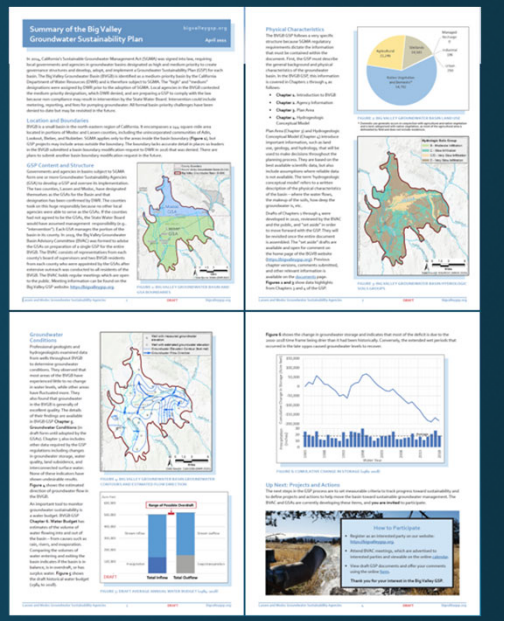
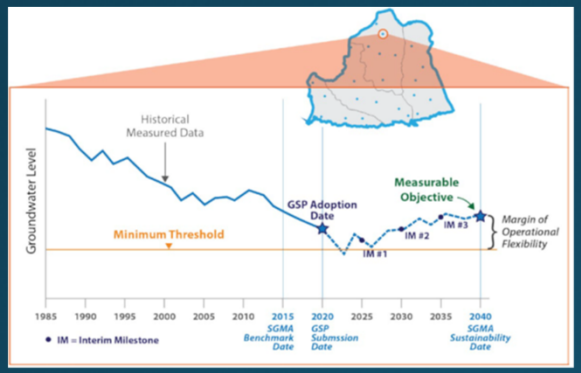
Groundwater Sustainability Plan for Big Valley Groundwater Basin

Lassen and Modoc Counties

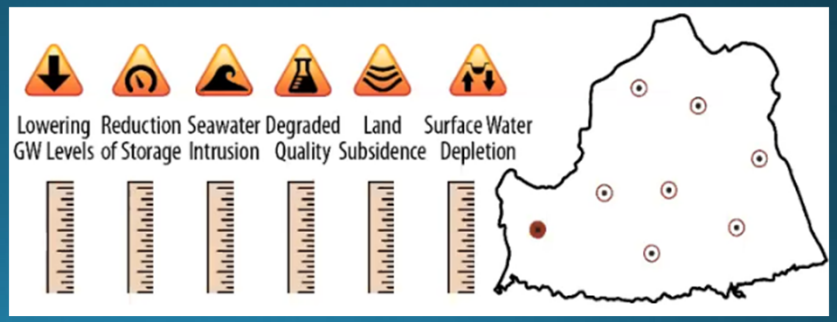
Advisory Committee Meeting 10

May 5, 2021

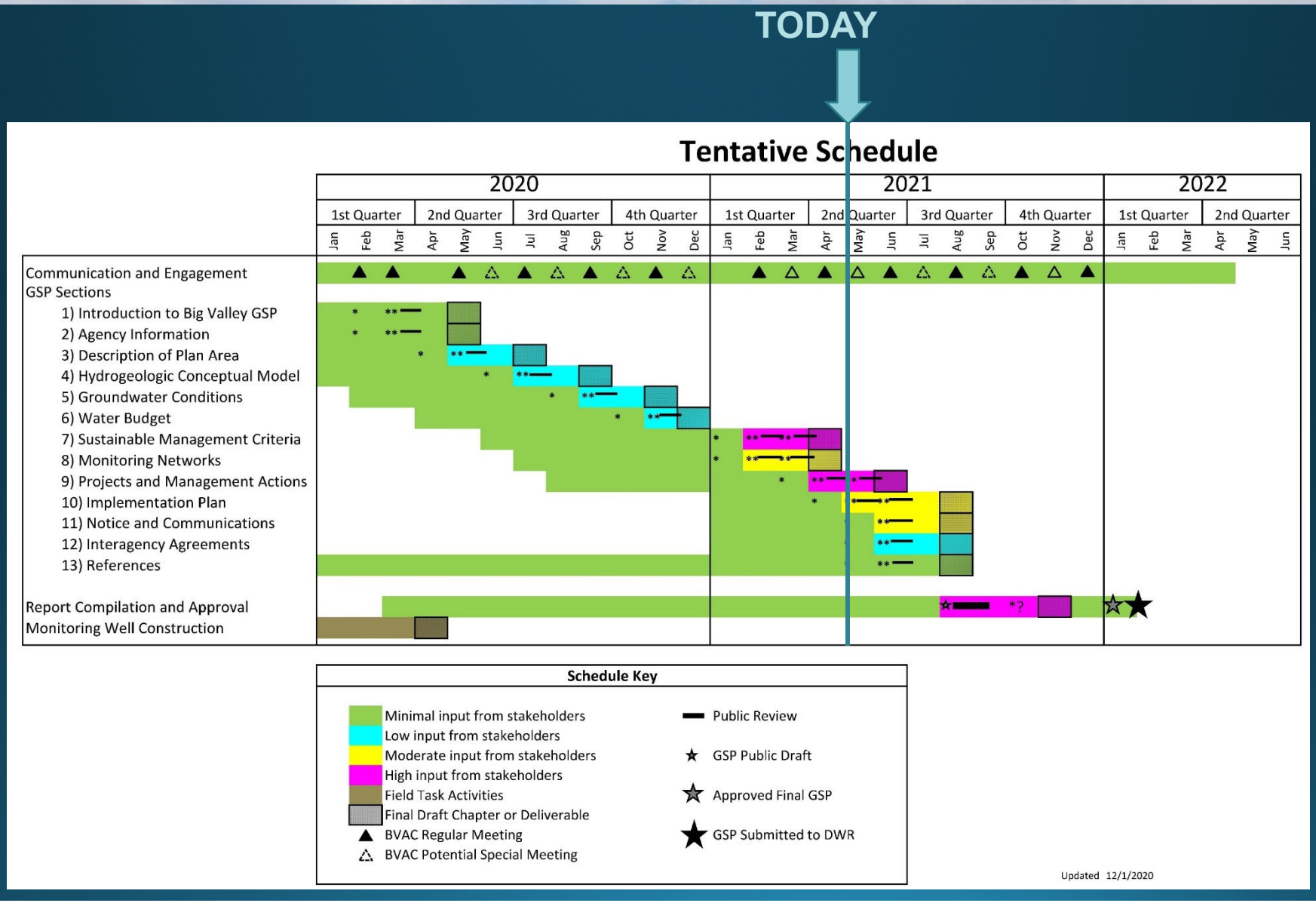




Source: UCANR Andrew Brown



GENERAL UPDATES AND SCHEDULE



WHERE ARE WE NOW?

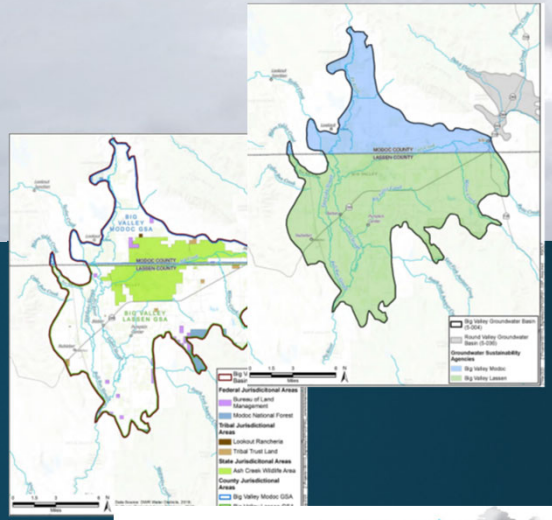
NOW

1 Introduction

2 Agency Information

3 Description of Plan Area

"Background"

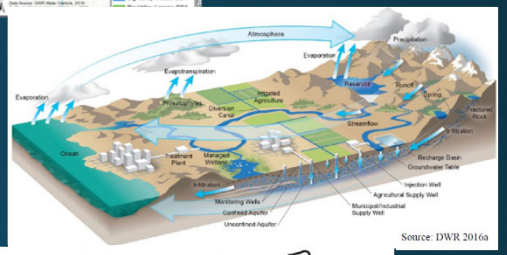


4 Hydrogeologic Conceptual Model

5 Groundwater Conditions

6 Water Budget

"Science"

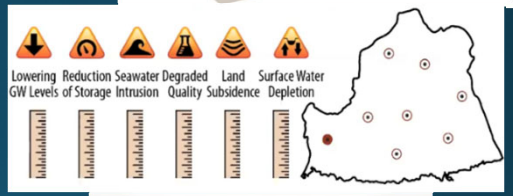


7 Sustainable Management Criteria

8 Monitoring Networks

9 Projects and Management Actions

"Planning"

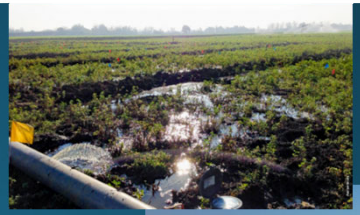


10 Implementation Plan

11 Notice and Communications

12 Interagency Agreements

"Implementation"



Source: UCANR Andrew Brown

Source: Westlands Water District

13 Reference List

"This plan is based on the best available information and science"

OVERALL PURPOSE - TO COMPLETE THE MANDATED GSP TO ATTAIN:

…to maintain a locally governed, economically feasible, sustainable groundwater basin and surrounding watershed for existing and future legal beneficial uses with a concentration on agriculture. Sustainable management will be conducted in context with the unique culture of the basin, character of the community, quality of life of the Big Valley residents…

AGENDA

- Subject #1: Continued discussion of Revised Draft Chapter 7 (Sustainable Management Criteria) possible set aside
- Subject #2: Introduction of Public Draft Chapter 8 (Monitoring Networks) Continue discussion of Revised Draft Chapter 8
- Subject #3: Discussion on SGMA implementation and annual reporting requirements for GSAs, in preparation for Chapter 10 (Implementation Plan)
- Subject #4: Review of outreach brochure, summarizing Chapters 1-6 of the GSP

AGENDA

- Subject #1: Continued discussion of Revised Draft Chapter 7 (Sustainable Management Criteria
- **Review, discuss, and receive comment on edits and new language. Set aside if possible**

SUBJECT #1: CHAP 7 SUSTAINABLE MANAGEMENT CRITERIA

Sustainability Goal

What does the GSP seek to achieve and/or protect?

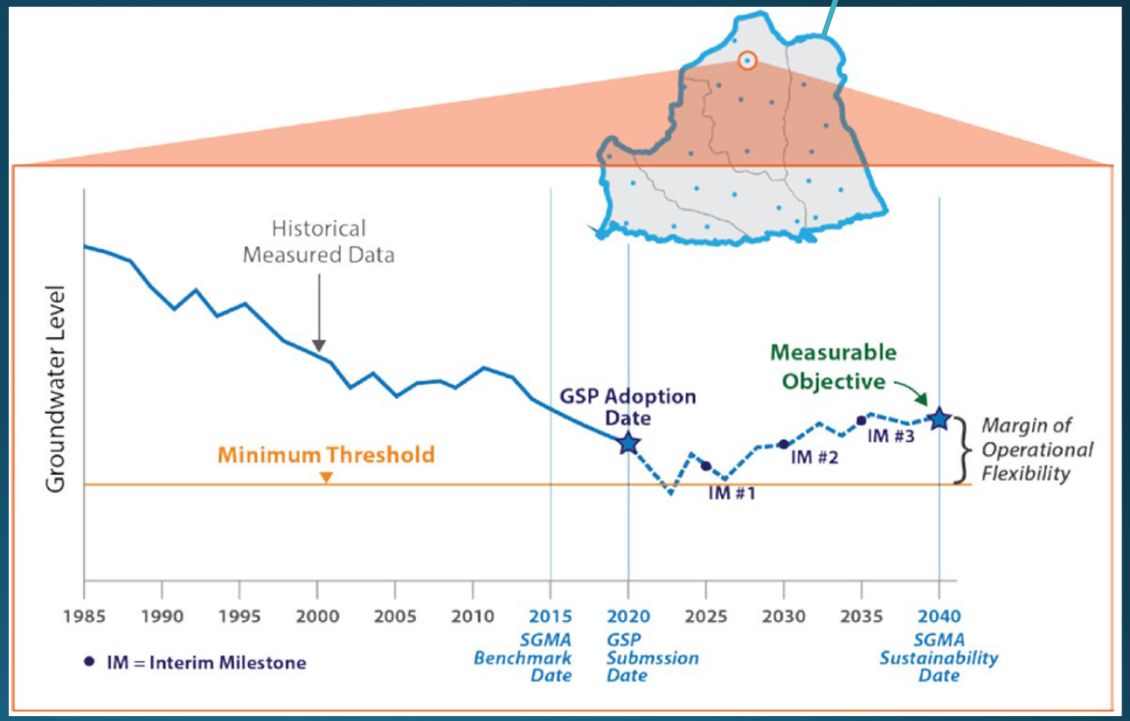
Undesirable Results

What is “significant and unreasonable” for each Sustainability Indicator based on the sustainability goal?

Minimum Thresholds
Measurable Objectives
Interim Milestones

What are the measured values that will determine if the basin is sustainable?

Hypothetical Basin



SUBJECT #1: CHAP 7 SUSTAINABILITY GOAL

Sustainability Goal:

Introductory text expanded to express the unique nature of BVGB

- Population has been *declining*
- Climate and short growing season (deep freezes)
- Economy
  - Timber yield tax diminished due to regulation of industry
  - SGMA will increase severity of disadvantaged/severely disadvantaged
  - Agriculture consistent industry supporting community

SUBJECT #1: CHAP 7 UNDESIRABLE RESULTS

Undesirable Results:

- Water level
  - Minimum Threshold changed to 140 feet below 2015 baseline
  - Text added to support Minimum Threshold, including pumping cost analysis
  - “Action Levels” clarified
- Water quality
  - No Minimum Thresholds established due to undesirable results being unlikely to occur
  - Text added describing various water quality programs in place
- Subsidence
  - No Minimum Thresholds established due to undesirable results being unlikely to occur
  - Text regarding field leveling added
- Interconnected Surface Water
  - No Minimum Thresholds established due to absence of data and undesirable results being unlikely to occur
  - Text added to emphasize the lack of data and evidence for surface water interconnection

SUBJECT #1: CHAP 7 SUSTAINABLE MANAGEMENT CRITERIA

Receive Public Comment on Revised Draft Chapter 7

Vote to “Set aside” Chapter 7?

AGENDA

- Subject #2: Introduction of Public Draft Chapter 8 (Monitoring Networks) Continue discussion of Revised Draft Chapter 8
- **Review, identify, and receive comment on current content and potential edits. Possibly set aside at the June BVAC meeting**

SUBJECT #2: CHAP 8 MONITORING NETWORKS

Types of Monitoring Networks:

- Water levels
  - Representative Wells
  - Contour Wells
  - Shallow Wells (interconnected surface water)
- Water Quality
- Subsidence
- Water Budget
  - Streamflow
  - Climate (precipitation and evapotranspiration)
  - Land use

SUBJECT #2: CHAP 8 MONITORING NETWORKS

Water Levels:

Representative Wells

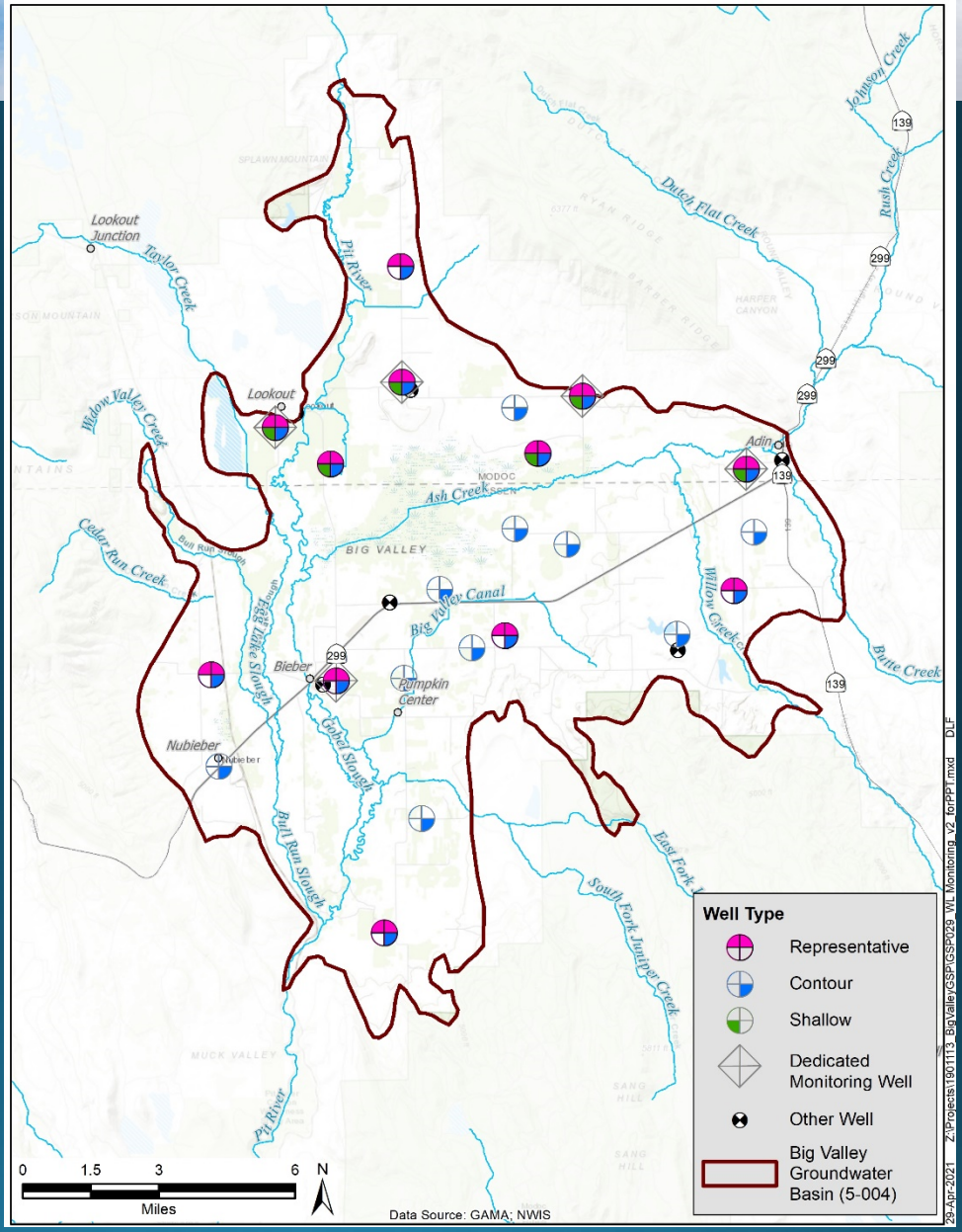
- 12 Wells with water level minimum thresholds

Contour Wells

- 22 Wells for annual report contouring

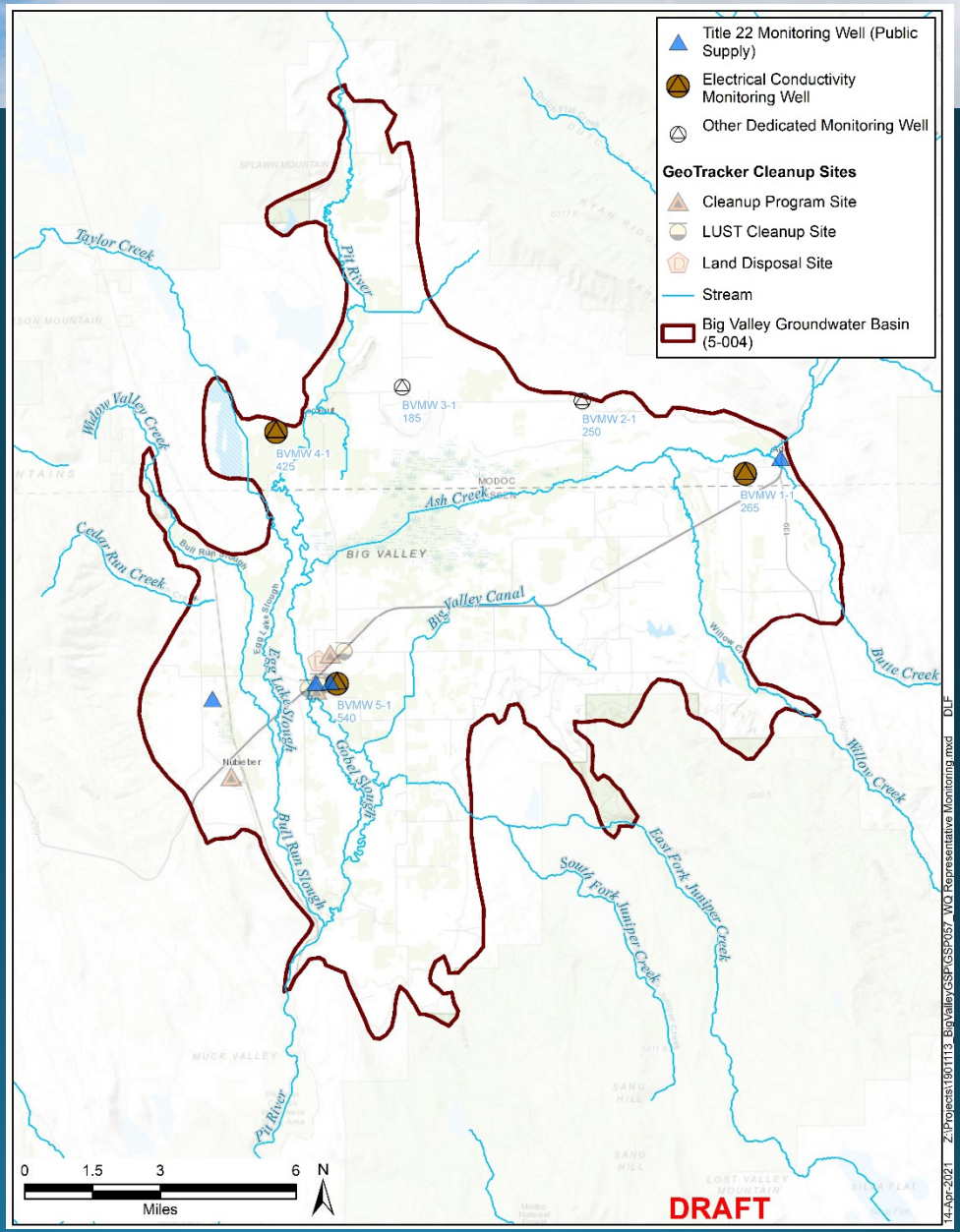
Shallow Wells

- 17 Wells
- Includes 5 new well clusters with 3 shallow wells each



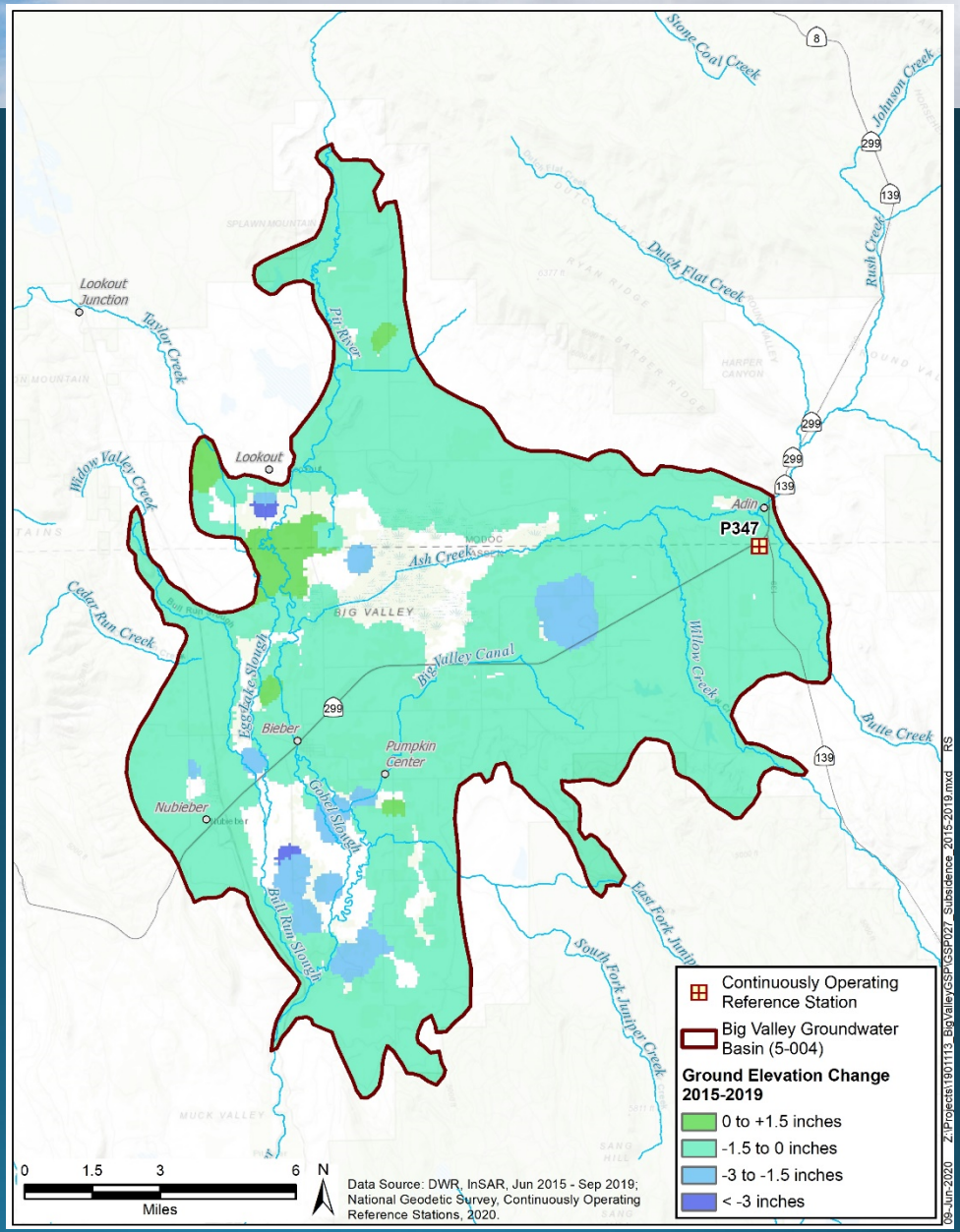
SUBJECT #2: CHAP 8 MONITORING NETWORKS

- Water Quality
  - Public supply wells
  - Electrical Conductivity (EC) transducers installed in 3 monitoring wells
  - Will be assessed at 5-year update



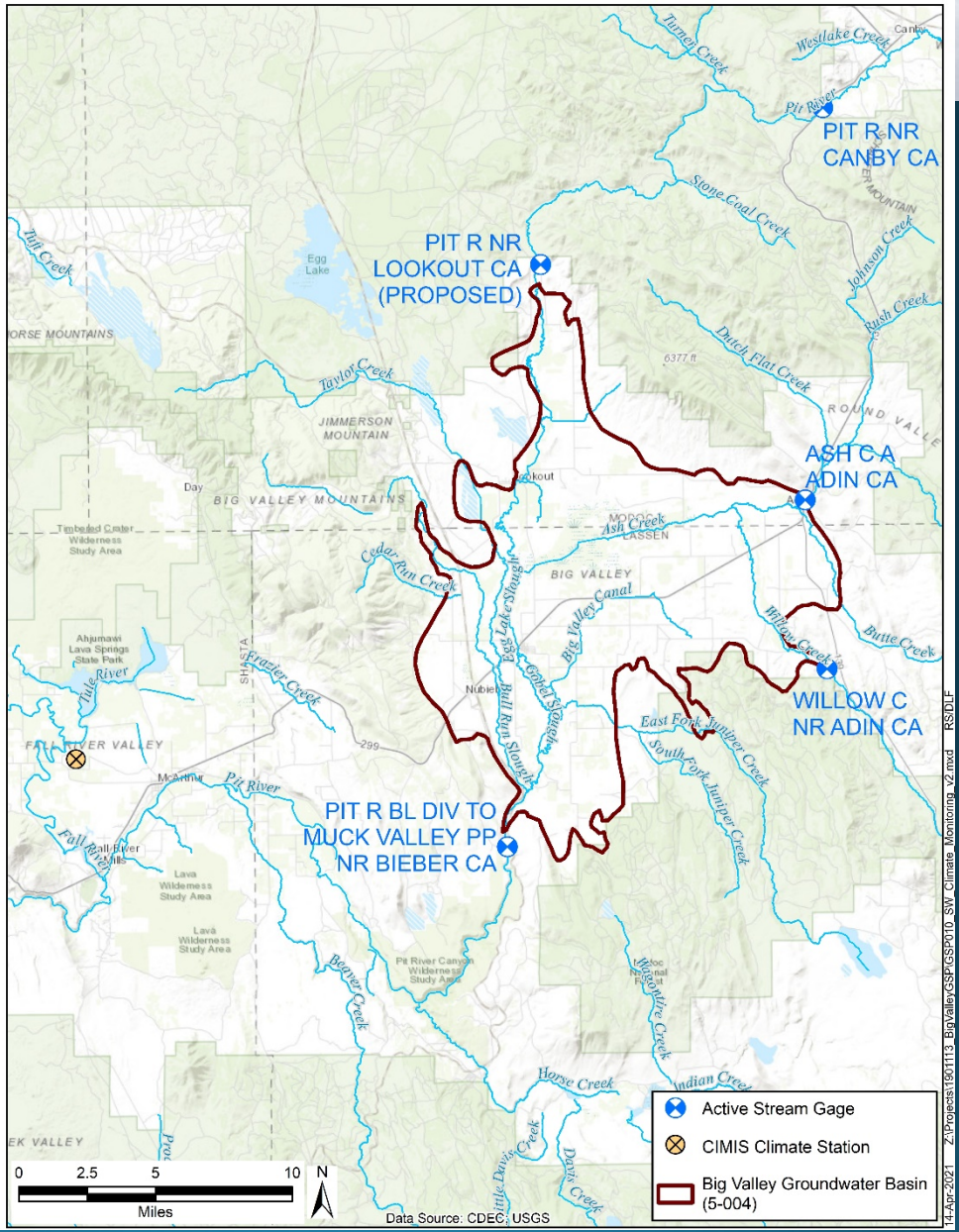
SUBJECT #2: CHAP 8 MONITORING NETWORKS

- Subsidence
  - InSAR (provided by DWR)
  - Continuous GPS station P347 (NOAA)
  - Will be assessed at 5-year update



SUBJECT #2: CHAP 8 MONITORING NETWORKS

- Water Budget
  - For Annual Reports
- Streamflow
  - DWR/USGS Gages
  - Brookfield, Muck Valley Diversion (Pit River outflow)
  - Proposed gage N of Lookout
- Climate from CIMIS
  - Precipitation
  - Evapotranspiration
- Land Use
  - DWR/LandIQ



SUBJECT #2: CHAP 8 MONITORING NETWORKS

Receive Public Comment on Public Draft Chapter 8

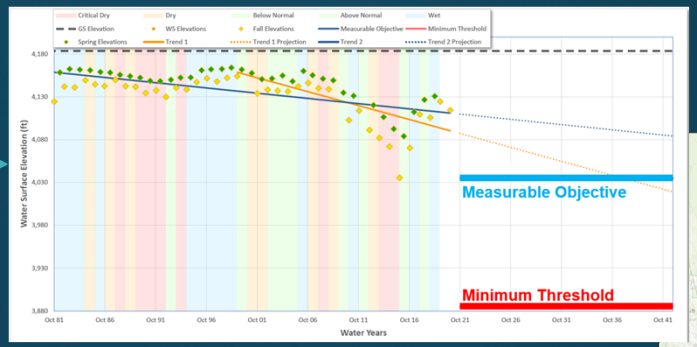
AGENDA

- Subject #3: Discussion on SGMA implementation and annual reporting requirements for GSAs, in preparation for Chapter 10 (Implementation Plan).
- **Review and discuss key concepts and provide direction to staff leading into the June meeting. Possible ad hoc committee?**

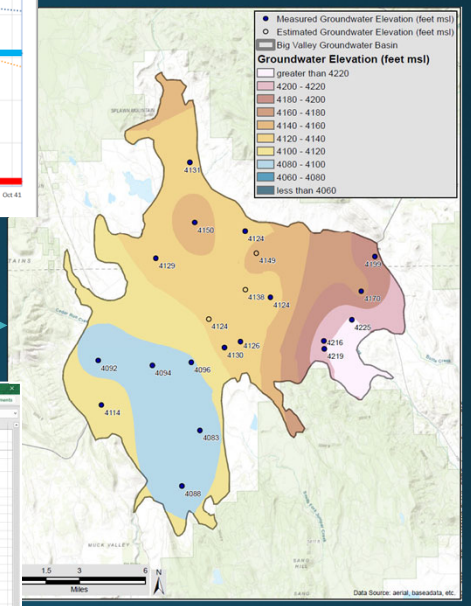
SUBJECT #3: CHAP 10 IMPLEMENTATION PLAN

Annual Reports

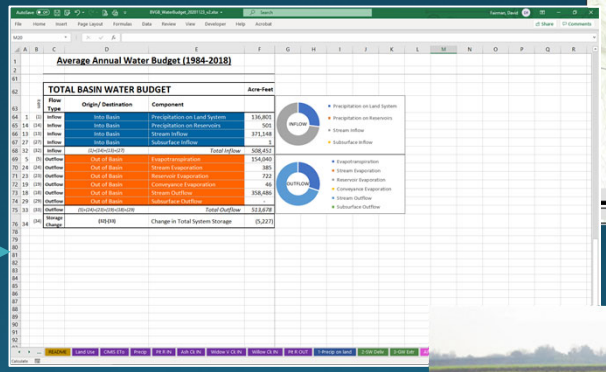
- Water Level Hydrographs



- Groundwater Contours



- Water Use Estimates (Water Budget)



- Status of Projects and Management Actions

Source: UCANR Andrew Brown

SUBJECT #3: CHAP 10 IMPLEMENTATION PLAN

What happens after the GSP is submitted?

Frequency	Activity	GSAs Need Support From			
		DWR	Farm Advisors	Consultants	Other*
annual	GSA Administration and Public Outreach		?		✓
	Monitoring and Data Management	✓	?		✓
	Annual Reports		?	?	✓
5-years	GSP Updates	✓	✓	✓	✓
ongoing/ intermittent	Projects and Management Actions	✓	✓	?	✓

Note: Support here is a generic term for either financial or technical.
* Other may include county staff, watermaster, etc.

SUBJECT #3: CHAP 10 IMPLEMENTATION PLAN

Costs from Other GSPs

	Annual Costs*	5-Year Updates
Minimum	$50,000	$50,000
Maximum	$2,600,000	$1,400,000
Median	$720,000	$330,000

*Annual costs generally consist of GSA administrations, public outreach, monitoring, data management, and annual reports.

- Note that these costs are for comparison purposes only and the don't consider the unique situation of Big Valley. These costs come from other parts of the state where:
  - Critically overdrafted
  - Multiple GSPs in a basin
  - Often many GSAs
  - Generally larger size
  - GSAs are generally water districts and irrigation districts
  - GSAs have a revenue stream related to water

SUBJECT #3: CHAP 10 IMPLEMENTATION PLAN

Funding Options

Funding Mechanism	Source
Assistance Programs	State
Grant Funding	State, Federal, Other
General Funds	Counties
Fees, Assessments, Taxes	Locals

Staff recommends that the BVAC establish an Ad Hoc committee comprised of the Chair and Vice Chair to consider costs and potential funding options.

This Ad Hoc committee could also look at the coordination between the counties (responsibilities, staffing, cost share, etc.). These details could potentially be in the GSP itself or in a separate MOU. The BVAC could make a recommendation to the GSAs

SUBJECT #3: CHAP 10 IMPLEMENTATION PLAN

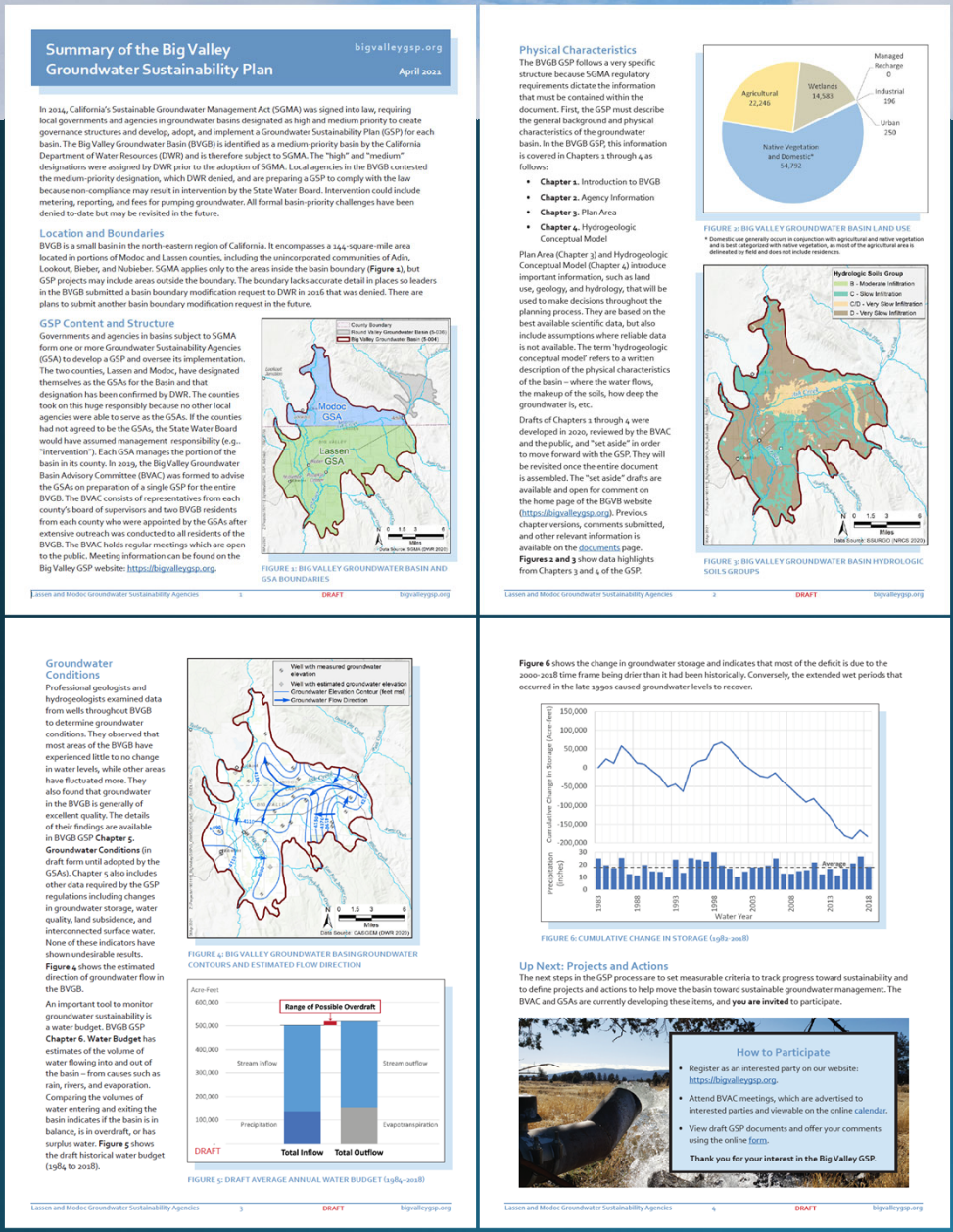
Receive Public Comment

Establish ad hoc committee?

AGENDA

- Subject #4: Review of outreach brochure, summarizing Chapters 1-6 of the GSP
- **Review, discuss, and receive comment how brochure can be used and it's current content. Edit and / or approve for distribution**

SUBJECT #4: BROCHURE



Summary of the Big Valley Groundwater Sustainability Plan

bigvalleygsp.org

April 2021

In 2014, California's Sustainable Groundwater Management Act (SGMA) was signed into law, requiring local governments and agencies in groundwater basins designated as high and medium priority to create governance structures and develop, adopt, and implement a Groundwater Sustainability Plan (GSP) for each basin. The Big Valley Groundwater Basin (BVGB) is identified as a medium-priority basin by the California Department of Water Resources (DWR) and is therefore subject to SGMA. The "high" and "medium" designations were assigned by DWR prior to the adoption of SGMA. Local agencies in the BVGB contested the medium-priority designation, which DWR denied, and are preparing a GSP to comply with the law because non-compliance may result in intervention by the State Water Board. Intervention could include metering, reporting, and fees for pumping groundwater. All formal basin-priority challenges have been denied to-date but may be revisited in the future.

Location and Boundaries

BVGB is a small basin in the north-eastern region of California. It encompasses a 244-square-mile area located in portions of Modoc and Lassen counties, including the unincorporated communities of Adin, Lookout, Bieber, and Nubieber. SGMA applies only to the areas inside the basin boundary (**Figure 1**), but GSP projects may include areas outside the boundary. The boundary lacks accurate detail in places so leaders in the BVGB submitted a basin boundary modification request to DWR in 2016 that was denied. There are plans to submit another basin boundary modification request in the future.

GSP Content and Structure

Governments and agencies in basins subject to SGMA form one or more Groundwater Sustainability Agencies (GSA) to develop a GSP and oversee its implementation. The two counties, Lassen and Modoc, have designated themselves as the GSAs for the Basin and that designation has been confirmed by DWR. The counties took on this huge responsibly because no other local agencies were able to serve as the GSAs. If the counties had not agreed to be the GSAs, the State Water Board would have assumed management responsibility (e.g., "intervention"). Each GSA manages the portion of the basin in its county. In 2019, the Big Valley Groundwater Basin Advisory Committee (BVAC) was formed to advise the GSAs on preparation of a single GSP for the entire BVGB. The BVAC consists of representatives from each county's board of supervisors and two BVGB residents from each county who were appointed by the GSAs after extensive outreach was conducted to all residents of the BVGB. The BVAC holds regular meetings which are open to the public. Meeting information can be found on the Big Valley GSP website: https://bigvalleygsp.org.

FIGURE 1: BIG VALLEY GROUNDWATER BASIN AND GSA BOUNDARIES

Lassen and Modoc Groundwater Sustainability Agencies 1 DRAFT bigvalleygsp.org

Physical Characteristics

The BVGB GSP follows a very specific structure because SGMA regulatory requirements dictate the information that must be contained within the document. First, the GSP must describe the general background and physical characteristics of the groundwater basin. In the BVGB GSP, this information is covered in Chapters 1 through 4 as follows:

- **Chapter 1.** Introduction to BVGB
- **Chapter 2.** Agency Information
- **Chapter 3.** Plan Area
- **Chapter 4.** Hydrogeologic Conceptual Model

Plan Area (Chapter 3) and Hydrogeologic Conceptual Model (Chapter 4) introduce important information, such as land use, geology, and hydrology, that will be used to make decisions throughout the planning process. They are based on the best available scientific data, but also include assumptions where reliable data is not available. The term 'hydrogeologic conceptual model' refers to a written description of the physical characteristics of the basin – where the water flows, the makeup of the soils, how deep the groundwater is, etc.

Drafts of Chapters 1 through 4 were developed in 2020, reviewed by the BVAC and the public, and "set aside" in order to move forward with the GSP. They will be revisited once the entire document is assembled. The "set aside" drafts are available and open for comment on the home page of the BGVB website (https://bigvalleygsp.org). Previous chapter versions, comments submitted, and other relevant information is available on the documents page. **Figures 2 and 3** show data highlights from Chapters 3 and 4 of the GSP.

FIGURE 2: BIG VALLEY GROUNDWATER BASIN LAND USE

* Domestic use generally occurs in conjunction with agricultural and native vegetation and is best categorized with native vegetation, as most of the agricultural area is delineated by field and does not include residences.

FIGURE 3: BIG VALLEY GROUNDWATER BASIN HYDROLOGIC SOILS GROUPS

Lassen and Modoc Groundwater Sustainability Agencies 2 DRAFT bigvalleygsp.org

Groundwater Conditions

Professional geologists and hydrogeologists examined data from wells throughout BVGB to determine groundwater conditions. They observed that most areas of the BVGB have experienced little to no change in water levels, while other areas have fluctuated more. They also found that groundwater in the BVGB is generally of excellent quality. The details of their findings are available in BVGB GSP **Chapter 5. Groundwater Conditions** (in draft form until adopted by the GSAs). Chapter 5 also includes other data required by the GSP regulations including changes in groundwater storage, water quality, land subsidence, and interconnected surface water. None of these indicators have shown undesirable results. **Figure 4** shows the estimated direction of groundwater flow in the BVGB.

An important tool to monitor groundwater sustainability is a water budget. BVGB GSP **Chapter 6. Water Budget** has estimates of the volume of water flowing into and out of the basin – from causes such as rain, rivers, and evaporation. Comparing the volumes of water entering and exiting the basin indicates if the basin is in balance, is in overdraft, or has surplus water. **Figure 5** shows the draft historical water budget (1984 to 2018).

FIGURE 4: BIG VALLEY GROUNDWATER BASIN GROUNDWATER CONTOURS AND ESTIMATED FLOW DIRECTION

FIGURE 5: DRAFT AVERAGE ANNUAL WATER BUDGET (1984–2018)

Lassen and Modoc Groundwater Sustainability Agencies 3 DRAFT bigvalleygsp.org

Figure 6 shows the change in groundwater storage and indicates that most of the deficit is due to the 2000-2018 time frame being drier than it had been historically. Conversely, the extended wet periods that occurred in the late 1990s caused groundwater levels to recover.

FIGURE 6: CUMULATIVE CHANGE IN STORAGE (1982-2018)

Up Next: Projects and Actions

The next steps in the GSP process are to set measurable criteria to track progress toward sustainability and to define projects and actions to help move the basin toward sustainable groundwater management. The BVAC and GSAs are currently developing these items, and **you are invited** to participate.

How to Participate

- Register as an interested party on our website: https://bigvalleygsp.org.
- Attend BVAC meetings, which are advertised to interested parties and viewable on the online calendar.
- View draft GSP documents and offer your comments using the online form.

Thank you for your interest in the Big Valley GSP.

Lassen and Modoc Groundwater Sustainability Agencies 4 DRAFT bigvalleygsp.org

Brochure was developed because:

- Public wanted to know how they could get up to speed on the background and science in Chapters 1-6
- Executive summary was developed, but was still considered too long and a shorter summary was desired

How we intent to use the document:

- Handout at BVAC meetings
- Website
- Email

SUBJECT #4: BROCHURE

Receive Public Comment

Approve brochure for general distribution?

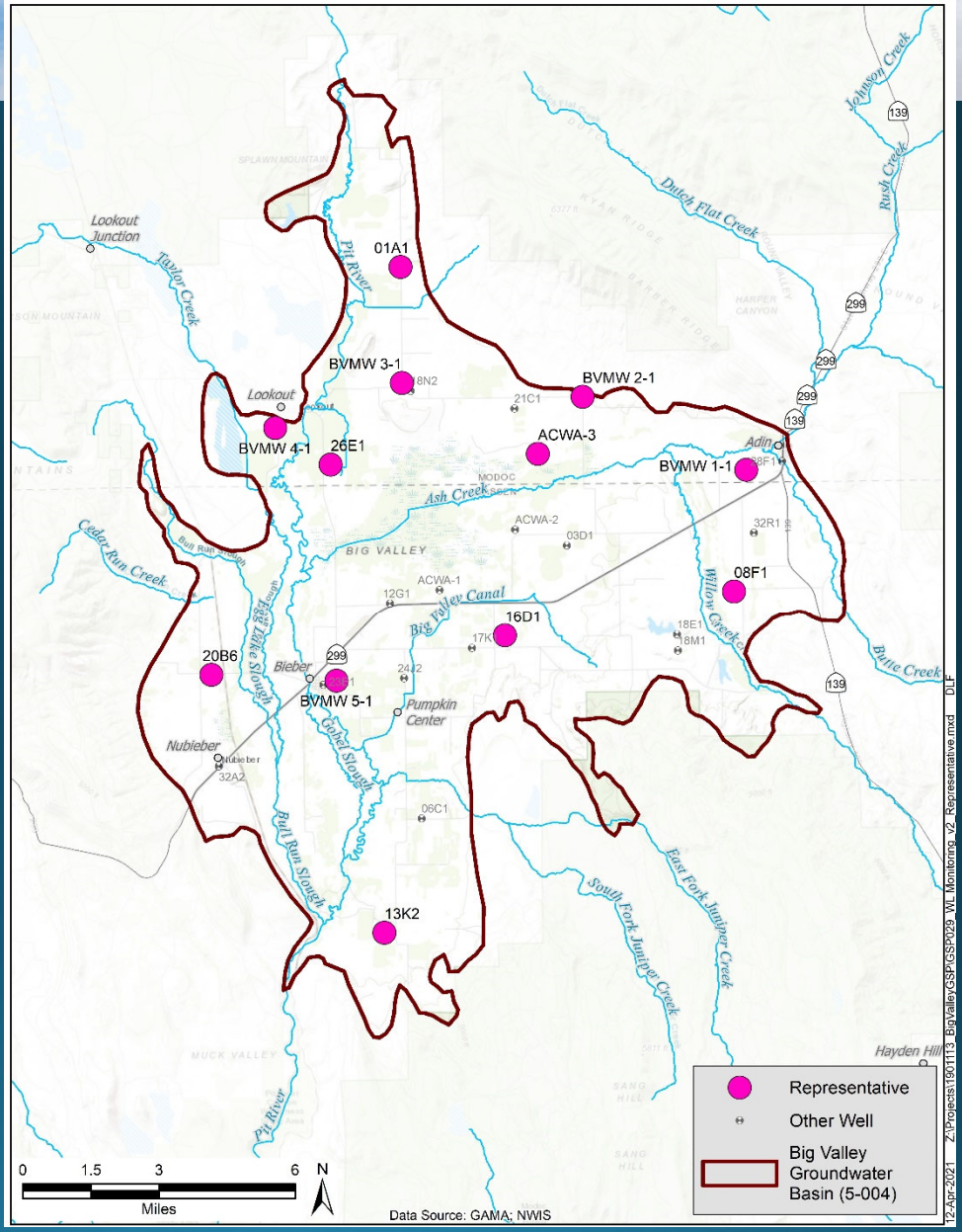
QUESTIONS OR COMMENTS FOR ITEMS NOT ON THE AGENDA

- GSA Staff and Consultants will be available after the meeting to talk, answer questions, and hear your concerns.

BACKUP SLIDES

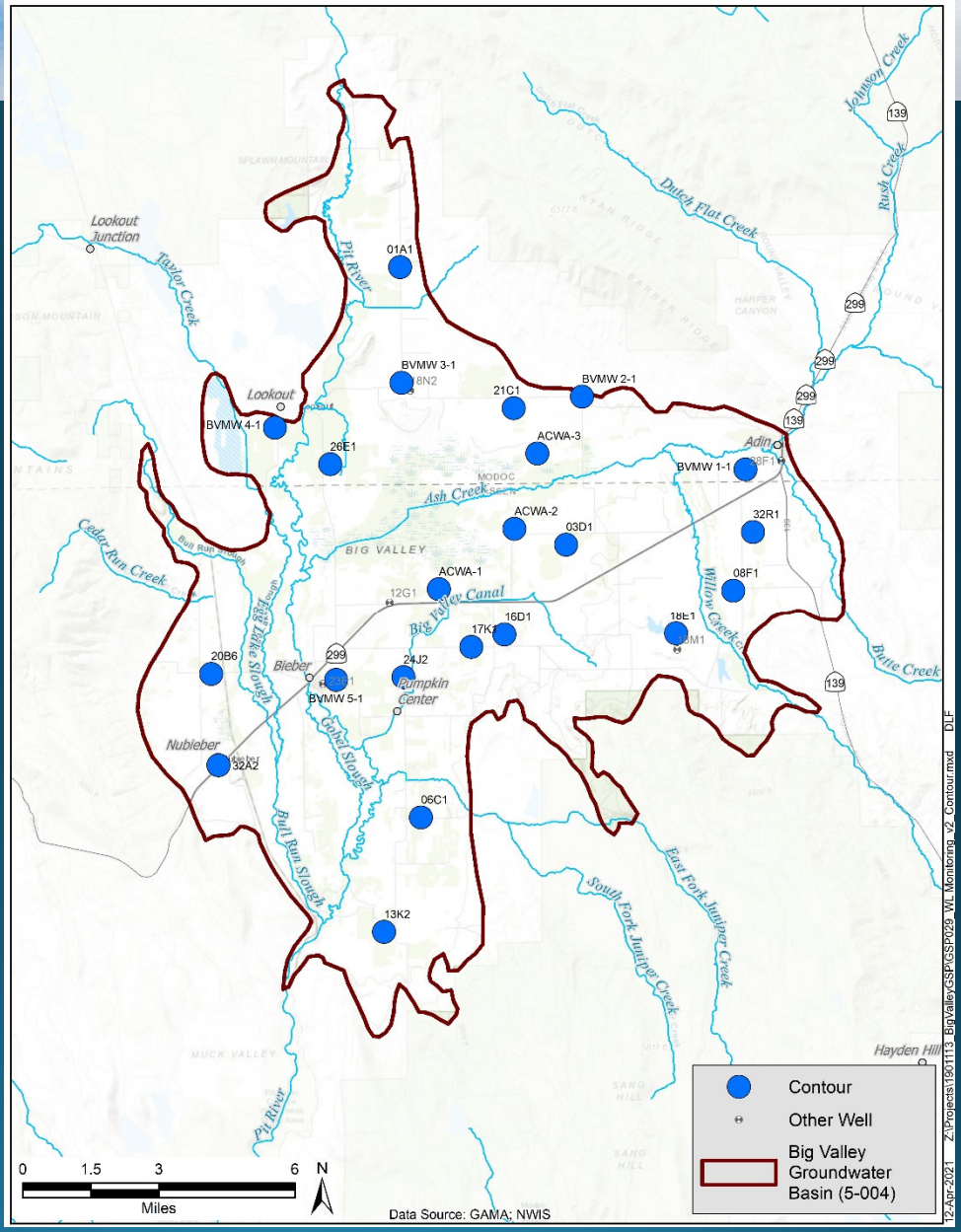
SUBJECT #2: CHAP 8 MONITORING NETWORKS

- Water Levels: Representative Wells



SUBJECT #2: CHAP 8 MONITORING NETWORKS

- Water Levels: Groundwater Contours



SUBJECT #2: CHAP 8 MONITORING NETWORKS

- Water Levels: Shallow