

SANTA MARGARITA Groundwater Agency



August 11, 2020

Agenda

- ▶ Basin Setting and pumping history
- ▶ Groundwater Sustainability Agency and Groundwater Sustainability Plan
- ▶ Surface Water and Ecosystems
- ▶ Projects and Management Actions
- ▶ Wrap up and Next Steps

Basin Setting and Conditions

The background features a series of overlapping, semi-transparent blue geometric shapes, primarily triangles and polygons, in various shades of light blue and dark blue. These shapes are arranged in a way that creates a sense of depth and movement, particularly on the right side of the frame. The overall aesthetic is clean and modern.

Santa Margarita Ground Water Basin



Geology



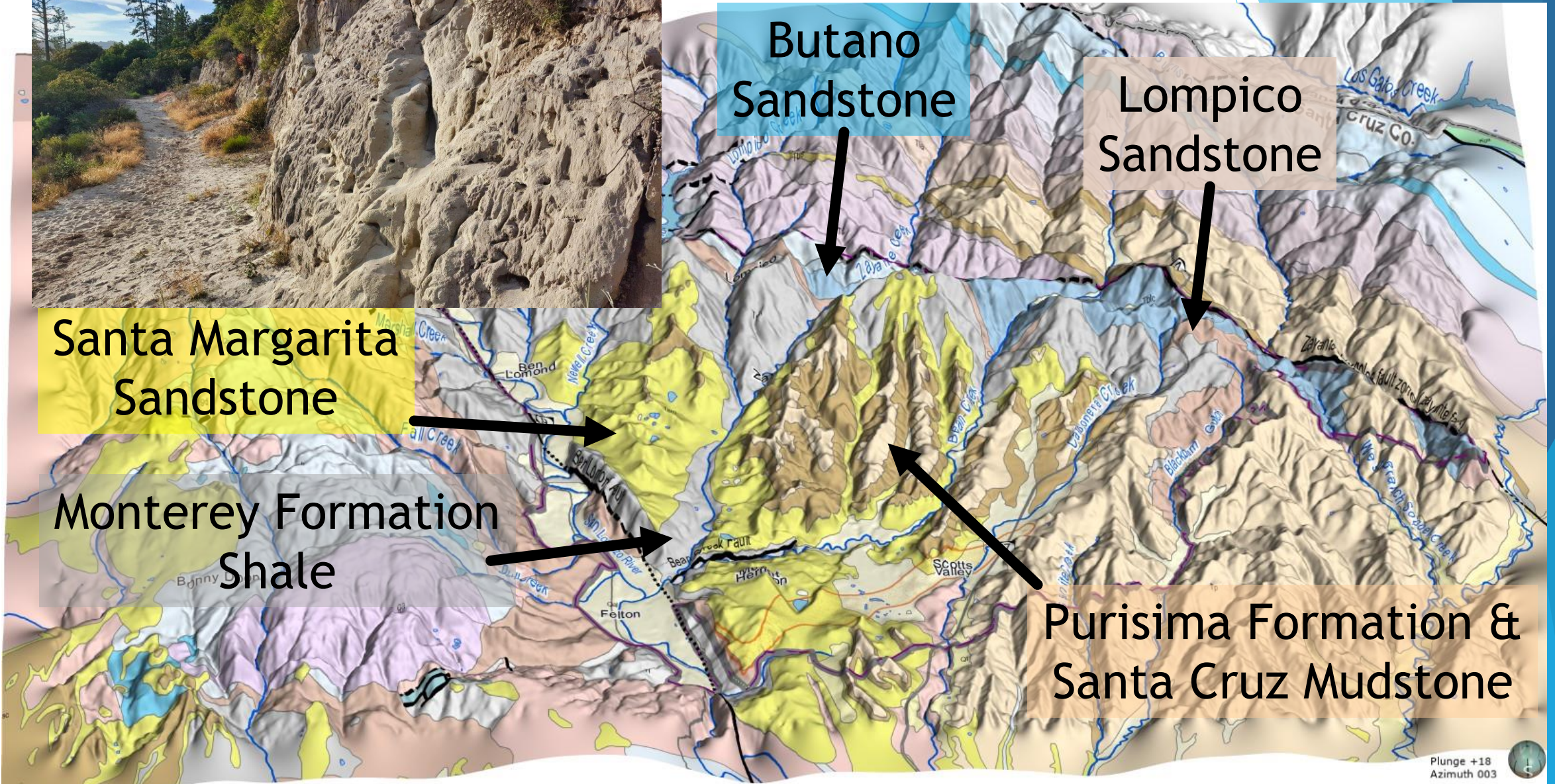
Santa Margarita Sandstone

Butano Sandstone

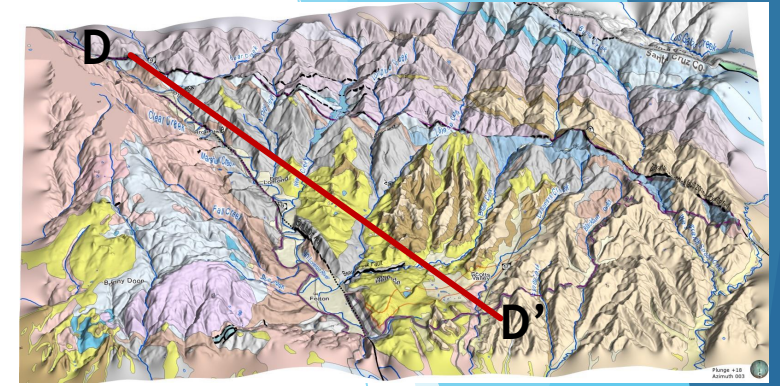
Lompico Sandstone

Monterey Formation Shale

Purisima Formation & Santa Cruz Mudstone

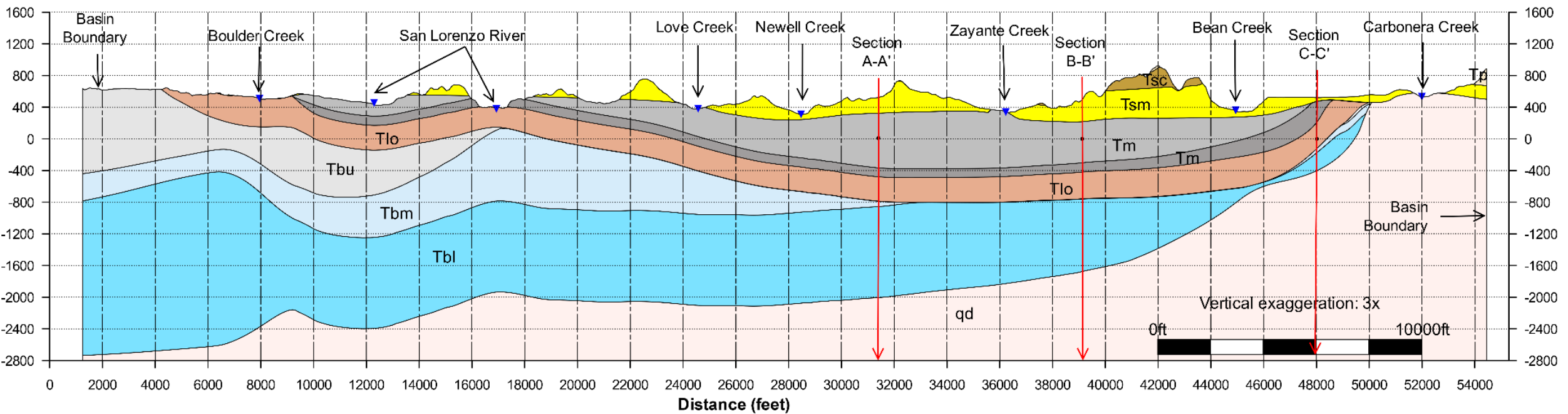


Santa Margarita Basin Hydrogeology













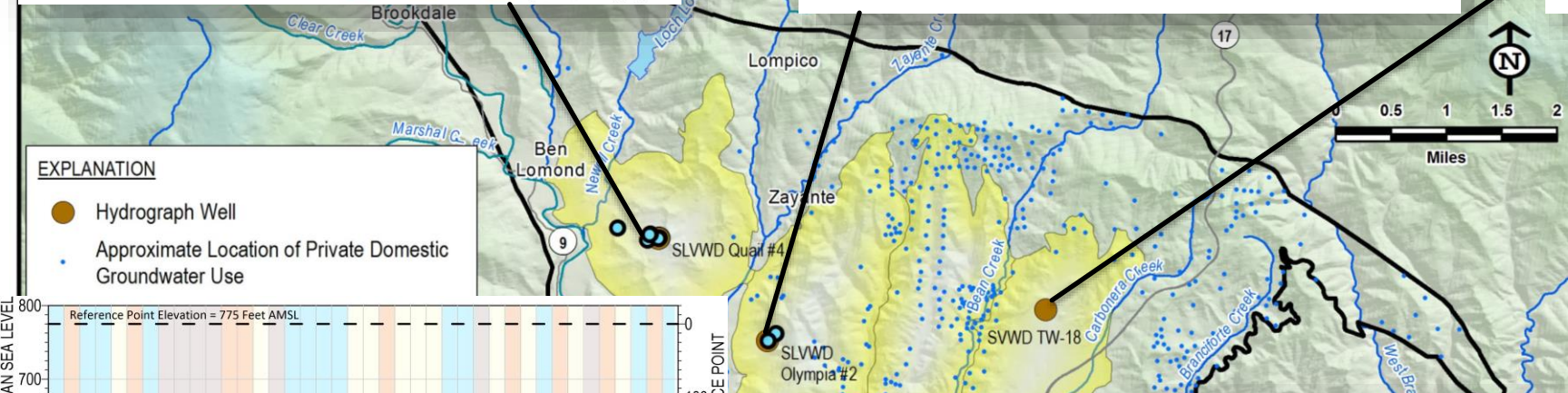
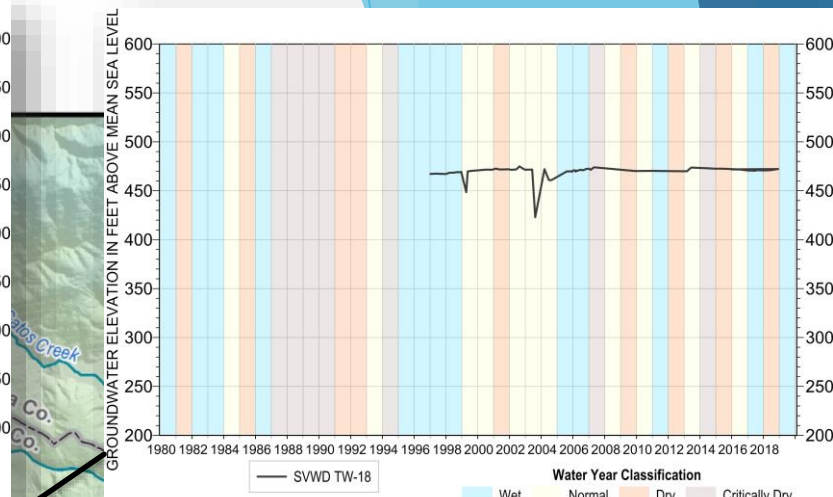
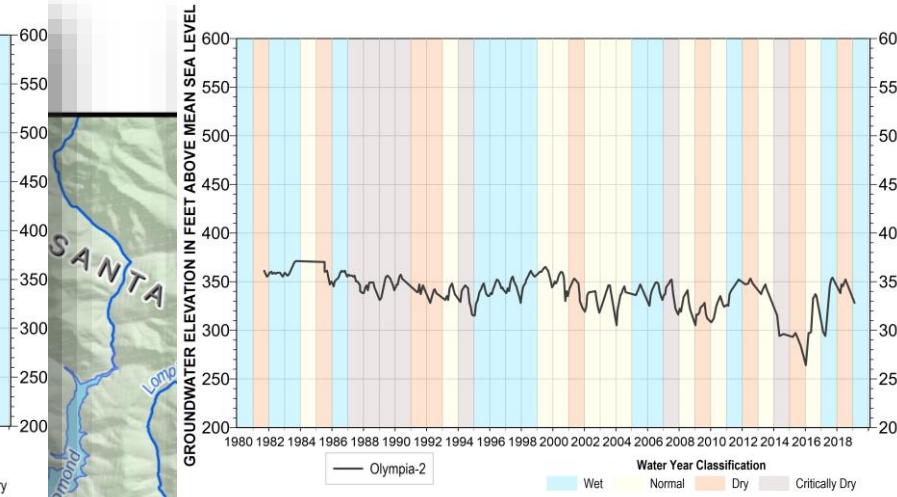
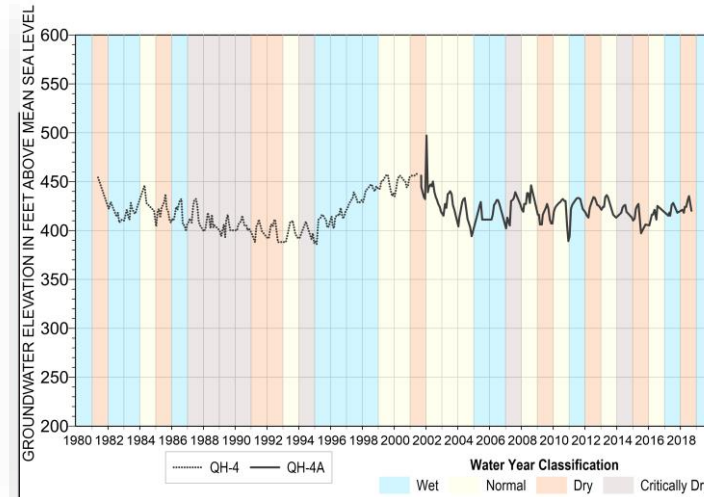
D - NORTHWEST

D' - SOUTHEAST

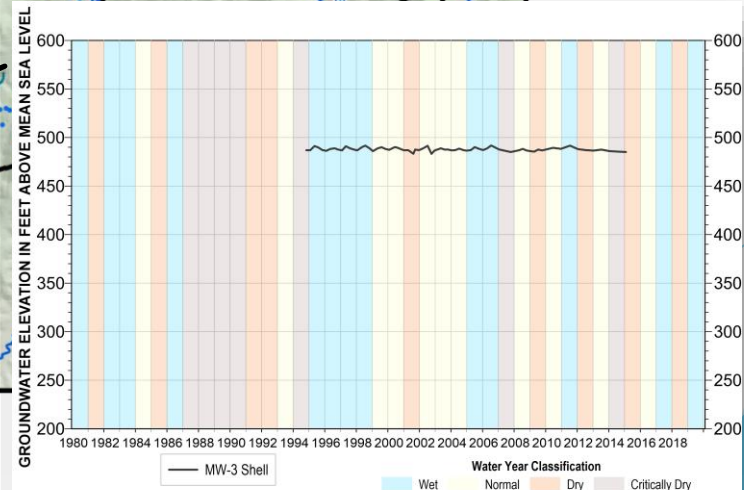
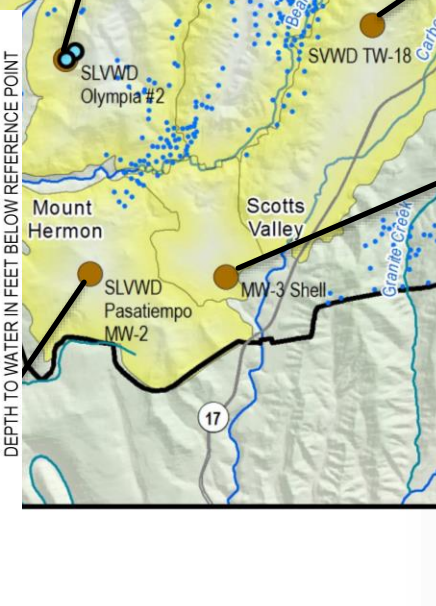
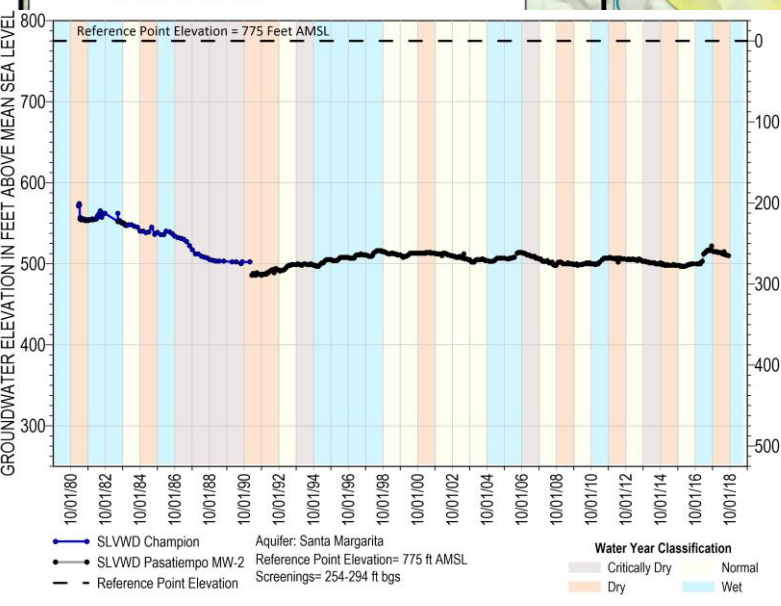


Geologic Unit

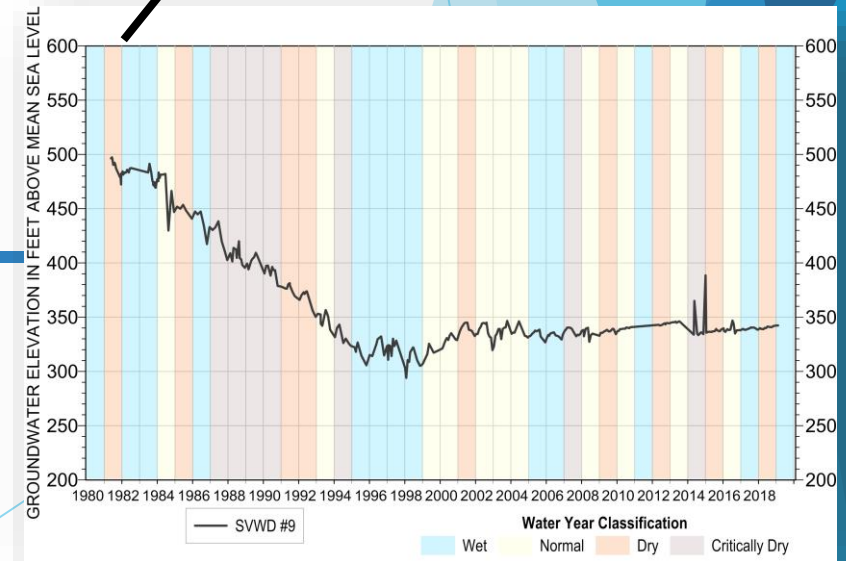
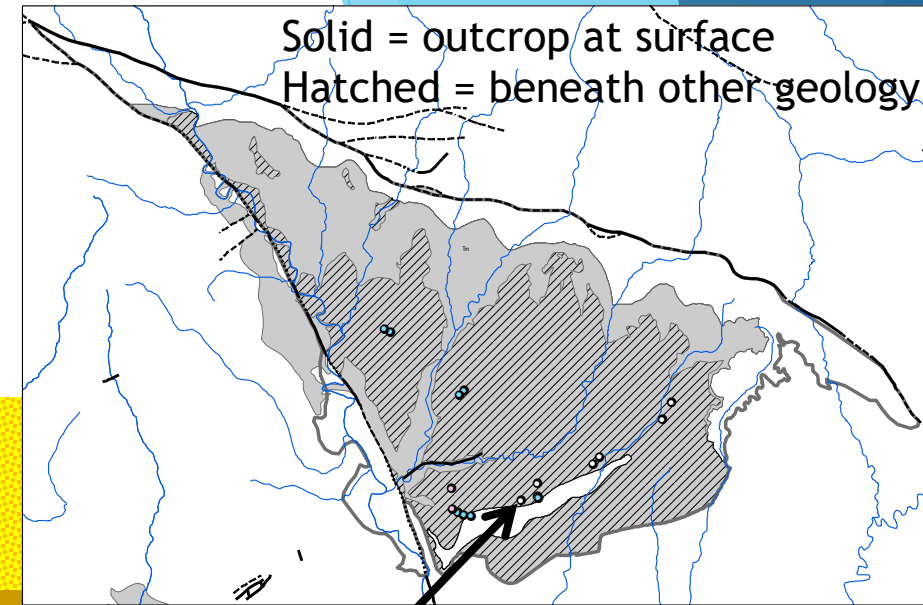
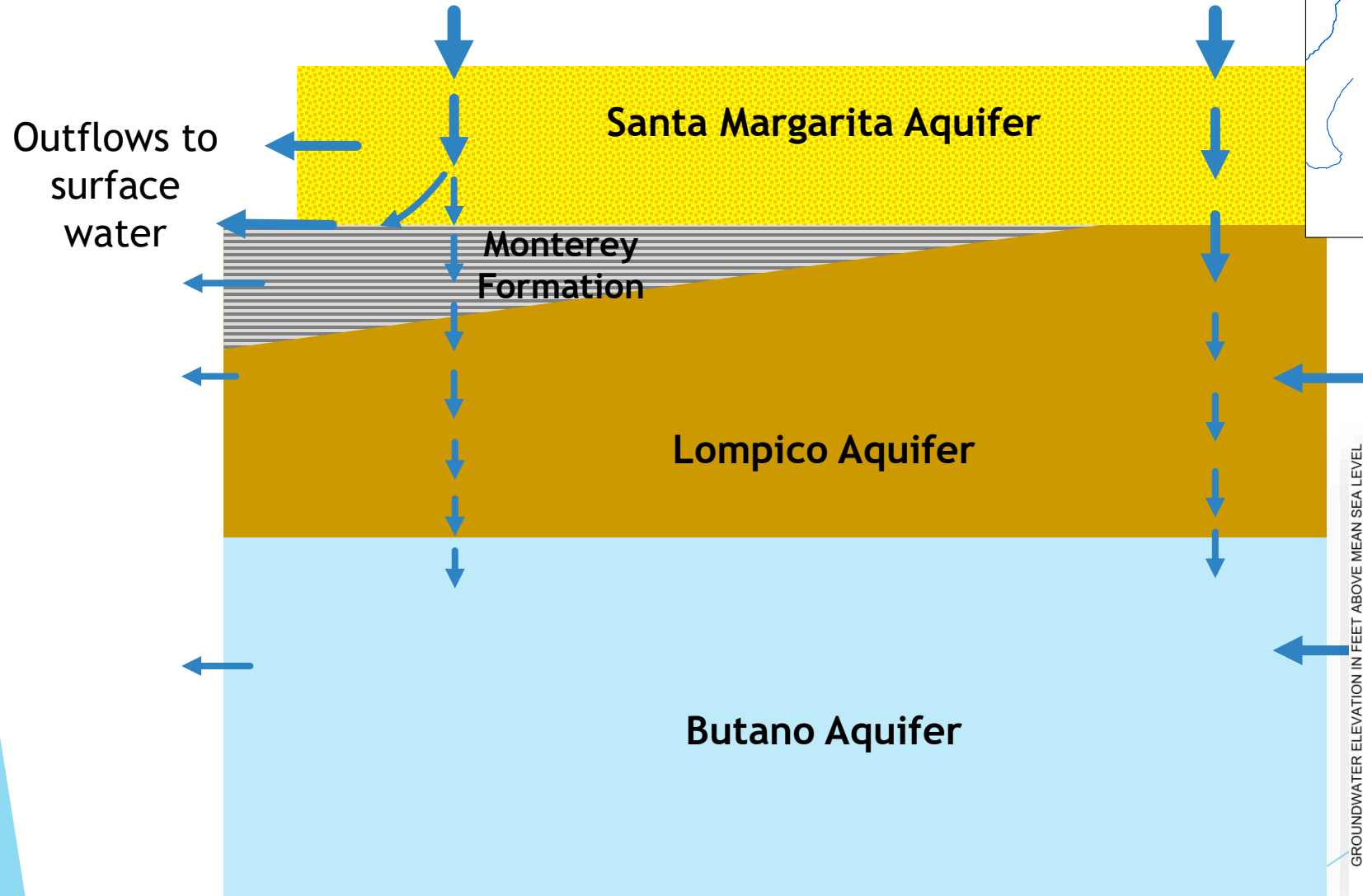
 Purisima Formation (Tp)	 Upper Monterey (Tm)	 Upper sandstone member - Butano Sandstone (Tbu)	 Crystalline Bedrock-Granite (qd)
 Santa Cruz Mudstone (Tsc)	 Lower Monterey (Tm)	 Middle siltstone member - Butano Sandstone (Tbm)	
 Santa Margarita Sandstone (Tsm)	 Lompico Sandstone (Tlo)	 Lower sandstone member - Butano Sandstone (Tbl)	



Santa Margarita Historic Groundwater Levels

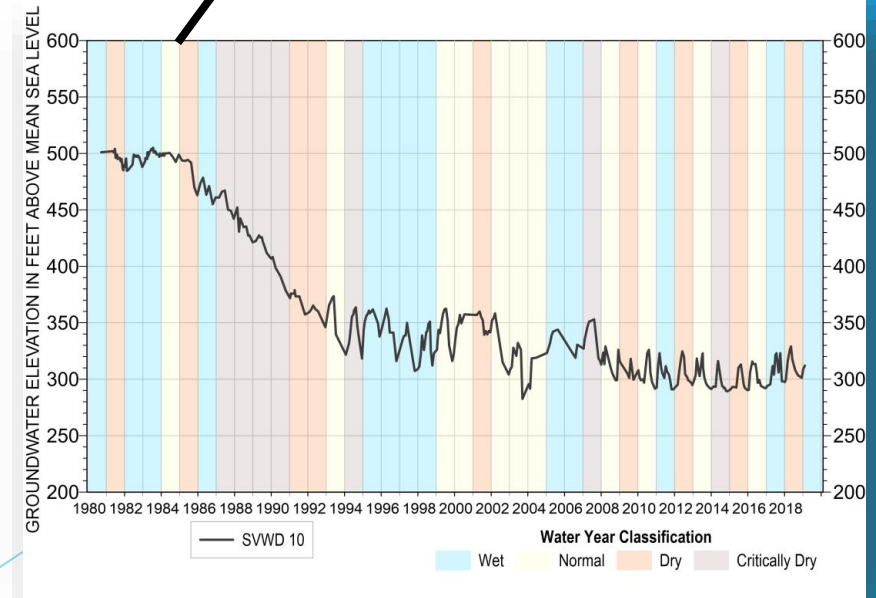
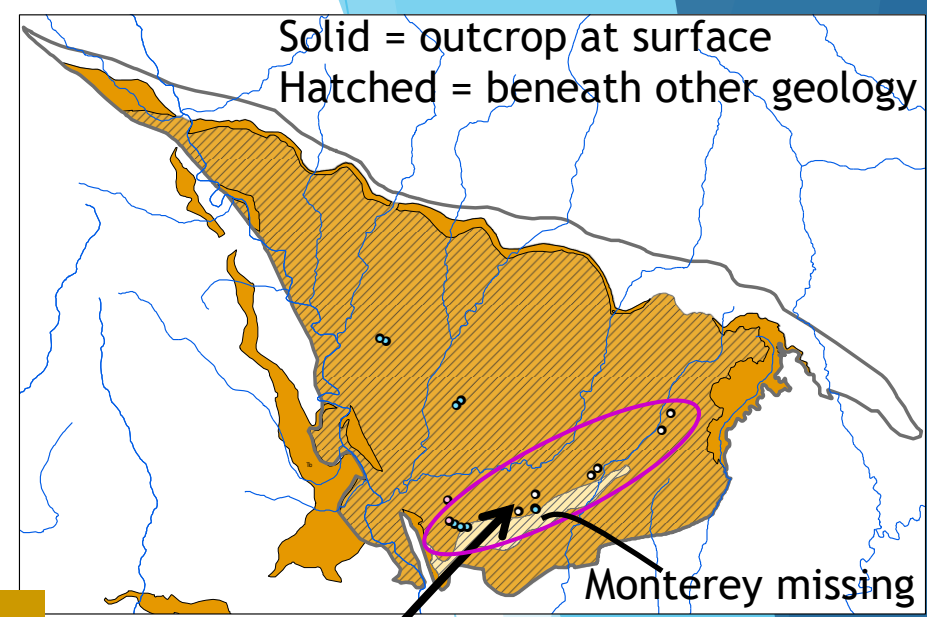
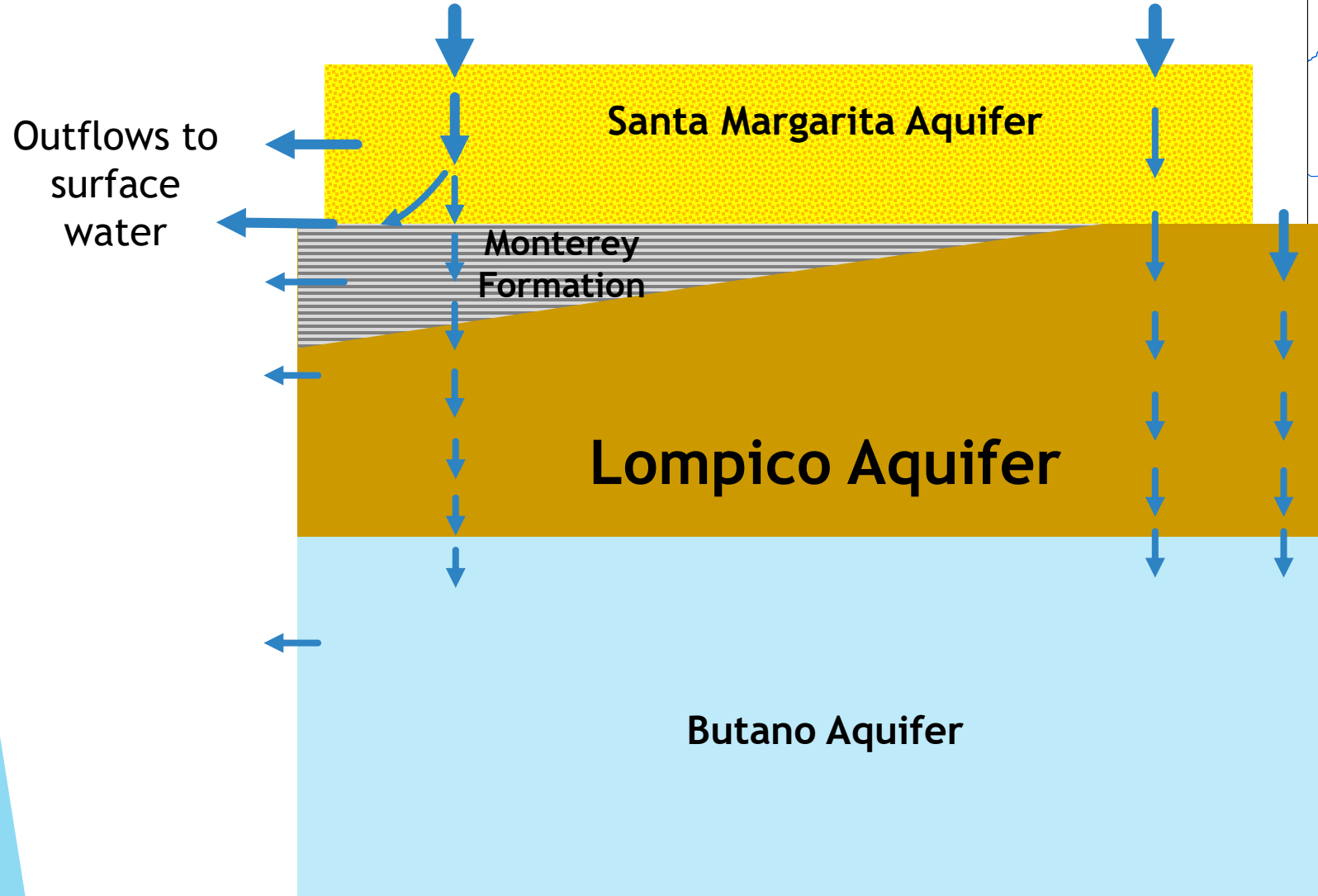


Monterey Formation



Conceptual, not to scale

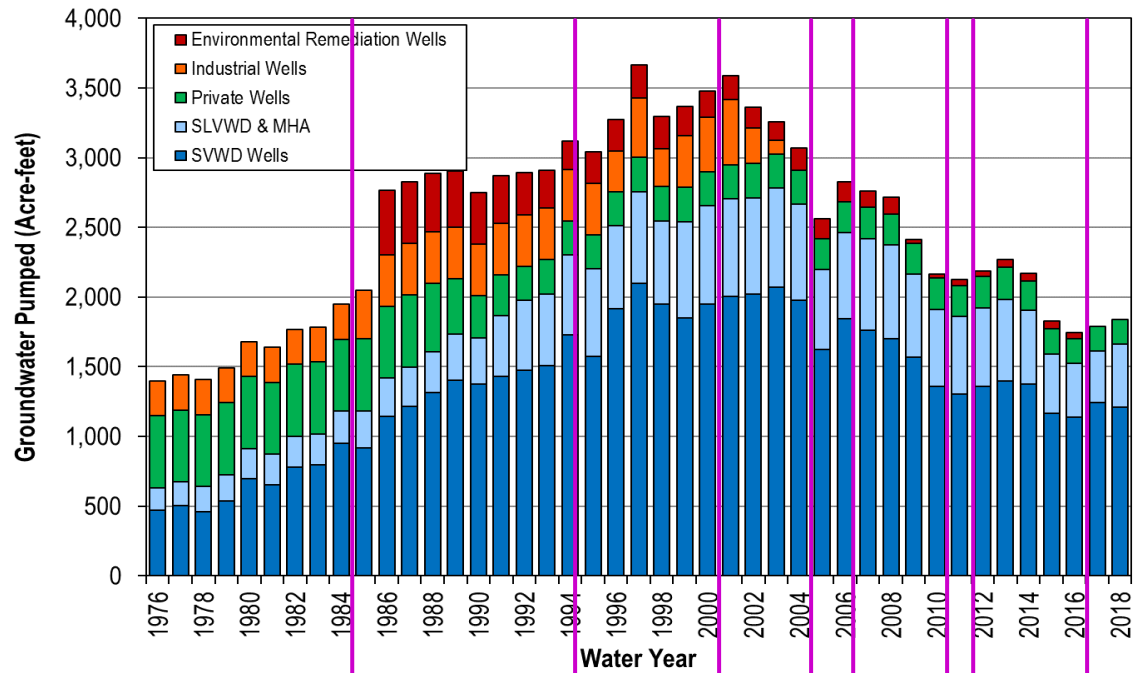
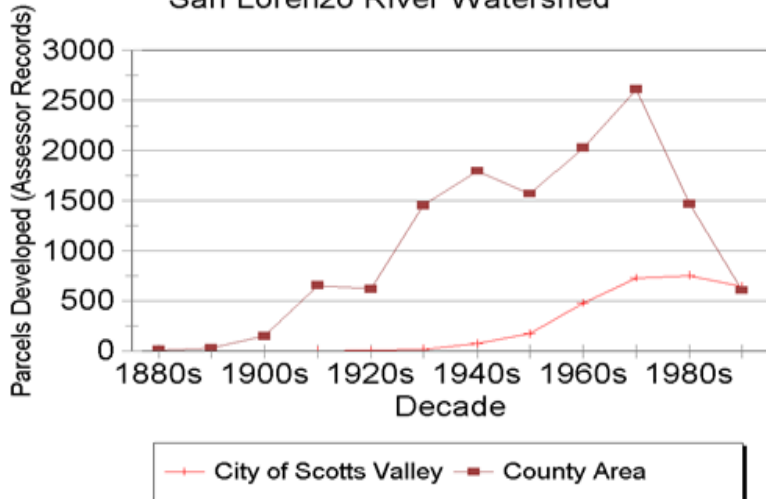
Lompico Aquifer - Scotts Valley Area



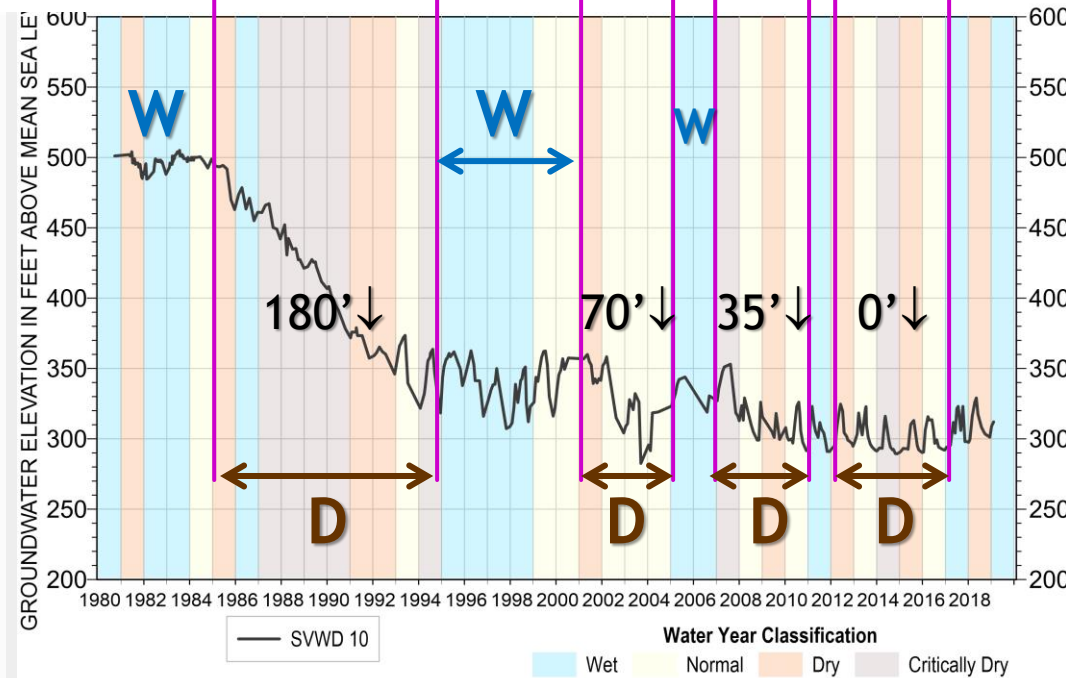
Conceptual, not to scale

Parcel Development by Decade

San Lorenzo River Watershed

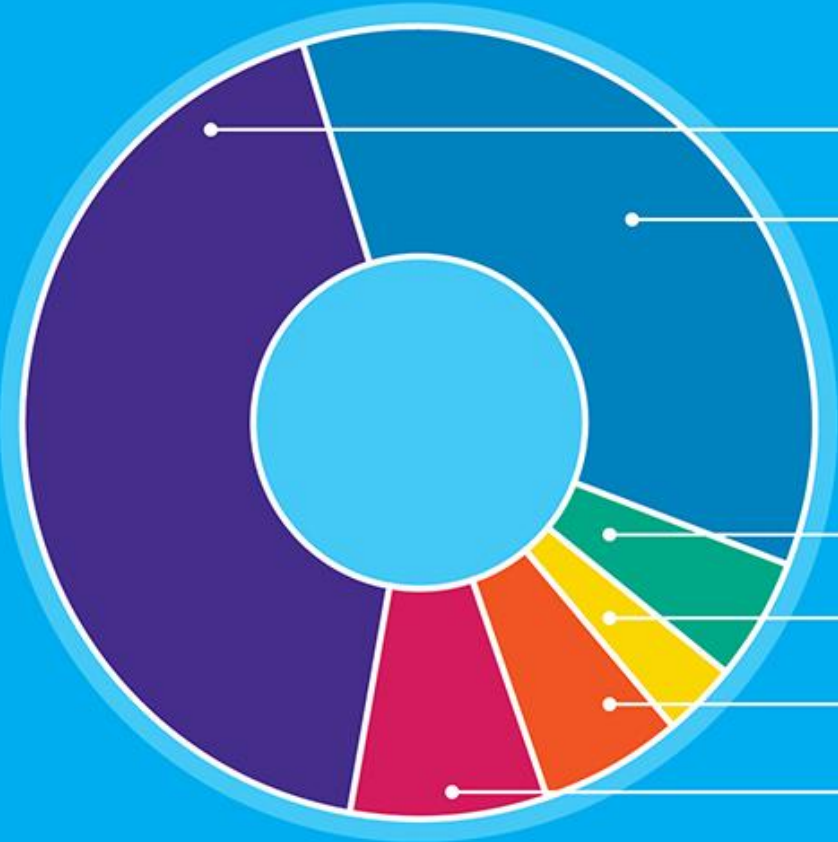


Compare Scotts Valley Area Pumping and Groundwater Elevations in SVWD #10 (Lompico Aquifer)



Groundwater Production in Santa Margarita Basin

(WY 2013-17 average in acre feet)



Scotts Valley Water 1,258

San Lorenzo Valley Water . . 1,044
including Lompico Water District

Mount Hermon 146

Small Water Companies 84

Commercial/Agricultural 169
(estimated)

Private Residential Wells 222
(estimated)



1,100
parcels are served
by private wells



40-50%
of the San Lorenzo River
baseflow is from the Basin
(main water source for
City of Santa Cruz)



Fish
The San Lorenzo River
and tributaries support
steelhead trout and
coho salmon

SANTA MARGARITA
Groundwater Agency

Groundwater sustainability
is all our responsibility
smgwa.org

The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light sky blue to deep navy blue. These shapes are primarily located on the right side of the page, creating a modern, layered effect.

Groundwater Sustainability Agency and Groundwater Sustainability Plan

Santa Margarita Groundwater Agency(SMGWA)

Joint Powers Authority and Board

- ▶ San Lorenzo Valley Water District (JPA and 2 Board Seats)
- ▶ Scotts Valley Water District (JPA and 2 Board Seats)
- ▶ County of Santa Cruz (JPA and 2 Board Seats)

- ▶ Private Well Owner/Small Water System Representatives (2 Board Seats)
- ▶ City of Scotts Valley (1 Board Seat)
- ▶ Mount Hermon Association (1 Board Seat)
- ▶ City of Santa Cruz (1 Board Seat)

Sustainability is achieved by avoiding Undesirable Results









GSP Contents

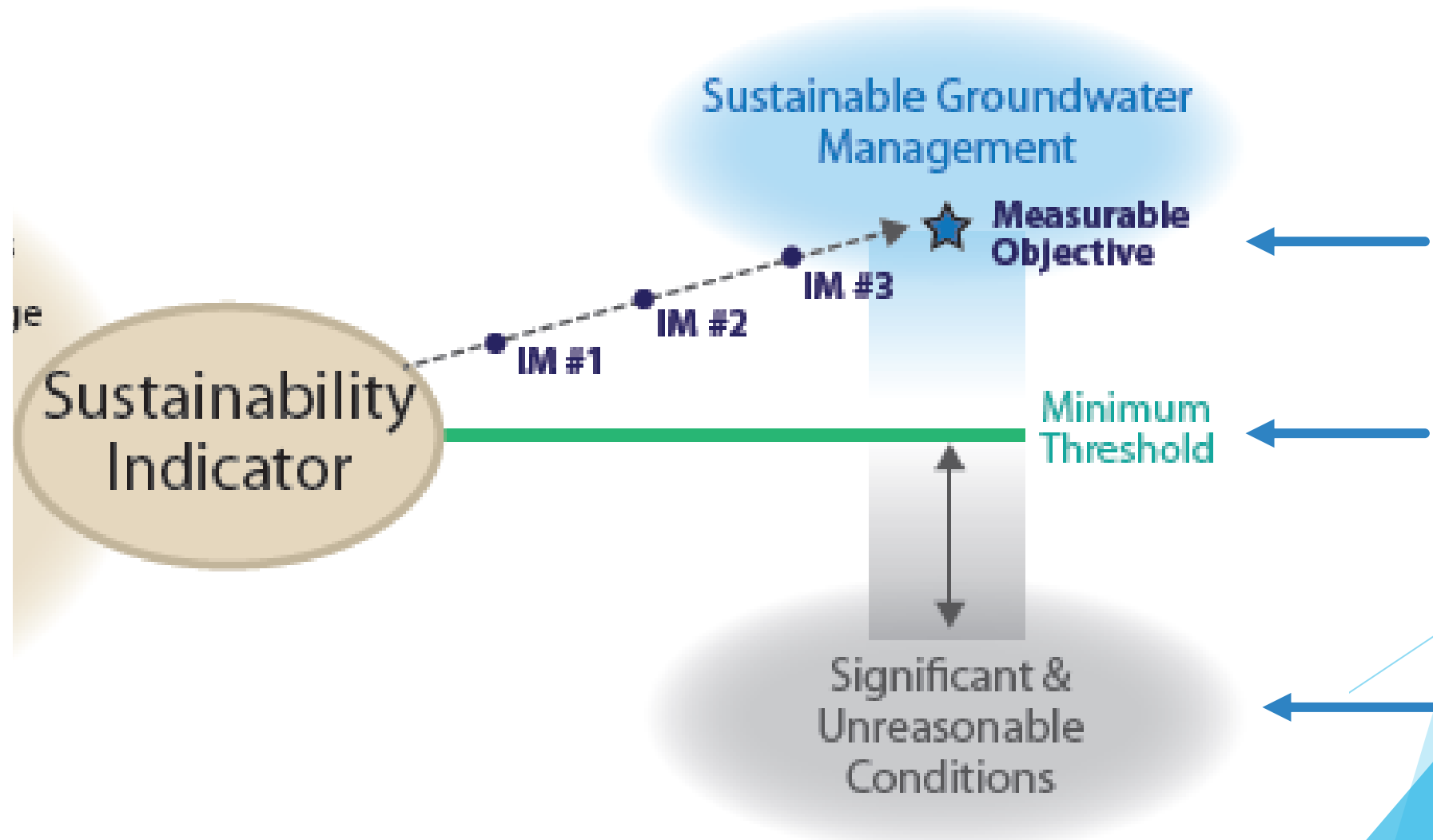
- ▶ Administrative information
- ▶ Basin Setting
- ▶ Sustainable Management Criteria
- ▶ Monitoring Networks
- ▶ Projects and Management Actions

SGMA defines sustainable groundwater management as

the “management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing **undesirable results**”

 				 	
Lowering GW Levels	Reduction of Storage	Surface Water Depletion	Degraded Quality	Land Subsidence	Seawater Intrusion
Chronic lowering of groundwater levels indicating a significant & unreasonable depletion of supply	Significant & unreasonable reduction of groundwater storage	Depletions of interconnected surface water that have significant & unreasonable adverse impacts on beneficial uses of the surface water	Significant & unreasonable degraded groundwater quality	Significant & unreasonable land subsidence	Significant & unreasonable seawater intrusion
Groundwater levels	Volume of groundwater withdrawn	Rate or volume of surface water depletion	Groundwater quality	Not applicable in Basin	

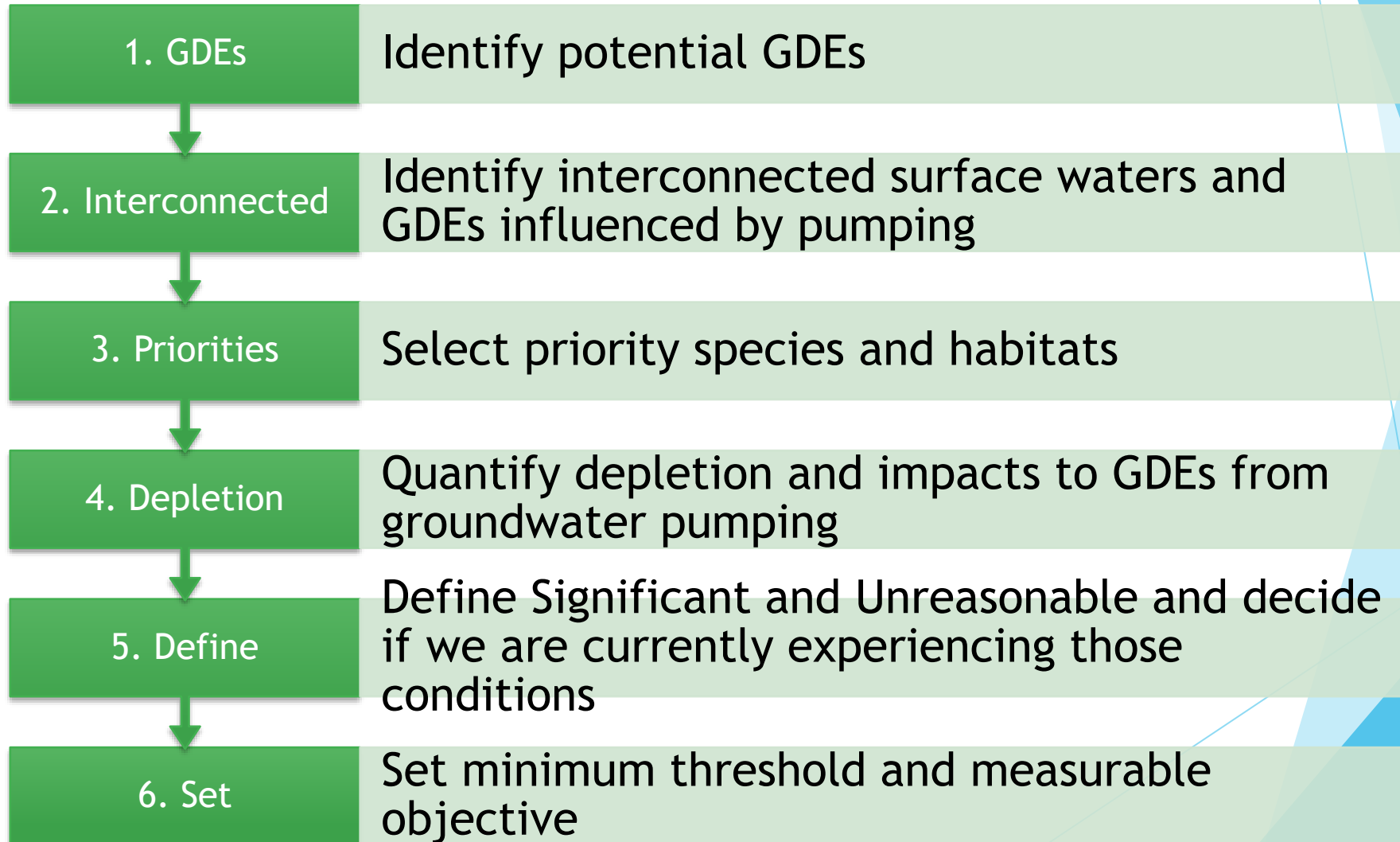
Sustainable Management Criteria



Surface Water and Ecosystems

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Outline: Conceptual Process Flow Chart



What is a GDE?

Open Water



Riverine and Riparian



Springs



Other Groundwater Dependent Wetlands



What is Streamflow Depletion?

DWR SGMA Regulations § 354.28. (c)(6)

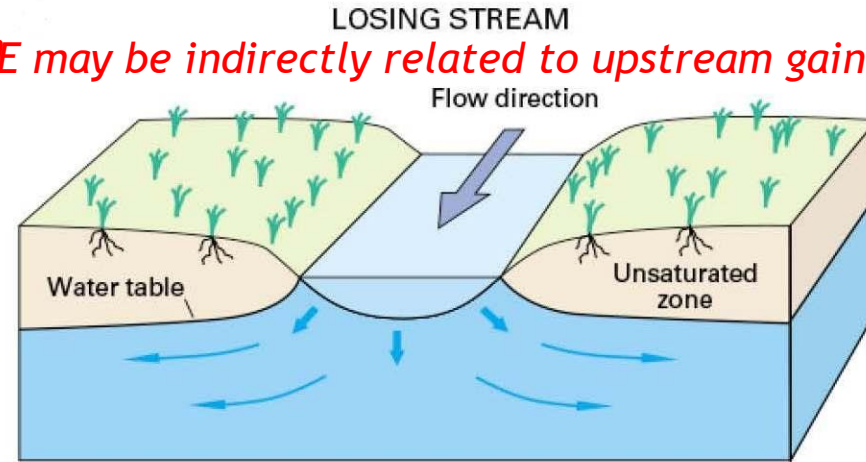
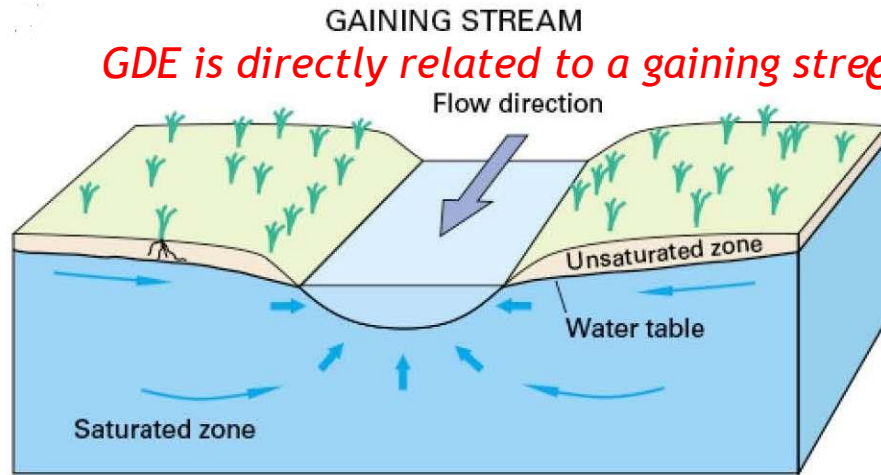
Identify:

- The rate or volume of surface water depletions ...
- caused by **groundwater use** ...
 - that has adverse impacts on **beneficial uses** of the surface water ...
 - and may lead to **undesirable results**.

Beneficial users of groundwater:

- SVWD
- SLVWD
- Environmental users-
(ecological communities or species)
- Private well owners
- City of Santa Cruz

General Concepts of GDEs and Interconnected Baseflows

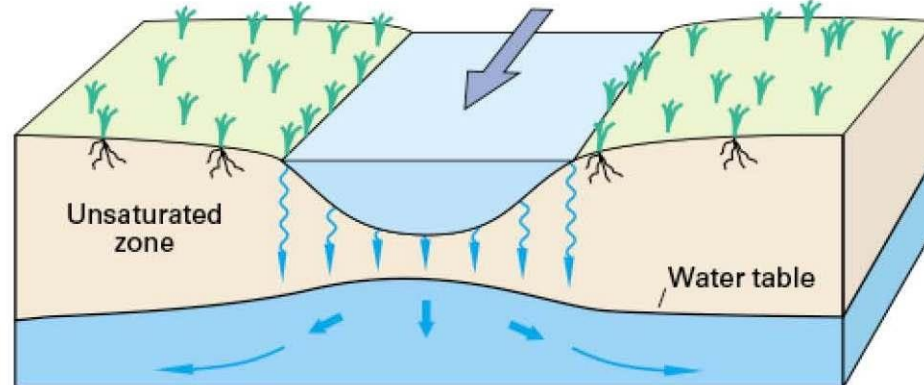


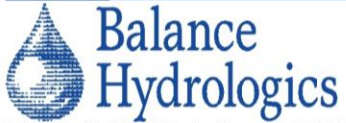
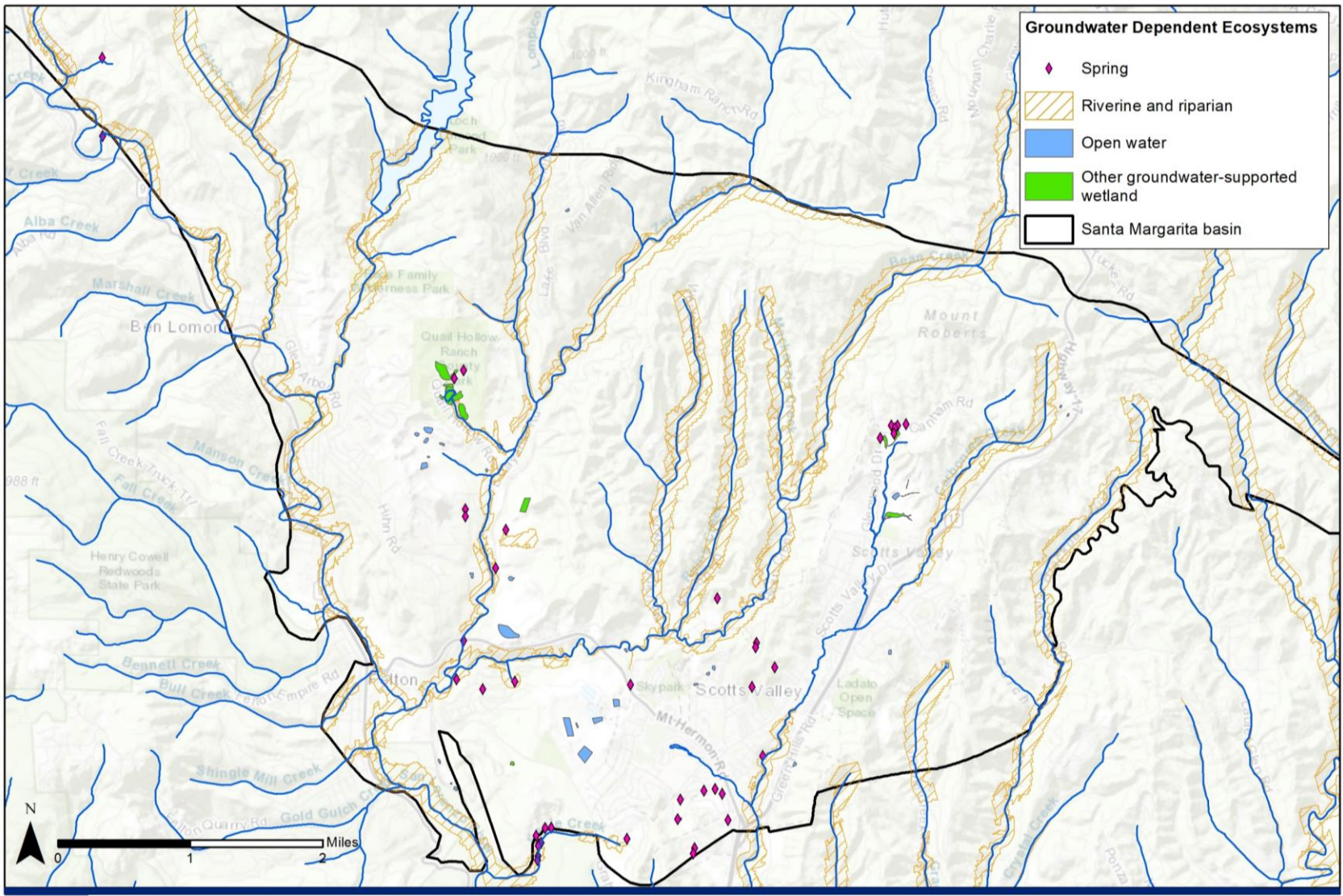
Water table higher than stream bed

Water table lower than stream bed

LOSING STREAM THAT IS DISCONNECTED FROM THE WATER TABLE

Not a GDE

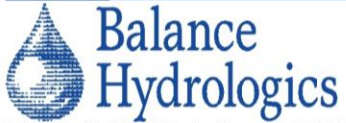
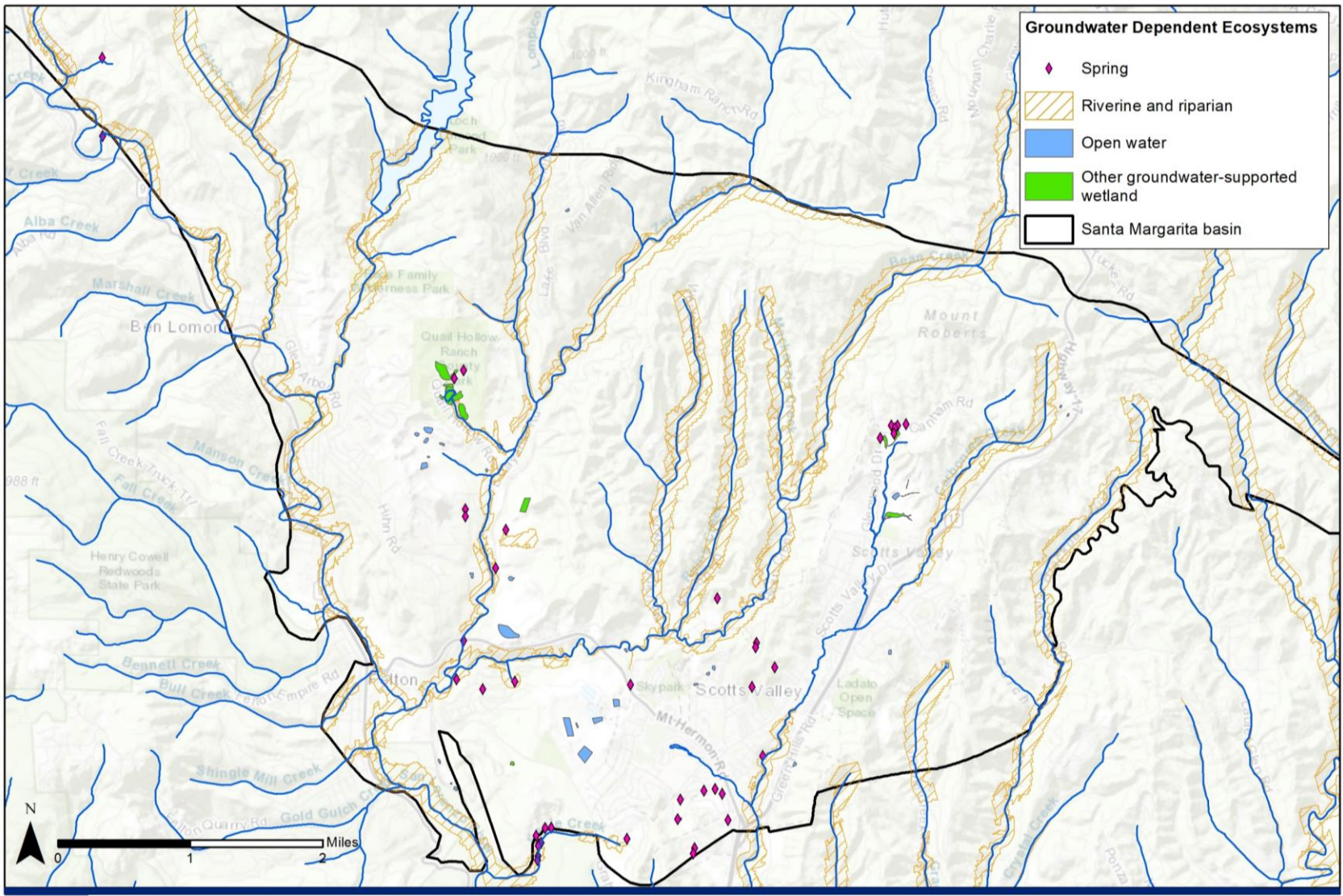




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Groundwater Dependent Ecosystems within the Santa Margarita Basin, Santa Cruz County, CA

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Groundwater Dependent Ecosystems within the Santa Margarita Basin, Santa Cruz County, CA

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Required SGMA Elements for Addressing Depletion of Interconnected Surface Water

- ▶ SGMA requires the identification of interconnected surface waters, and of Groundwater Dependent Ecosystems (GDEs) (§354.16 (f)(g))
 - ▶ Assess the rate of depletion and if the depletion of surface water is causing a **Significant and Unreasonable impact**
 - ▶ If conditions are significant and unreasonable, they cannot get worse than they were on Jan 1, 2015
- ▶ GSA must set **Minimum Thresholds** and **Measurable Objectives** to prevent further significant and unreasonable impacts
- ▶ GSA must define **Undesirable Results** based on a combination of minimum threshold exceedances

Depletion of Interconnected Surface Water

- ▶ Since SGMA is a groundwater management act, groundwater contribution to streamflow is the only component of streamflow that the GSA is responsible for
 - ▶ In areas where groundwater is connected to surface water, and
 - ▶ In areas where groundwater is used

- ▶ Groundwater management under SGMA should not be used to compensate for:
 - ▶ Dry years
 - ▶ Changes to runoff that are not related to GSP implementation
 - ▶ Changes to or impacts from surface water diversions

Statement of Significant and Unreasonable

- ▶ **DRAFT Chronic Lowering of Groundwater Levels**
- ▶ Significant and unreasonable chronic lowering of groundwater levels occurs if lowered levels materially impair Groundwater Dependent Ecosystems, groundwater supply or cause undue financial burden for a significant number of the Basin's beneficial users or uses.
- ▶ **DRAFT Depletion of Interconnected Surface Water**
- ▶ On the agenda for the August Board meeting!

Projects and Management Actions

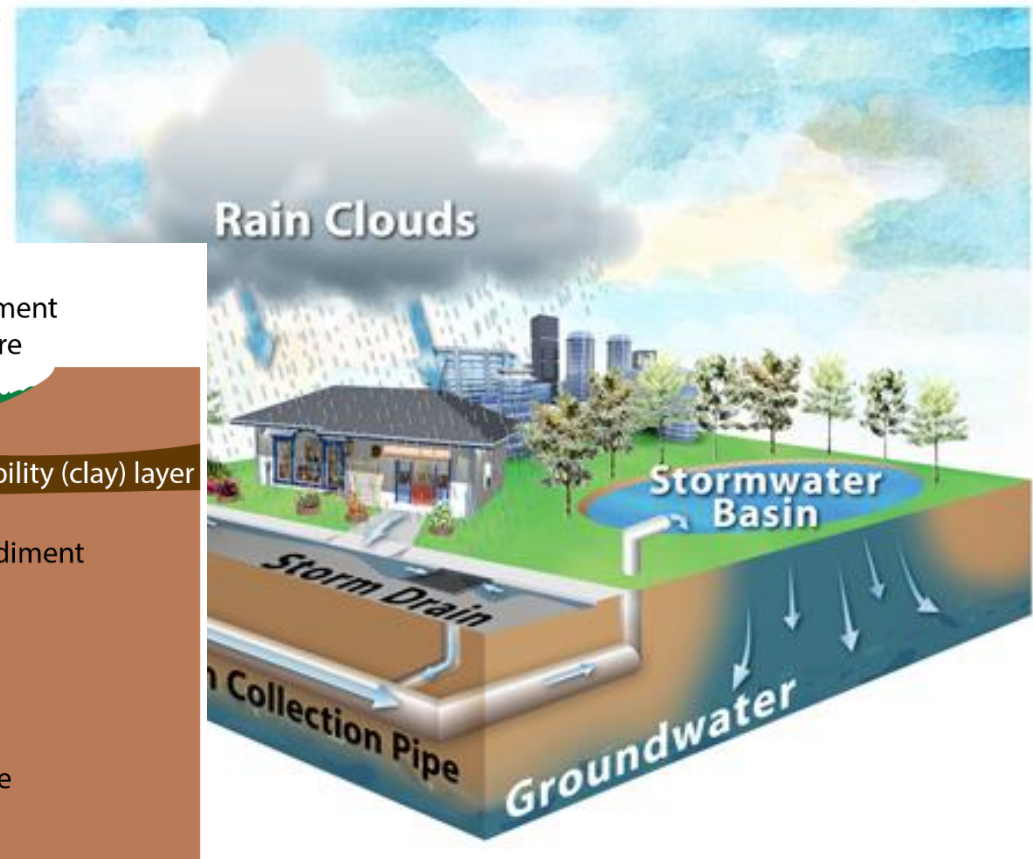
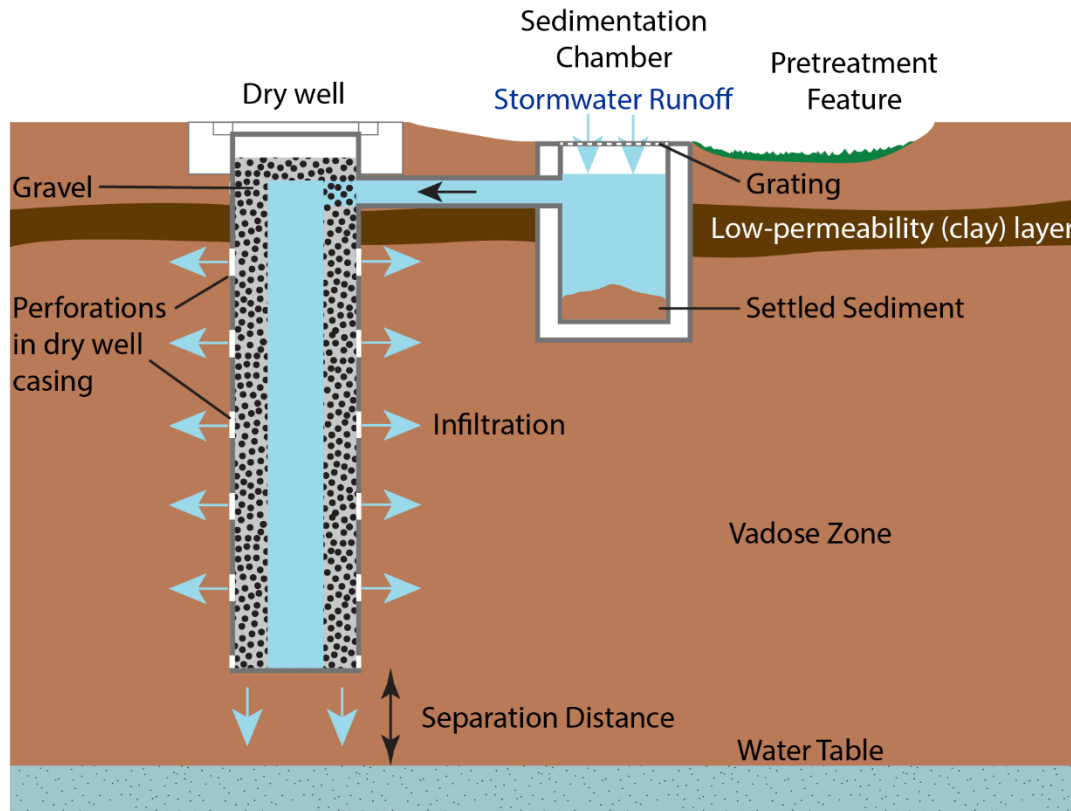
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Projects and Management Actions

- ▶ Determine actions required to address problems and help achieve the measurable objectives
- ▶ Each must have information on permitting, implementation timeline, expected benefits, required authority, and cost
- ▶ Include Contingency measures in case the basin does not respond as expected
- ▶ In our basin, this will likely include water efficiency, increased recharge, and supplemental supply

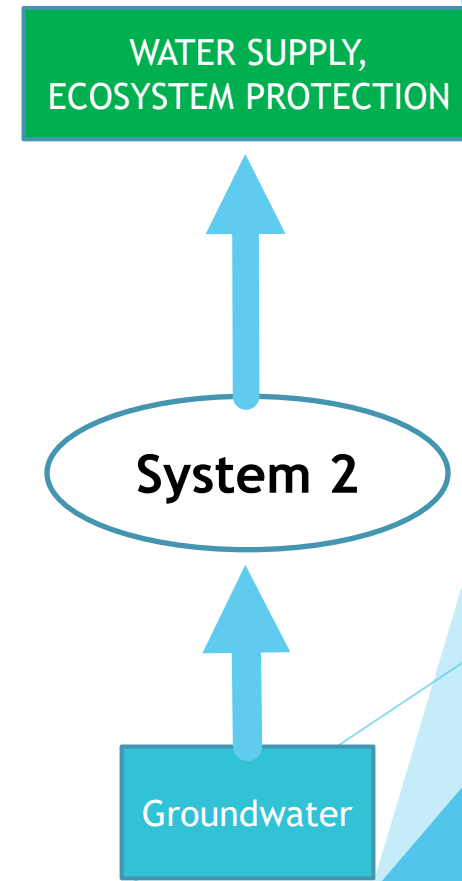
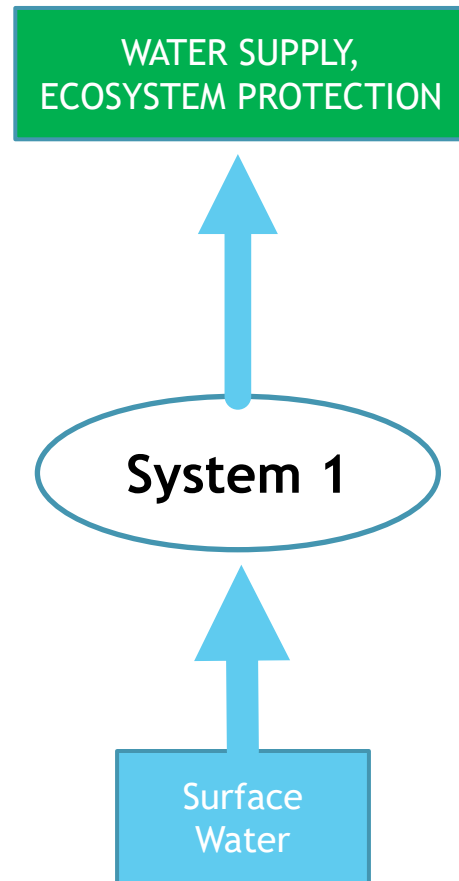
Stormwater Recharge

Water infiltrates into the unsaturated zone and percolates down to groundwater



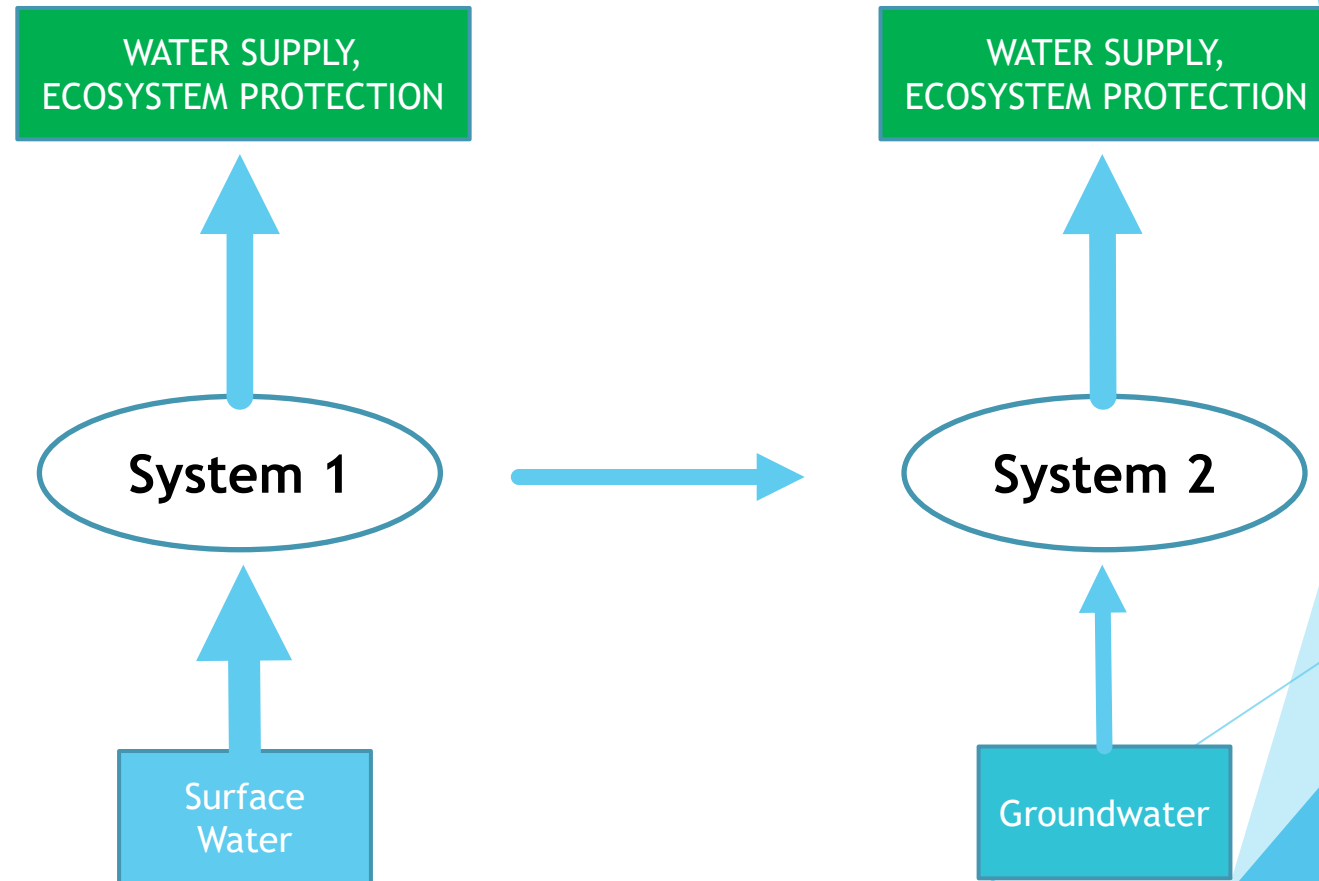
Water Transfers for In-Lieu/ Passive Recharge

Winter/Spring

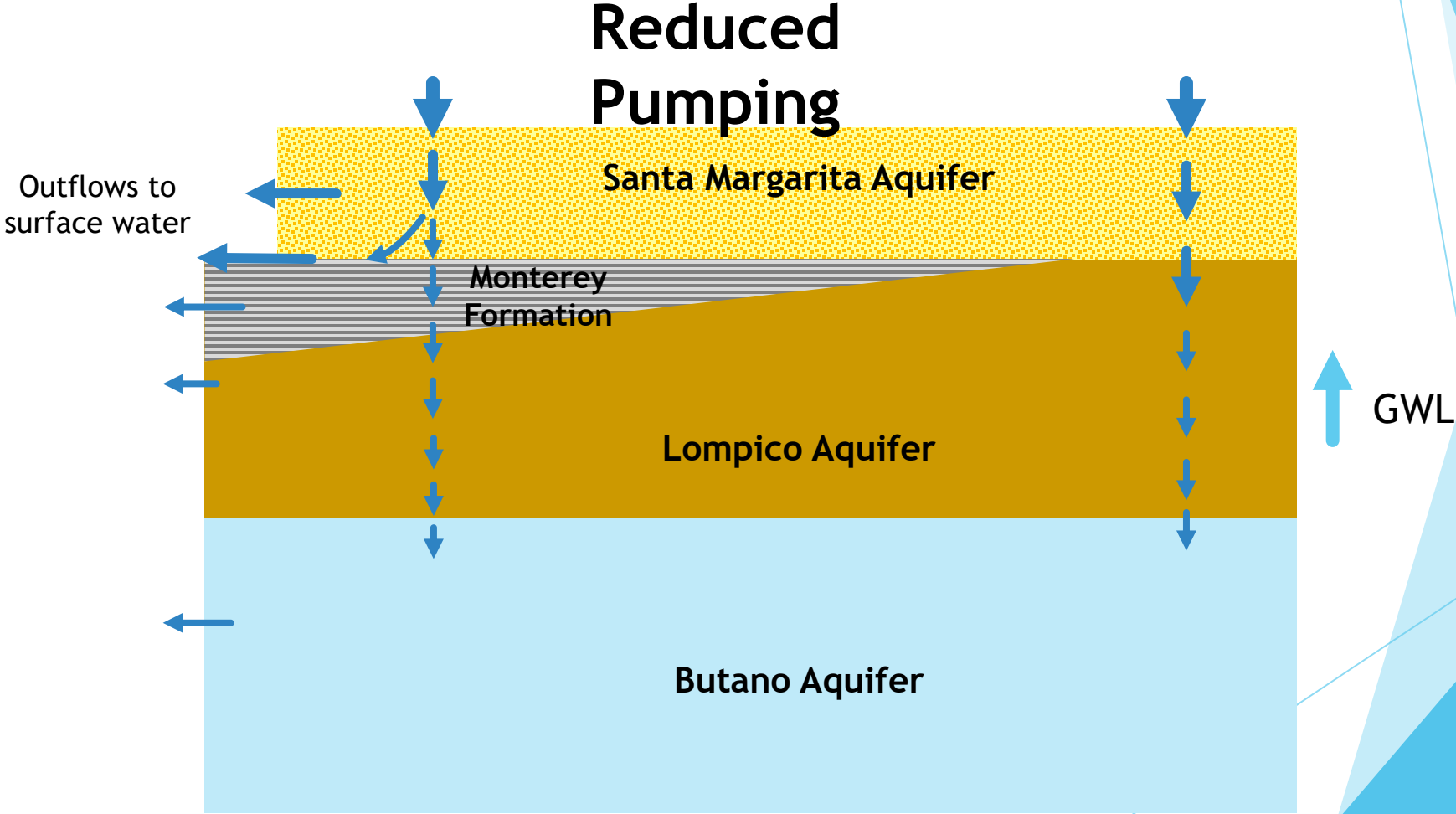


Water Transfers for In-Lieu/ Passive Recharge

Winter/Spring



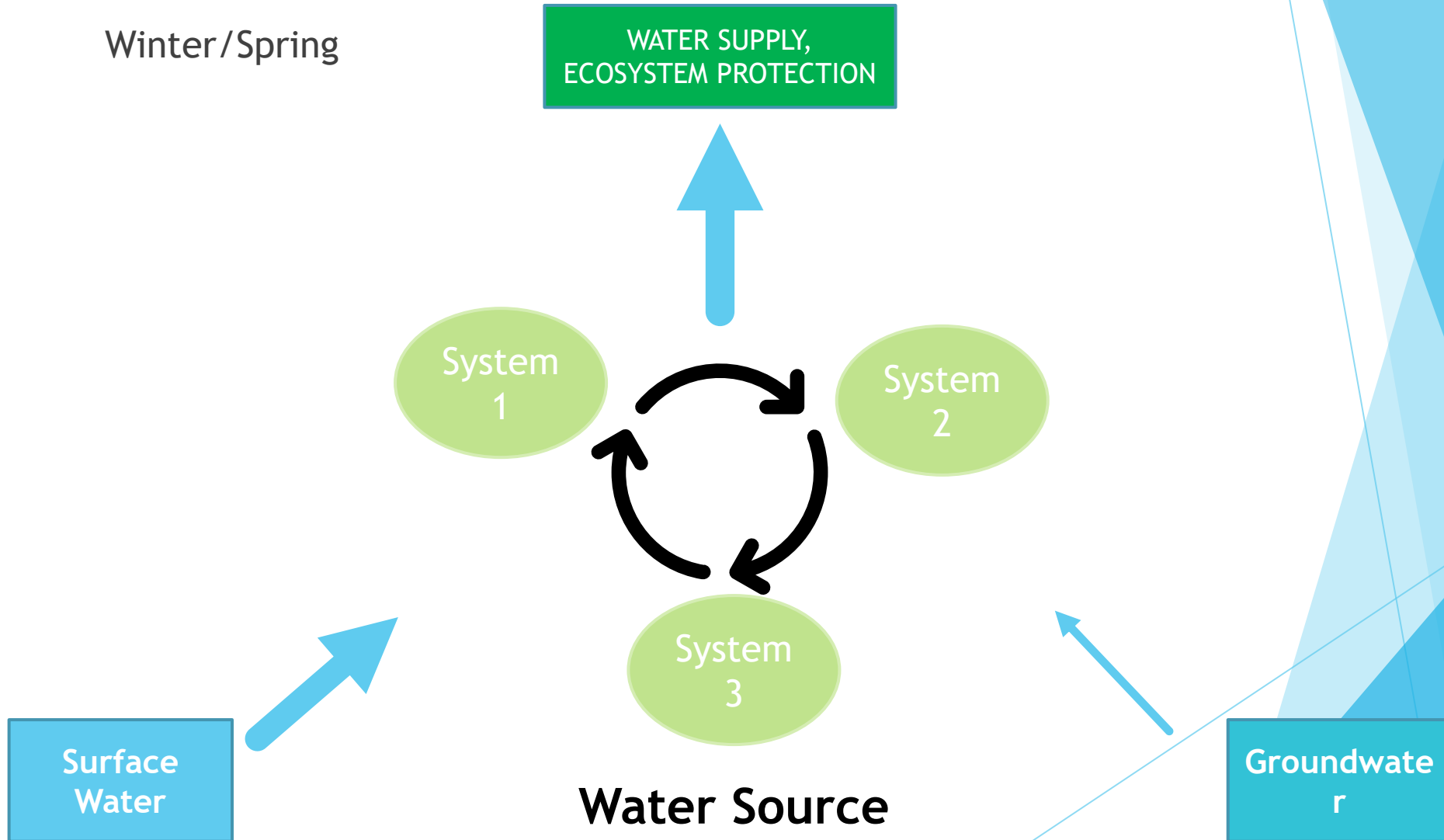
In-Lieu Recharge



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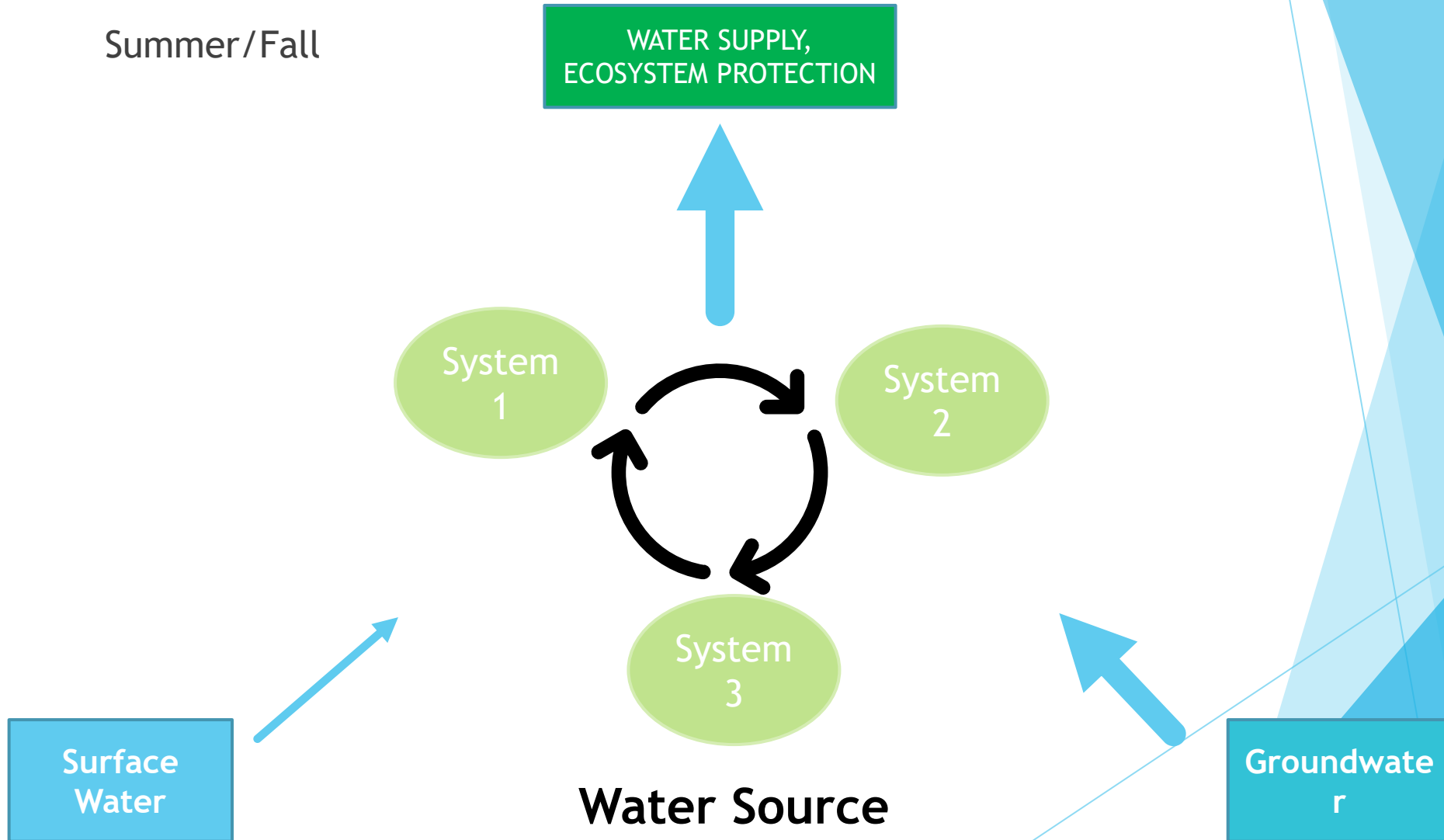
Conjunctive Use

Winter/Spring

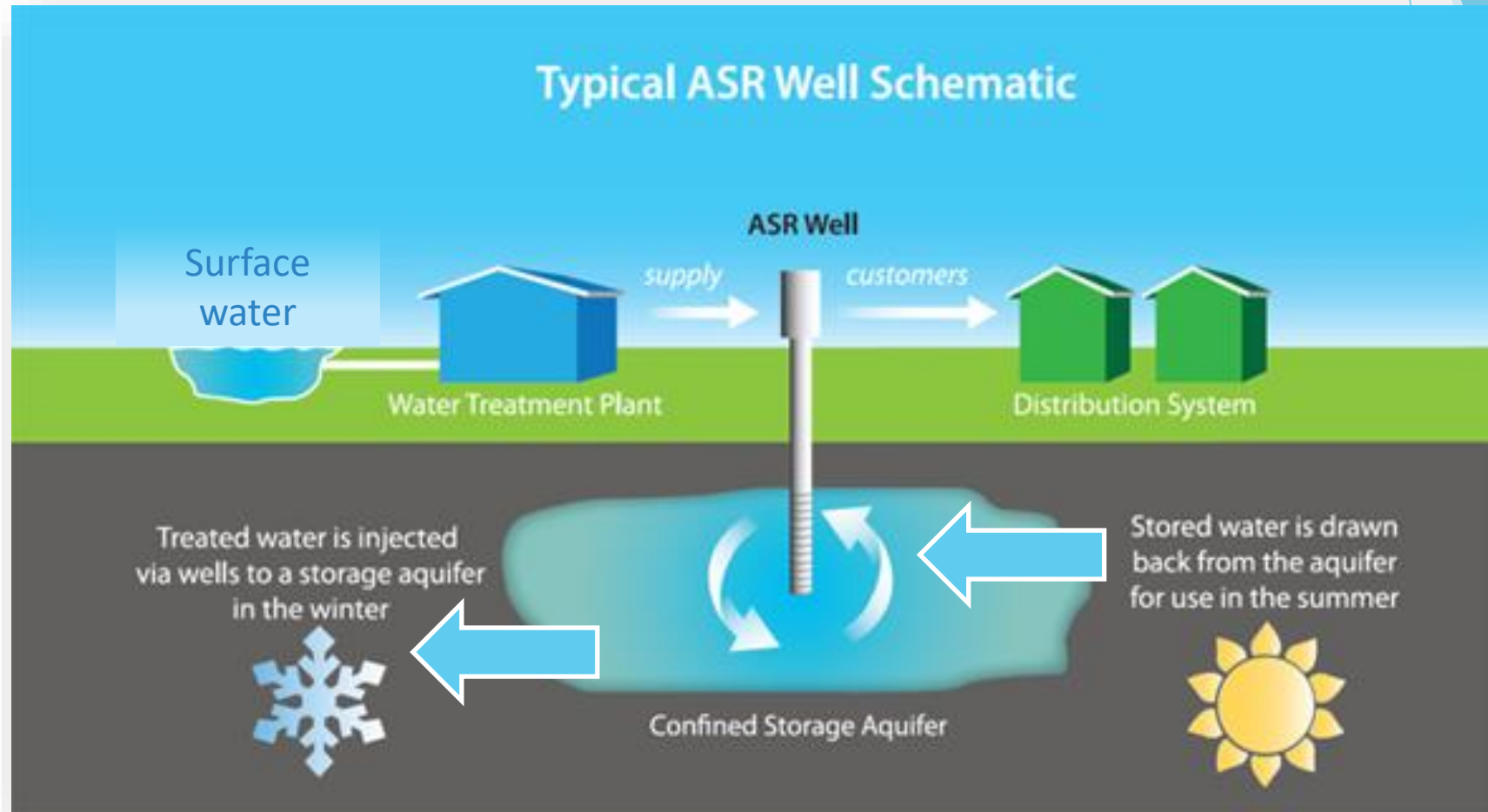


Conjunctive Use

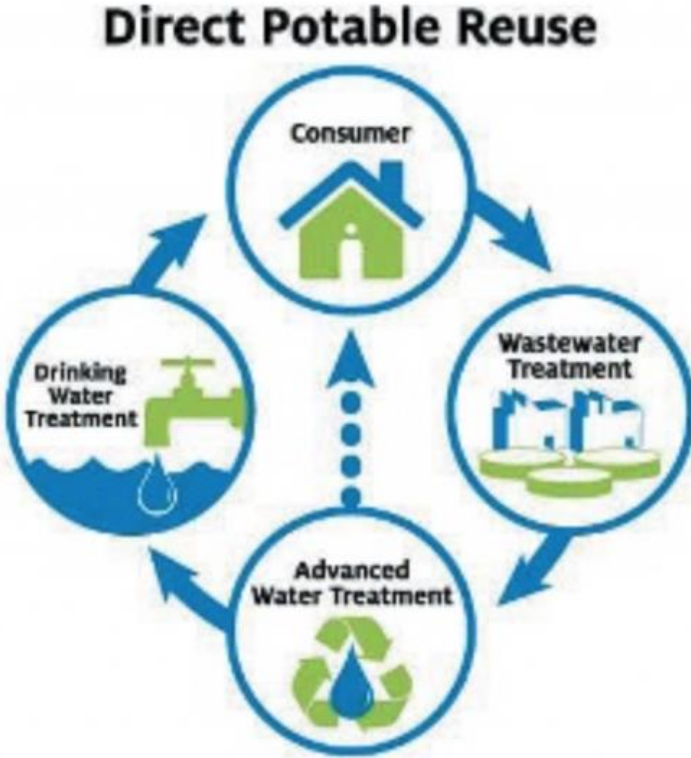
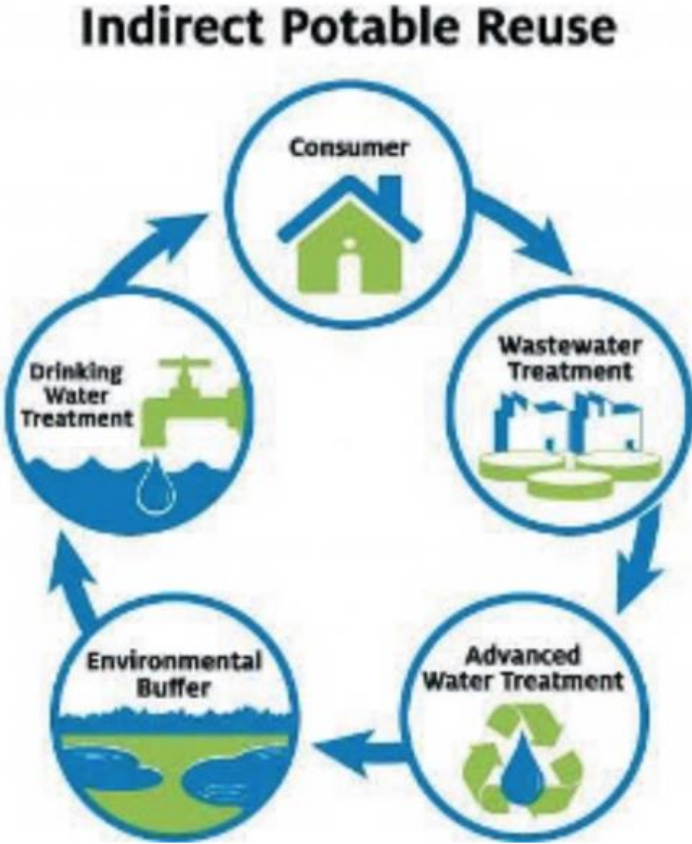
Summer/Fall



Aquifer Storage & Recovery (ASR) with Surface Water



Indirect Potable Reuse



Currently Not Permitted in CA

2/15/2020

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Wrap up and Next Steps

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2016 MAR	2017 JUN	2017 JUL	2017 DEC	2018 APR	2019 JAN	2019 JAN	2019 MAR	2019 AUG
								
Establishment of SMGB Boundaries	Creation of the Joint Powers Authority	Appointment of Private Well Owners to the Board	Adoption of Bylaws and Code of Conduct	\$1M Dept of Water Resources Matching Grant	Adoption of Guiding Principles	Beginning of <i>Understanding Our Water Education Series</i>	Hiring of GSP Development Consultant	Beginning of Public Santa Margarita Basin Tours

WE ARE HERE

								
Development of GSP Section 1 Draft: <i>Introduction</i>	Development of GSP Section 2 Draft: <i>Basin Setting</i>	Development of GSP Section 3 Draft: <i>Sustainability Measures</i>	Development of GSP Section 4 Draft: <i>Projects</i>	Development of GSP Section 5 Draft: <i>Implementation Plan</i>	Completion of <i>Communication & Engagement Plan</i> Subsection Draft	Completion of Draft GSP	Public Review of GSP	Deadline for GSP Submission 2022 JAN



Development of
Basin Setting



Development of
Sustainability Measures

	June	July	August	September
Meeting Content Covers:	<ul style="list-style-type: none"> Approach for developing thresholds & objectives for groundwater levels Significant & unreasonable conditions for groundwater levels Basin management actions 	<ul style="list-style-type: none"> Background on surface water/groundwater interactions Significant & unreasonable conditions for surface water Undesirable results for groundwater quality Significant & unreasonable conditions for groundwater levels 	<ul style="list-style-type: none"> Thresholds, objectives, & undesirable results for groundwater levels and basin surface water Groundwater modeling results Historical water budget Climate change scenarios 	<ul style="list-style-type: none"> Background on basin groundwater storage Thresholds, objectives, & undesirable results for groundwater storage and basin surface water
Actions Needed Regarding :	<ul style="list-style-type: none"> Approach for developing thresholds & objectives for groundwater levels 	<ul style="list-style-type: none"> No formal actions needed 	<ul style="list-style-type: none"> Approach for developing thresholds & objectives for surface water Draft thresholds and objectives for groundwater levels 	<ul style="list-style-type: none"> Approach for developing thresholds and objectives for groundwater storage Draft thresholds & objectives for surface water

Focus Areas	Groundwater Model	Data Management System	Surface Water Working Group	Draft GSP
Progress	85%	10% 4.1-2	0%	33%

How can I participate in the process?

- ▶ Attend Board meetings (currently virtual)
- ▶ Sign up for the listserve
- ▶ Contact your SLVWD representatives with support, concern, comments
- ▶ You can also contact your County Supervisor
- ▶ Tell your friends!

