STAKEHOLDER WORKSHOP #2:

GROUNDWATER MANAGEMENT

Stakeholder Workshop for the SLO Basin Groundwater Sustainability Plan

JUNE 10, 2020

PREPARED BY WATER SYSTEMS CONSULTING

WORKSHOP GOALS

- Share what we've learned about the Basin

- Describe the role of the Water Budget

- Document **stakeholder's vision** of what a "sustainable SLO Basin" means.

This input will be used by the project team to **inform** the GSP's sustainability goals and projects and management actions.

WHO'S HERE ...

60+ stakeholders representing
10 Basin segments

AUDIENCE POLL

1. What brought you here today?

2. Have you attended previous workshops and/or meetings?

PRESENTERS

TIFFANY MEYER

Strategic Communications,
Water Systems Consulting

MICHAEL CRUIKSHANK, PG, CHG

Hydrogeologist, Water Systems
Consulting

DAVID O'ROURKE, PG, CHG

Hydrogeologist, GSI Water Solutions

Q&A PANELISTS

DICK TZOU, PE

Water Resources Engineer,
County of San Luis Obispo

MYCHAL BOERMAN

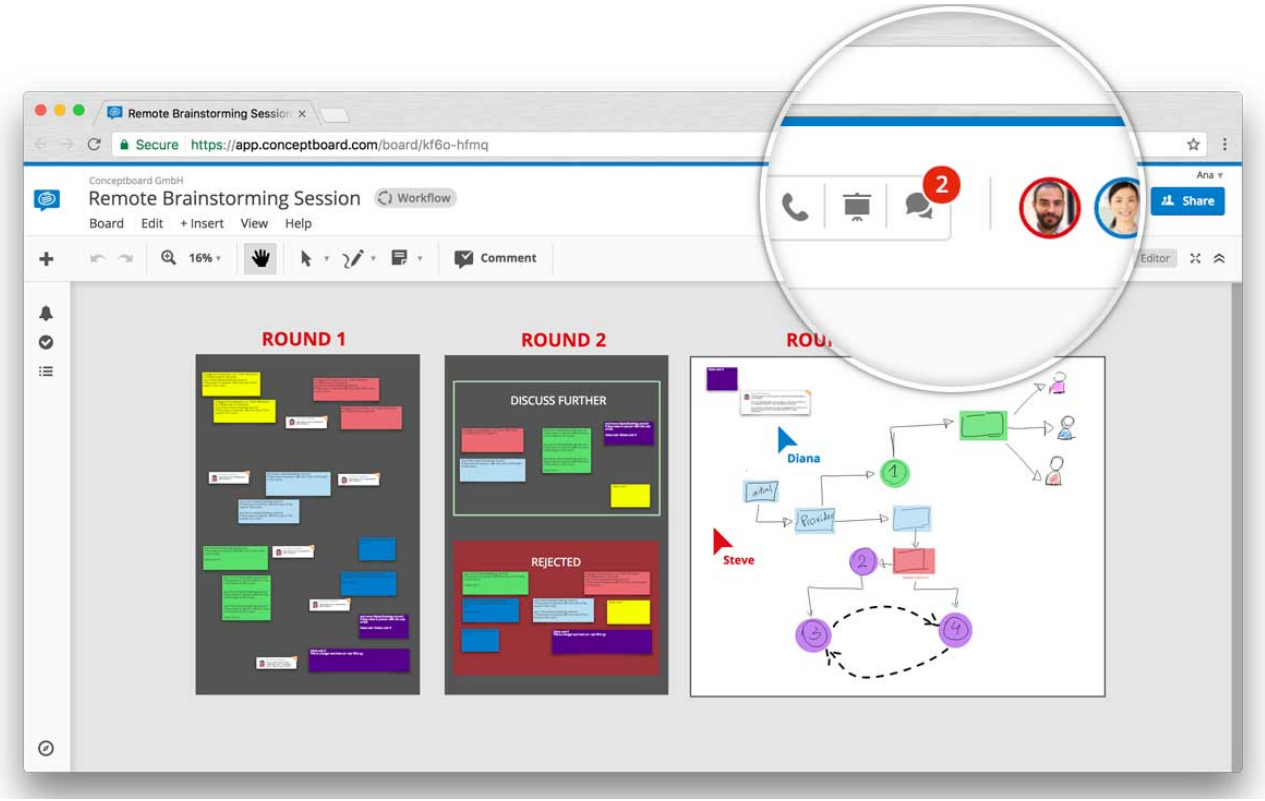
Deputy Director of Water,
City of San Luis Obispo

WORKSHOP AGENDA

1. Key Takeaways from the Basin Setting
2. Visioning Exercise: What does a "Sustainable SLO Basin" mean to you?
3. The Role of the Water Budget
4. Audience Q&A
5. What's Next

QUICK TECHNOLOGY ORIENTATION

zoom



Conceptboard

WHITEBOARDING PLATFORM

SECURING SUSTAINABLE GROUNDWATER in the SLO Basin

5 STEPS TO DEVELOPING THE GSP

Step 1. Establish Governance Structure

CHAPTERS 1-2

APR 2019 – OCT 2019

- APR 10, 2019 — **GSC MTG**
- JUN 12, 2019 — **GSC MTG**
- JUL 15, 2019 — **PUBLIC COMMENT, C&E PLAN**
- AUG 24, 2019 — **SH WORKSHOP #1, GW AND SMG 101**
- SEP 11, 2019 — **GSC MTG**
- SEP 11, 2019 — **PUBLIC COMMENT CHAPTER 1-2, ADMIN INFO**

WE ARE HERE

Step 2. Document Basin Setting

CHAPTERS 3-6

OCT 2019 – JUL 2020

- DEC 11, 2019 — **GSC MTG**
- DEC 11, 2019 — **PUBLIC COMMENT CHAPTER 3-4, BASIN SETTING**
- MAR 11, 2020 — **GSC MTG**
- MAR 11, 2020 — **PUBLIC COMMENT CHAPTER 5, GW CONDITIONS**
- APR 6, 2020 — **GSA WORK SESSION**
- MAY 27, 2020 — **GSA WORK SESSION**
- JUN 10, 2020 — **STAKEHOLDER WORKSHOP #2: WATER MANAGEMENT VISION**
- JUL 8, 2020 — **GSC MTG**
- JUL 9, 2020 — **PUBLIC COMMENT CHAPTER 6, WATER BUDGET**

Step 3. Set Sustainability Goals

CHAPTERS 7-8

AUG 2020 – JAN 2021

- AUG 5, 2020 — **STAKEHOLDER WORKSHOP #3: SUSTAINABLE GOAL SETTING**
- AUG 15, 2020 — PUBLIC COMMENT ON TECH MEMO
- SEP 9, 2020 — **GSC MTG**
- DEC 9, 2020 — **GSC MTG**
- DEC 9, 2020 — **PUBLIC COMMENT CHAPTERS 7-8, SMCS AND MONITORING NETWORK**

Step 4. Develop Plan to Sustainability

CHAPTERS 9-10

JAN 2021 – MAR 2021

- JAN 6, 2021 — **STAKEHOLDER WORKSHOP #4: PROJECTS AND MANAGEMENT ACTIONS**
- JAN 13, 2021 — **GSA WORK SESSION**
- MAR 10, 2021 — **GSC MTG**
- MAR 11, 2021 — **PUBLIC COMMENT CHAPTER 9-10, PROJECTS AND MA's; IMPLEMENTATION PLAN**

Step 5. Adopt the Plan

FINISHED PLAN

APR 2021 – JAN 2022

- JUN 9, 2021 — **GSC MTG**
- JUN 10, 2021 — **PUBLIC COMMENT FULL PLAN**
- SEP 8, 2021 — **GSC MTG**
- NOV 2021 — **GSA MTG**

REMAINING DECISIONS TO BE MADE

Step 3.
Set Sustainability Goals

AUG 2020 – JAN 2021

KEY DECISIONS REMAINING:

- Setting Sustainability Goals
- Determining Projects and Management Actions

HOW YOU CAN PARTICIPATE:

Stakeholder Workshop #3: Sustainable Goal Setting
Aug 5, 2020

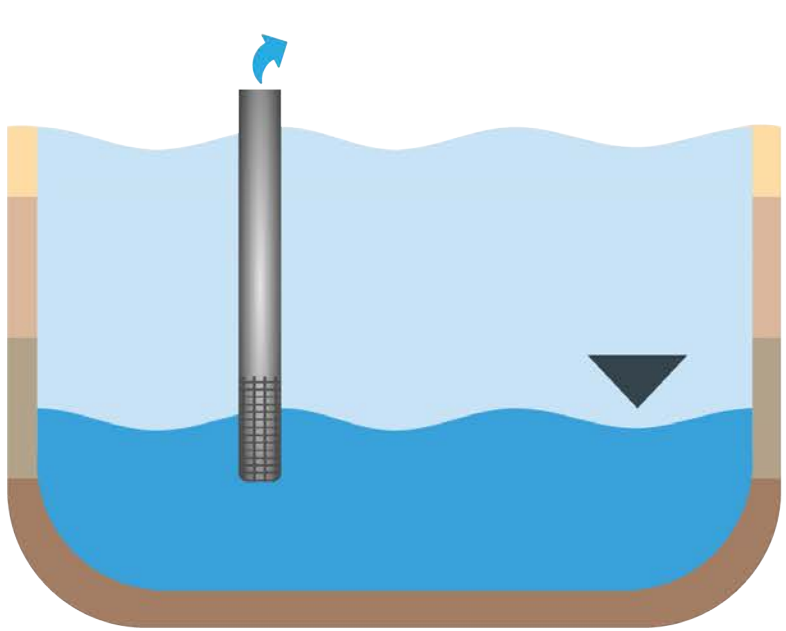
GSC Meetings
Sep 9, 2020
Dec 9, 2020

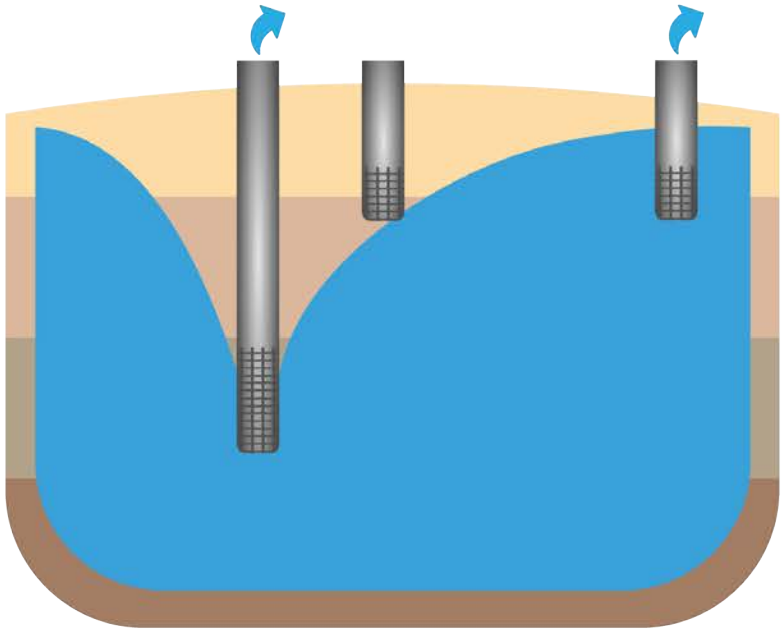
Public Comment Chapters 7-8, Sustainable Management Criteria and Monitoring Network
Dec 9, 2020-January 2021

KEY TAKEAWAYS OF BASIN SETTING

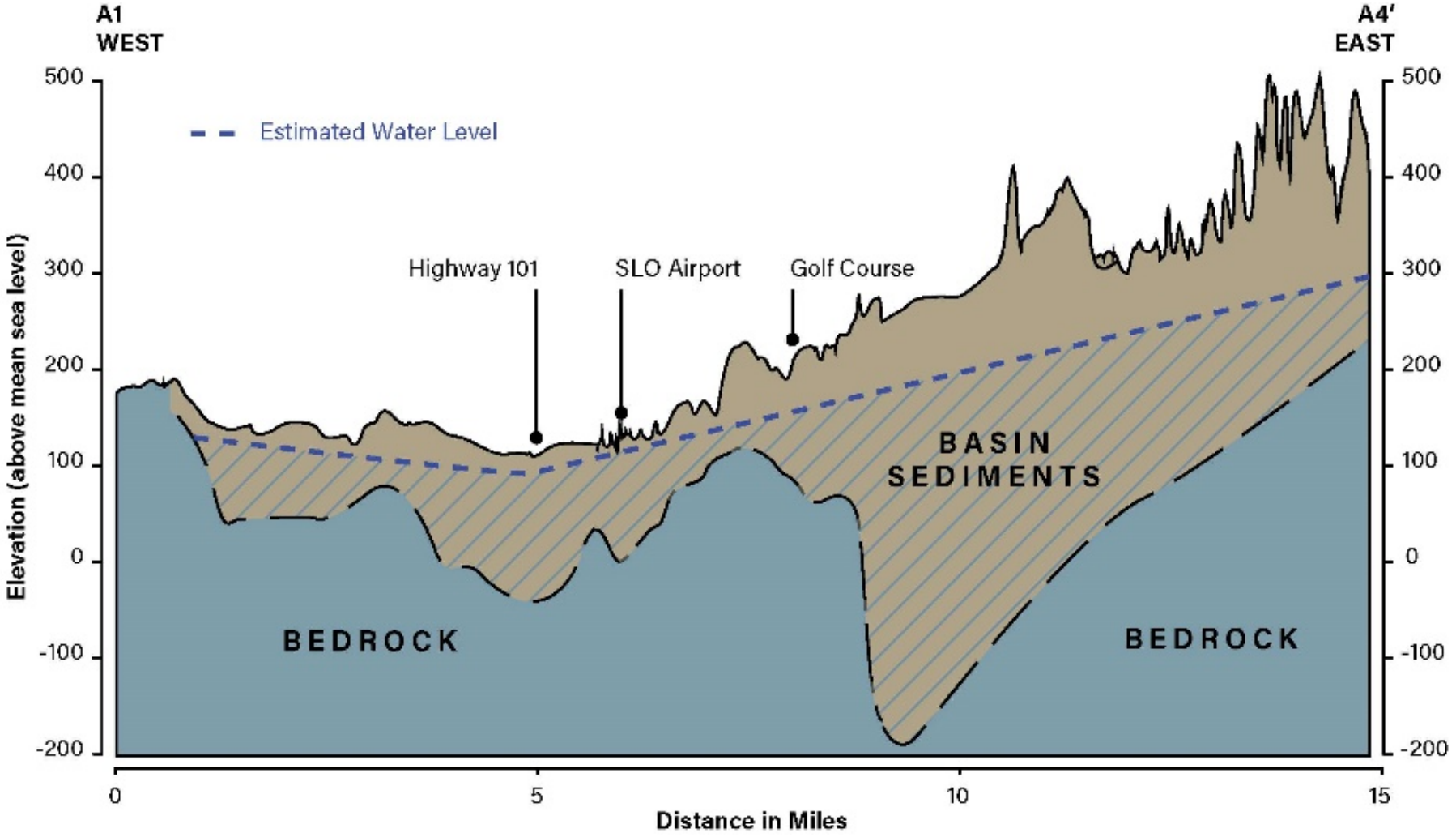
David O'Rourke

SURFACE WATER vs. GROUNDWATER



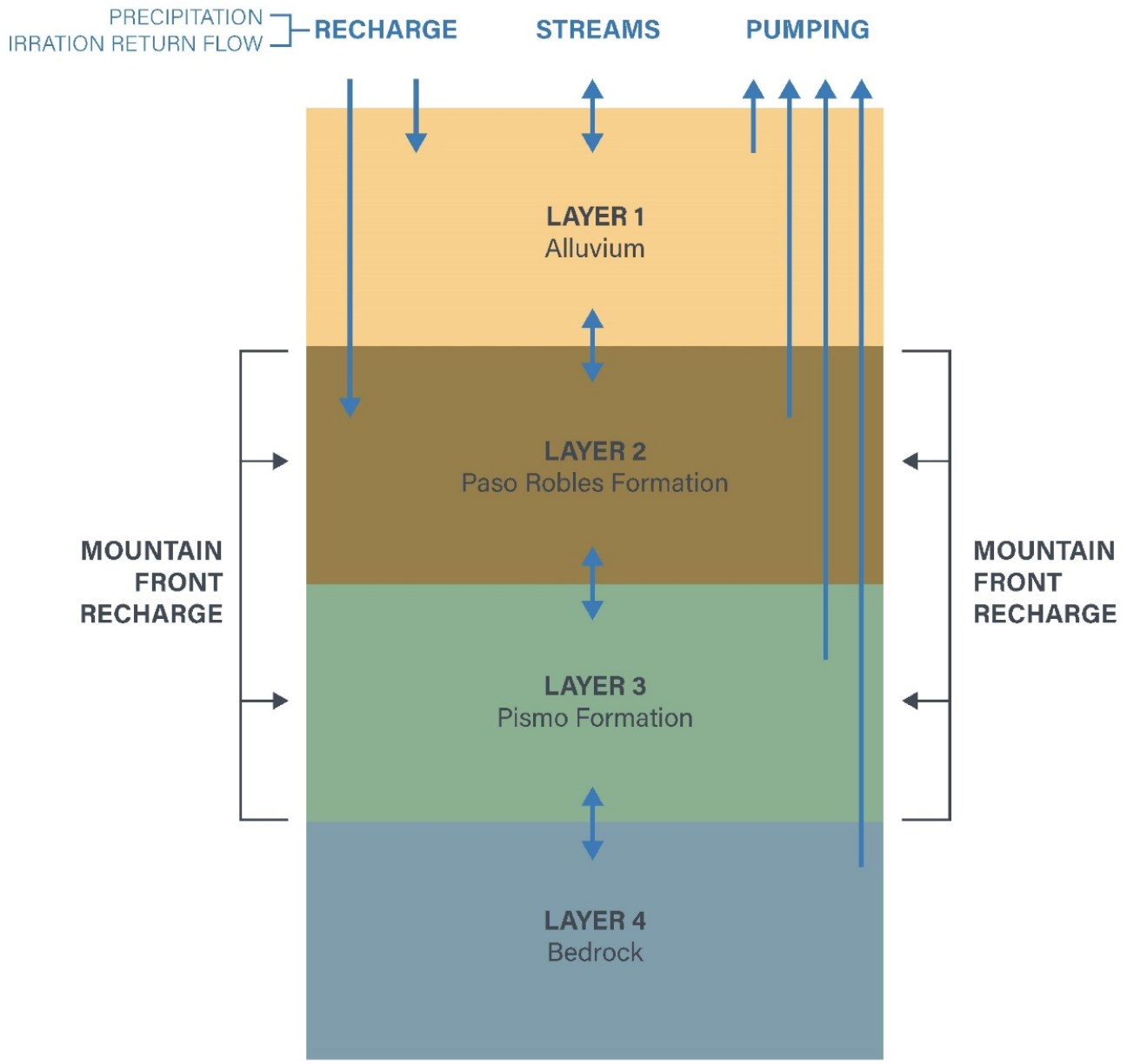


- **Cross Section –** Basin sediments are underlain by impermeable bedrock. Basin sediments are thickest below Edna Valley. Land surface is higher in Edna Valley.

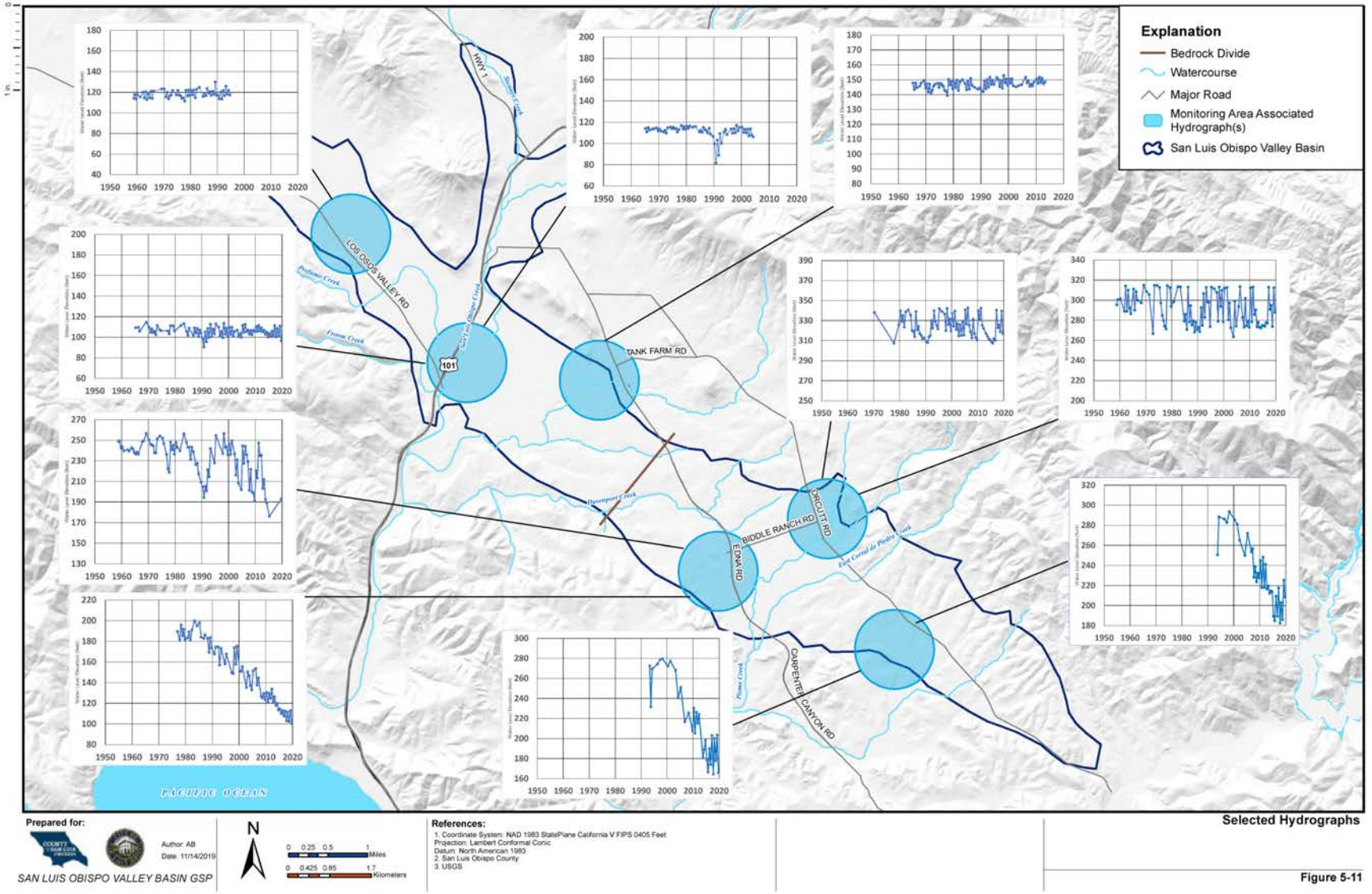


HYDROGEOLIGIC CONCEPTUAL MODEL

- Alluvium sediment are most productive.
- Paso Robles and Pismo Formations also have productive yields.
- Bedrock is not considered an aquifer but may produce water in some areas.

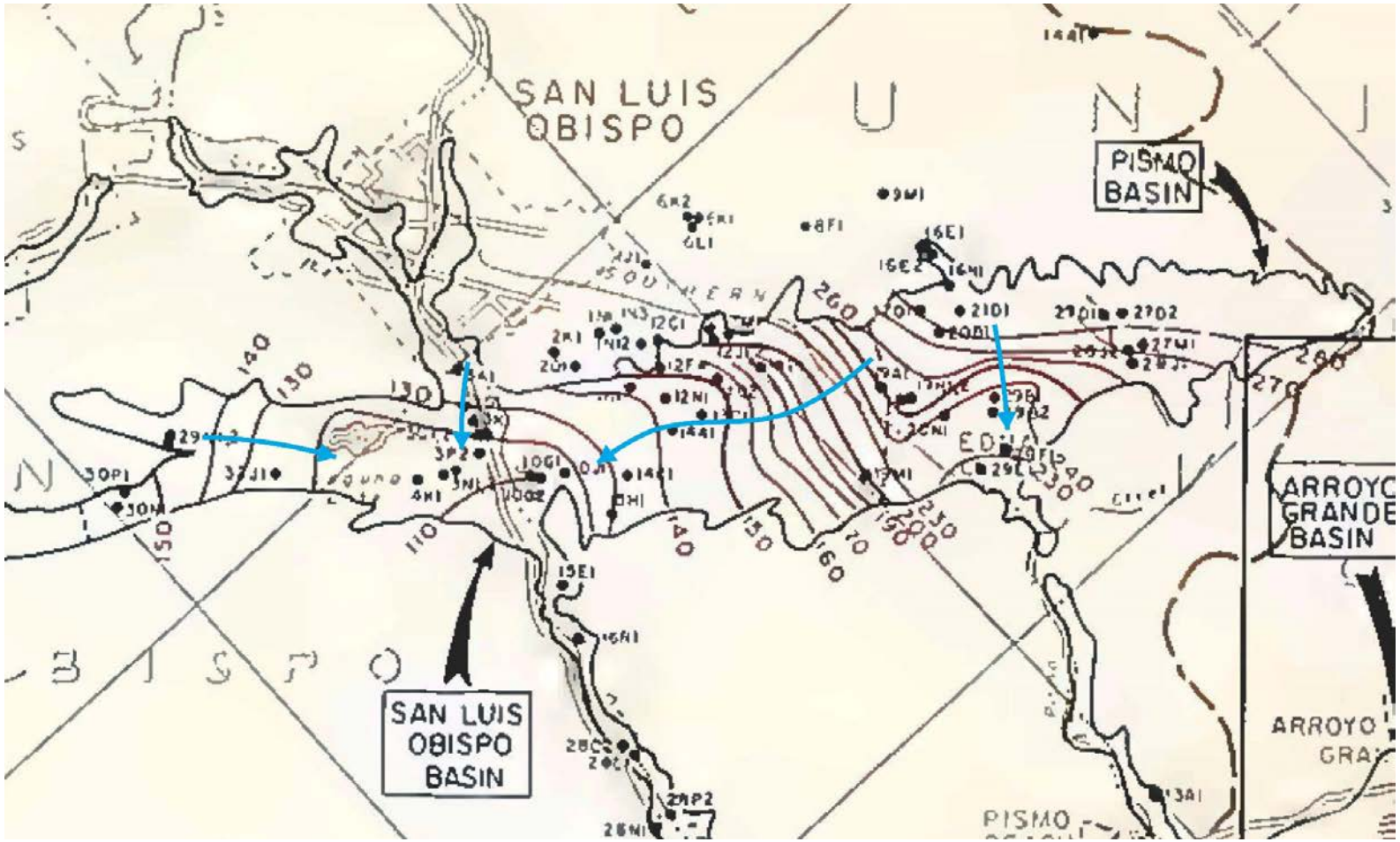


SLO BASIN HYDROGRAPHS



- **Water Level Maps**

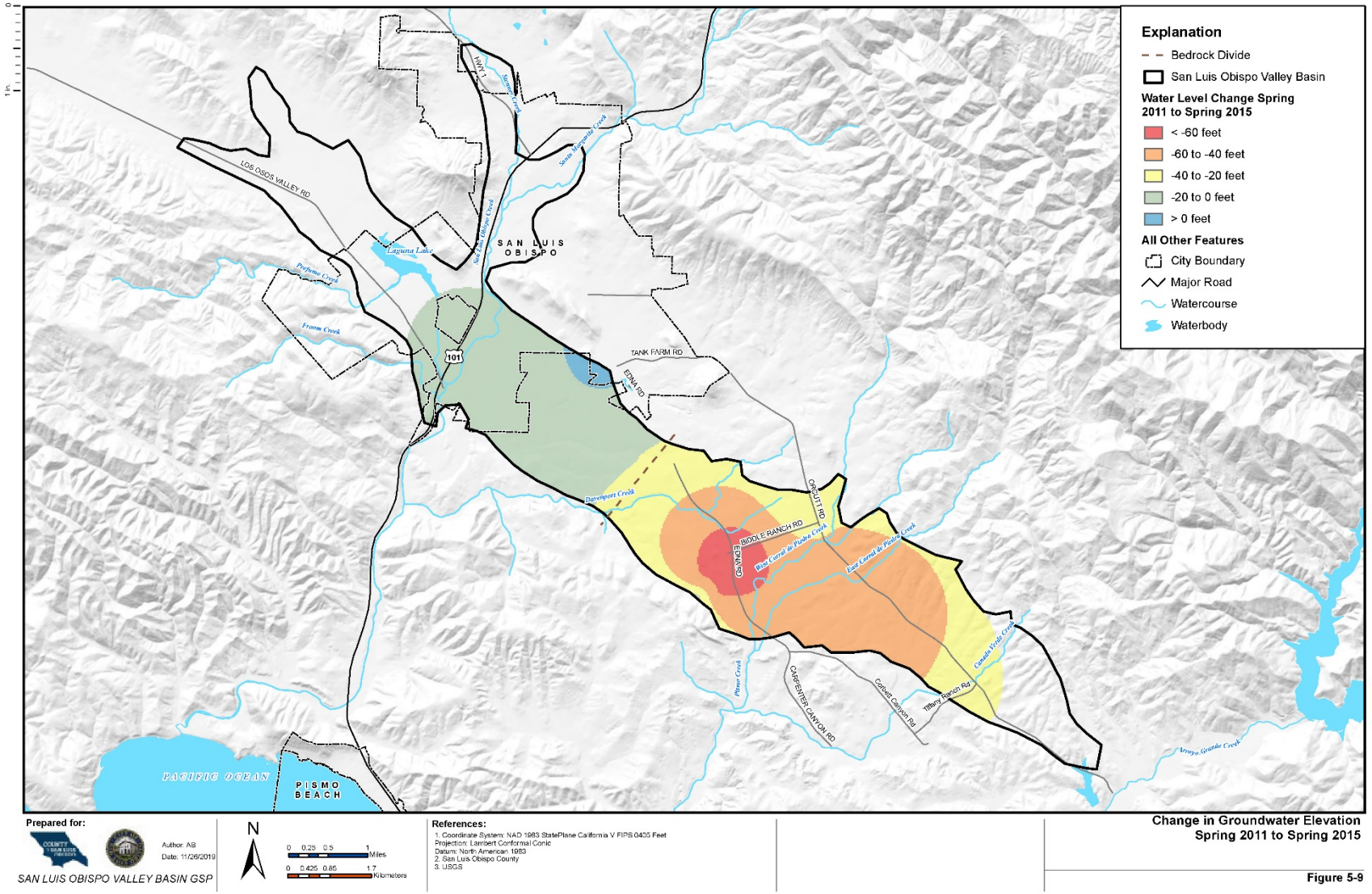
  Water level data at multiple points in space (wells) at a specific time. Displays direction of groundwater flow, areas of recharge and discharge. Contours are interpolated between points of known data.



CHANGE IN GROUNDWATER ELEVATIONS

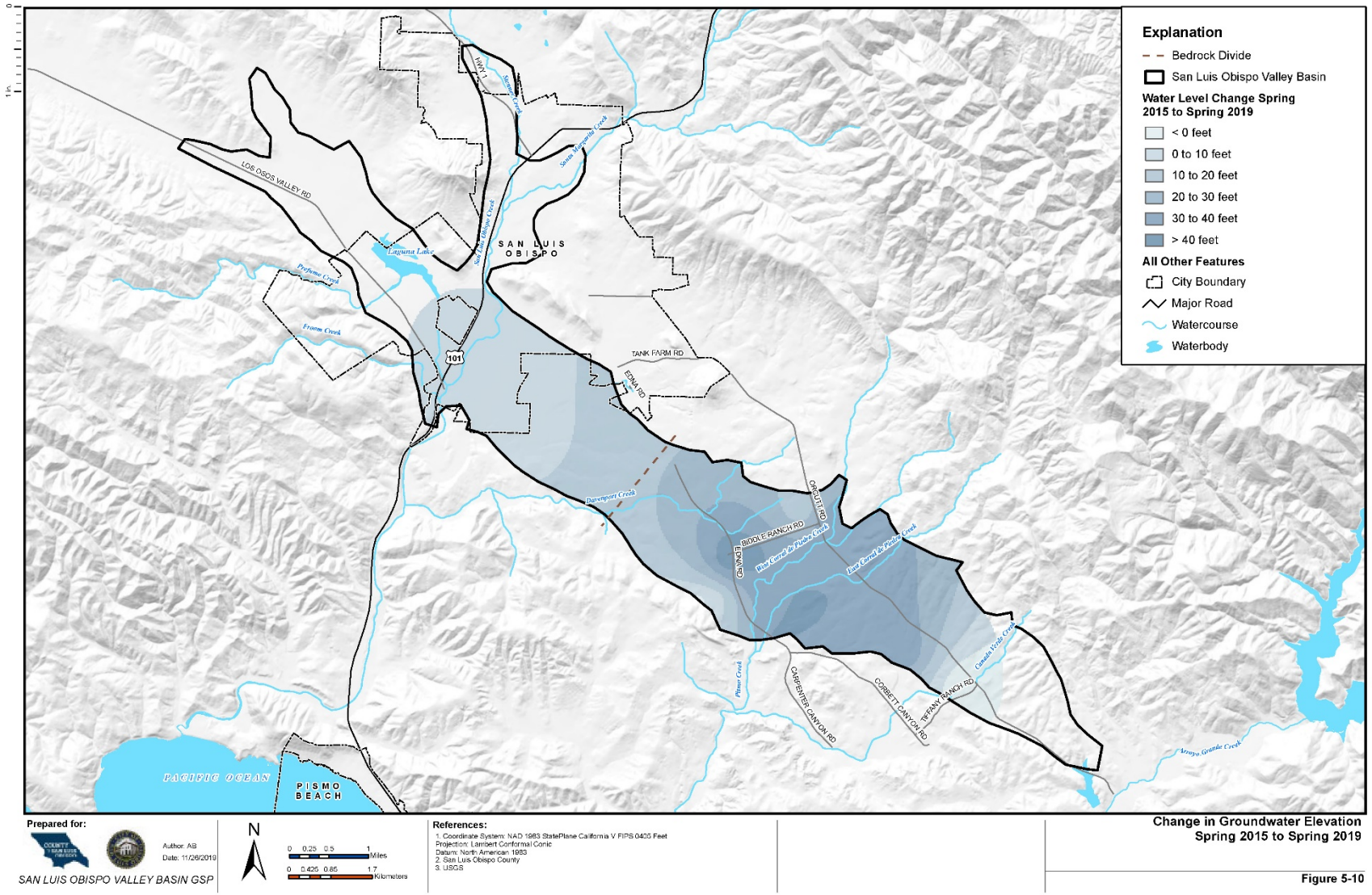
Spring 1997 to Spring 2011

- Displays relative changes in water levels over a specified period of time. Identifies areas with highest changes.
- Edna Valley has water level declines from 1997-2011.



CHANGE IN GROUNDWATER SURFACE

Spring 2015
to Spring 2019



GROUNDWATER CONDITIONS IN THE SLO BASIN

Other Topics / Details in Chapters 4 and 5

- Groundwater Elevation Maps
- Groundwater Quality
- Subsidence
- Groundwater/Surface Water Interaction
- Groundwater Dependent Ecosystems (GDEs)

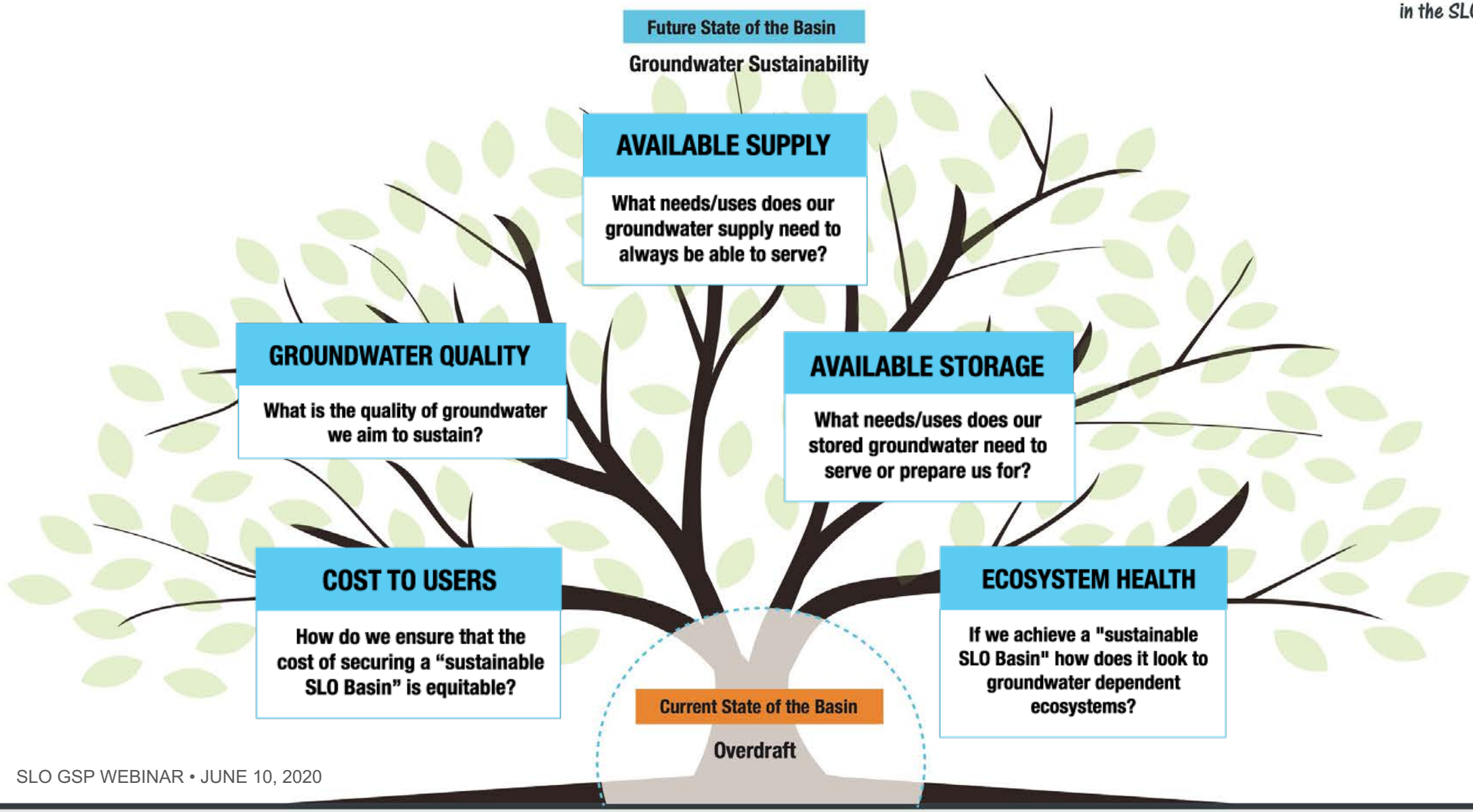
Available for view at **SLOWaterBasin.com/review-documents**

SLO BASIN VISIONING EXERCISE

VISIONING EXERCISE

What does a "Sustainable SLO Basin" mean to you?

SECURING SUSTAINABLE GROUNDWATER in the SLO Basin



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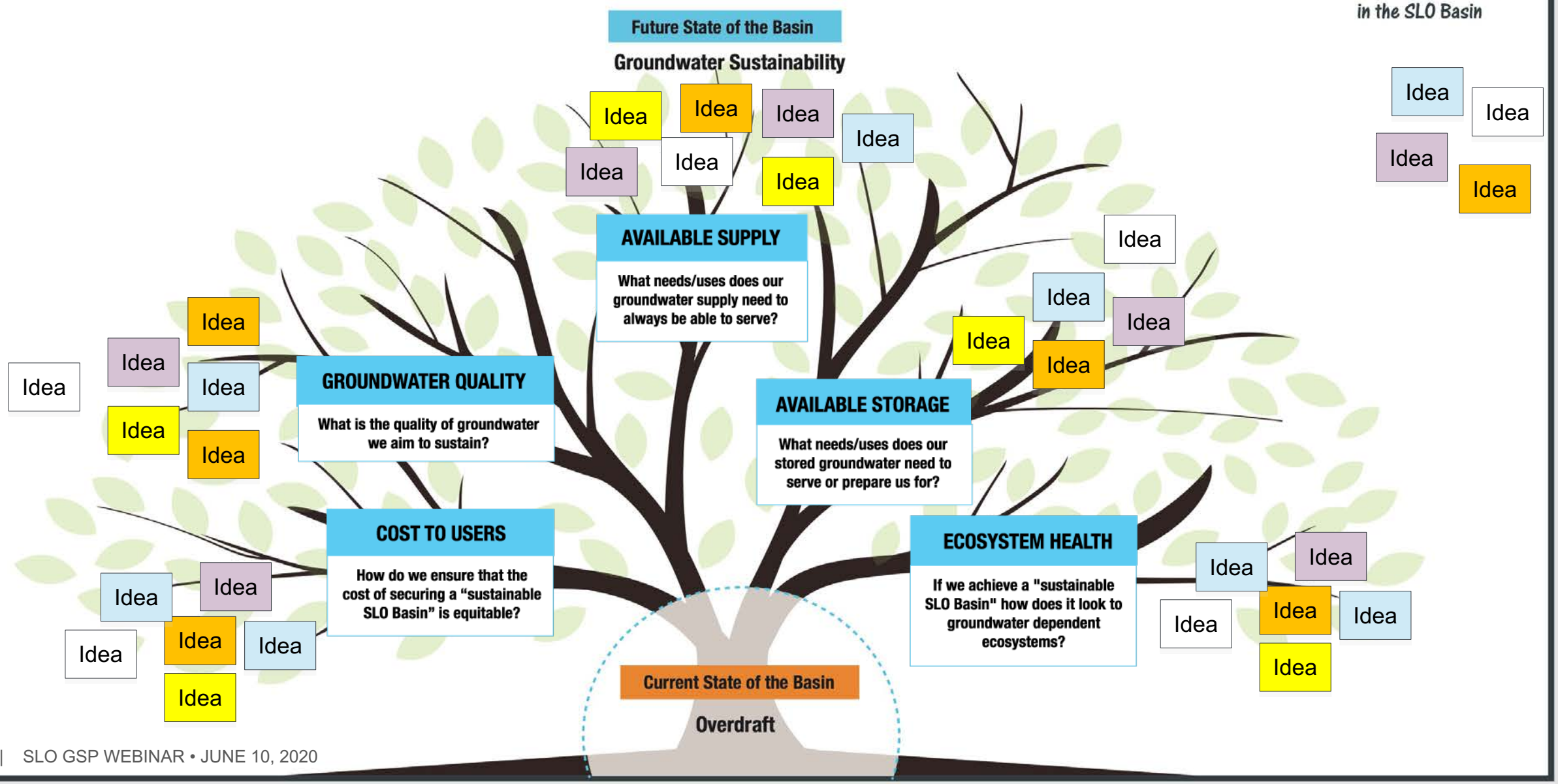
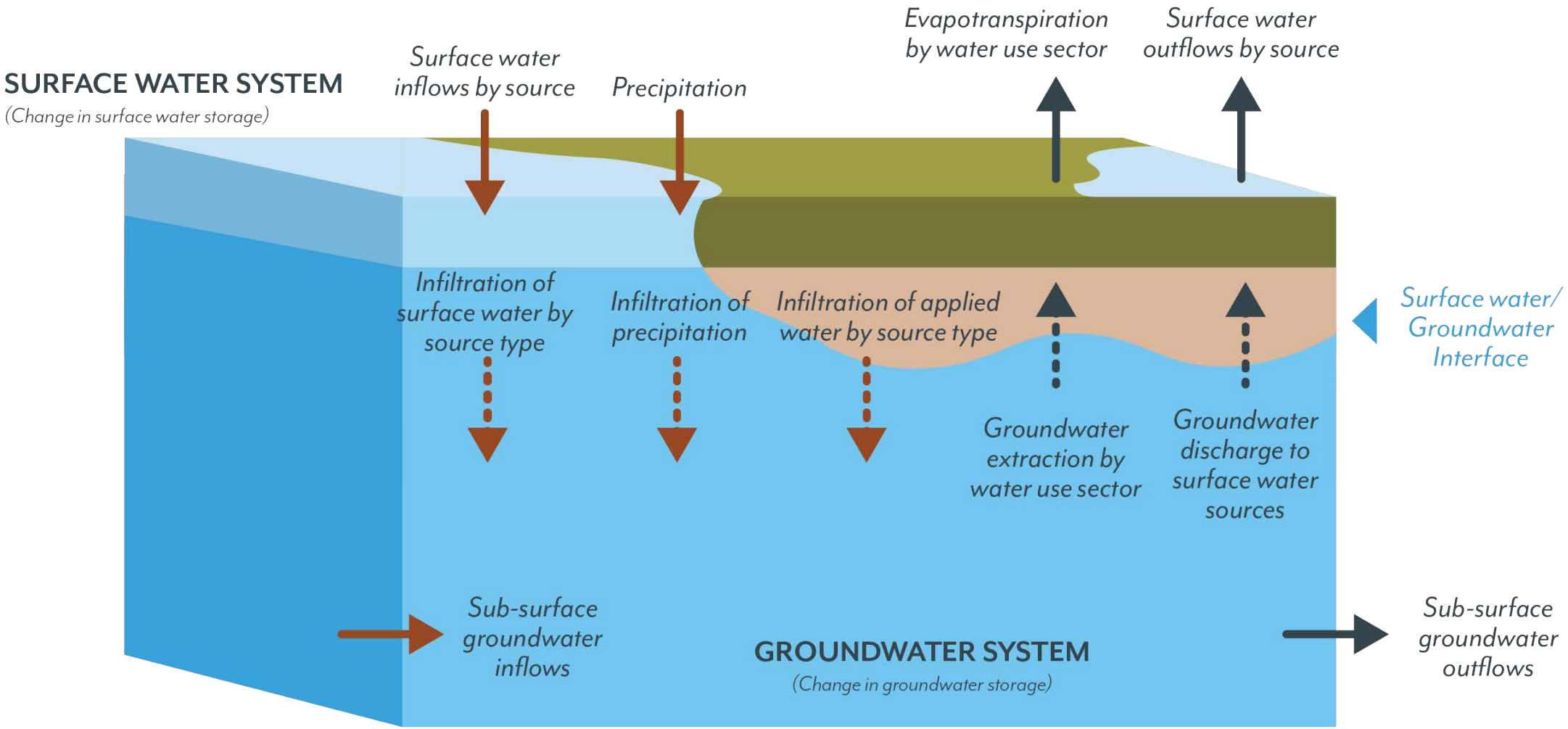


THE WATER BUDGET AND SUSTAINABLE MANAGEMENT CRITERIA

Michael Cruikshank and
David O'Rourke


THE BASIN SETTING SHOWS US
WE HAVE A DEFICIT.
THE WATER BUDGET
SHOWS US WHY.

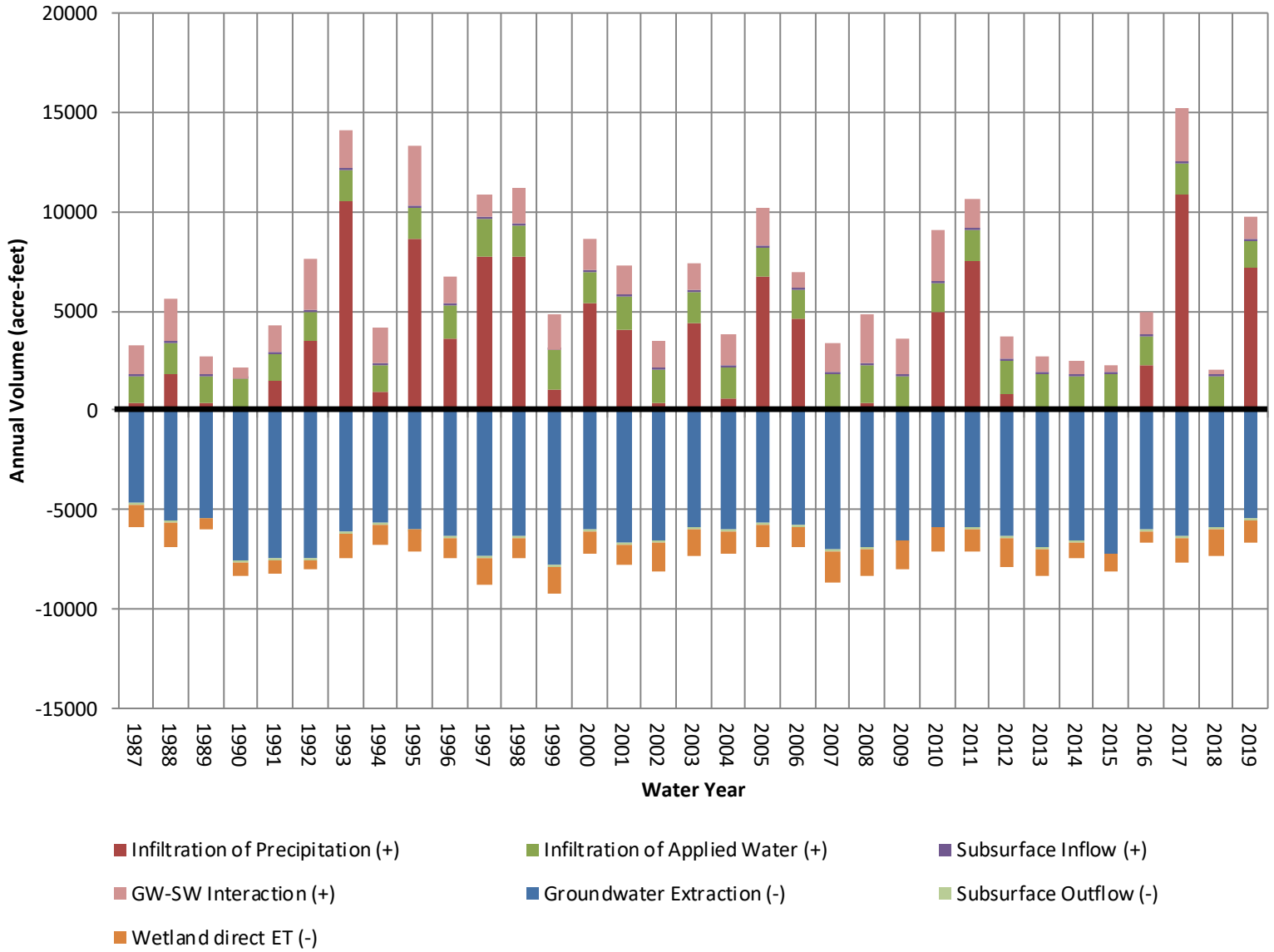
THE WATER BUDGET



Inflow – Outflow = Change in Storage

GROUNDWATER BUDGET — SLO BASIN

- Estimates the elements of the groundwater budget on an annual basis
- **LARGEST INFLOW** – Precipitation
- **LARGEST OUTFLOW** – Extraction from Pumping



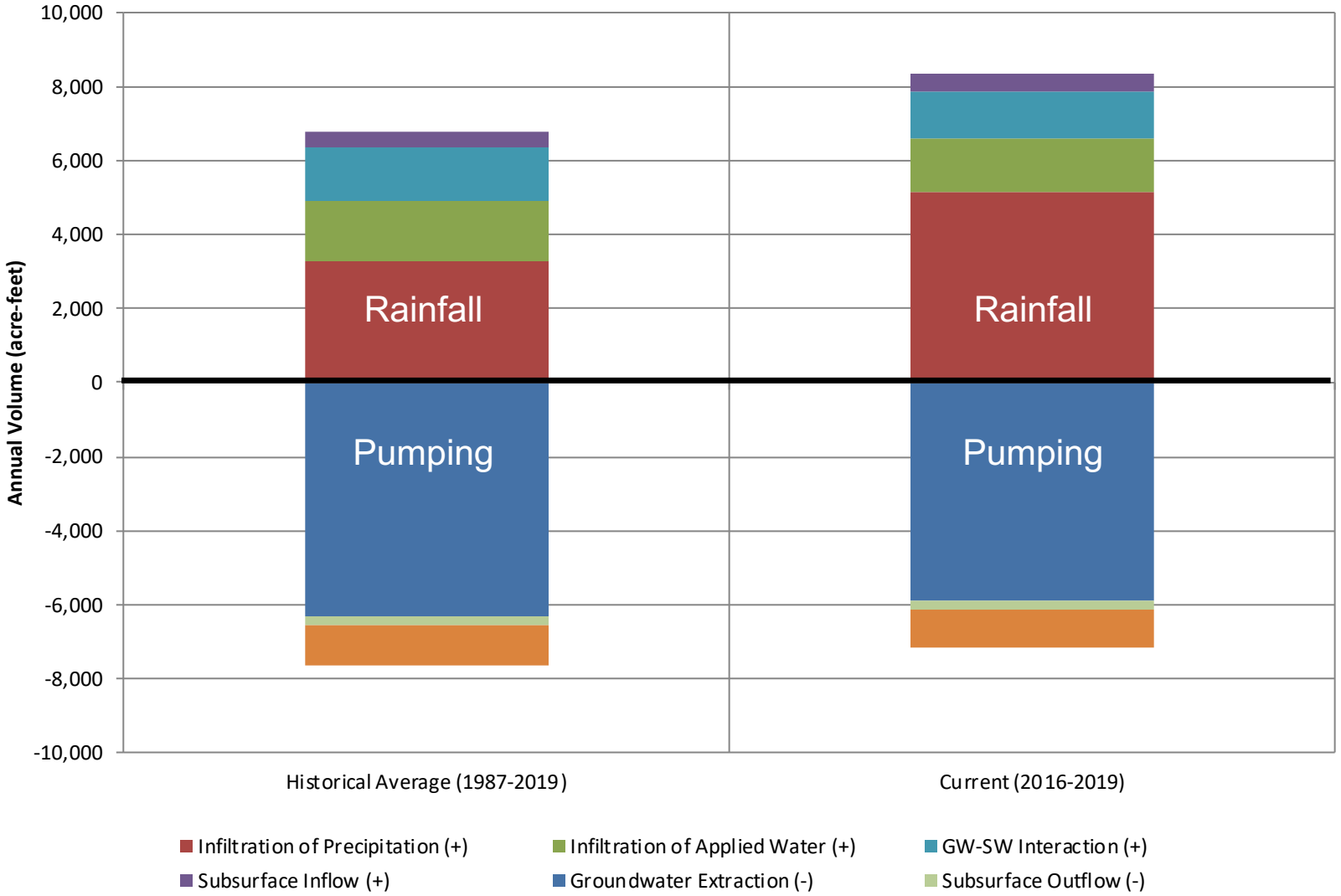
GROUNDWATER BUDGET – SLO BASIN

- **HISTORICAL AVERAGE** (1987-2019)
  - Inflow – Outflow = Change in Storage

  6,800 – 7,600 = **- 800 AFY**

- **CURRENT** (2016 -2019)
  - Inflow – Outflow = Change in Storage

  8,500 – 7,200 = **+1,300 AFY**



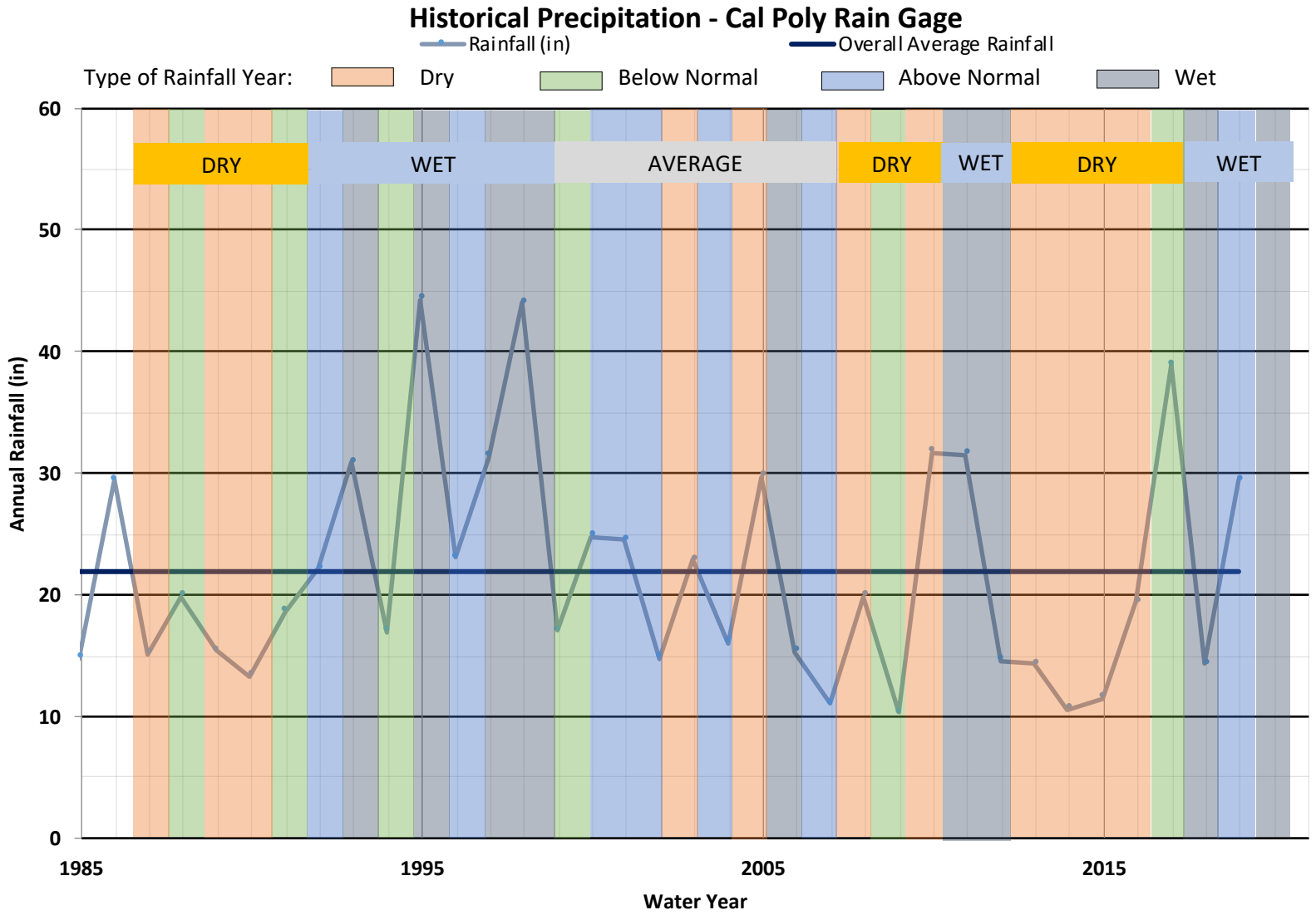
PRECIPITATION — SLO BASIN

- **Average rainfall over base period** (1987-2019)

  21.8 inches

- **Average rainfall over current period** (2016-2019)

  25.6 inches



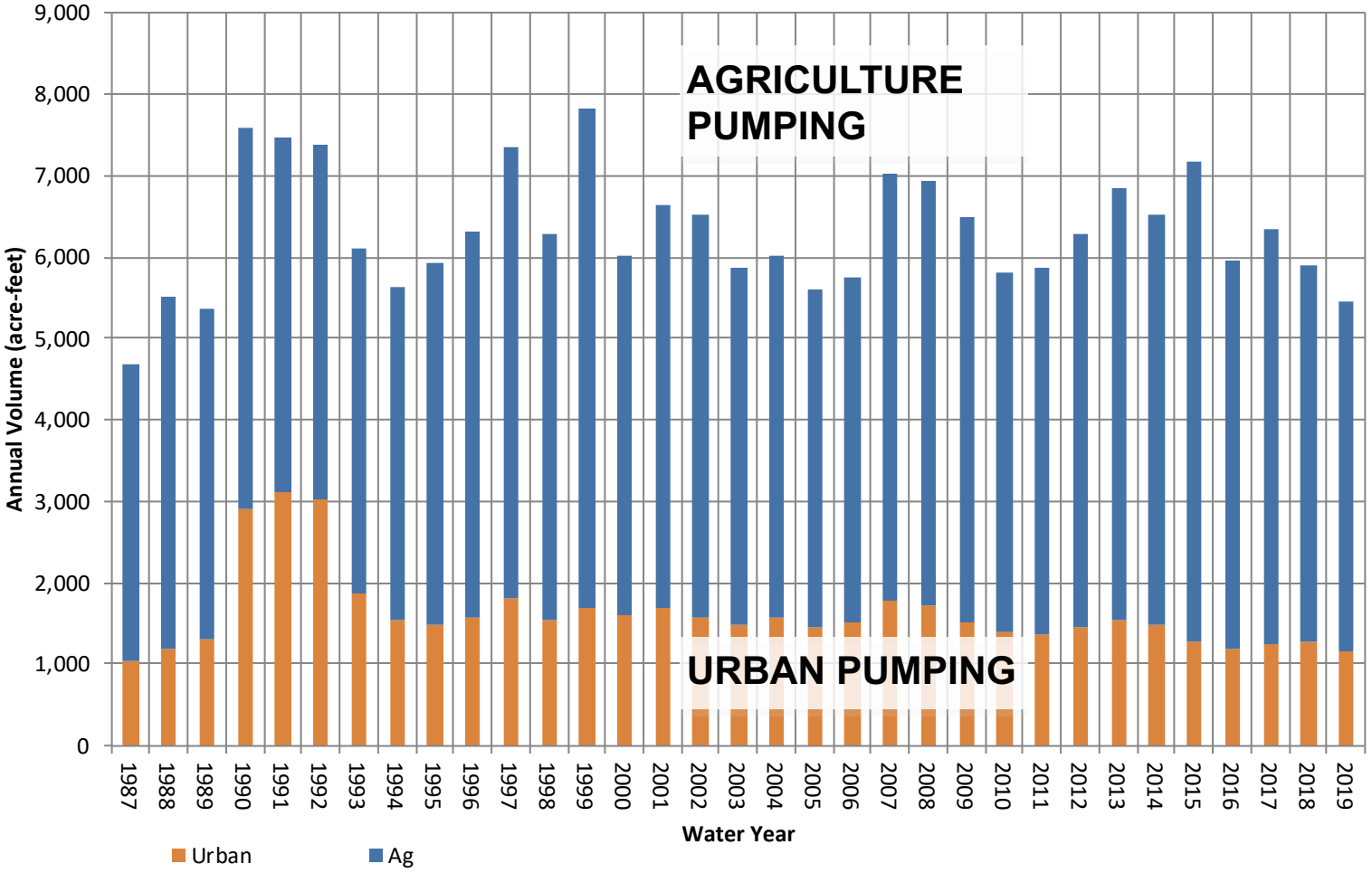
SLO BASIN GROUNDWATER PUMPING BY USE

HISTORICAL AVERAGE
(1987-2019)

- Urban ~ 1,600 AFY
- Agriculture ~ 4,700 AFY
- Total ~ 6,300 AFY

CURRENT
(2016 -2019)

- Urban ~ 1,200 AFY
- Agriculture ~ 4,600 AFY
- Total ~ 5,800 AFY



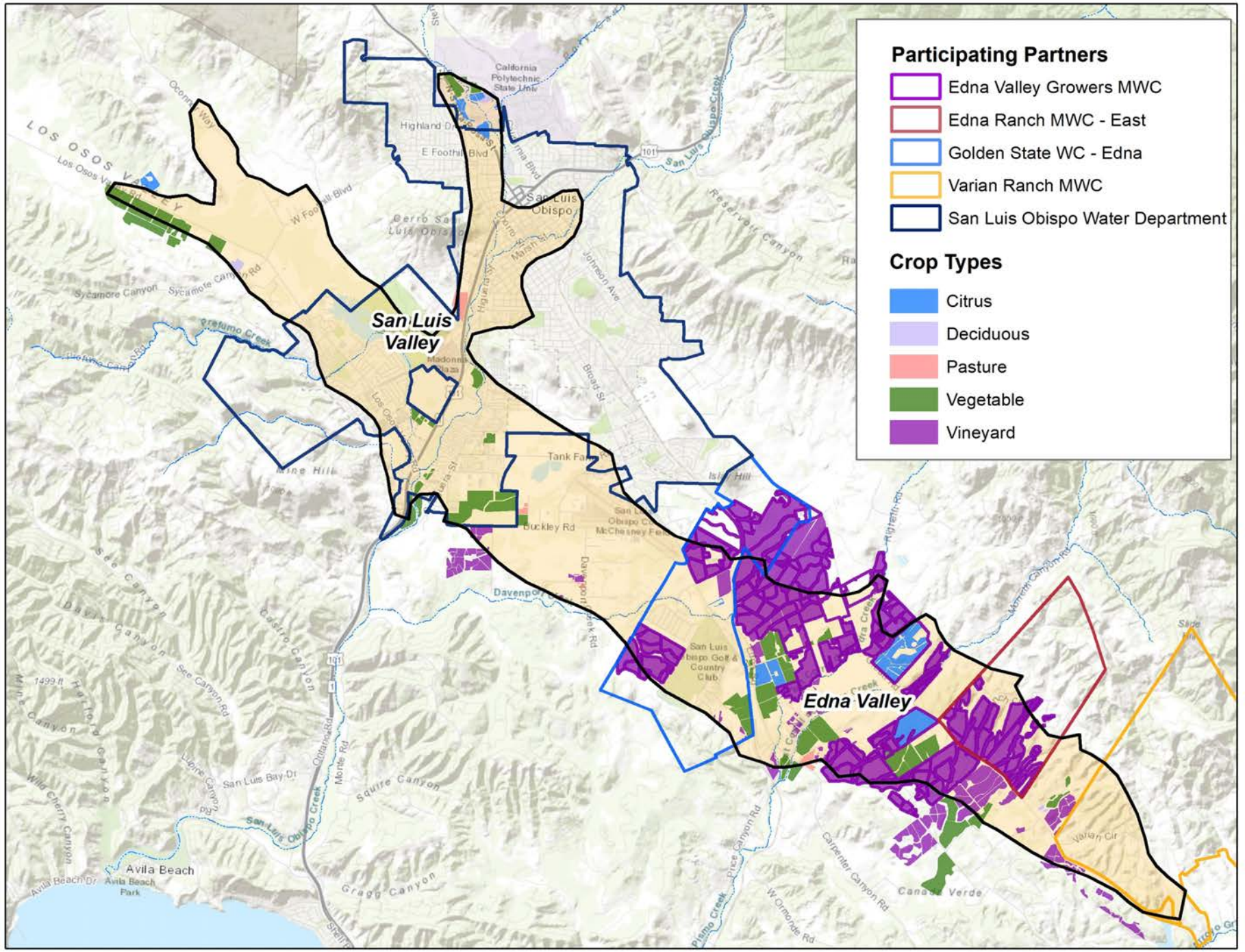
DISTRIBUTION OF PUMPING FROM AGRICULTURE

SAN LUIS VALLEY
(2018)

- ~500 acres total
- ~315 acres of vegetables

EDNA VALLEY
(2018)

- ~3,000 acres total
- ~2,300 acres vineyards



WHAT IS “SUSTAINABLE YIELD”?

The sustainable yield is the maximum quantity of water that can be withdrawn annually from a groundwater supply without causing an undesirable result.

It’s calculated over a base period that represents the long-term conditions in the basin, including any temporary surplus.

HOW WE USE SUSTAINABLE YIELD

HELPS ESTIMATE THE **PROJECTS AND MANAGEMENT** ACTIONS NEEDED TO ACHIEVE SUSTAINABILITY

REMEMBER:

- It is NOT incorporated by SGMA into Sustainable Management Criteria.
- Basinwide pumping within the sustainable yield estimate is neither a measure of, nor proof of, sustainability.
- "SUSTAINABILITY" under SGMA is only demonstrated by avoiding undesirable results for the 6 SUSTAINABILITY MANAGEMENT CRITERIA.

INITIAL ESTIMATED SUSTAINABLE YIELD:

5,600

ACRE FEET

PRELIMINARY OVERDRAFT ESTIMATE

DEFINITION: Overdraft is the condition of a groundwater basin where the amount of water withdrawn by pumping exceeds the amount of water that recharges a basin over a period of years, during which the water supply conditions approximate average conditions.

Edna Subarea

Deficit: 1,100 AFY

San Luis Valley Subarea

Surplus: -700 AFY

Overdraft for SLO Basin:
Deficit: 400 AFY

SUSTAINABLE MANAGEMENT CRITERIA (SMC)

SUSTAINABILITY INDICATOR	CHRONIC LOWERING OF GROUNDWATER LEVELS	REDUCTION OF GROUNDWATER STORAGE	SEAWATER INTRUSION	WATER QUALITY DEGRADATION	LAND SUBSIDENCE	INTER-CONNECTED SURFACE WATER DEPLETIONS
METRIC(S) USED	Groundwater Elevation	Total Volume	Chloride Concentration Isocontour	- Migration Plumes - # of Supply Wells - Volume - Location of Isocontour	Rate and extent of land subsidence	Volume or rate of surface water depletion

SGMA allows all indicators but water quality to be assessed using **WATER LEVELS** as a proxy metric for direct measurement.

GETTING TO SUSTAINABILITY

Set Sustainability Goals

FOR EACH SUSTAINABLE MANAGEMENT CRITERIA

STRIVE TO ACHIEVE
MEASURABLE OBJECTIVES

NEVER GO BELOW
MINIMUM THRESHOLDS

Measure / Monitor

WATER LEVELS AT REPRESENTATIVE WELLS

REPRESENTATIVE WELLS

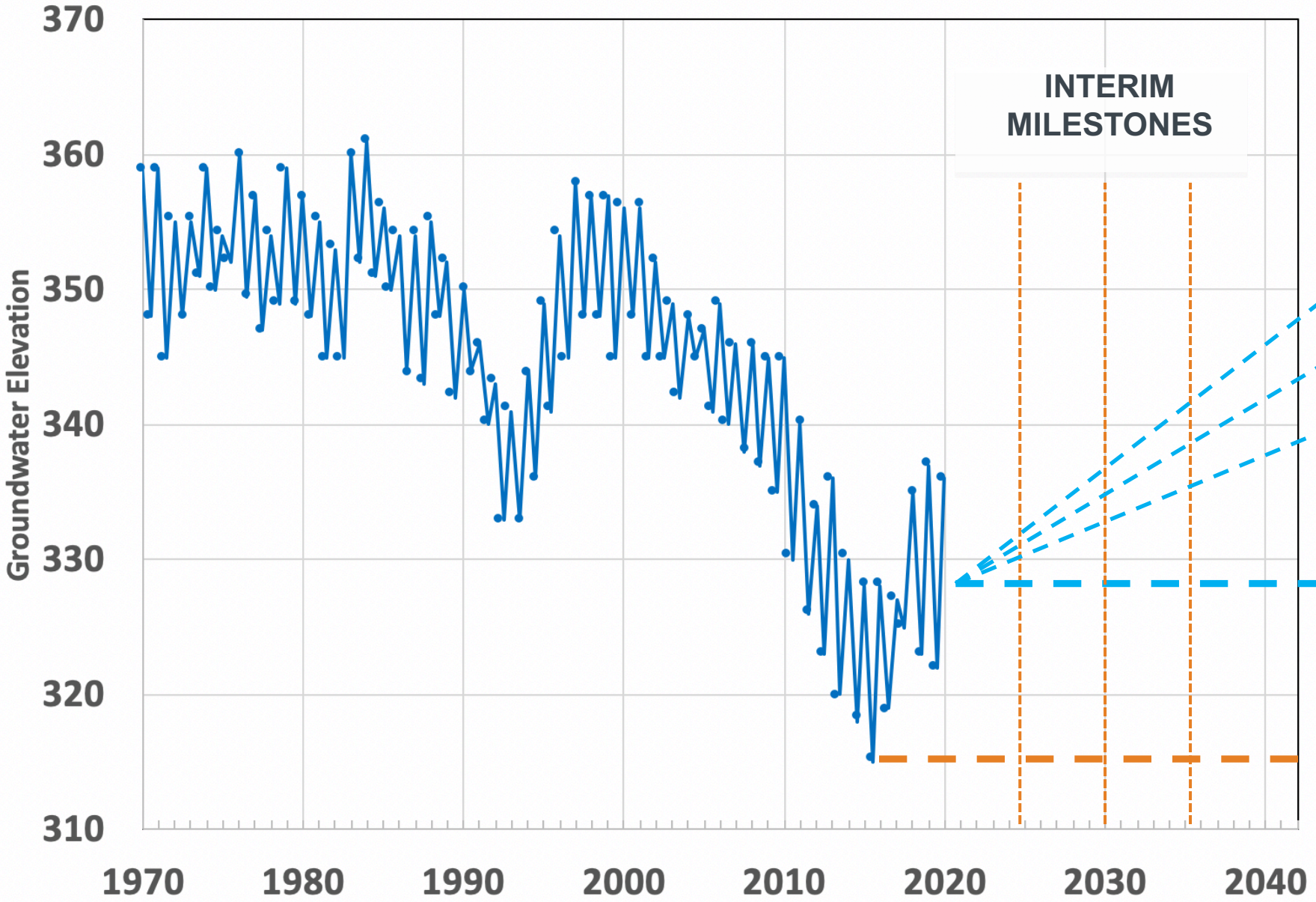
Work Toward Goals

USING PROJECTS & MANAGEMENT ACTIONS

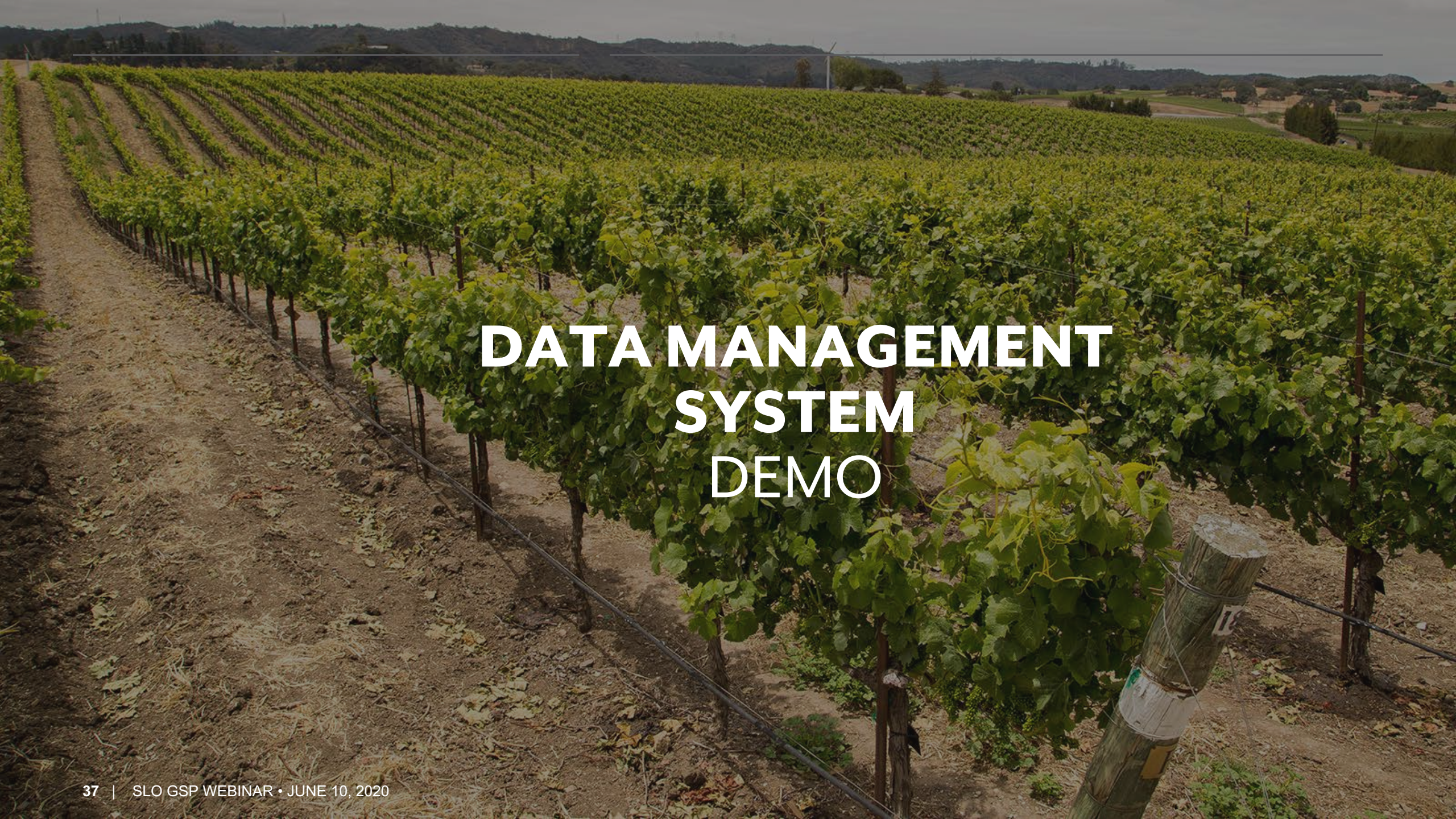
PROJECTS
+ INCREASE SUPPLY

MANAGEMENT ACTIONS
-- REDUCE DEMAND

Example Hydrograph



Each objectives represents a goal with a unique cost.



DATA MANAGEMENT SYSTEM
DEMO

SLO BASIN VISIONING SYNTHESIS

WHAT'S NEXT:

PUBLIC MEETINGS.

GSC Public Meeting
July 8, 2020 • 3:30pm-5:30pm

REVIEW AND COMMENT.

Chapter 6: Water Budget
Public comment opens July 8

STAKEHOLDER WORKSHOP

Stakeholder Workshop #3: Sustainable Goal Setting

Aug 5, 2020

Learn more or take action at

SLOWaterBasin.com

REQUEST ACCOMMODATIONS

Contact Dick Tzou
County of San Luis Obispo
dtzou@co.slo.ca.us
805-781-4473


AUDIENCE Q&A


THANK YOU!
SLOWaterBasin.com