Sustainable Groundwater Management Act Compliance in the Santa Ynez River Valley Basin

Presented to: WE WATCH and
Santa Ynez Valley Natural History Society

Presentation on Water

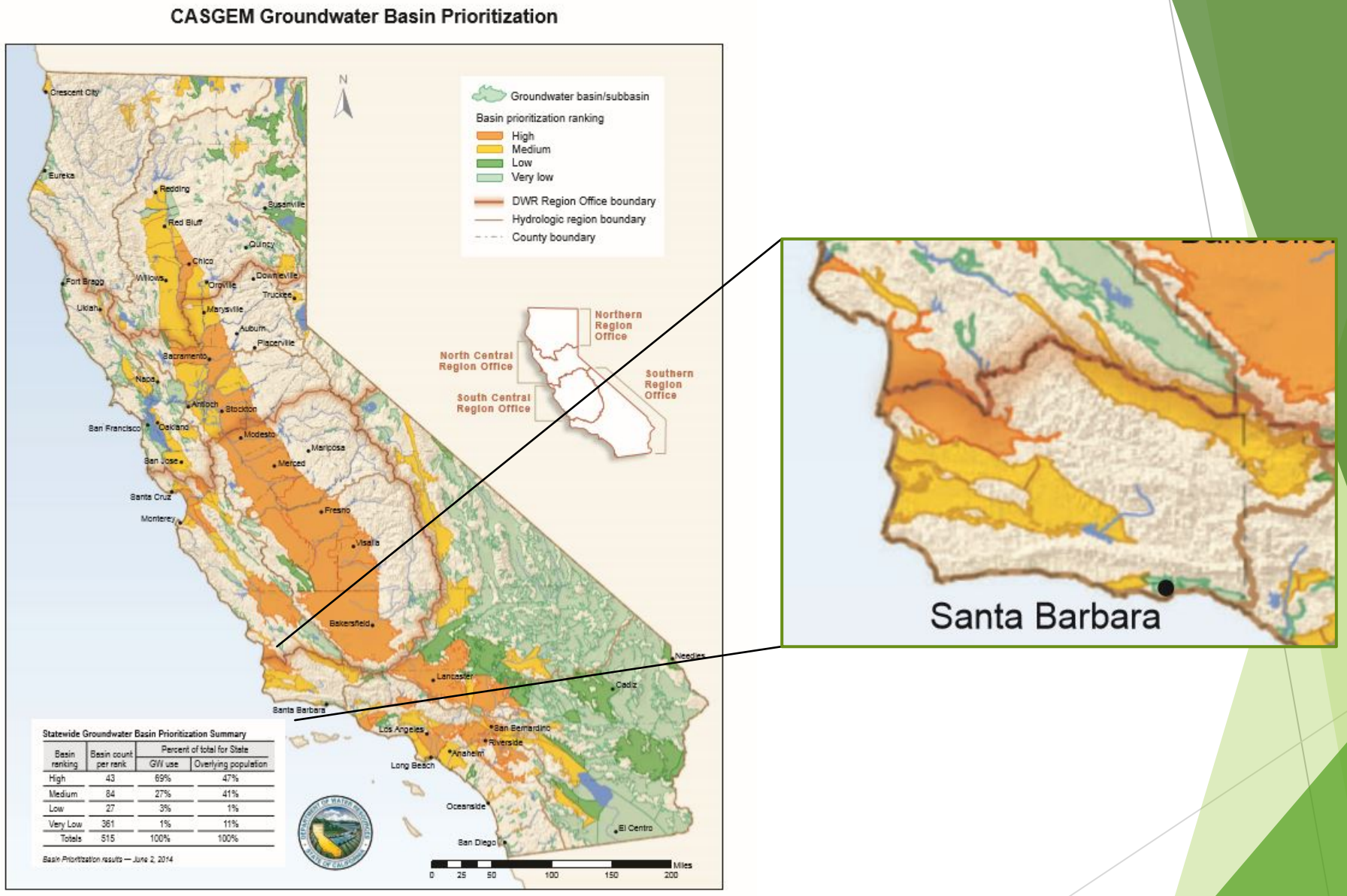
Bill Buelow, PG.

Santa Ynez River Water Conservation District

July 8, 2021

Santa Ynez River Water Conservation District

- Water management agency formed in 1939 under CA Water Code.
- District was formed to protect water rights of residents of the Santa Ynez and Lompoc Valleys.
  - Downstream water right holders rely on the permit conditions set on the Cachuma Project by the SWRCB Board Order 2019-0148.
  - District provides water downstream so residents can exercise their water-rights.
  - Coordinating Agency for three Groundwater Sustainability Agencies
  - Groundwater Reporting and Well Registration Programs.
- Bradbury Dam opened in 1953 and is operated by USBR principally for the benefit of South Coast water users.
- District often confused with water purveyor SYRWCD Improvement District Number One or “ID No. 1”.



Mandatory for groundwater basins in State designated as “high or medium” priority, including the Santa Ynez River Valley Groundwater Basin (DWR Bulletin 118).

Precipitation and Drought Trends

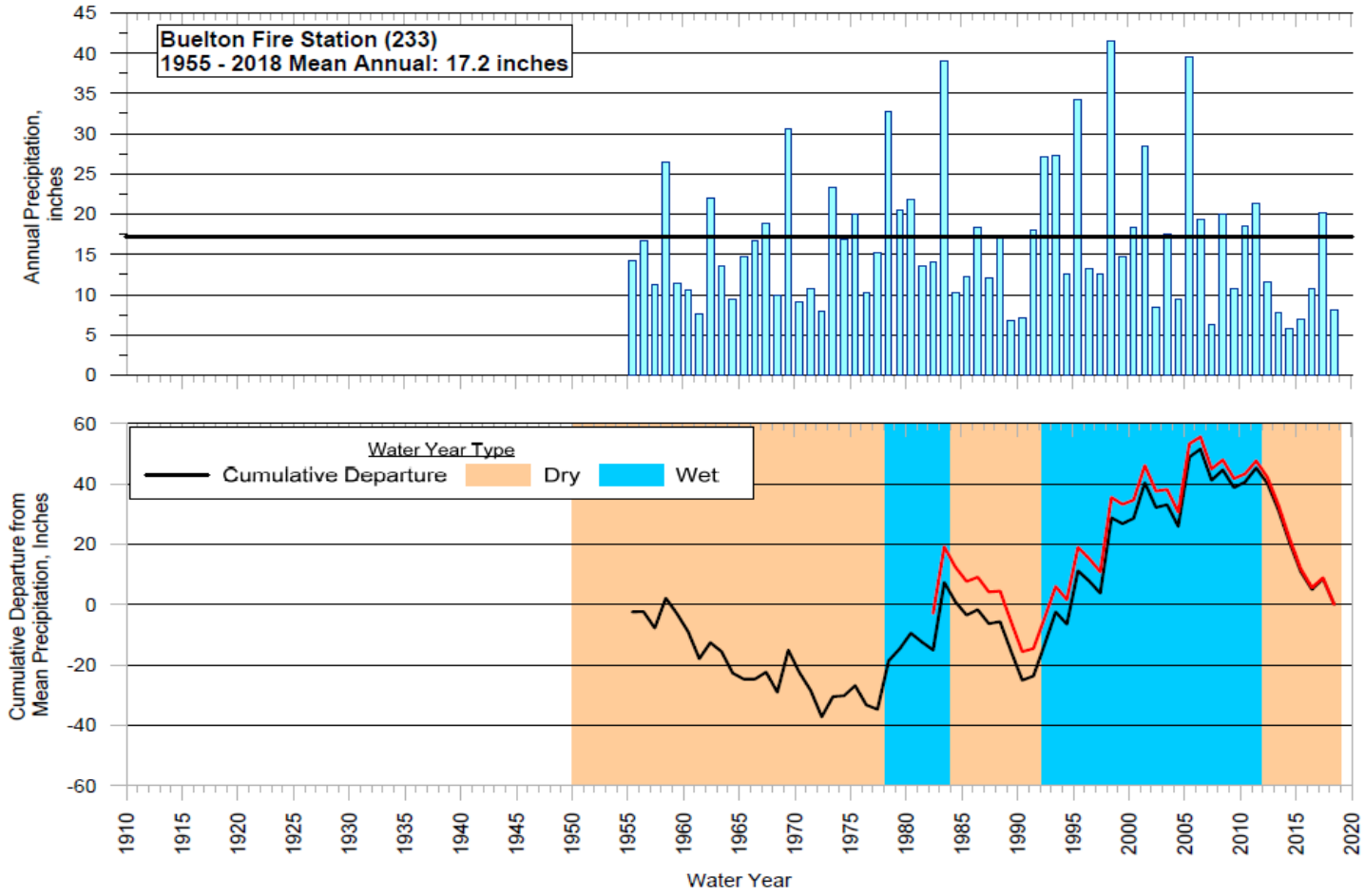


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FIGURE 4
Annual Precipitation and Climatic Periods Buelton in the Eastern Management Area of the Santa Ynez Subbasin
Hydrologic Base Period Selection

P:\Portland\738-SB County\002-Hydro Study of SYRV GW Study E. Mgmt Area\Data\Precipitation\Monthly\BueltonFireStation_CumDepart_wTitle.gpj

Water Year Types

			Hydrologic Year Type Classification [1]		
	Lompoc City Hall		WMA	Upper Santa Ynez River	
Water Year	Precipitation (in/year)	% of Average [2]	USGS Gage 11132500 (Salsipuedes Creek)	SWRCB WRO 2019-148	Climatic Trends [3]
1982	11.9	81%	Dry	Below normal	Wet
1983	34.0	231%	Wet	Wet	Wet
1984	8.0	54%	Below normal	Above normal	Dry
1985	9.8	67%	Dry	Dry	Dry
1986	19.3	131%	Above normal	Above normal	Dry
1987	11.2	76%	Dry	Critically Dry	Dry
1988	15.4	105%	Dry	Dry	Dry
1989	6.6	45%	Critically Dry	Critically Dry	Dry
1990	6.6	45%	Critically Dry	Critically Dry	Dry
1991	15.0	102%	Below normal	Above normal	Dry
1992	15.8	107%	Above normal	Wet	Wet
1993	17.7	120%	Wet	Wet	Wet
1994	12.8	87%	Below normal	Below normal	Wet
1995	33.8	229%	Wet	Wet	Wet
1996	12.2	82%	Below normal	Below normal	Wet
1997	12.0	82%	Above normal	Above normal	Wet
1998	34.3	233%	Wet	Wet	Wet
1999	15.2	103%	Above normal	Below normal	Normal
2000	15.1	103%	Above normal	Above normal	Normal
2001	17.8	121%	Wet	Wet	Normal
2002	7.5	51%	Dry	Dry	Normal
2003	11.7	79%	Below normal	Below normal	Normal
2004	8.6	58%	Dry	Dry	Normal
2005	24.9	169%	Wet	Wet	Normal
2006	16.8	114%	Above normal	Above normal	Normal
2007	5.3	36%	Critically Dry	Critically Dry	Normal
2008	13.6	92%	Above normal	Above normal	Normal
2009	10.4	71%	Critically Dry	Dry	Normal
2010	19.5	132%	Below normal	Above normal	Normal
2011	26.8	182%	Wet	Wet	Normal
2012	10.6	72%	Dry	Dry	Dry
2013	7.2	49%	Critically Dry	Critically Dry	Dry
2014	7.2	49%	Critically Dry	Critically Dry	Dry
2015	8.0	55%	Critically Dry	Critically Dry	Dry
2016	11.7	79%	Critically Dry	Dry	Dry
2017	22.5	153%	Above normal	Above normal	Normal
2018	8.3	56%	Critically Dry	Dry	Normal

Water Year Type (1942-2020)

- Wet
- No Data
- Above/Below Normal
- Dry / Critically Dry

Santa Barbara County
Integrated Regional Water Management Plan

Impact	Ranges*
Temperature	Winter: Projected increases of 4°F to 5°F Summer: Projected increases of 5°F to 6°F
Precipitation	5- to 7-inch decrease in average annual rainfall Increase in annual precipitation variability, fewer and more intense storms, and longer dry periods
Sea-Level Rise	4–30 centimeters (cm) by 2030 12–61 cm by 2050 42–167 cm by 2100
Supply	State Water Project delivery decrease of 7%–10% by 2050, and 21%–25% by 2100; changes to local supply not quantified
Wildfire	Low to moderate increase in projected fire risk
Flooding	Greater flood magnitudes**

- Impacts of Climate Change on the Region by Mid-Century
- Source: Santa Barbara County IRWMP

SGMA Background

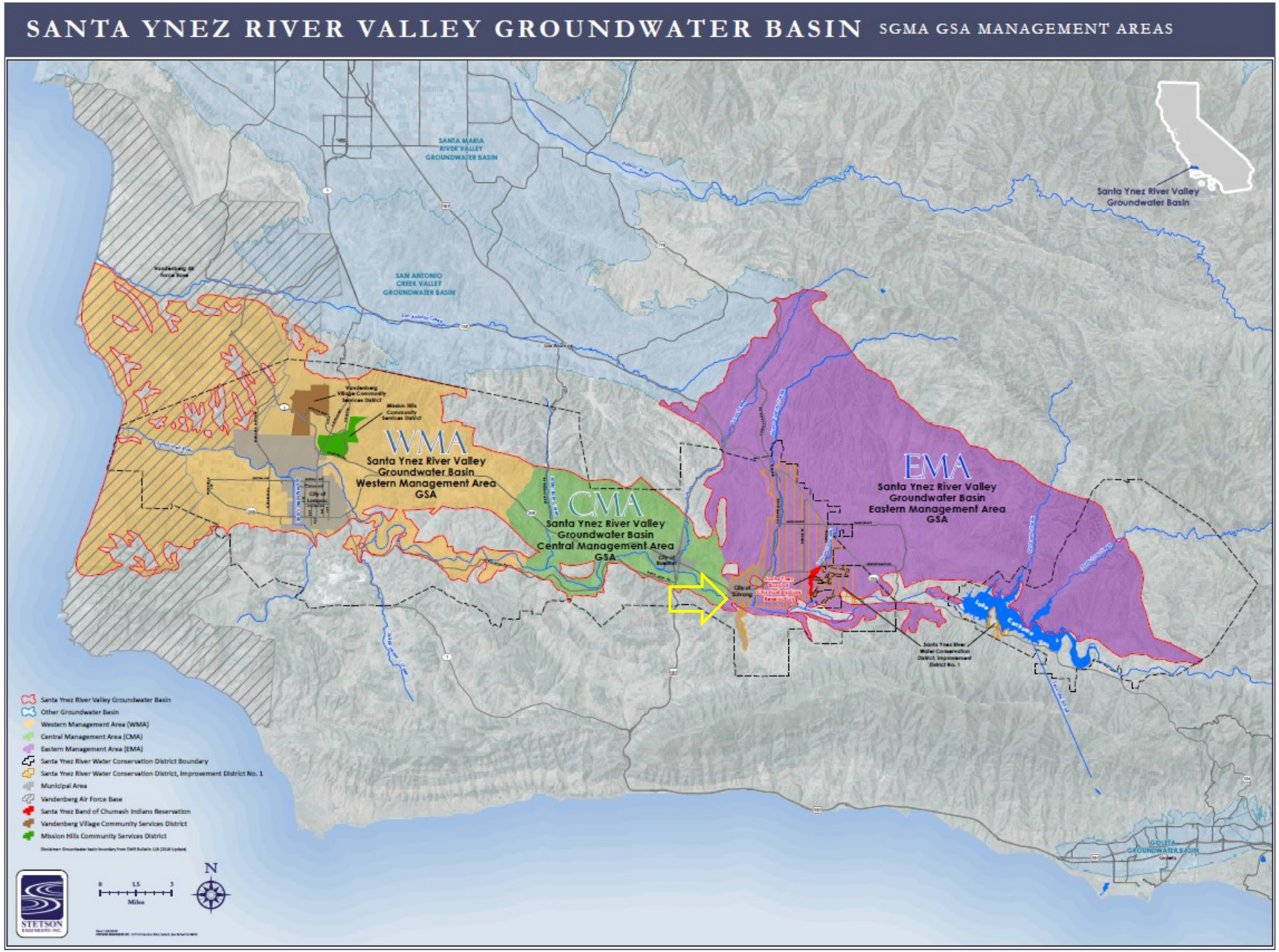
- 2015 SGMA law went into effect
- SYVGW Basin is “medium priority”
- Basin must be sustainable in 20 years
- SGMA gives local control of water management
- Each GSA will prepare a Groundwater Sustainability Plan (GSP) and submit to DWR by January 2022
- State Water Board is enforcement if locals do not comply
- New law was in response to periodic droughts in California

SGMA History
Santa Ynez River Valley Groundwater Basin

- 2017 – three Memorandum of Agreement (MOA)
  - Establishes three GSA Committees
    - WMA, CMA and EMA
- County Water Agency $1M+ contribution for EMA
- DWR Grants

GSA Formation and History Continued

- Three Groundwater Sustainability Agencies in the Santa Ynez Basin
  - Eastern Management Area GSA – Solvang, SYRWCD, ID No 1, County
  - Central Management Area GSA – Buellton, SYRWCD, County
  - Western Management Area GSA – Lompoc, Vandenberg Village, Mission Hills, SYRWCD, and County
- One representative (elected official) and one alternate per agency
- Late 2018 - first GSA Committee meetings were held


SANTA YNEZ RIVER VALLEY GROUNDWATER BASIN
SGMA GSA MANAGEMENT AREAS
SANTA MARIA RIVER VALLEY GROUNDWATER BASIN
SAN ANTONIO CREEK VALLEY GROUNDWATER BASIN
Santa Ynez River Valley Groundwater Basin
WMA
Santa Ynez River Valley Groundwater Basin Western Management Area GSA
CMA
Santa Ynez River Valley Groundwater Basin Central Management Area GSA
EMA
Santa Ynez River Valley Groundwater Basin Eastern Management Area GSA
Vandenberg Village Community Services District
Mission Hills Community Services District
Lake Cachuma
GOLETA GROUNDWATER BASIN
Santa Ynez River Valley Groundwater Basin
Other Groundwater Basin
Western Management Area (WMA)
Central Management Area (CMA)
Eastern Management Area (EMA)
Santa Ynez River Water Conservation District Boundary
Santa Ynez River Water Conservation District, Improvement District No. 1
Municipal Area
Vandenberg Air Force Base
Santa Ynez Band of Chumash Indians Reservation
Vandenberg Village Community Services District
Mission Hills Community Services District
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STETSON ENGINEERS INC.

SGMA Meetings

- GSA Committee Quarterly Regular Meetings
- Special meetings as needed
- All meetings are held virtually, since March 2020, due to COVID restrictions
- Citizen Advisory Group Meetings (CAG)
  - Chosen by GSA Committee
  - Provide focused public comment on draft documents
  - Cross section of uses and users of groundwater

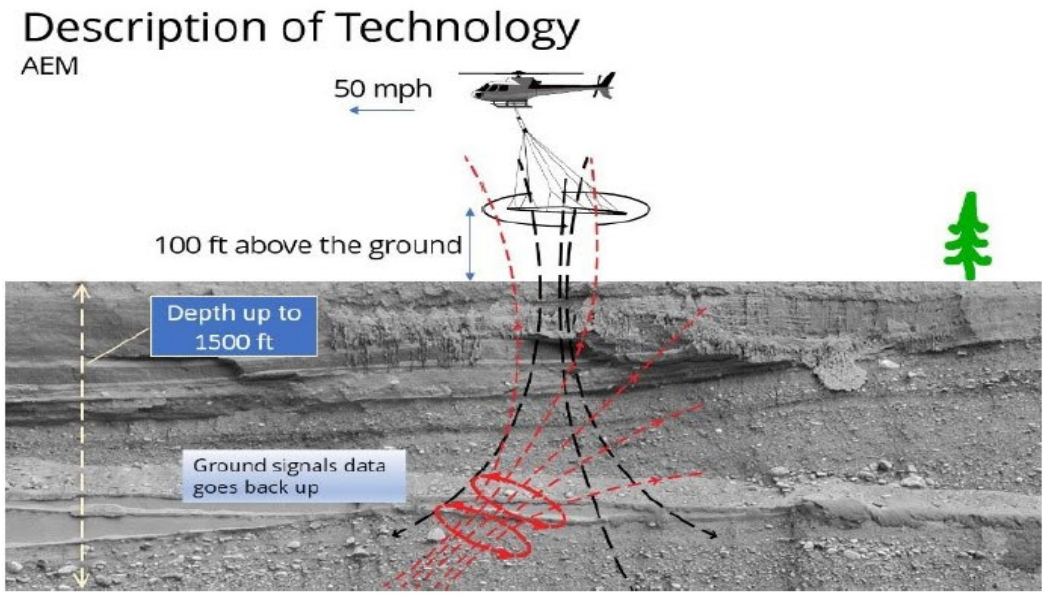
Sustainable Groundwater Management Act

- GSPs will address six “undesirable results” from groundwater pumping
  - Chronic lowering of groundwater levels
  - Significant and unreasonable reduction of groundwater storage
  - Significant and unreasonable degraded water quality
  - Depletions of interconnected surface water
  - Significant and unreasonable land subsidence
  - Significant and unreasonable seawater intrusion

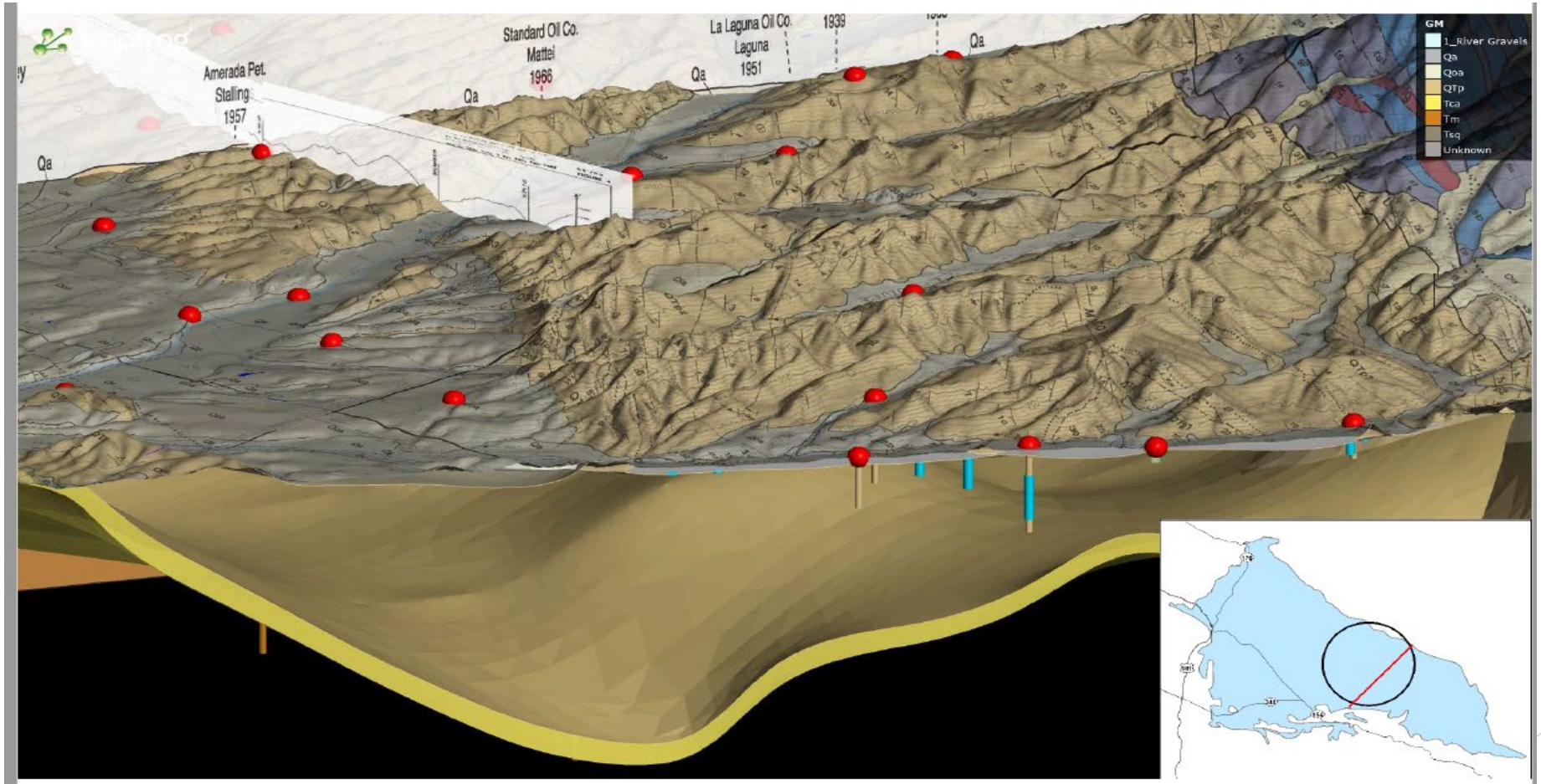
Groundwater Sustainability Plans

- Plans are due to DWR on or before January 31, 2022
- Plans must contain:
  - Basin Setting
  - Sustainable Management Criteria
  - Monitoring Networks
  - Projects and Management Actions
- Post GSP submittal activities TBD

Aerial Electromagnetic Survey



Geologic Model



Completed: Geologic model

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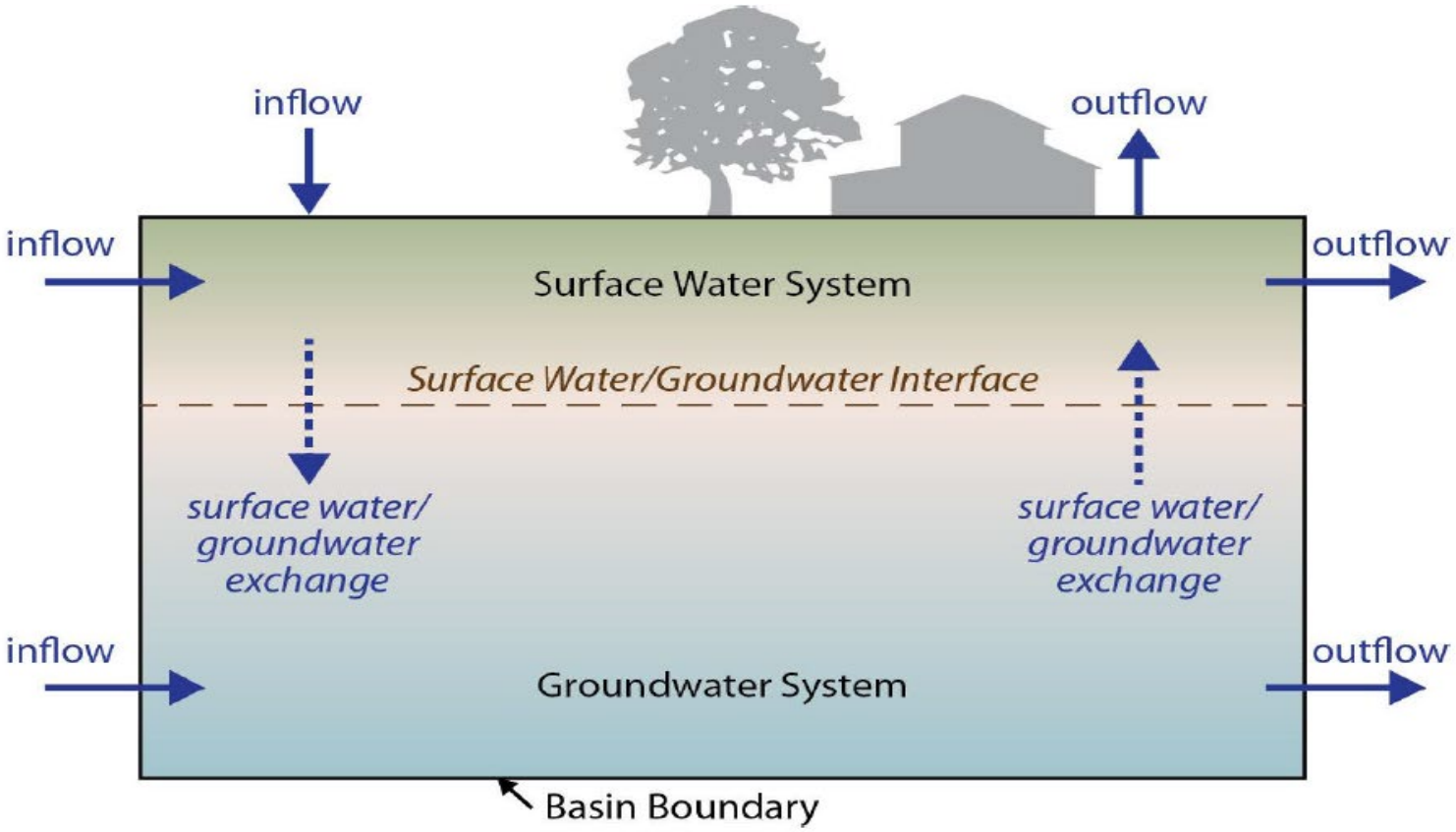
EMA
Santa Ynez River Valley Groundwater Basin
Eastern Management Area
Groundwater Sustainability Agency

Water Budget



Historical Groundwater Budget

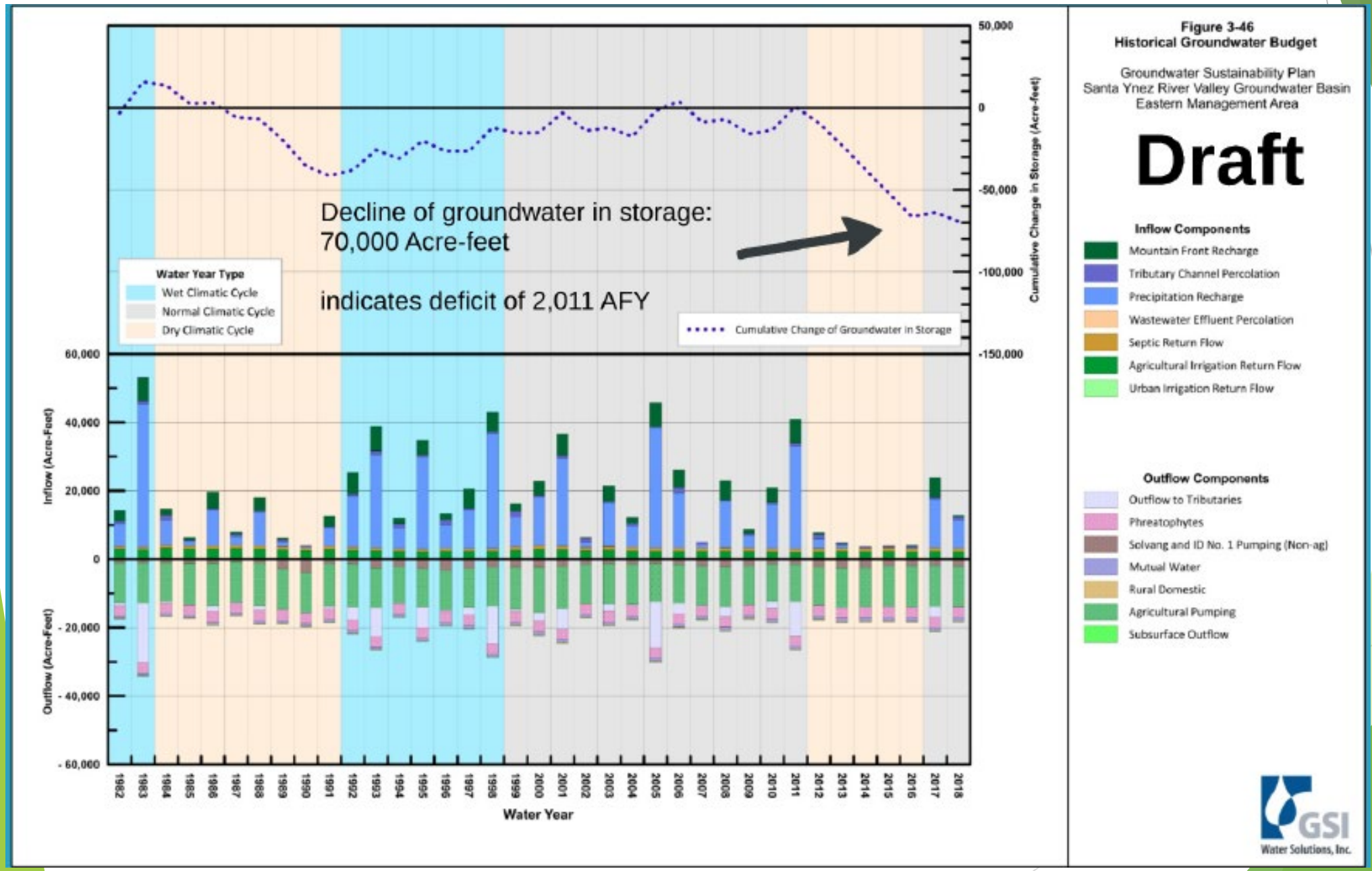


Figure 3-46
Historical Groundwater Budget

Groundwater Sustainability Plan
Santa Ynez River Valley Groundwater Basin
Eastern Management Area

Draft

Inflow Components
- Mountain Front Recharge
- Tributary Channel Percolation
- Precipitation Recharge
- Wastewater Effluent Percolation
- Septic Return Flow
- Agricultural Irrigation Return Flow
- Urban Irrigation Return Flow

Outflow Components
- Outflow to Tributaries
- Phreatophytes
- Solvang and ID No. 1 Pumping (Non-ag)
- Mutual Water
- Rural Domestic
- Agricultural Pumping
- Subsurface Outflow

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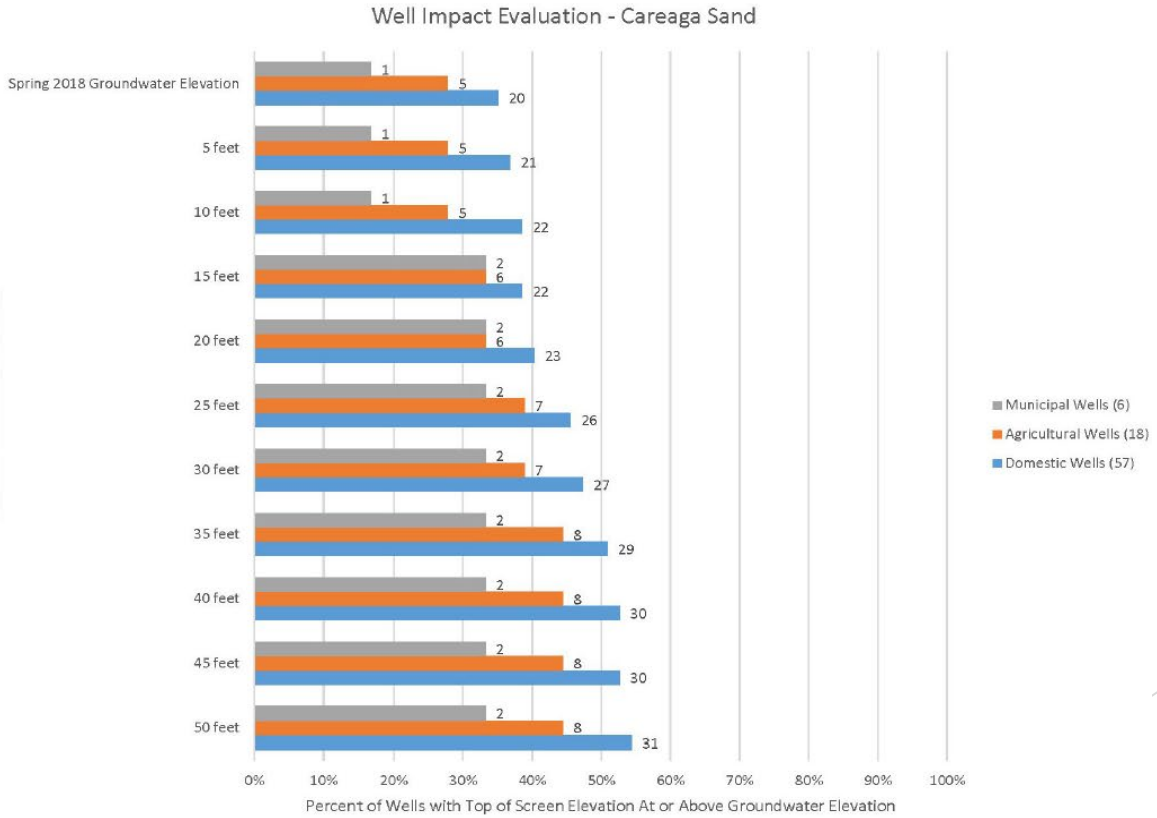
Sustainability Management Criteria

- Sustainability Goal for Basin
- Minimum Thresholds (MTs)
- Measurable Objectives (MOs)
- Interim Milestones (if applicable)
- Undesirable Results

Well Impact Evaluation Careaga Sand

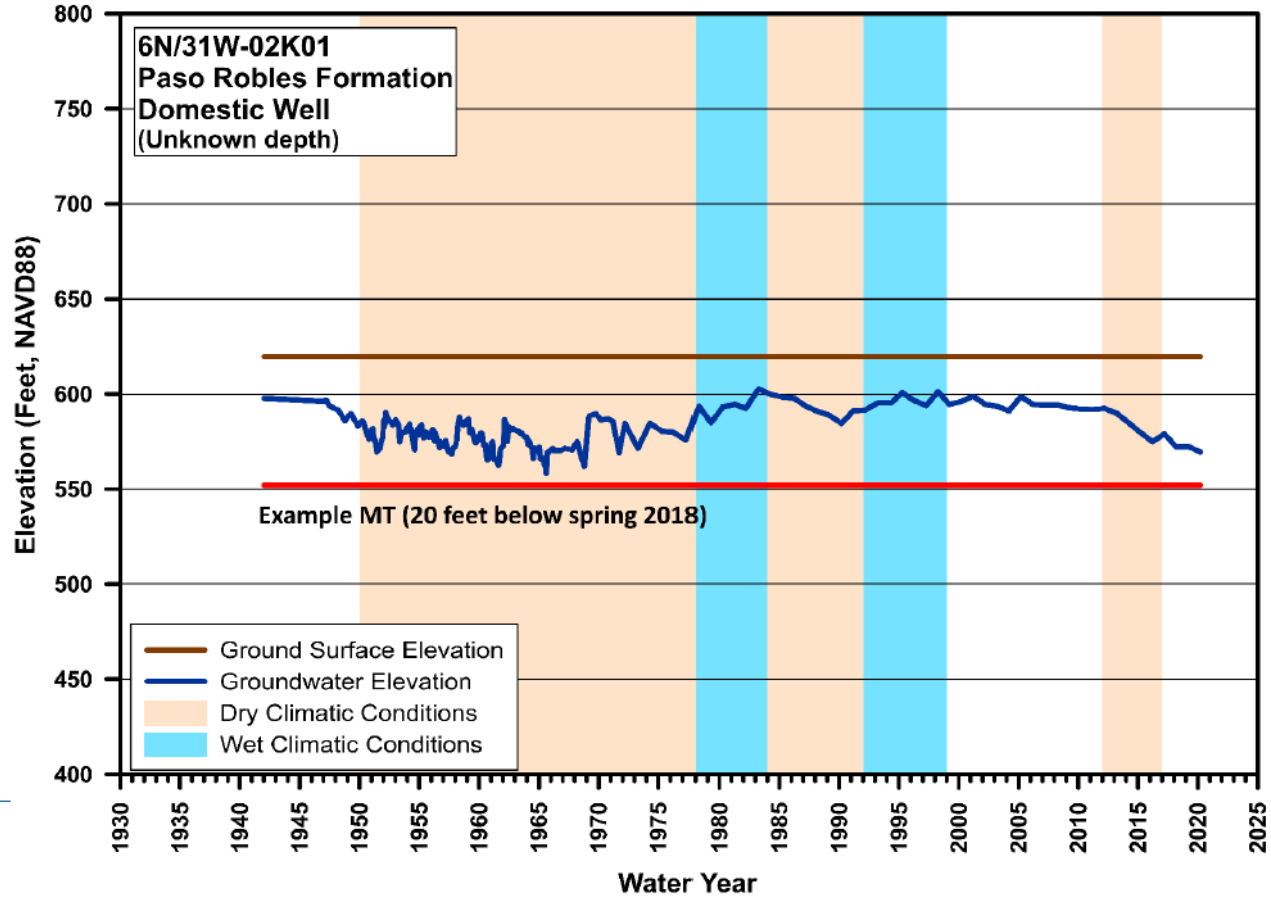
Well Impact Evaluation

Careaga Sand
Spring 2018



Setting Minimum Thresholds

Representative Groundwater Hydrographs – Paso Robles Formation



Projects and Management Actions

Actions if Minimum Thresholds are Reached

Chronic Lowering of Groundwater Levels and Chronic Reduction in Storage

Sustainability Criteria

- Undesirable Result
  - Water levels fall below MTs after average and above average rainfall periods in 50% of representative wells over two consecutive years
  - Significant number of wells unable to produce usual historical quantities of water
  - Groundwater in storage continues to decrease over multiple years in the future
- Minimum Threshold
  - Paso Formation Wells: 15 feet below Spring 2018 water levels in representative wells
  - Careaga Sand Wells: 12 feet below Spring 2018 water levels in representative wells

Evaluation

- Evaluate cause and trends
- Consult with basin stakeholders on remedies
- If undesirable results are anticipated and are a result of pumping, then management actions taken

Projects and Management Actions con't

Potential Management Actions

Initial Management Actions During GSP Implementation

1. Address data gaps in priority areas
2. Metering program to improve estimates of actual water use
3. Promote water efficiency program
4. SGMA well registration program

More Intensive Management Actions if Needed

1. Demand management program
2. Groundwater credit program

Projects and Management Actions con’t

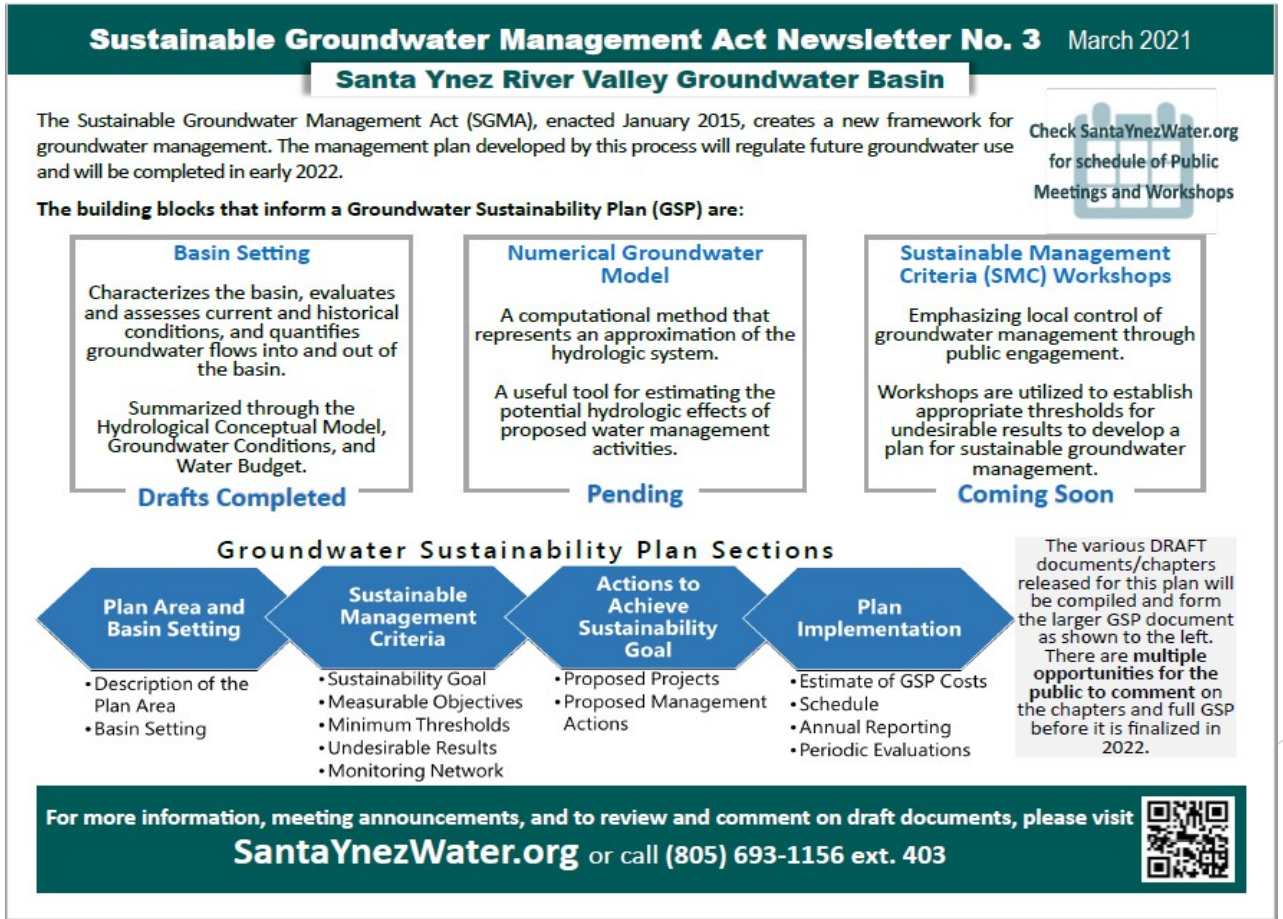
- Potential Projects
  - Stormwater Capture and Recharge
  - Recycled water and indirect potable reuse
  - Precipitation enhancement
  - Conjunctive Use

Groundwater Sustainability Plans-Input

- Several opportunities to provide input
- After completion of each draft section
- Upon completion of Draft GSP and prior to adoption by the GSA
- After submittal of Final GSP to DWR

Public Meetings and Outreach

- Groundwater Communication Portal (GCP)
- Over 103 meetings basin-wide
- Citizen Advisory Group Meetings (CAG) - one for each GSA, meet as needed
- Newsletters sent in Member Agency utility bills, and available on-line



Sustainable Groundwater Management Act Newsletter No. 3 March 2021

Santa Ynez River Valley Groundwater Basin

The Sustainable Groundwater Management Act (SGMA), enacted January 2015, creates a new framework for groundwater management. The management plan developed by this process will regulate future groundwater use and will be completed in early 2022.

Check SantaYnezWater.org for schedule of Public Meetings and Workshops

The building blocks that inform a Groundwater Sustainability Plan (GSP) are:

Basin Setting

Characterizes the basin, evaluates and assesses current and historical conditions, and quantifies groundwater flows into and out of the basin.

Summarized through the Hydrological Conceptual Model, Groundwater Conditions, and Water Budget.

Drafts Completed

Numerical Groundwater Model

A computational method that represents an approximation of the hydrologic system.

A useful tool for estimating the potential hydrologic effects of proposed water management activities.

Pending

Sustainable Management Criteria (SMC) Workshops

Emphasizing local control of groundwater management through public engagement.

Workshops are utilized to establish appropriate thresholds for undesirable results to develop a plan for sustainable groundwater management.

Coming Soon

Groundwater Sustainability Plan Sections

Plan Area and Basin Setting	Sustainable Management Criteria	Actions to Achieve Sustainability Goal	Plan Implementation
• Description of the Plan Area • Basin Setting	• Sustainability Goal • Measurable Objectives • Minimum Thresholds • Undesirable Results • Monitoring Network	• Proposed Projects • Proposed Management Actions	• Estimate of GSP Costs • Schedule • Annual Reporting • Periodic Evaluations

The various DRAFT documents/chapters released for this plan will be compiled and form the larger GSP document as shown to the left. There are **multiple opportunities for the public to comment** on the chapters and full GSP before it is finalized in 2022.

For more information, meeting announcements, and to review and comment on draft documents, please visit SantaYnezWater.org or call **(805) 693-1156 ext. 403**

Remaining Schedule for GSPs

- July 2021 – Complete remaining sections
  - Monitoring Network
  - Projects and Management Actions
- GSA Meetings (July and August) – watch for eblasts!
- Public Comment on Draft GSP - August to October
- Final GSP and GSA Committee Adoption - December
- GSP due date January 31, 2021
- Submittal starts DWR Public Comment Period
- Implementation of GSP starts upon submittal
- First annual report due 1 April 2022 (one for each GSP)

Sign up to receive email blasts on upcoming GSA or CAG meetings

www.santaynezwater.org

QUESTIONS?