORING LOCATIONS

- *15 wells*
- *8 wells have sufficient historical data to establish SMC*
- *Gaps in monitoring network to be addressed during GSP implementation*

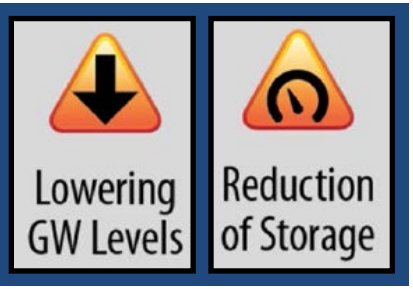


WHAT IS PROPOSED?



- Undesirable Results:
  - The well located in the Mira Monte area is not representative – (screened in bedrock)
  - Proposed defining undesirable results as occurring when groundwater levels are below MT in the 7 wells located outside of the Mira Monte Area

SMC IMPLEMENTATION

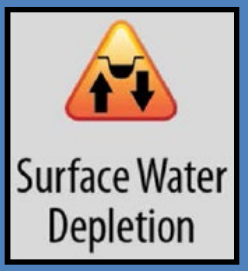


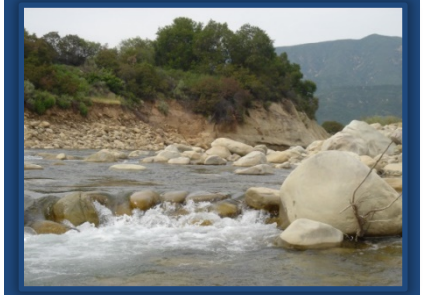
- MOs are expected to be met without GSP projects or management actions
- MTs may be exceeded, but infrequently
  - Not required to meet MTs until 2042
- Recommend further analysis and planning after GSP adoption:
  - Additional monitoring (GW levels and vegetation)
  - Domestic well survey
  - Update modeling
  - Assess impact on addressing ISW Depletion SMC
  - Revisit SMC in 1st 5-year GSP update

UPPER VENTURA RIVER GROUNDWATER AGENCY

Upper Ventura River
GROUNDWATER AGENCY
SUSTAINABLE MANAGEMENT

MAY 13, 2021
ITEM 10C
DEPLETION OF ISW SMC





CASITAS Municipal Water District

We Serve Water

MEINERS OAKS WATER DISTRICT
VENTURA COUNTY SINCE 1949

COUNTY OF VENTURA CALIFORNIA

VENTURA WATER

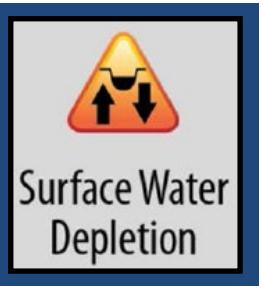
WHAT DOES SGMA REQUIRE THE GSA TO ADDRESS?

- *Significant and unreasonable adverse impacts on beneficial uses of the surface water*

BENEFICIAL USERS

- *Diversions*
  - *Municipal diversions*
  - *Agricultural diversion*
- *Aquatic GDEs*
- *Recreation*

WHAT DO WE KNOW?



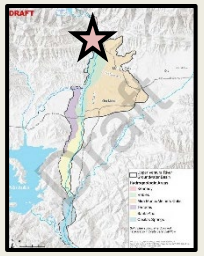
- SGMA requires management of ISW depletion volumes or rates caused by pumping
- UVRGA is only responsible for ISW depletion, not the total rate of stream flow
- Estimated ISW depletion from modeling
  - Comparison of baseline 50-yr future project simulations performed with and without pumping

DRAFT

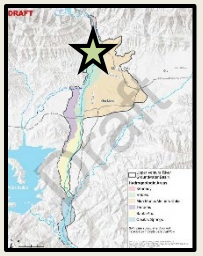
DIVERSIONS

Surface Water Depletion

- Rancho Matilija MWC (Kennedy Area)



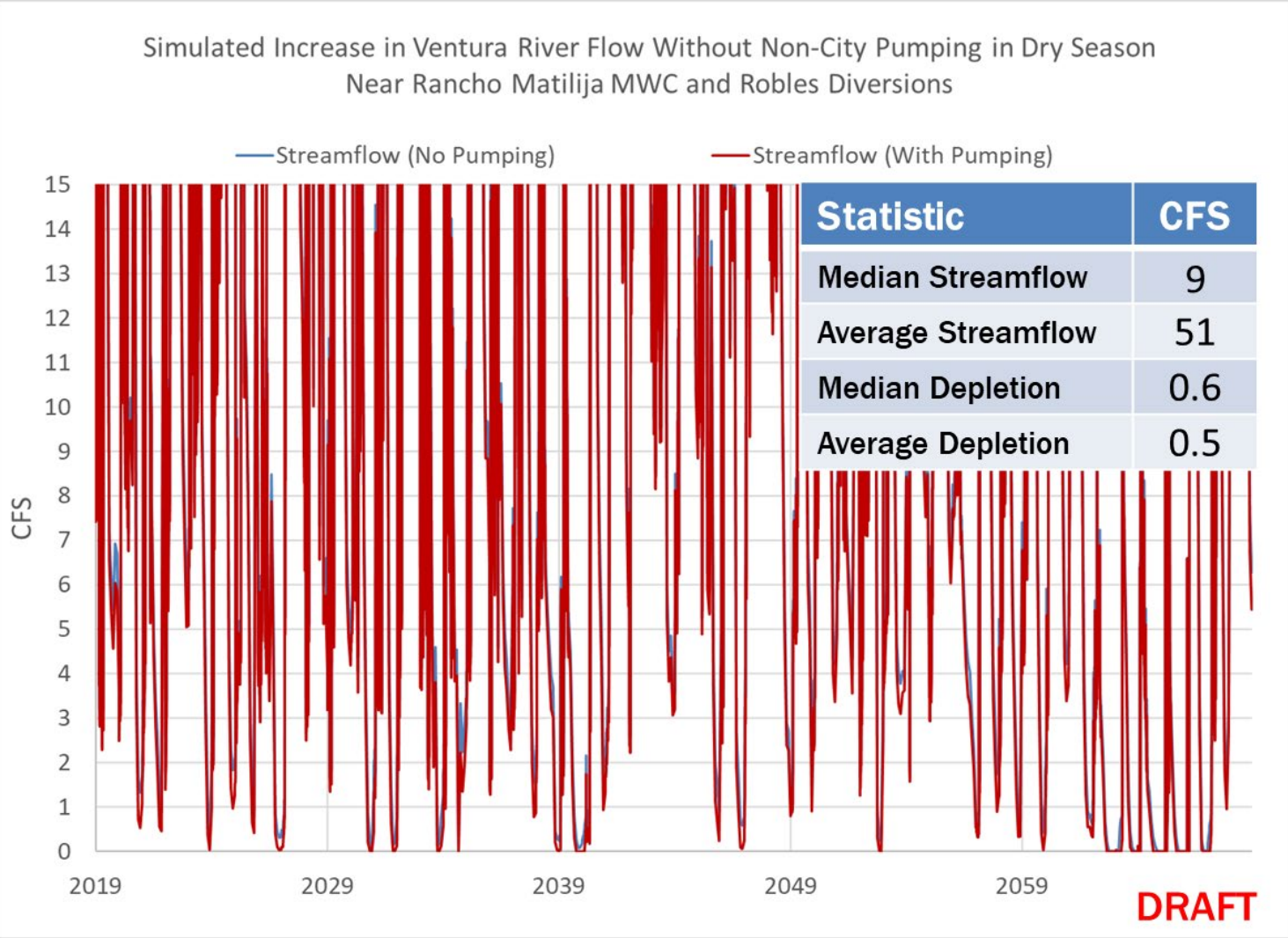
- Robles Diversion (Robles Area)



- Downstream of Basin:
  - Two small abandoned diversions (N/A)

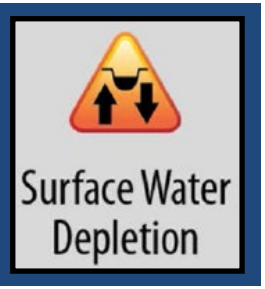
DIVERSIONS
WHAT DO WE KNOW?

Surface Water Depletion



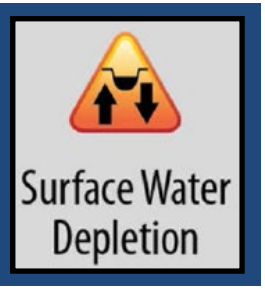
Statistic	CFS
Median Streamflow	9
Average Streamflow	51
Median Depletion	0.6
Average Depletion	0.5

DIVERSIONS
WHAT IS PROPOSED?



- Because estimated depletions are small, conclude there are not significant and unreasonable effects of depletion on diversions

AQUATIC GDES
WHAT DO WE KNOW?

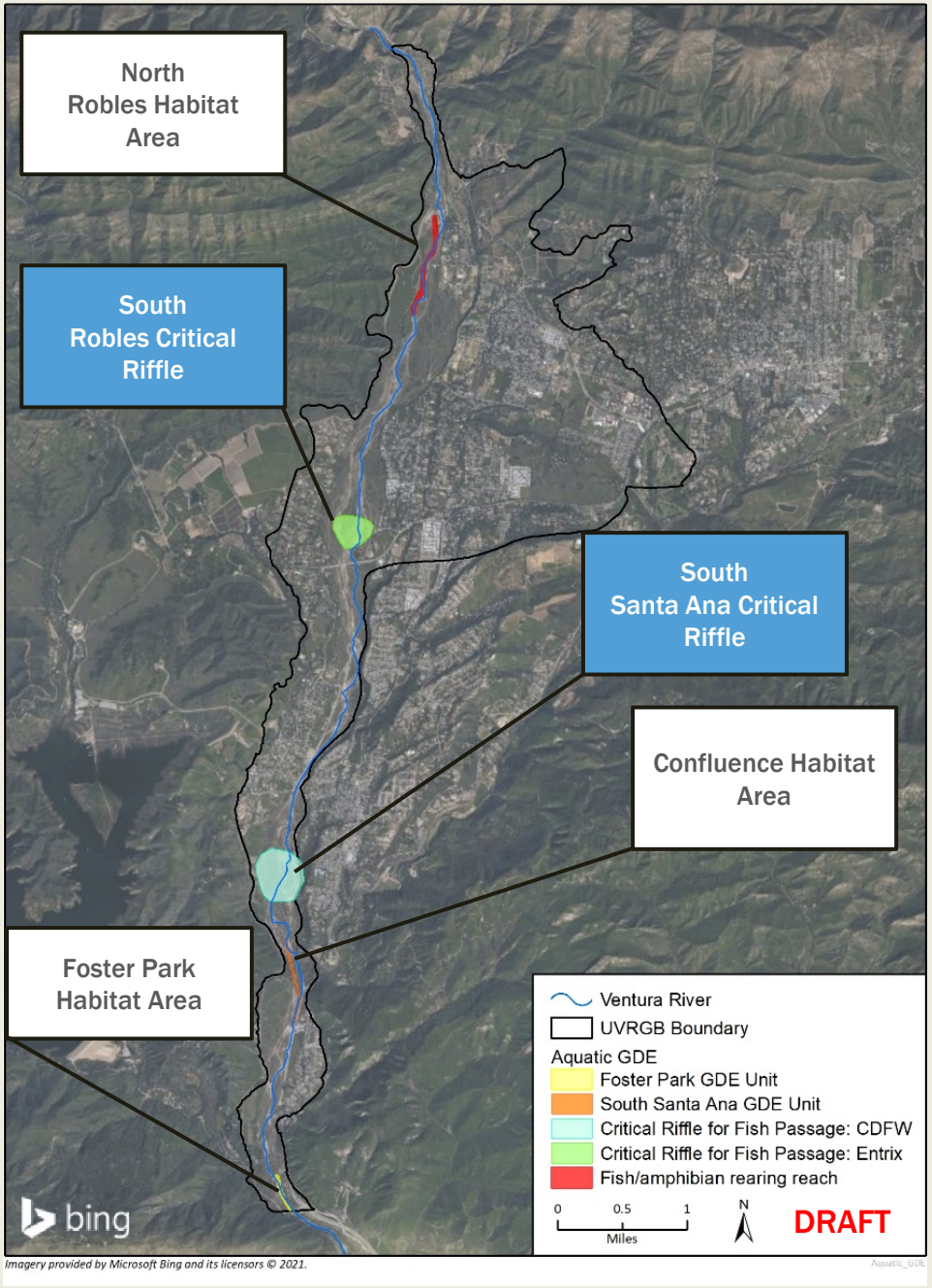


- Important Aquatic GDE areas have been identified and characterized based on available information

- Estimated depletions in each area

IMPORTANT AQUATIC GDE AREAS

- Critical Riffles
  - South Robles
  - Santa Ana
- Habitat Areas
  - North Robles
  - Confluence
  - Foster Park



MODELED DEPLETION IN AQUATIC GDE AREAS

Depletion of Potential Concern Under Certain Conditions

Robles CR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Median Flow	4.4	26	22	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	0.6
Median Depletion	<0.1	0.2	0.4	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	<0.1

Santa Ana CR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Median Flow	2.3	12	14	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	0.1
Median Depletion	<0.1	<0.1	1.2	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	<0.1

Robles HA	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Median Flow	14	32	32	12	6.3	0.9	DRY	DRY	DRY	DRY	0.5	5.2
Median Depletion	0.3	0.4	0.4	0.5	0.5	0.5	DRY	DRY	DRY	DRY	0.1	0.2

Confluence HA	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Median Flow	16	44	50	22	17	13	8.8	5.4	2.1	1.0	2.0	7.5
Median Depletion	2.2	2.0	1.9	1.3	0.9	0.8	0.9	1.2	1.4	1.1	1.5	1.8

Foster Park HA	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Median Flow	23	51	61	28	23	19	16	14	13	13	13	15
Median Depletion	4.0	7.0	7.4	7.3	7.4	7.5	7.3	7.5	7.5	7.1	6.6	5.1

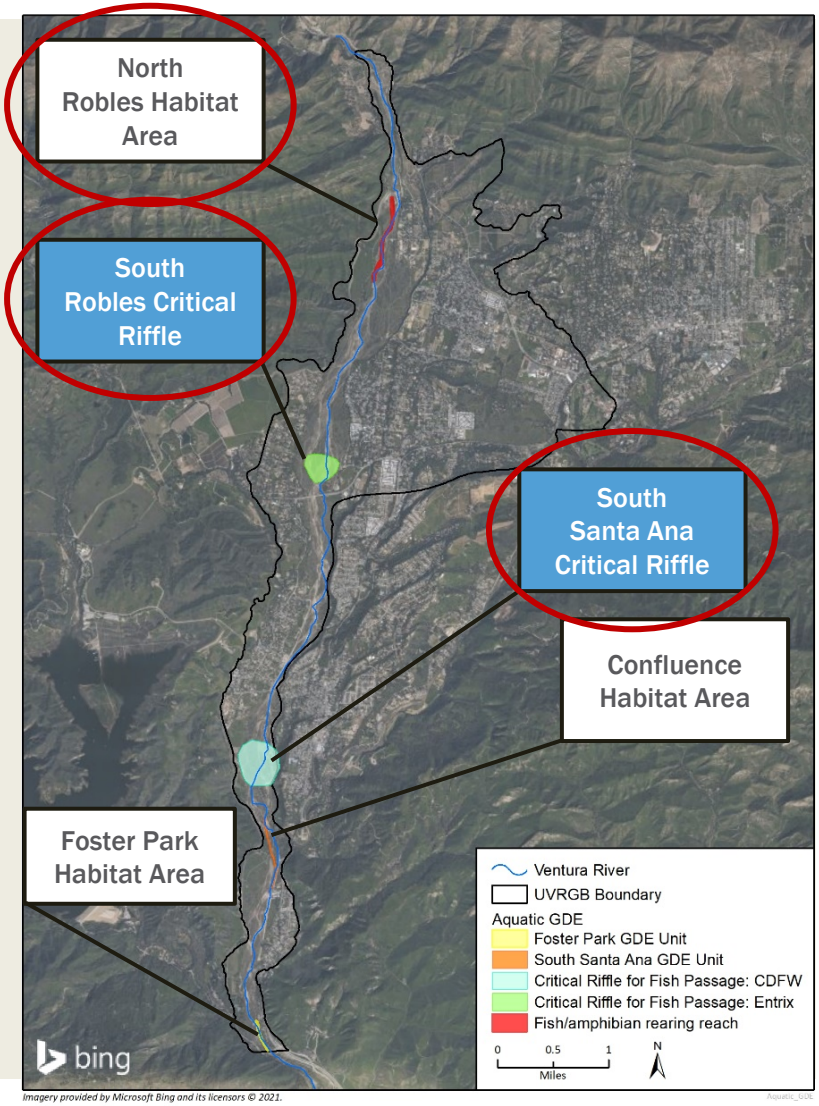
All values are cubic feet per second (cfs)

DRAFT

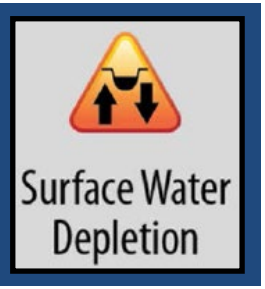
AQUATIC GDE AREAS WHAT IS PROPOSED?

Surface Water Depletion

- Because estimated depletions are small, conclude there are not significant and unreasonable effects of depletion on three of the five Aquatic GDE areas:
  - North Robles Habitat Area
  - S. Robles Critical Riffle
  - S. Santa Ana Critical Riffle



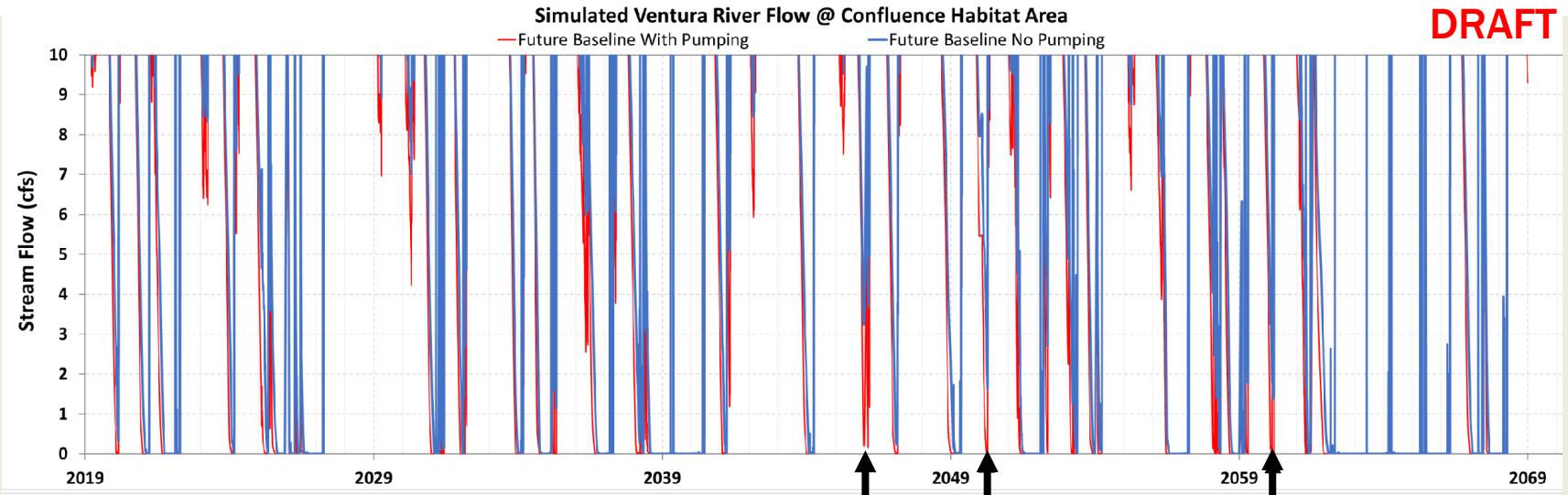
CONFLUENCE HABITAT AREA WHAT DO WE KNOW?



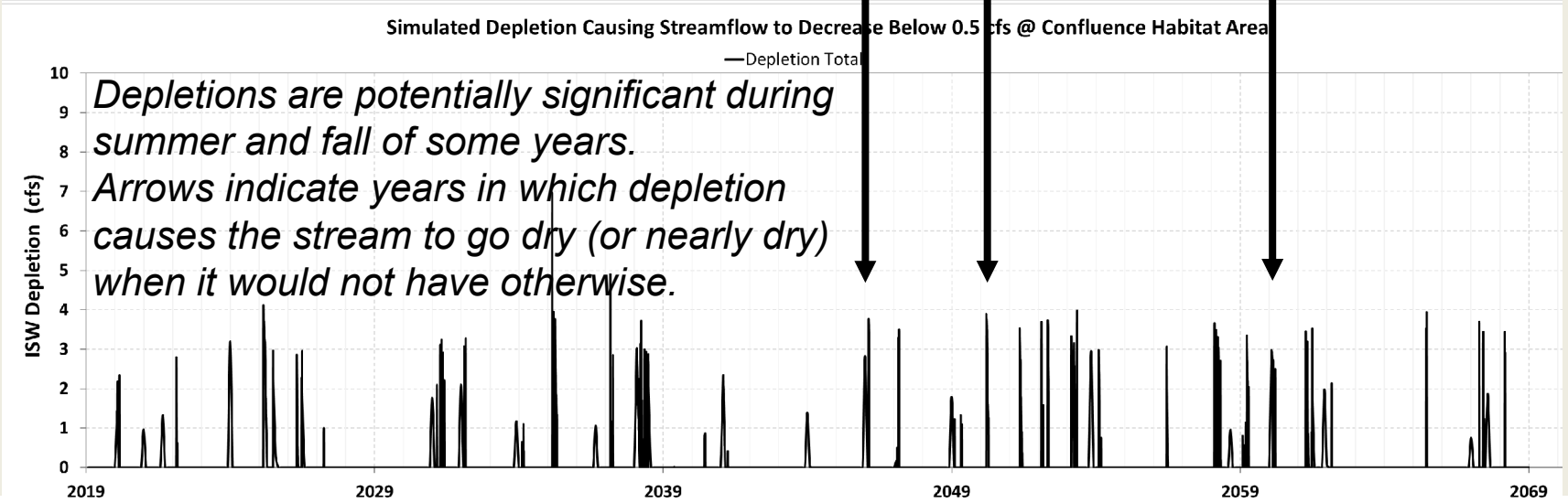
- Undepleted stream flow <0.5 cfs 29.6% of the time
- Depletion causes stream flow <0.5 cfs to increase to 37.1% of the time
  - Depletion 4,682 acre-feet (AF) or 94 acre-feet per year (AFY) on average.
- Undepleted stream flow declines to zero (no flow) in the dry seasons of many years. Depletion causes stream to go dry sooner than it would otherwise.
  - Only a few years in which depletion causes the stream to go dry (or nearly dry) when it would not have otherwise.

STREAMFLOW DEPLETION CONFLUENCE HABITAT AREA

DRAFT



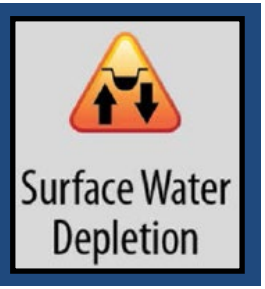
DRAFT



Depletions are potentially significant during summer and fall of some years.
Arrows indicate years in which depletion causes the stream to go dry (or nearly dry) when it would not have otherwise.

Note: Model is Daily Nov - March & Monthly April - Oct

CONFLUENCE HABITAT AREA WHAT DON'T WE KNOW?

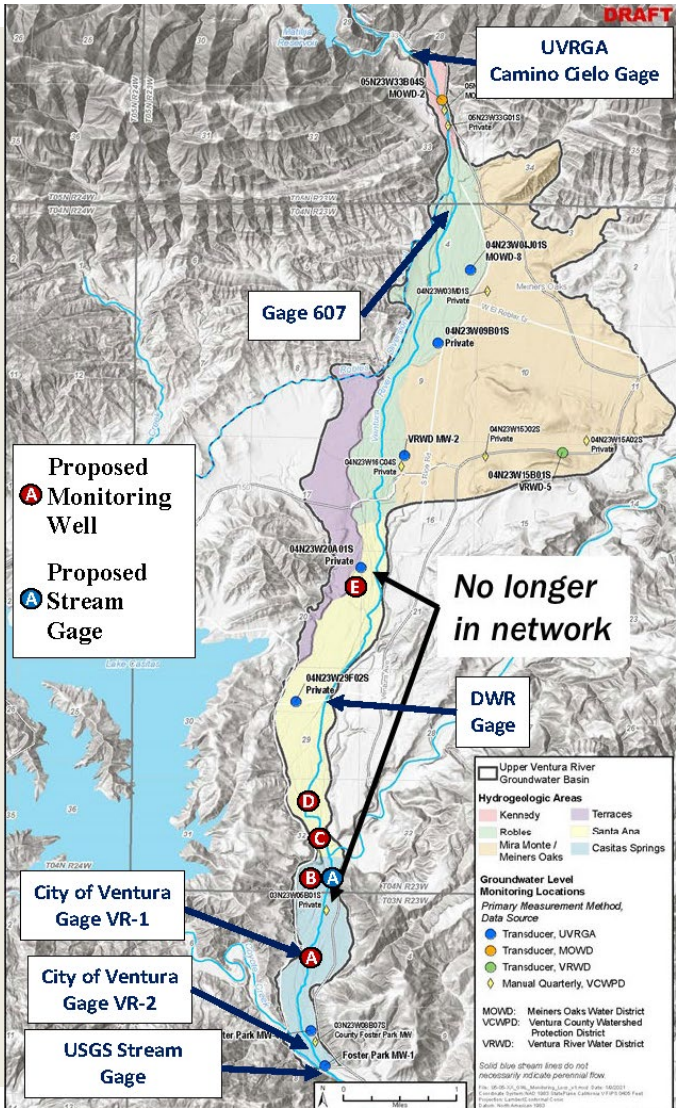


- Insufficient data to assess whether depletion effects are significant and unreasonable
  - Unknown whether aquatic species become stranded during critical periods or take refuge in perennial areas (San Antonio Creek or Foster Park)
- Groundwater levels and stream flow within the habitat area
- Uncertainty in model estimates of indirect depletion in the habitat area

CONFLUENCE HABITAT AREA WHAT IS PROPOSED?

Surface Water Depletion

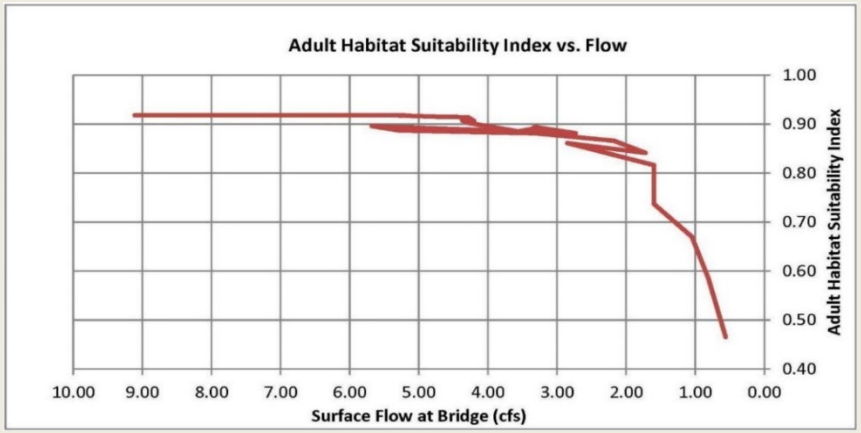
- Biological monitoring to assess whether S&U effects on aquatic GDEs occurs
- Construct monitoring wells within and upstream of habitat area
  - Sites B, C, D, & E
- Construct stream flow gage (A)
- Update modeling to better assess indirect depletion at habitat area
- Revisit need for SMC in first 5-year GSP assessment



FOSTER PARK HABITAT AREA WHAT DO WE KNOW?

Surface Water Depletion

- Best available science for understanding ISW depletion effects at Foster Park = Hopkins (2013)
- Concurrent Rainbow Trout Habitat Suitability Indices (HSI) and surface flow monitoring.
- HSI score dropped steeply at 2 cfs (measured at the Casitas Vista Road bridge) indicating significant effects

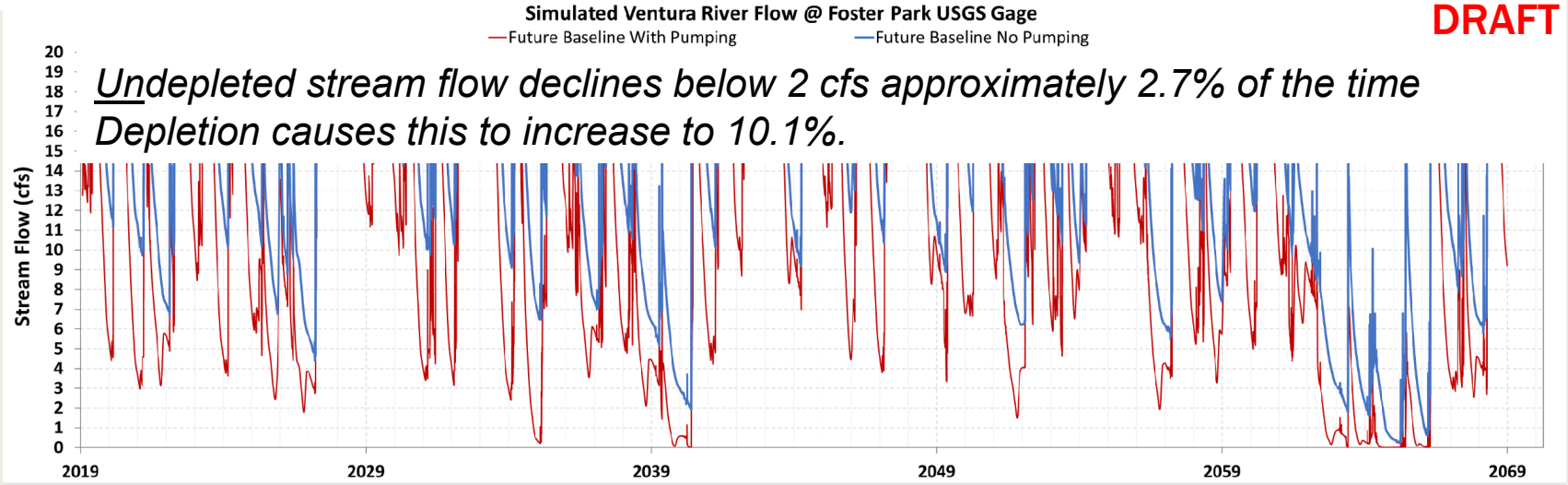


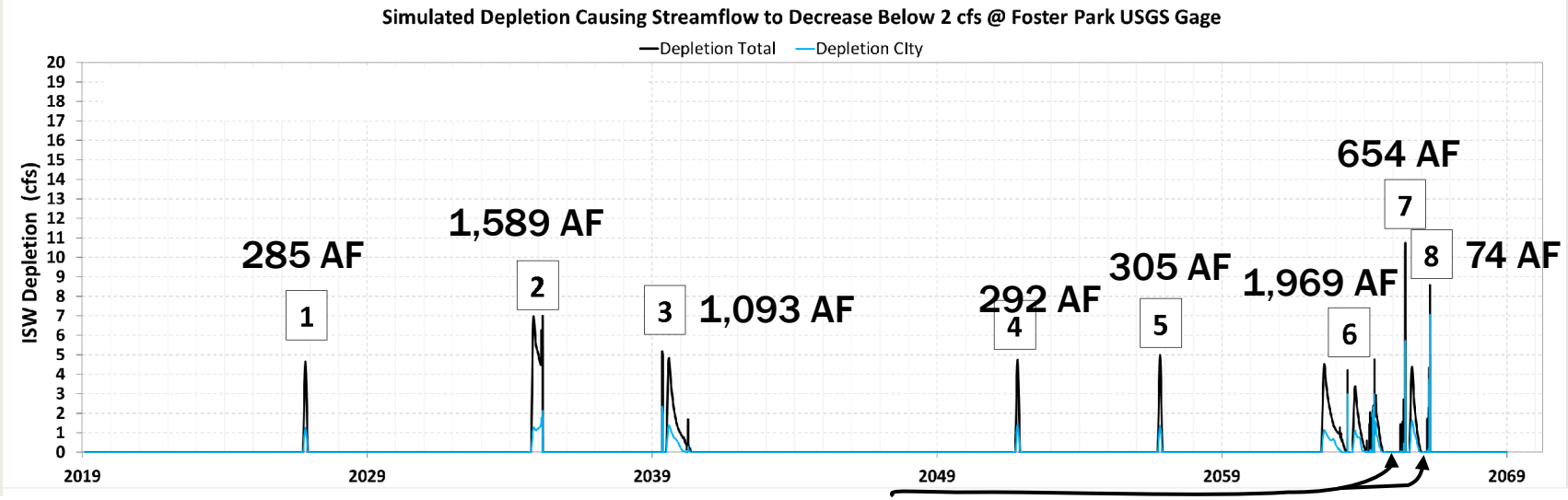
Hopkins, 2013 available at: https://uvrgroundwater.org/library/

STREAMFLOW DEPLETION FOSTER PARK HABITAT AREA

DRAFT

DRAFT

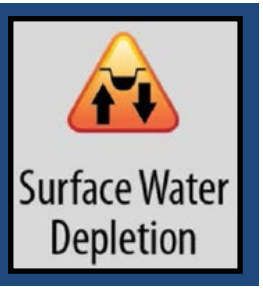




Values above do not include ~960 of depletion when undepleted flows are <2cfs

Note: Model is Daily Nov - March & Monthly April - Oct

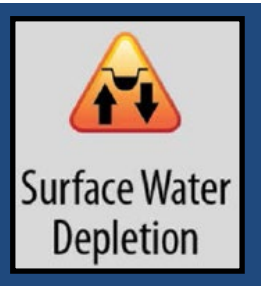
FOSTER PARK HABITAT AREA WHAT DON'T WE KNOW?



- How representative the Hopkins 2013 study is over a longer period and with different antecedent conditions
- Groundwater levels between Foster Park and upstream portions of Basin – currently only one monitoring well between Foster Park and HWY 150
- Uncertainty in model estimates of indirect depletion in the habitat area

Hopkins, 2013 available at: https://uvrgroundwater.org/library/

FOSTER PARK HABITAT AREA WHAT IS PROPOSED?



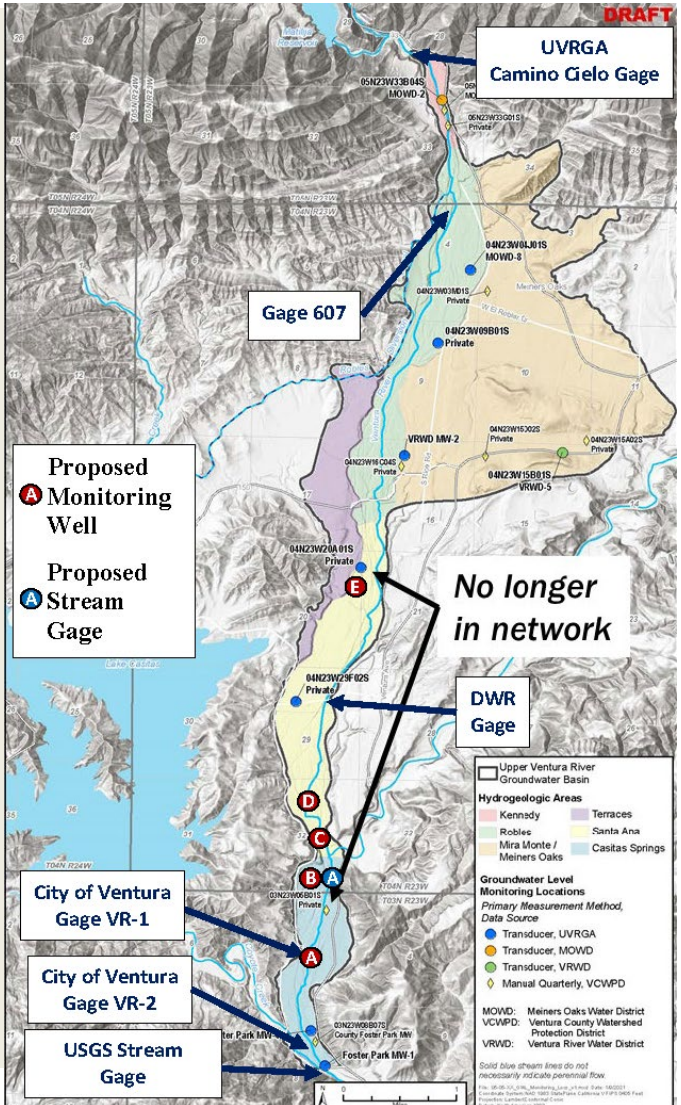
- Establish initial SCM
- Biological monitoring to assess to address uncertainties in Hopkins 2013 study (collaborate with others if possible
- Review results of City of Ventura implementation of "Foster Park Protocols" and monitoring
- Additional groundwater level monitoring via existing wells in Foster Park area
- Address groundwater level & stream flow data gaps
- Update modeling to better assess indirect depletion at habitat area
- Revisit SMC during 5-year GSP assessments

Hopkins, 2013 available at: https://uvrgroundwater.org/library/

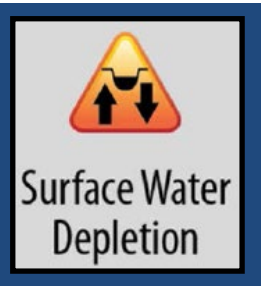
FOSTER PARK HABITAT AREA
WHAT IS PROPOSED?

Surface Water Depletion

- Data Gaps
  - Construct monitoring wells upstream of Foster Park in data gap areas (Sites A – E)
    - Couple Site A with City gage VR-1
    - Facilitate model updates to better estimate indirect depletion
  - Construct stream flow gage near confluence (Site A)
    - Understand surface water inflow to Foster Park

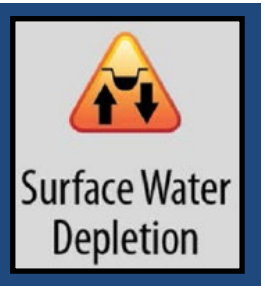


FOSTER PARK HABITAT AREA PROPOSED INITIAL ISW SMC



- Hopkins 2013 indicates potential significant and unreasonable results may occur if depletion causes depletion to or below a critical stream flow rate of 2 cfs (at USGS gage)
- Minimum Threshold based on Hopkins 2013:
  - Avoid causing stream flow to drop below critical flow (2cfs at USGS gage) when undepleted flow would not otherwise fall below 2 cfs
  - Avoid depletion when undepleted flows would be below 2cfs at USGS gage to avoid exacerbating critical conditions for aquatic species

FOSTER PARK HABITAT AREA PROPOSED INITIAL ISW SMC



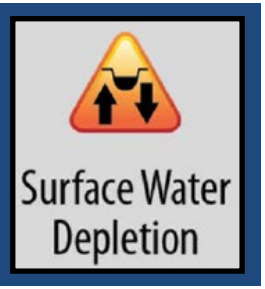
Proposed Minimum Thresholds

Undepleted Flow	Depletion Minimum Threshold
< = 2 cfs	0 cfs
>2 cfs	Undepleted flow minus 2 cfs

- Undepleted flow and depletion to be determined via modeling as provided for by SGMA

- Note: UVRGA is not responsible for maintaining 2 cfs of stream flow at Casitas Vistas Road bridge.

FOSTER PARK HABITAT AREA PROPOSED INITIAL ISW SMC



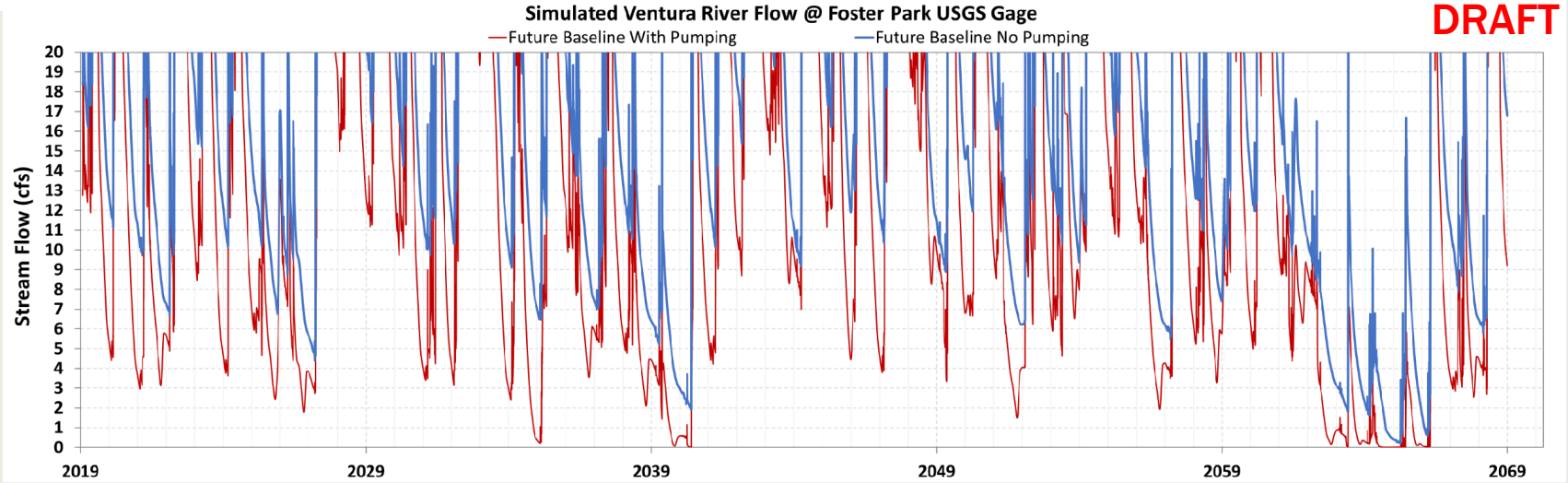
- **Measurable Objective:**
  - Same as Minimum Threshold
  - Setting the measurable objective differently than the minimum threshold would mean less water would be available for other beneficial uses
- **Interim Milestones:**

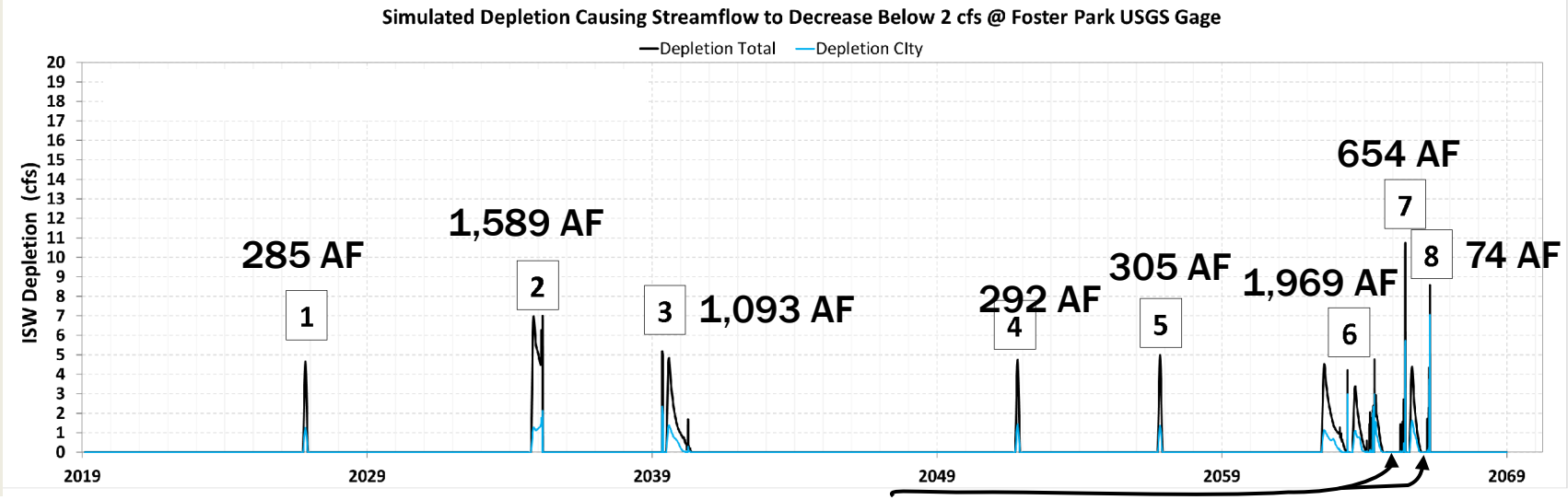
IM	Year	Measurable Objective	Depletion in Excess of Measurable Objective	Comment
1	2027	Same as Minimum Threshold	10.7 cfs	Maximum depletion rate from model simulation
2	2032		10.7 cfs	
3	2037		10.7 cfs	
4	2042		0 cfs (attain MO)	Implement project(s) or management action(s) to achieve MO

ANALYSIS OF PROPOSED SMC

Surface Water Depletion

DRAFT

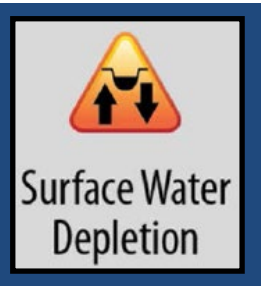




Values above do not include ~960 of depletion when undepleted flows are <2cfs

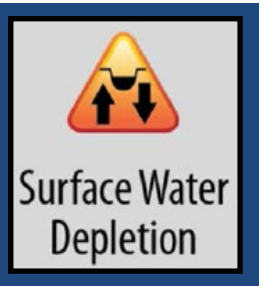
Note: Model is Daily Nov - March & Monthly April - Oct

PROPOSED SMC IMPLEMENTAION



- Modeling suggests that minimum thresholds will be exceeded 7.5% of the time
  - During multi-year dry periods
- It is anticipated that the Foster Park Flow Protocols will address direct depletion by the City of Ventura
- Measures would be needed to address indirect depletion caused by pumping wells located upstream of Foster Park.
- Proposed actions to achieve the measurable objective are outlined on next slide

OUTLINE OF PROPOSED SMC IMPLEMENTAION ACTIONS

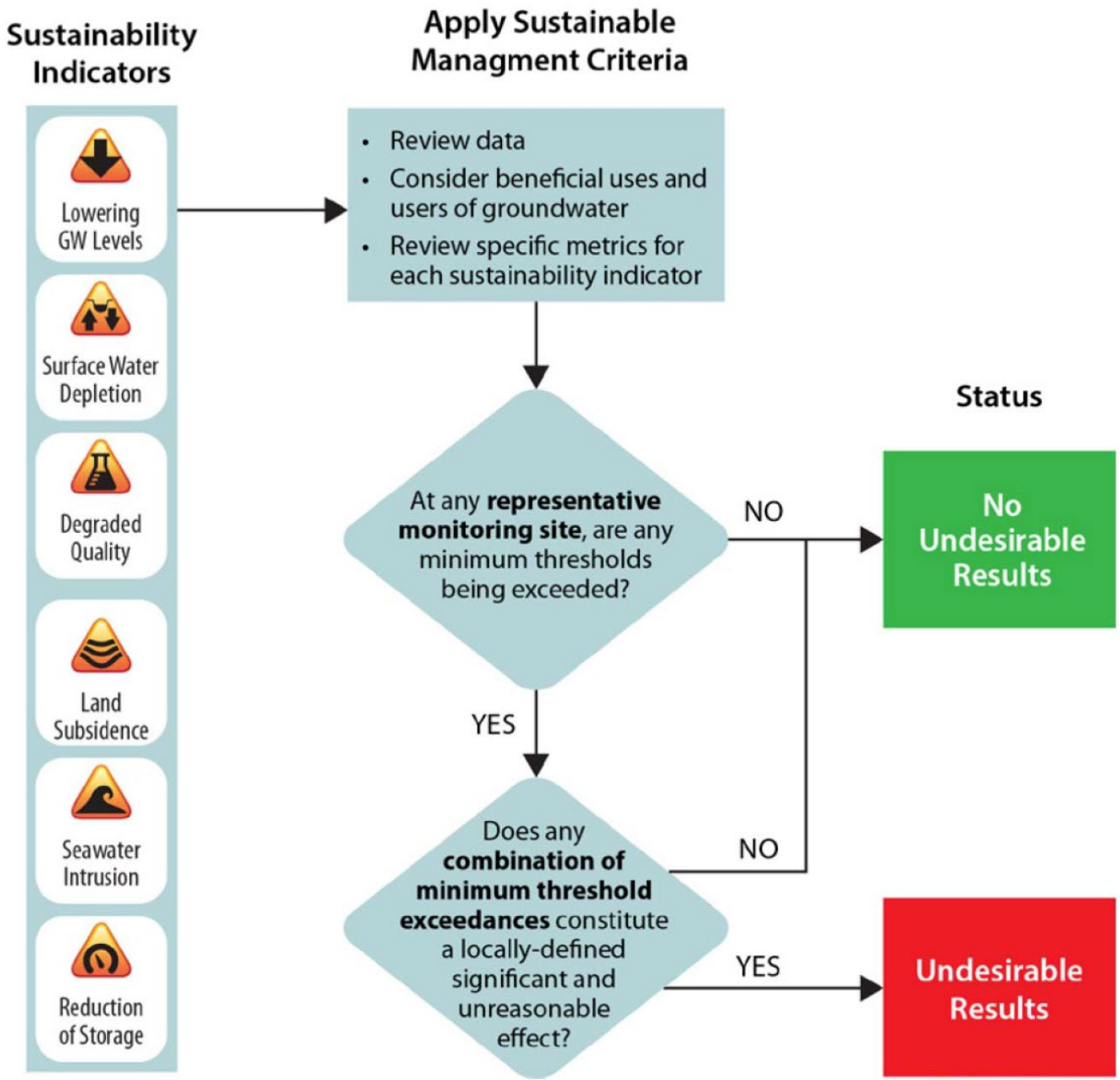


Action No.	Action Description	Milestone	Target Date
IM #1 Period: 0-5 years (2022 – 2027)			
1-1	Develop Foster Park Habitat Area Monitoring Plan - work with other entities to develop a coordinated monitoring program for the Foster Park Habitat Area	Foster Park Habitat Area Monitoring Plan and cost sharing agreements adopted by coordinating entities	1/31/2024
1-2	Initiate Foster Park Habitat Area Monitoring Program	Initiate monitoring activities; annual monitoring data published in GSP annual reports	6/30/2024
1-3	Add monitoring wells and stream gauge to monitoring networks	Access agreements or constructed monitoring wells and stream gage installation	6/30/2025
1-4	Add new monitoring wells to groundwater level and quality monitoring networks	Initiate monitoring of new wells	6/30/2025
1-5	Update numerical model calibration and ISW depletion estimates	Model update tech memo and updated depletion simulation results	6/30/2026
1-6	Begin planning for project(s) and/or management action(s) to achieve measurable objective.	Memo: preliminary feasibility analysis of project(s) and/or management action(s) to achieve measurable objective	6/30/2026
1-7	5-year GSP assessment. Update SMC, if appropriate.	GSP assessment document and GSP update	1/31/2027
IM #2 Period: 5-10 years (2027 – 2032)			
2-1	Continued monitoring	Annual monitoring data published in GSP annual reports	Annually by April 1
2-2	Update numerical model calibration, update depletion simulations, simulate potential project(s) and/or management action(s)	Model update and simulations tech memo	6/30/2029
2-3	Feasibility study of project(s) and/or management action(s) to achieve measurable objective	Feasibility study report	12/31/2030
2-4	Select project(s) and/or management action(s) to achieve measurable objective	UVRGA Board-approved project(s) and/or management actions for inclusion in GSP update.	6/30/2031
2-5	5-year GSP assessment and update. Include updated SMC, if appropriate. Add projects and/or management actions selected to achieve measurable objective.	GSP assessment document and GSP update	1/31/2032
IM #3 Period: 10-15 years (2032 – 2037)			
3-1	Continued monitoring	Annual monitoring data published in GSP annual reports	Annually by April 1
3-2	Develop project(s) and/or management action(s)	Progress toward ordinance(s), agreement(s), or design, as appropriate, based on selected project(s) and/or management action(s).	1/31/2037
3-3	5-year GSP assessment. Update GSP, as needed	GSP assessment document and GSP update	1/31/2037
IM #4 Period: 15-20 years (2037 – 2042)			
4-1	Continued monitoring	Annual monitoring data published in GSP annual reports	Annually by April 1
4-2	Implement project(s) and/or management action(s)	Completed ordinance(s), agreement(s), or construction, as appropriate, based on selected project(s) and/or management action(s).	1/31/2040
4-3	5-year GSP assessment. Update GSP, as needed	GSP assessment document and GSP update	1/31/2042

QUESTIONS

Upper Ventura River
GROUNDWATER AGENCY
SUSTAINABLE MANAGEMENT

EXTRA SLIDES



UR PROCESS

Minimum Thresholds:

Quantitative measures that indicate significant and unreasonable effects in a particular area

Undesirable Results:

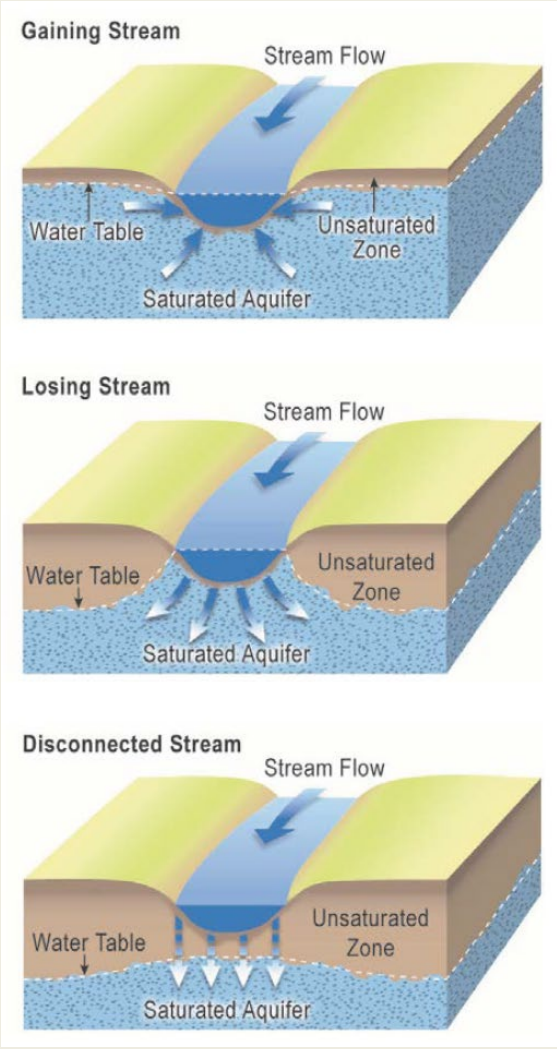
<u>Combination</u> of minimum thresholds exceedances that defines undesirable results

WHAT IS ISW?

Interconnected Surface Water ISW:

"Surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted."

(GSP Emerg. Regs § 351)

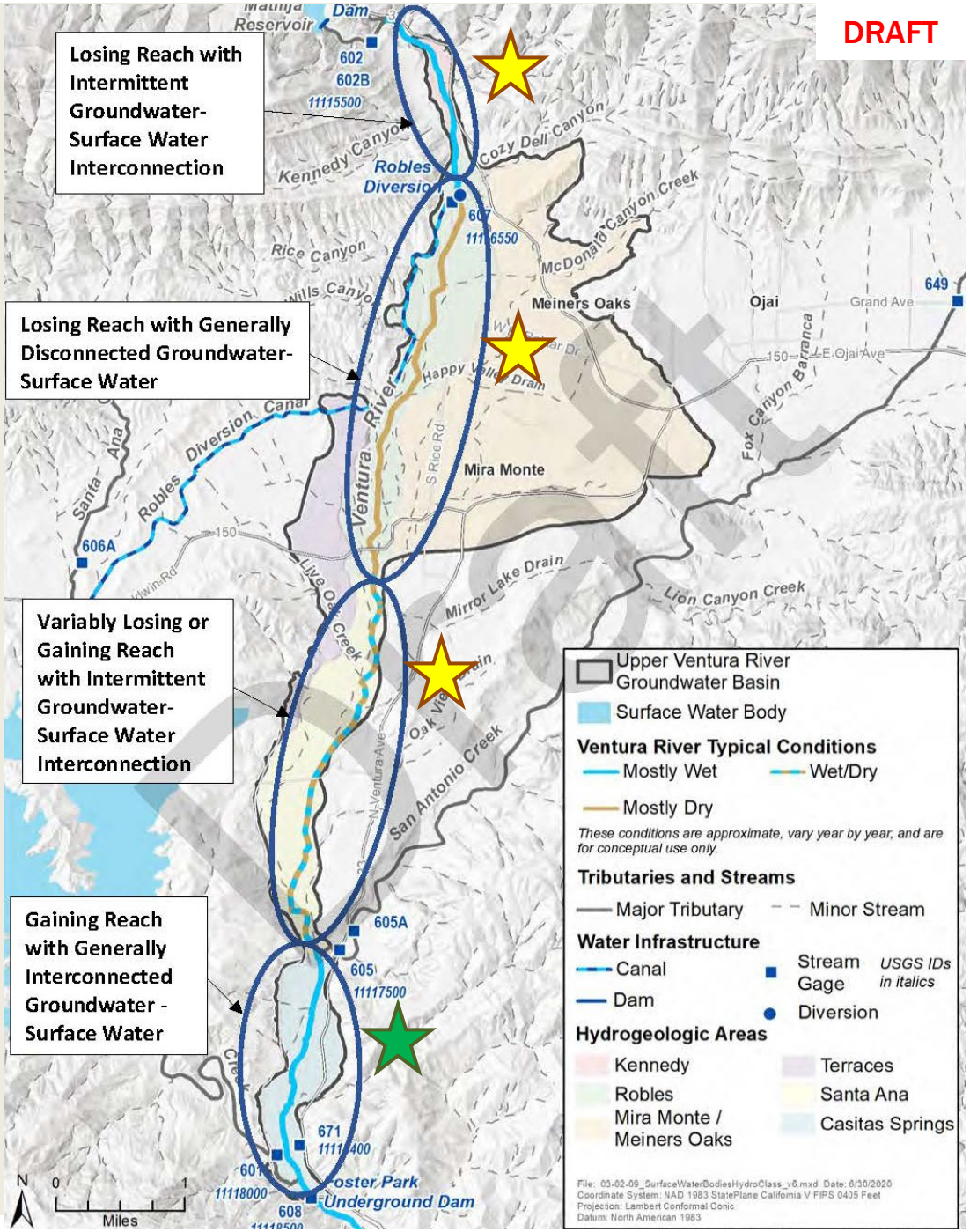


GROUNDWATER SURFACE WATER INTERACTION

- 4 areas along Ventura River with different types of GW-SW interaction

★ Consistently interconnected

★ Interconnection is transient and spatially variable



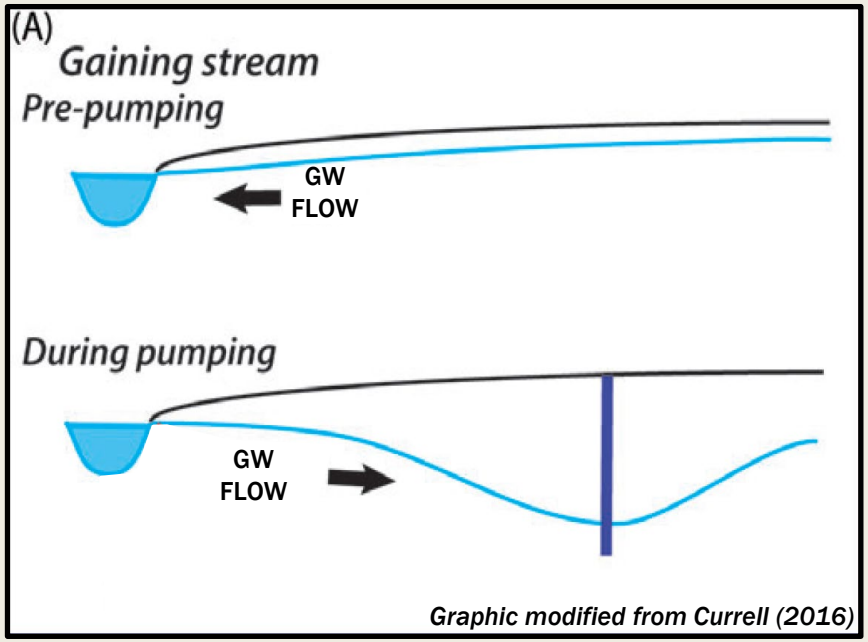
ISW DEPLETION MECHANISMS

1. Direct Depletion: Wells very close to the river capture flow directly from the river
2. Indirect Depletion: Wells further removed from the river:
   a. Lower the water table causing more streamflow percolation, decreasing streamflow in downstream areas
   b. Capture groundwater flow that would otherwise have discharged to the surface water system in the future.

GSP must address both types of depletion

DIRECT DEPLETION

- Well proximal to surface water body creates a water table "cone of depression" that induces flow from surface water body toward the wells
- Predominantly occurs at Foster Park

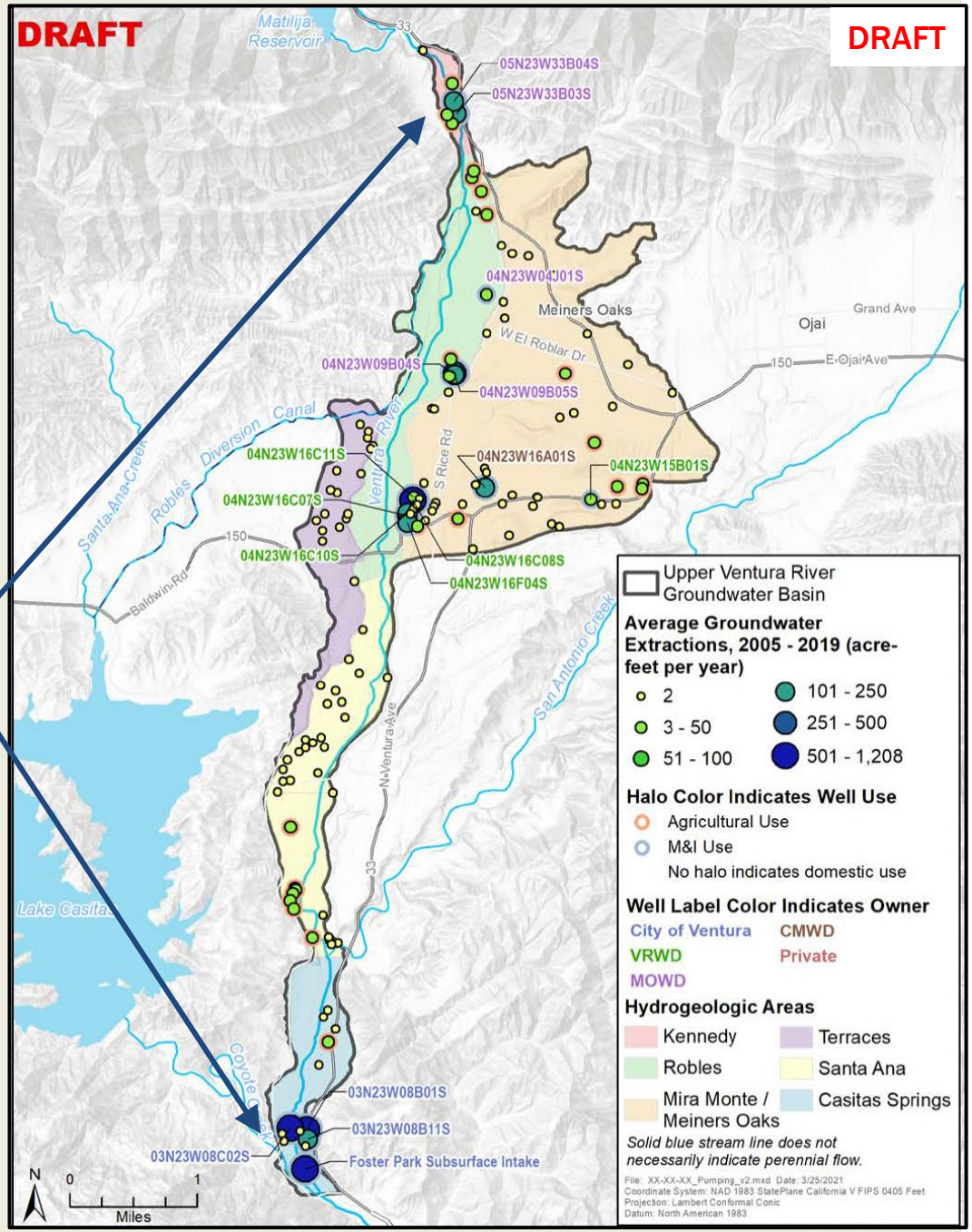


Graphic modified from Currell (2016)

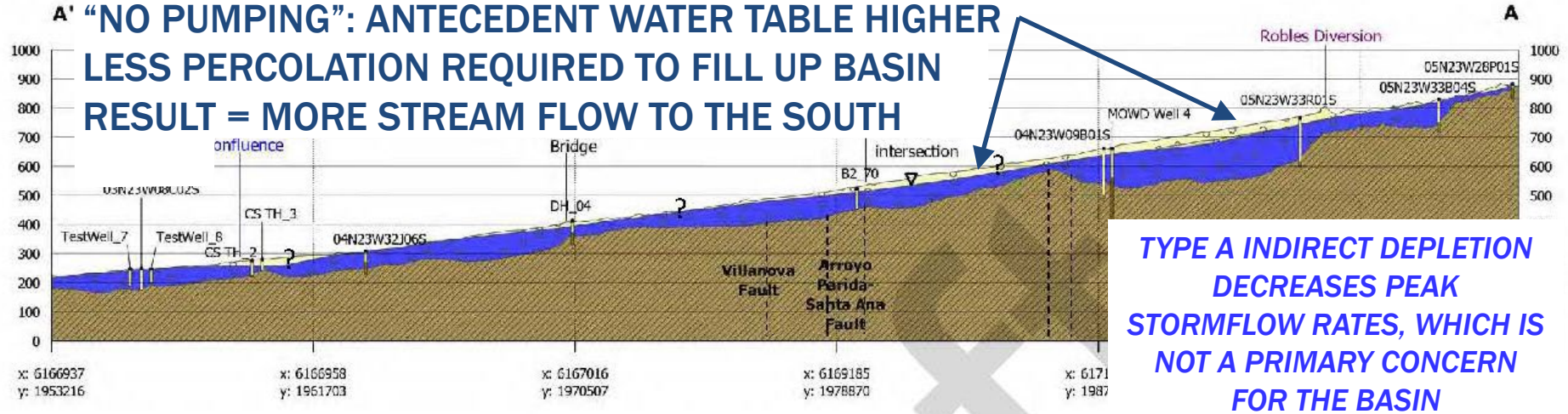
DRAFT

POTENTIAL AREAS OF DIRECT DEPLETION

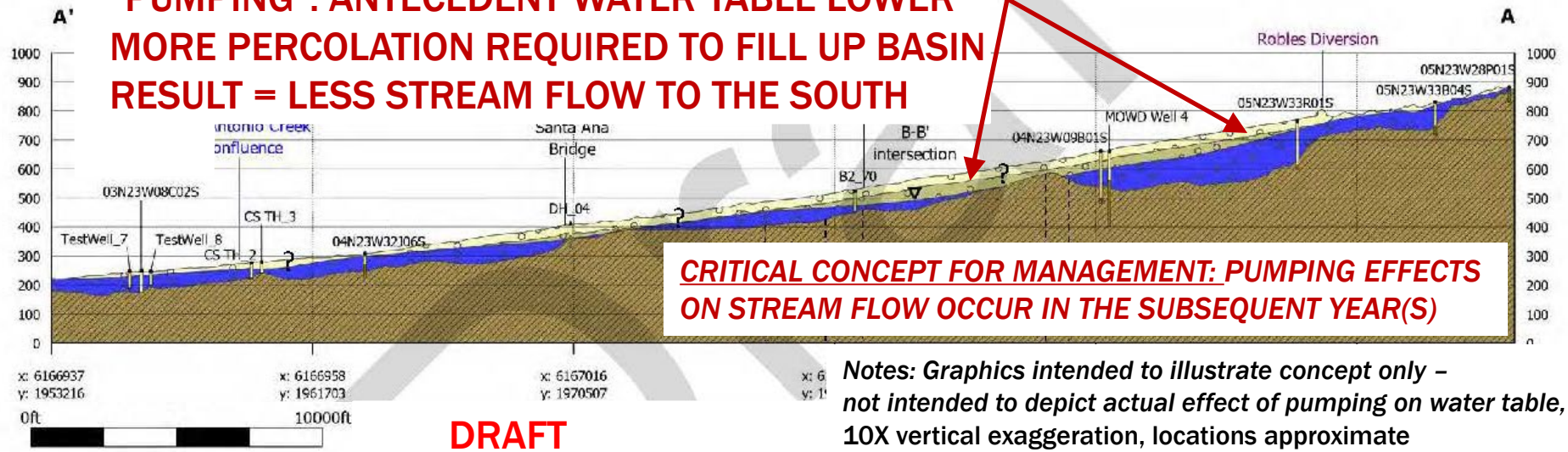
- Interconnected with Pumping Proximal to Ventura River
- Elsewhere pumping is either not proximate to Ventura River or the river is not interconnected



INDIRECT DEPLETION (A) – PUMPING CREATES AQUIFER STORAGE SPACE THAT INCREASES SURFACE WATER PERCOLATION



TYPE A INDIRECT DEPLETION DECREASES PEAK STORMFLOW RATES, WHICH IS NOT A PRIMARY CONCERN FOR THE BASIN



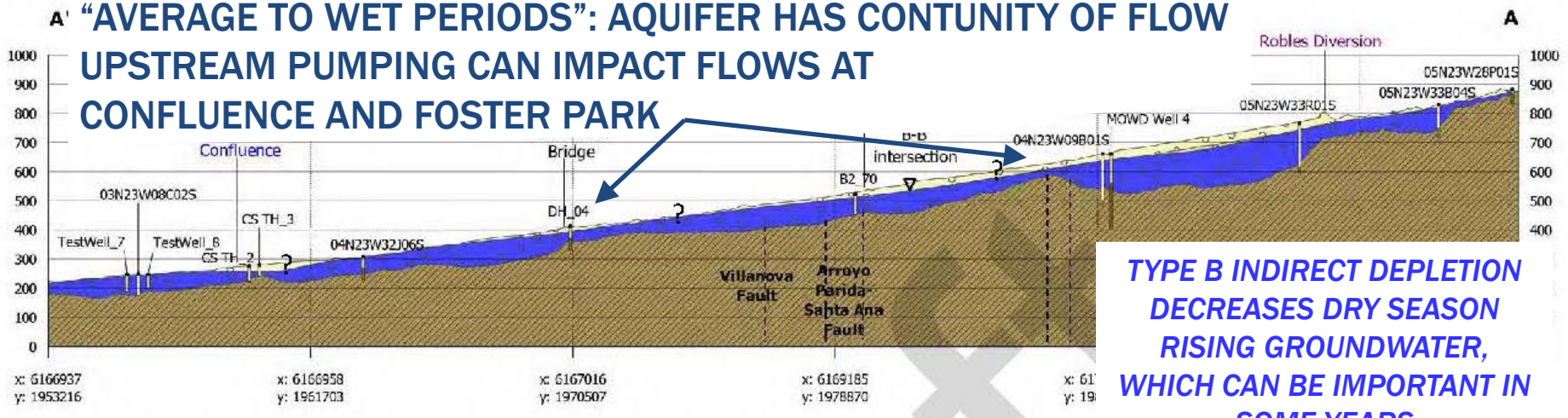
CRITICAL CONCEPT FOR MANAGEMENT: PUMPING EFFECTS ON STREAM FLOW OCCUR IN THE SUBSEQUENT YEAR(S)

DRAFT

Notes: Graphics intended to illustrate concept only – not intended to depict actual effect of pumping on water table, 10X vertical exaggeration, locations approximate

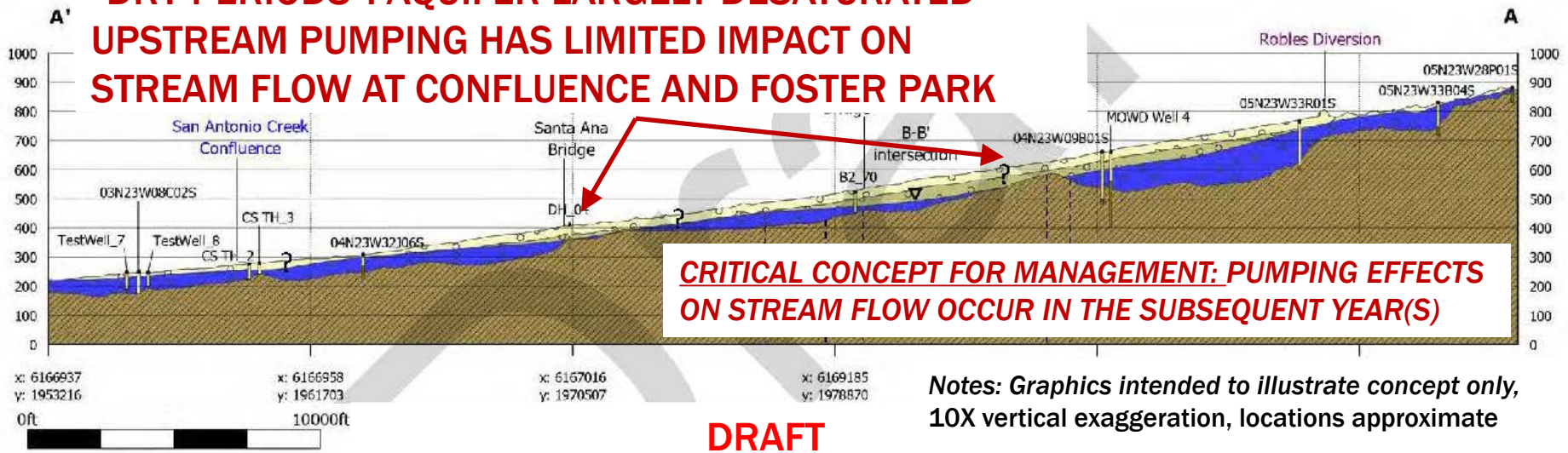
INDIRECT DEPLETION (B) - PUMPING CAPTURING GW THAT WOULD HAVE FED BECOME SURFACE WATER DOWNSTREAM

"AVERAGE TO WET PERIODS": AQUIFER HAS CONTUNITY OF FLOW UPSTREAM PUMPING CAN IMPACT FLOWS AT CONFLUENCE AND FOSTER PARK



TYPE B INDIRECT DEPLETION DECREASES DRY SEASON RISING GROUNDWATER, WHICH CAN BE IMPORTANT IN SOME YEARS

"DRY PERIODS": AQUIFER LARGELY DESATURATED UPSTREAM PUMPING HAS LIMITED IMPACT ON STREAM FLOW AT CONFLUENCE AND FOSTER PARK



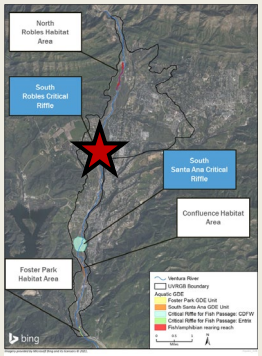
CRITICAL CONCEPT FOR MANAGEMENT: PUMPING EFFECTS ON STREAM FLOW OCCUR IN THE SUBSEQUENT YEAR(S)

Notes: Graphics intended to illustrate concept only, 10X vertical exaggeration, locations approximate

DRAFT

DRAFT

STREAMFLOW DEPLETION
SOUTH ROBLES CRITICAL RIFFLE

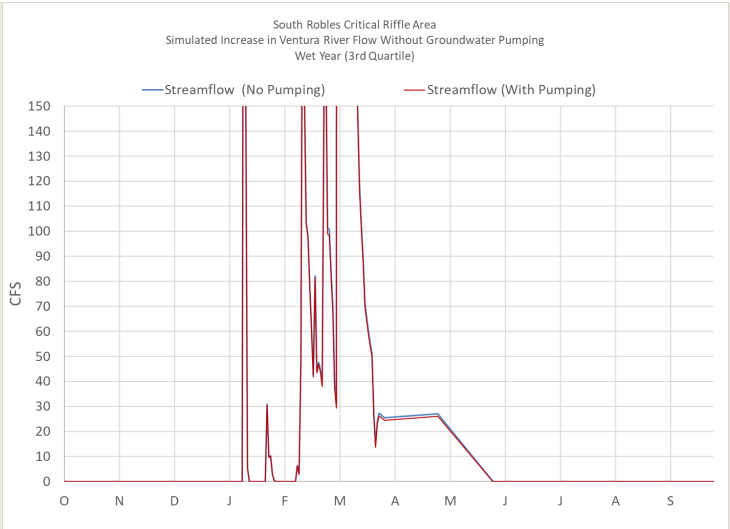


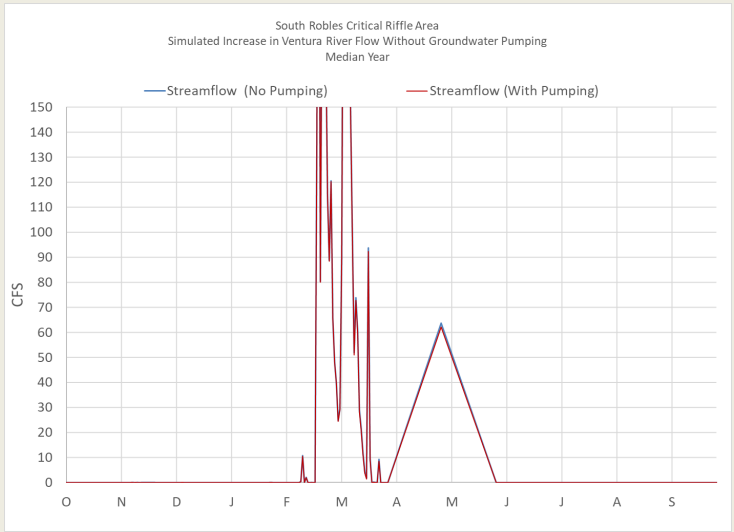
Streamflow Depletion Example Water Years

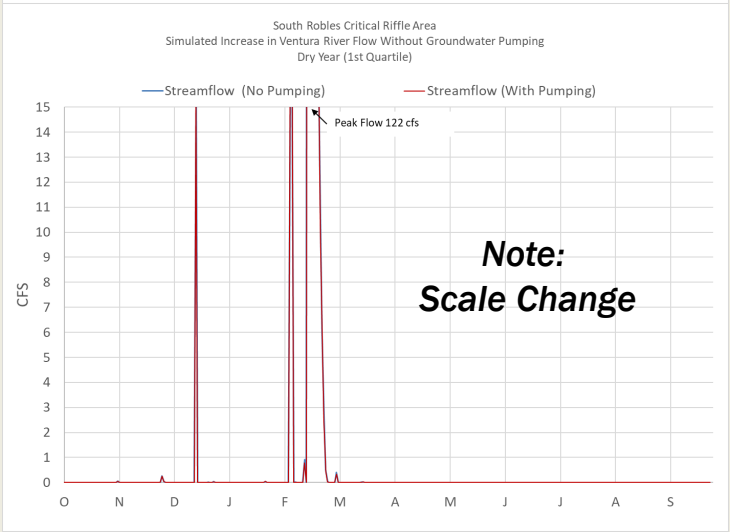
Wet →

Median

Dry →



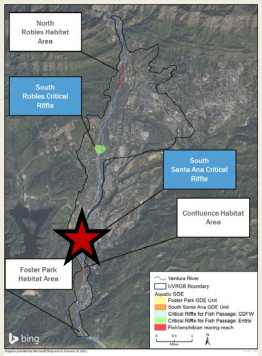




Note: Model is Daily Nov - March & Monthly April - Oct

DRAFT

STREAMFLOW DEPLETION
SANTA ANA CRITICAL RIFFLE

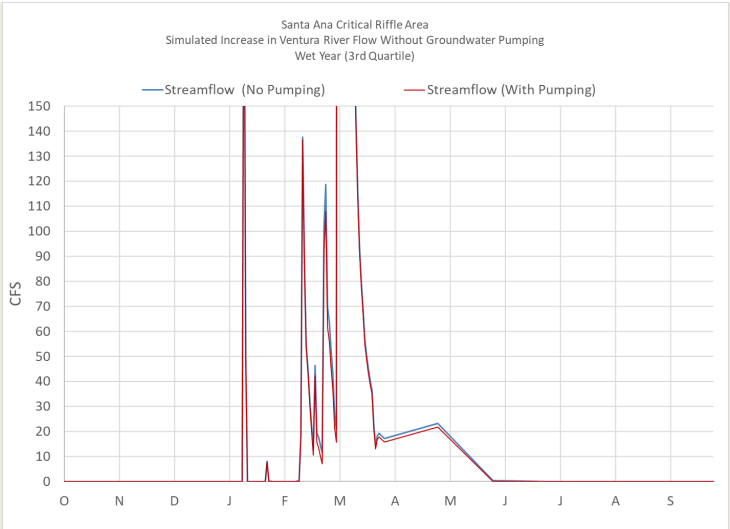


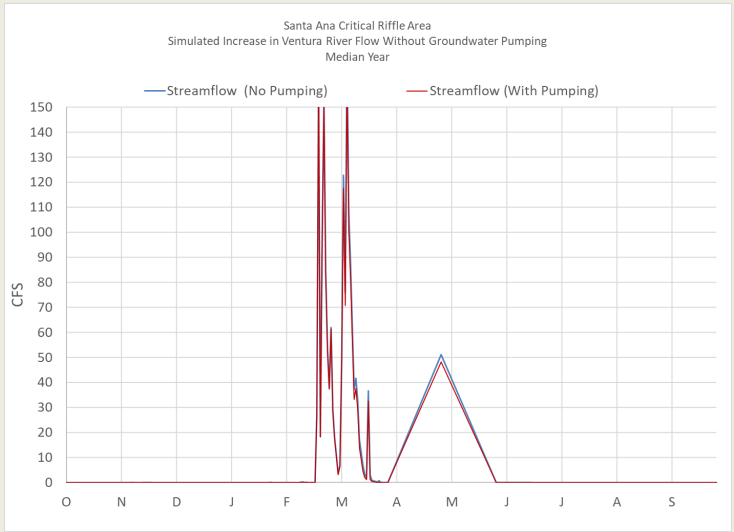
Streamflow Depletion Example Water Years

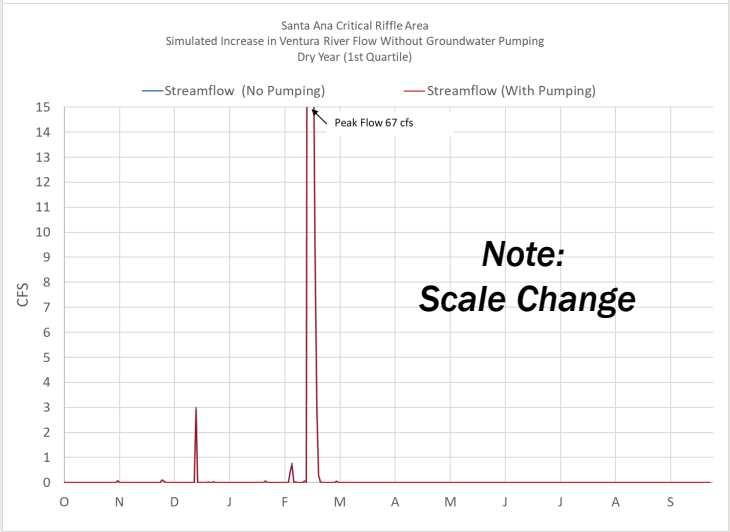
Wet →

Median

Dry →



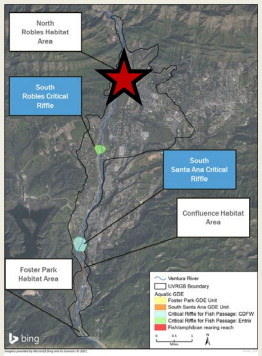




Note: Model is Daily Nov - March & Monthly April - Oct

DRAFT

STREAMFLOW DEPLETION
NORTH ROBLES HABITAT AREA

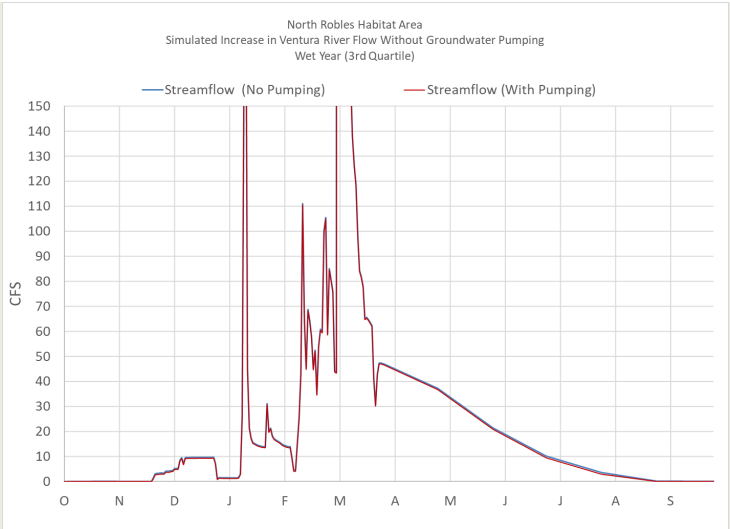


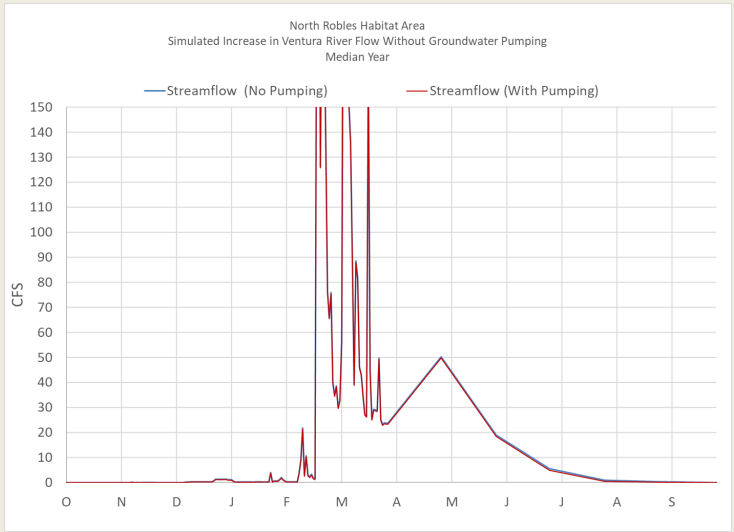
Streamflow Depletion Example Water Years

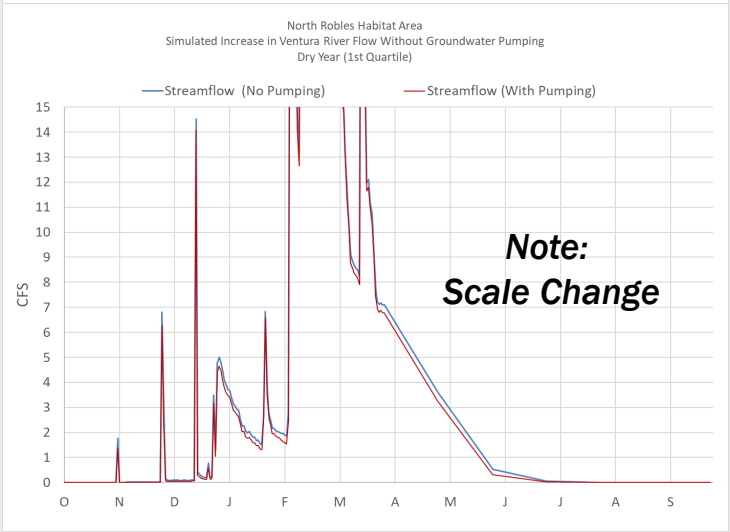
Wet

Median

Dry



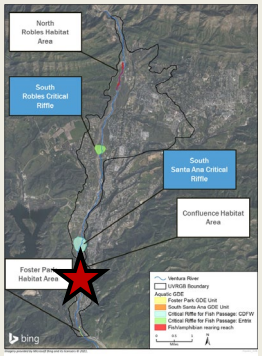




Note: Model is Daily Nov - March & Monthly April - Oct

STREAMFLOW DEPLETION CONFLUENCE HABITAT AREA

DRAFT

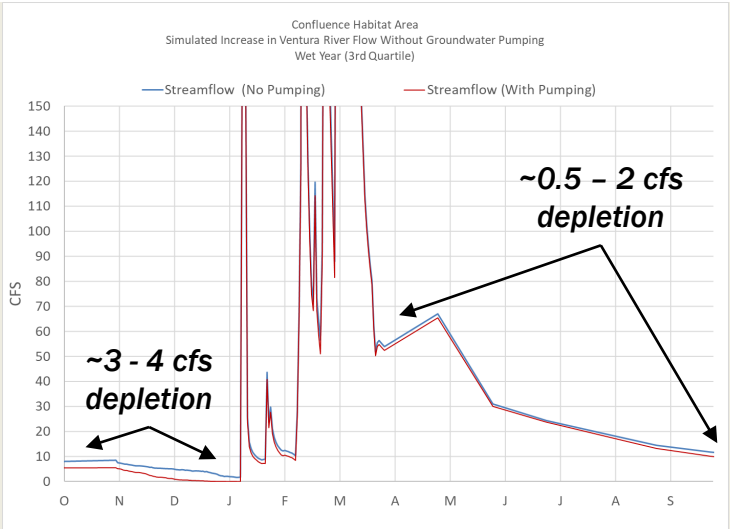


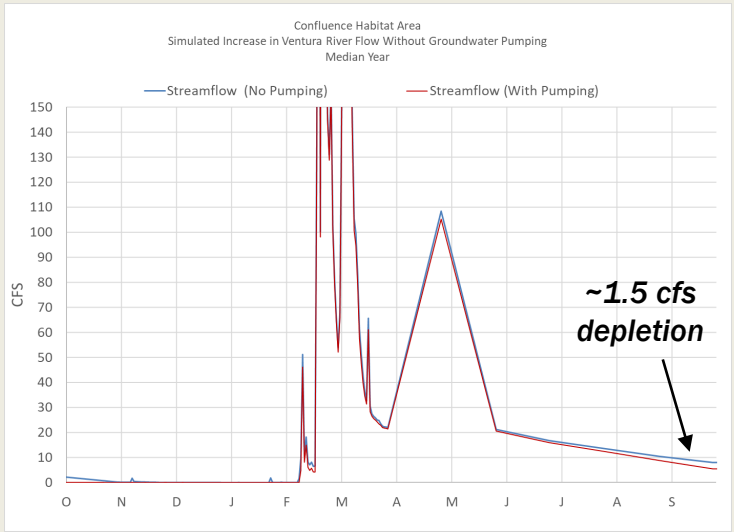
Streamflow Depletion Example Water Years

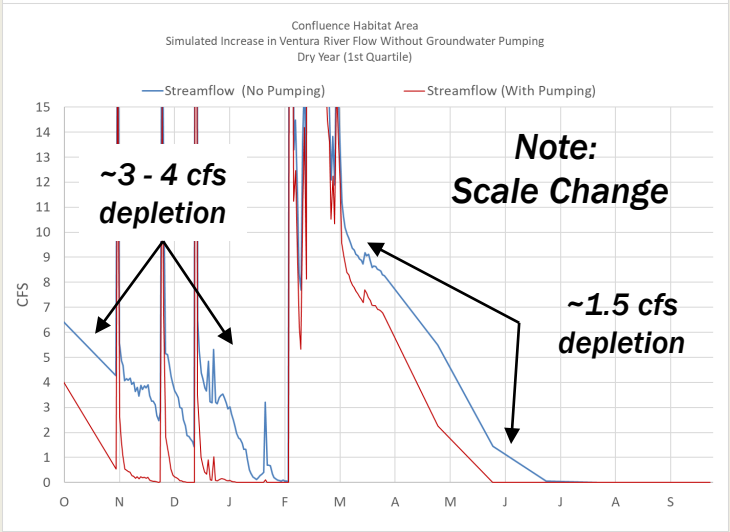
Wet

Median

Dry



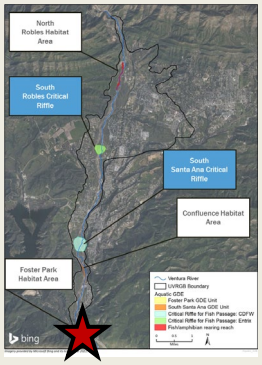




Note: Model is Daily Nov - March & Monthly April - Oct

STREAMFLOW DEPLETION
FOSTER PARK HABITAT AREA

DRAFT

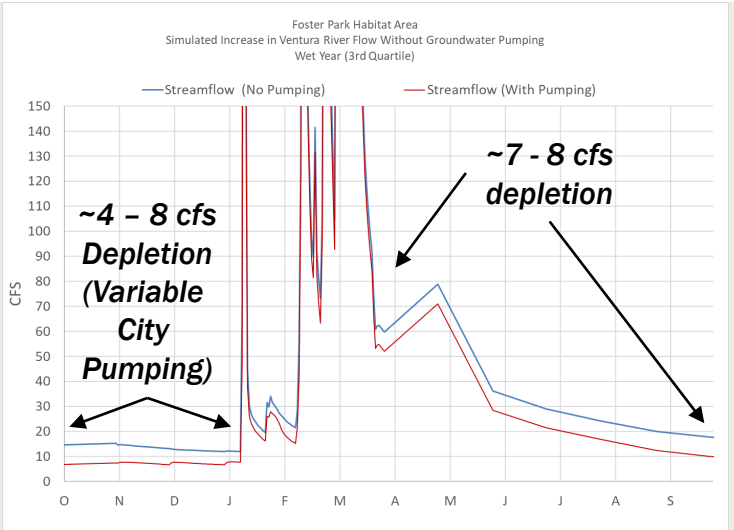


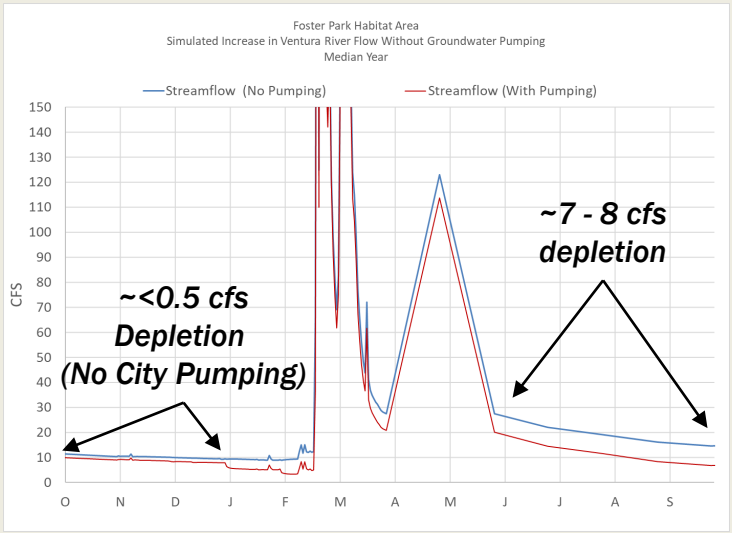
Streamflow Depletion Example Water Years

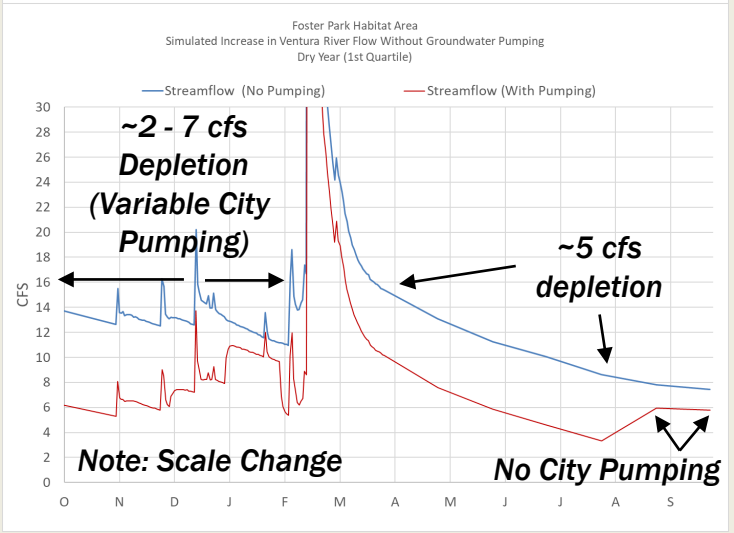
Wet

Median

Dry







Note: Model is Daily Nov - March & Monthly April - Oct