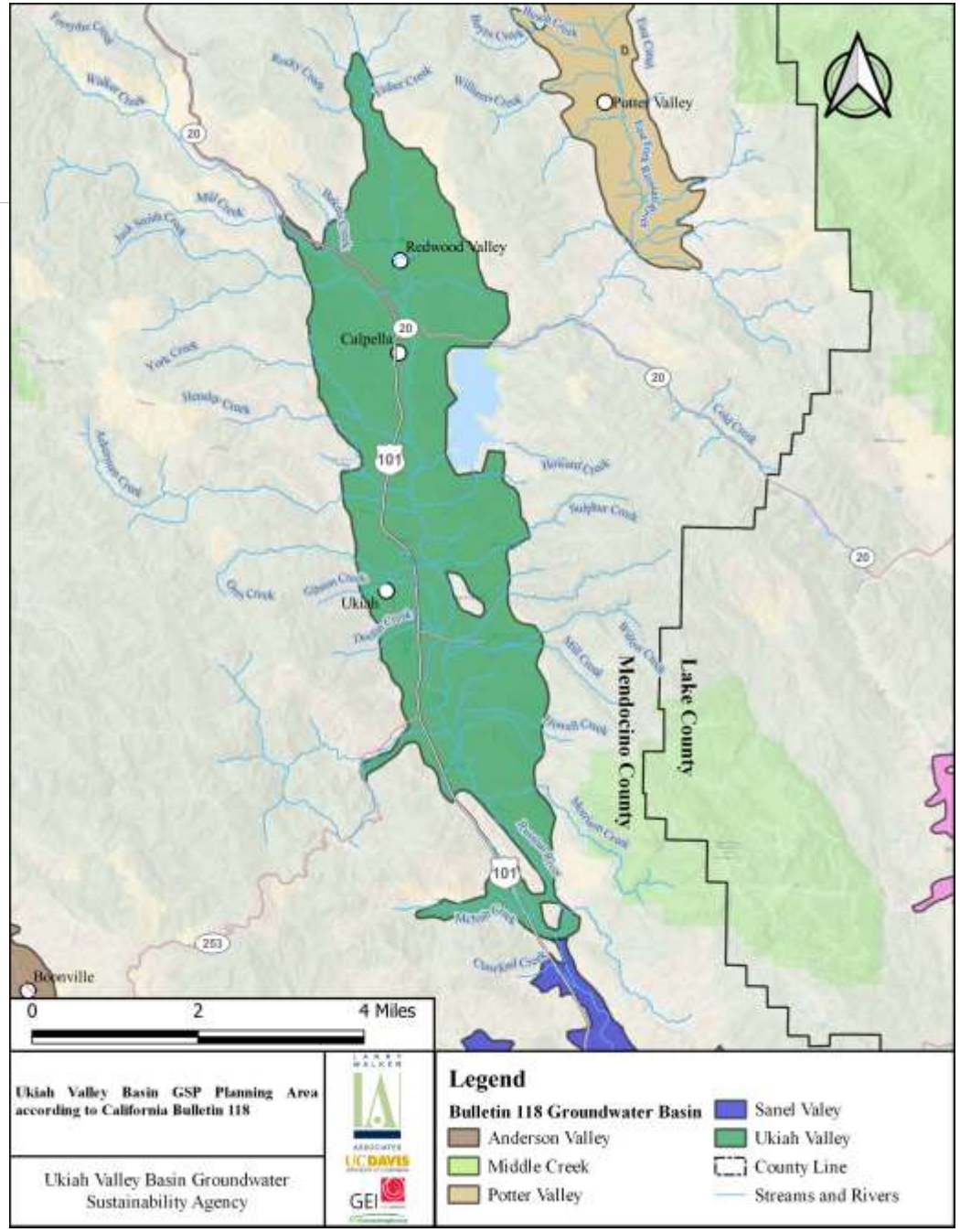
Mendocino County Planning Commission

Ukiah Valley Groundwater Sustainability Plan

December 16, 2021

Introduction to UVBGSA



Introduction to UVBGSA: Organization and Team Structure

Groundwater Sustainability Agency	Technical Advisory Committee	Technical Team	Working Groups

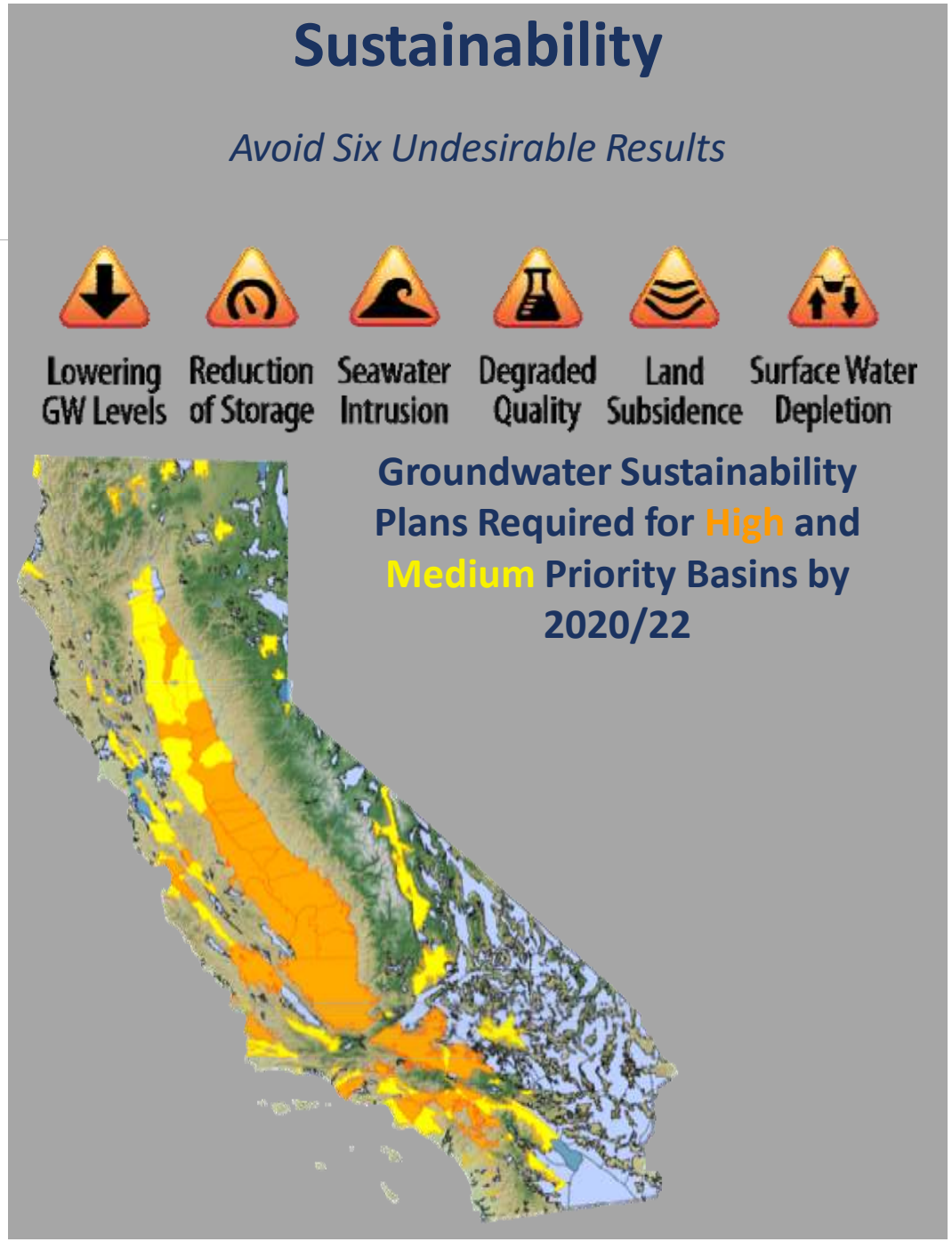
• County of Mendocino
• City of Ukiah
• RRFCD
• URRWA
• Tribal Rep.
• Agricultural Rep.
	• County of Mendocino
	• City of Ukiah
	• URRWA
	• RRFC
	• Tribal Rep.
	• Agricultural Rep.
	• Sonoma Water
	• MCRCD
	• CLSI
		• Larry Walker Associates
		• UC Davis
		• GEI
		• SCI
			• Subject Matter Experts
			  • SW/GW Interaction WG
			  • PVP Operations
			  • Ag Reps
			  • GW Elevation WG
			  • PMAs WG

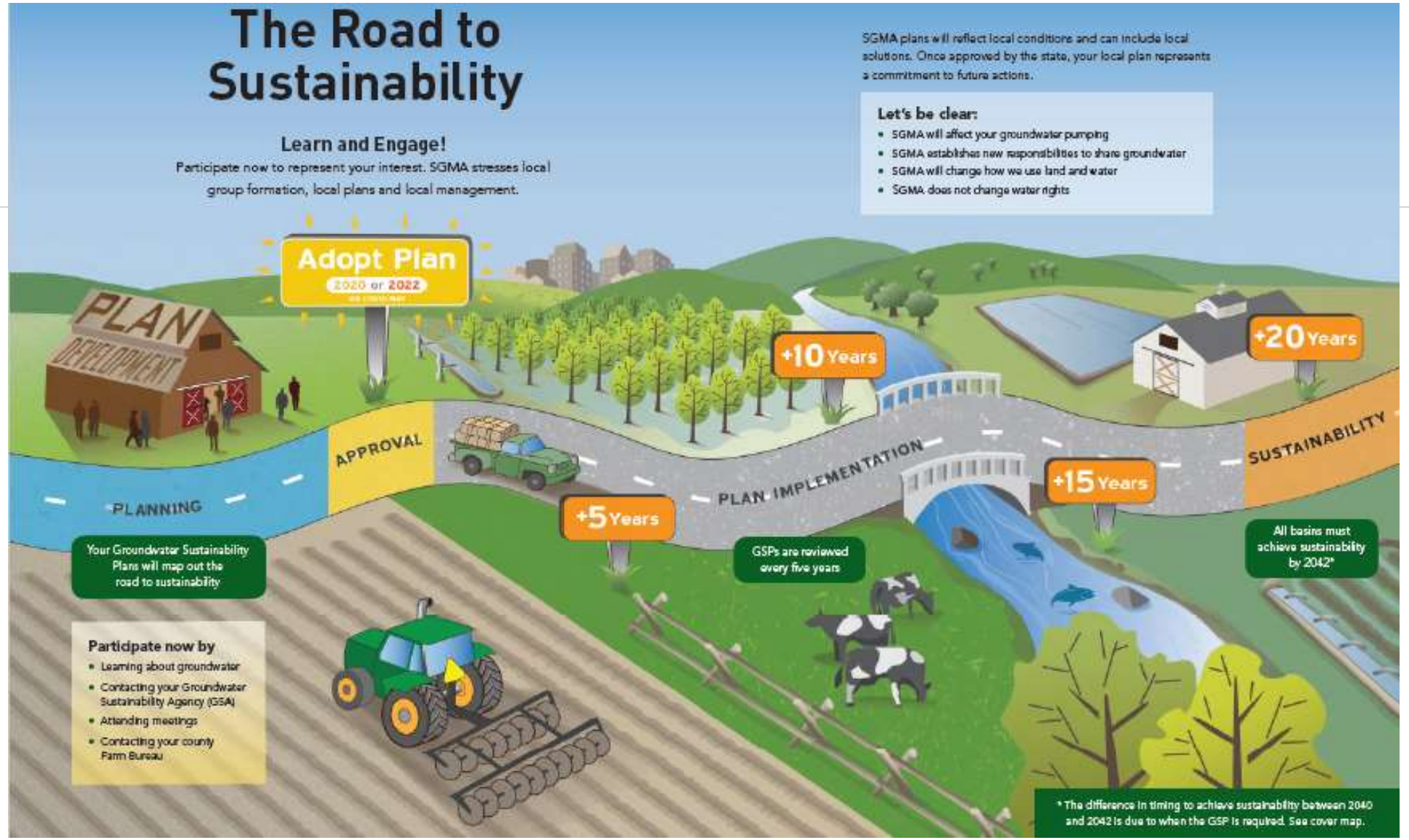
Roles and Responsibilities

- GSAs: have authority and responsibility for GSP and content within
- TAC: members provide advice, input, and recommendations to the GSAs on all aspects of the GSP
- Technical Team: researches technical issues, prepares draft content for the GSP
- Working Groups: provide subject-specific advice, input, and recommendations to the Technical Team and TAC

Introduction to SGMA (Sustainable Groundwater Management Act)

- Historic drought
- Became law on January 1, 2015
- Medium/high priority basins must be managed sustainably
- Emphasis on local control with State oversight
  - State intervenes if local action not taken
- Requires Groundwater Sustainability Agencies (GSAs)
- Requires Groundwater Sustainability Plans (GSPs)





LEARN and ENGAGE! Participate NOW to represent your interest! SGMA stresses LOCAL group formation, LOCAL plans, and LOCAL management!

GSP Technical Process

Plan contents and current status

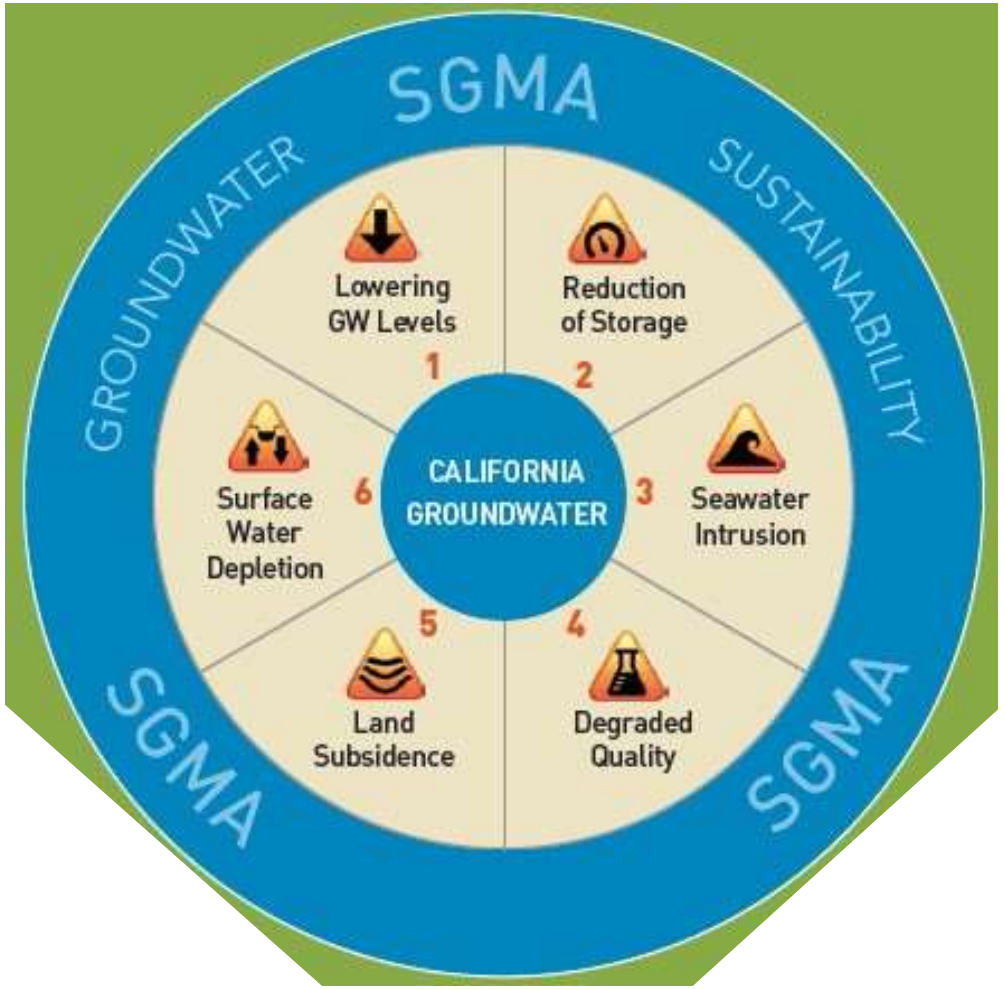
A GSP has five chapters:

1. Introduction 
2. Plan Area and Basin Setting 
3. Sustainable Management Criteria 
4. Projects and Management Actions 
5. Plan Implementation 

Sustainability Indicators: Learning a New Language

Sustainable Management Criteria and ***Projects and Management Actions*** are the Key Components of the GSP:

- GSP needs to consider and demonstrate the applicability (or not) of all the sustainability indicators
- We will focus on: lowering groundwater levels, reduction of storage, degraded quality, and surface water depletion
- Monitoring networks to characterize and inform sustainability indicators

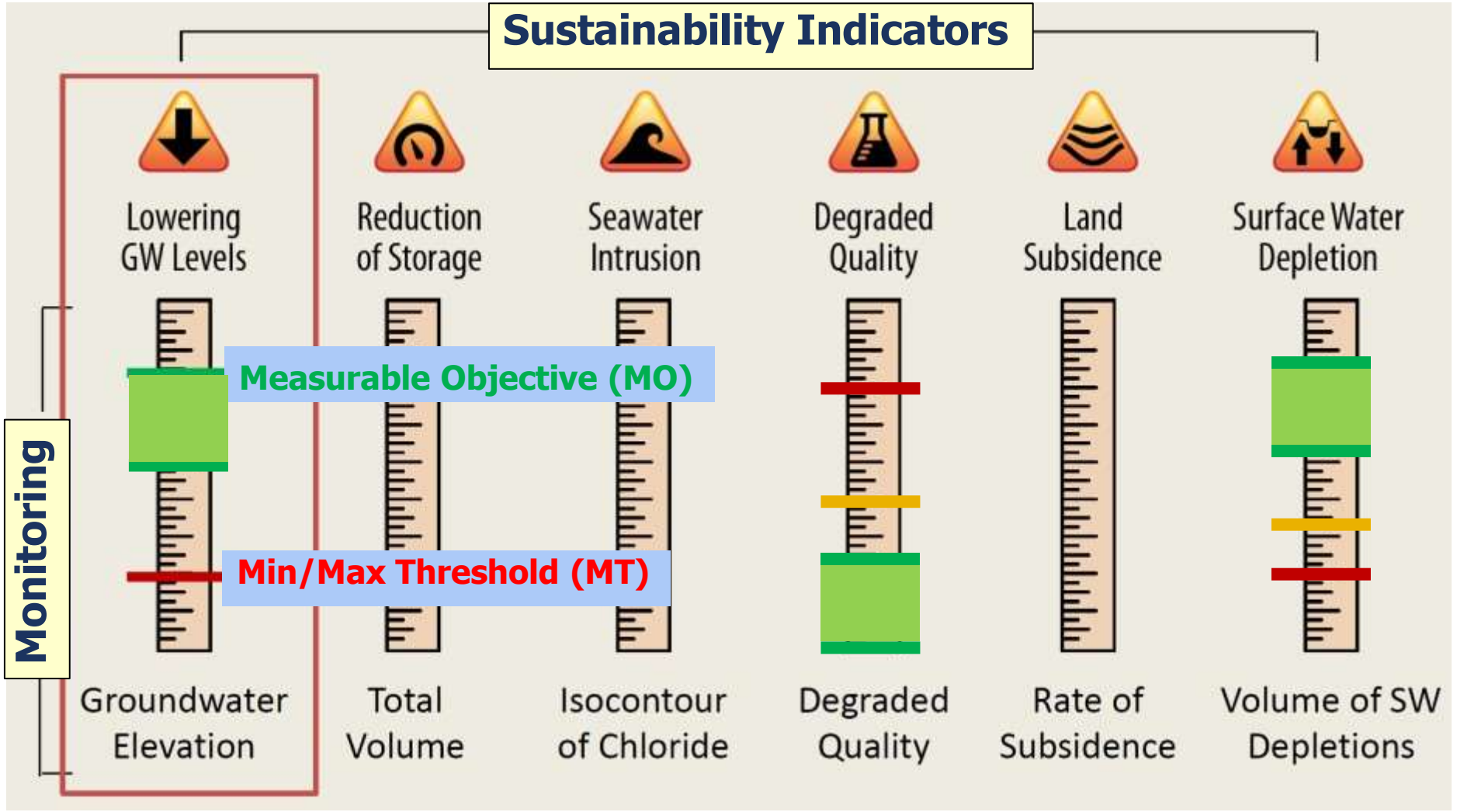


Developing "Thermometers" to Gauge the Health of the Basin for Each Applicable Undesirable Result

Measurable Objective: Goal that we want to strive for.

- **Minimum Threshold**:

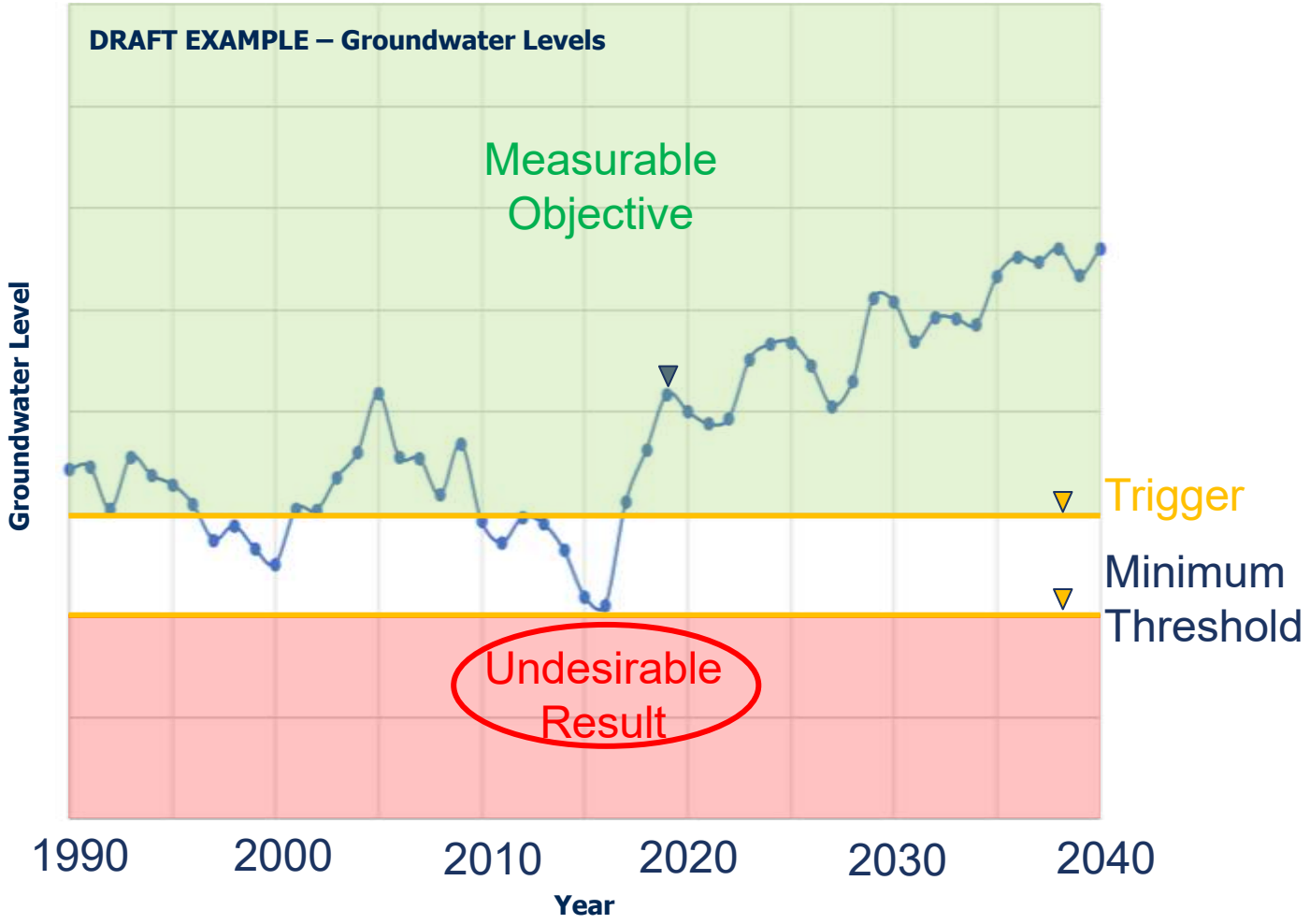
  Quantitative value reflecting what is significant and unreasonable. ***The line we don't want to cross.***



modified from Ca DWR 2016

Review of Sustainable Management Criteria Components

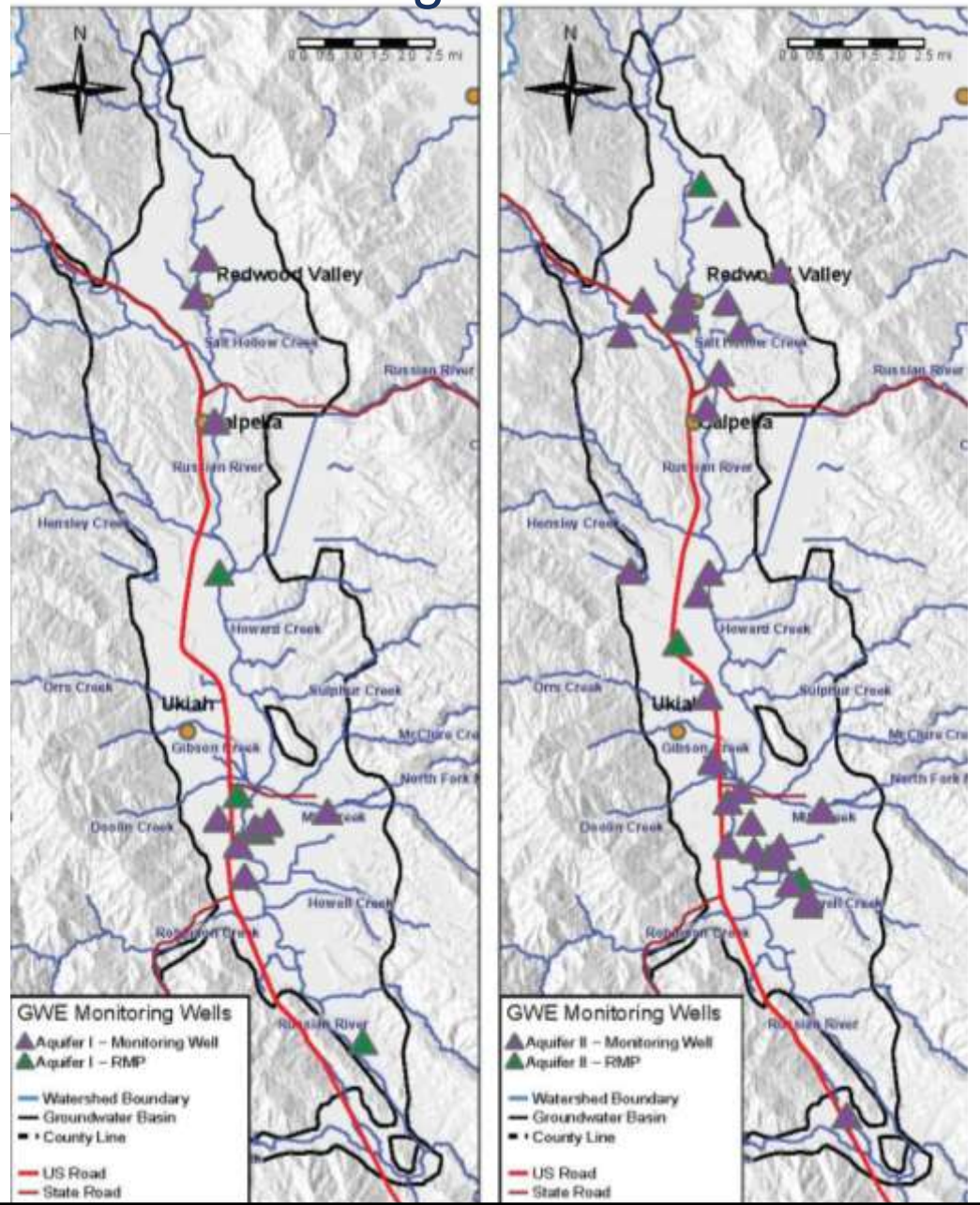
- Undesirable Results
  - Must be “Significant and Unreasonable”
  - Statement that describes conditions that we do not want to happen
  - Defined for each sustainability indicator
    - (e.g. groundwater levels, groundwater quality, etc.)



Monitoring Networks

- Why is it important?
  - Measures progress toward achievement of management goal and measurable objectives
  - Sustainability criteria are defined based on the components of the monitoring network
- May be different for each sustainability indicator
- Must have sufficient temporal frequency and spatial distribution to:
  - demonstrate short-term, seasonal, and long-term trends in basin conditions
  - monitor impacts to the beneficial uses or users of groundwater
  - quantify annual changes in water budget components

Groundwater Elevation Monitoring Network



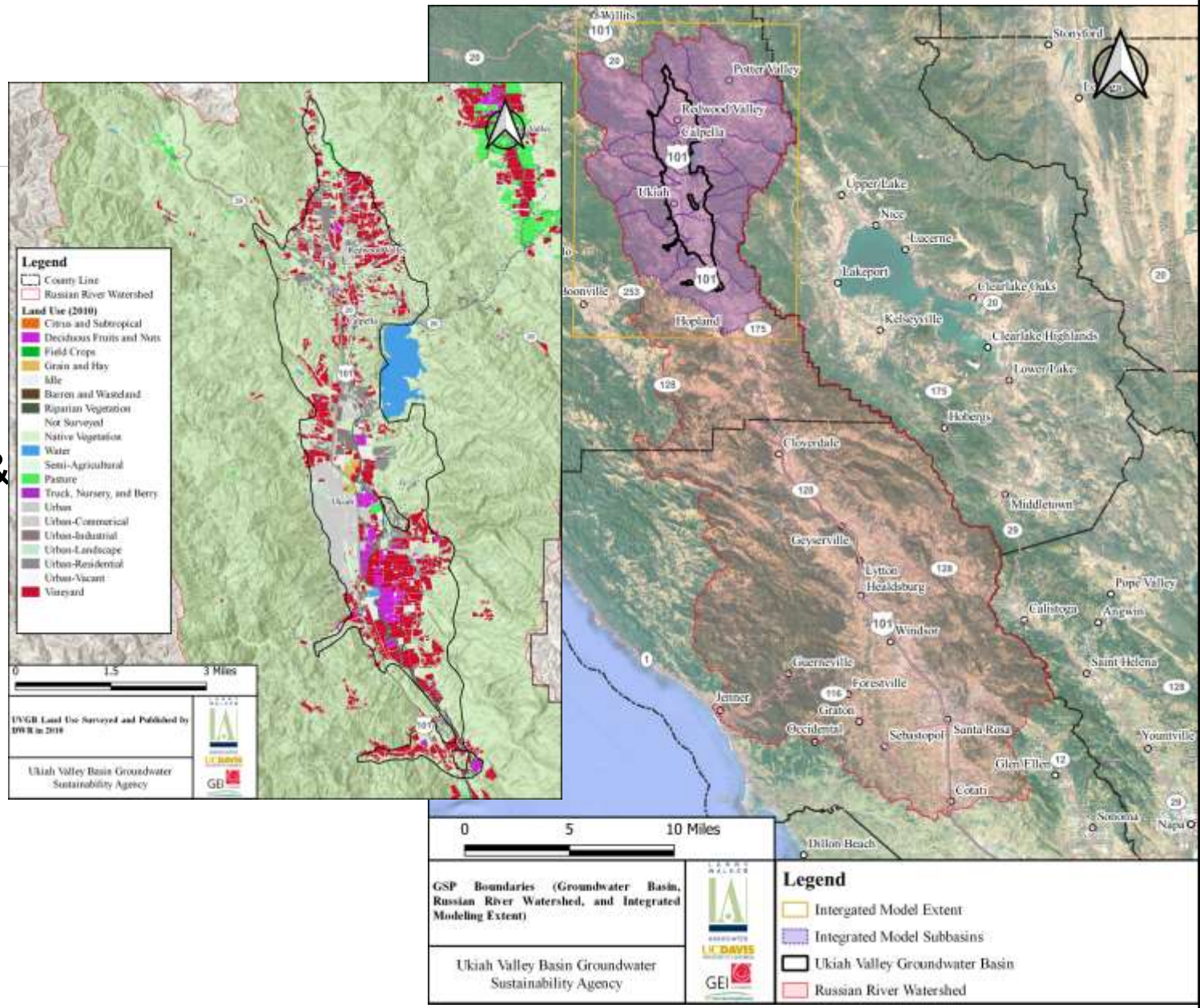
Integrated Hydrological Model (UVIHM)

LVVA

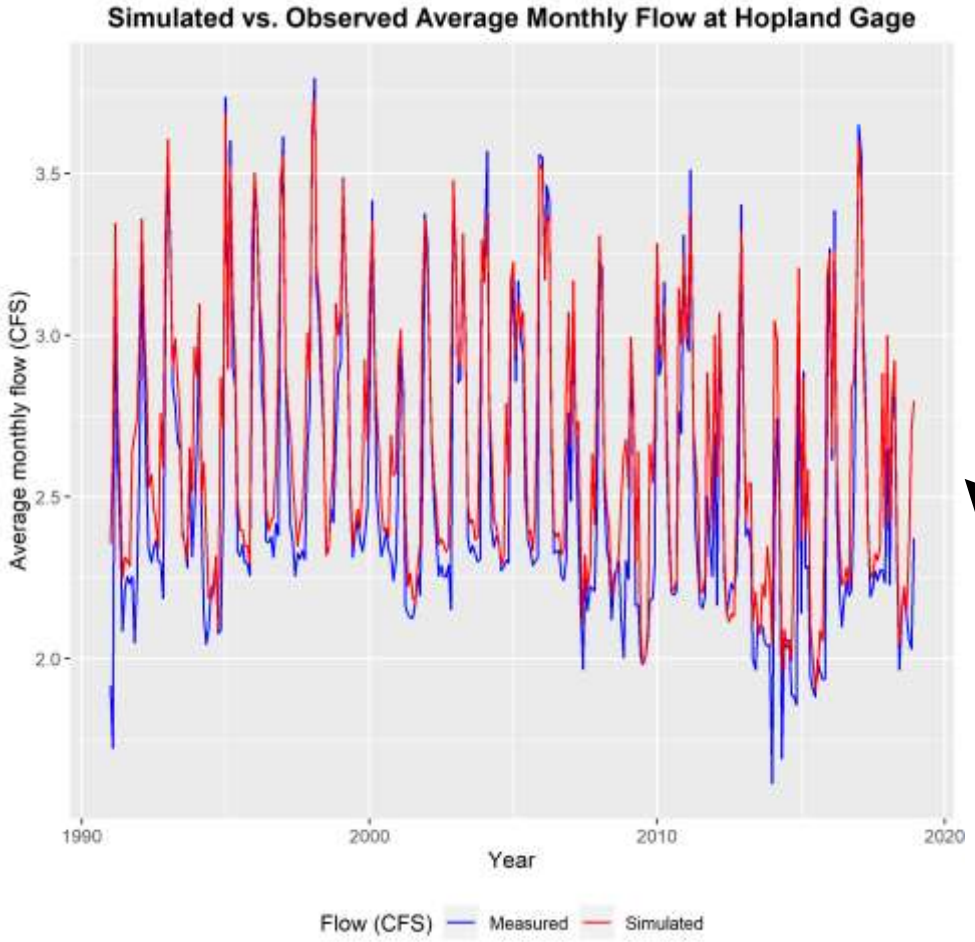
The UVIHM model

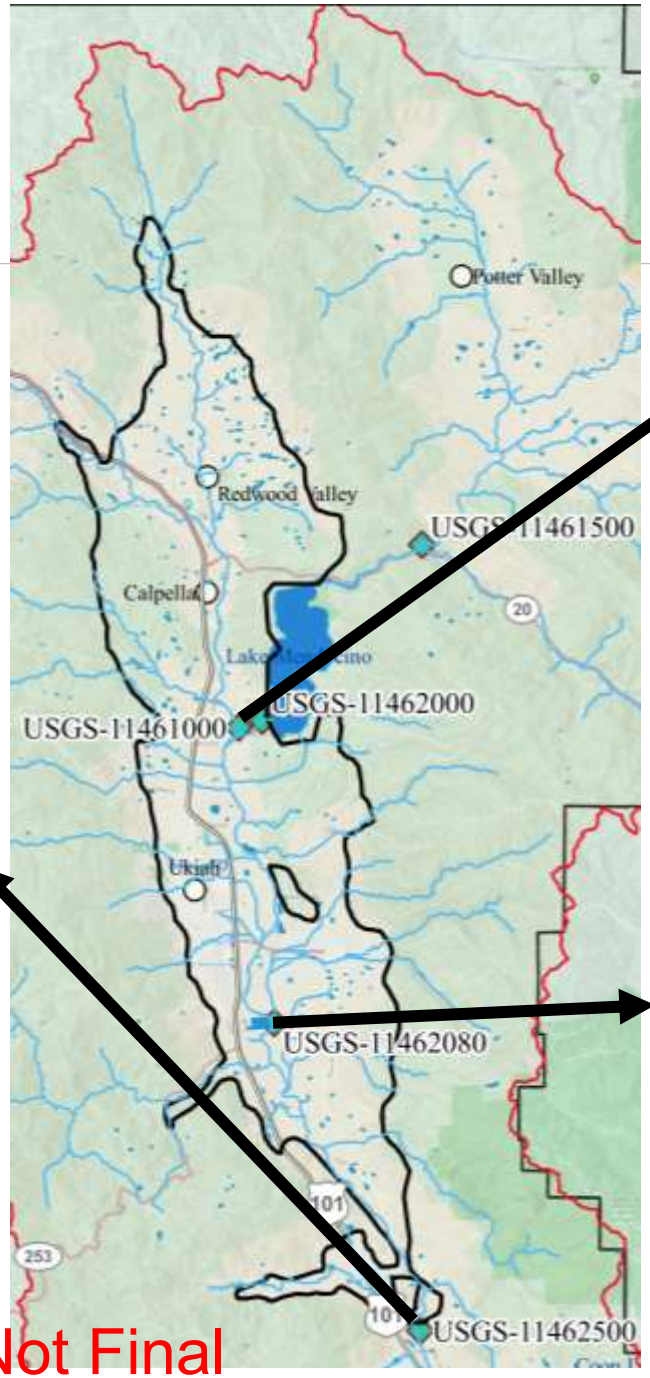
Integrated Hydrological Model Can Help:

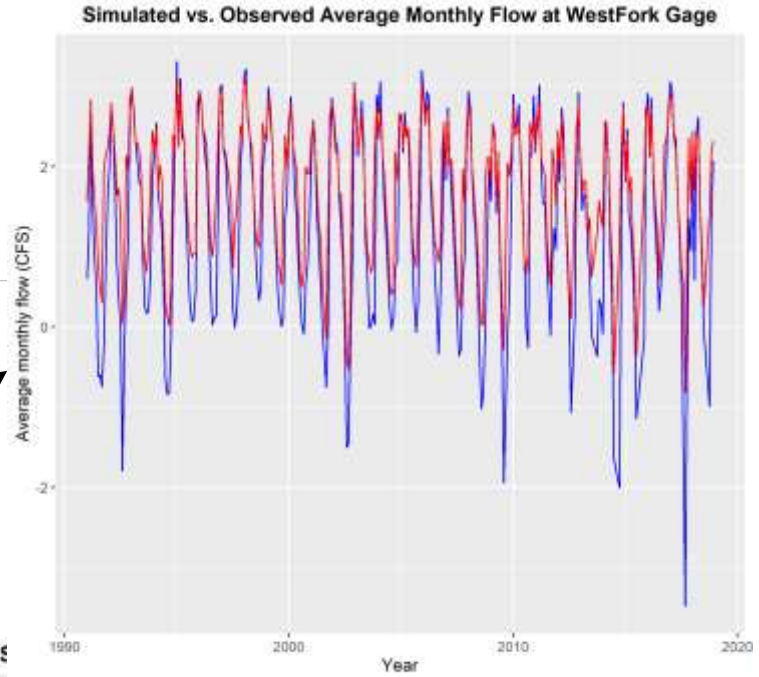
- Develop an understanding of historical conditions.
- Evaluate how SW and GW interact & Inform monitoring requirements.
- Inform development of sustainable management criteria.
- Improve the design of projects to better address future problems
- Demonstrate the future of the basin through changes due to climate change, Potter Valley Project, and land use changes
- Evaluate scenarios to improve decision making

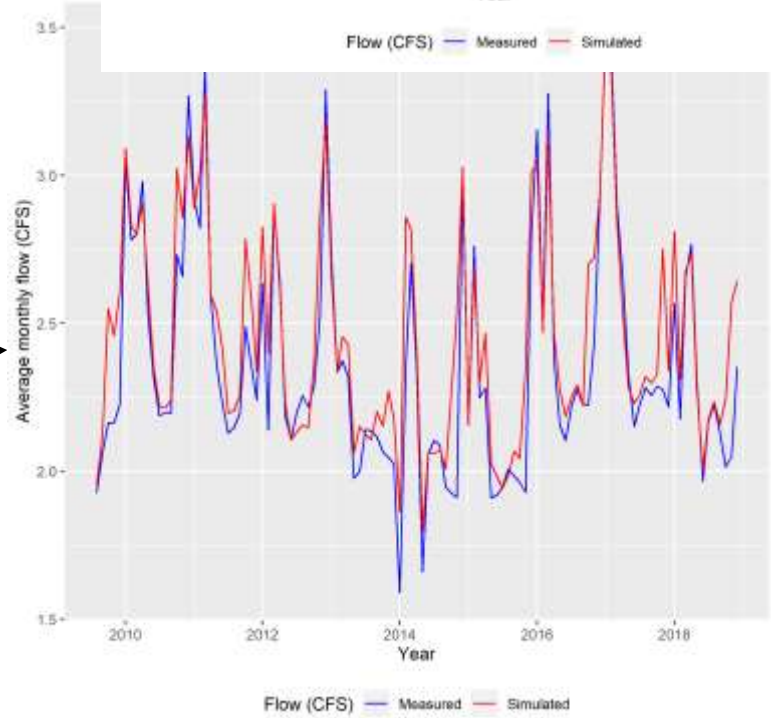


Historical output from Calibrated Model







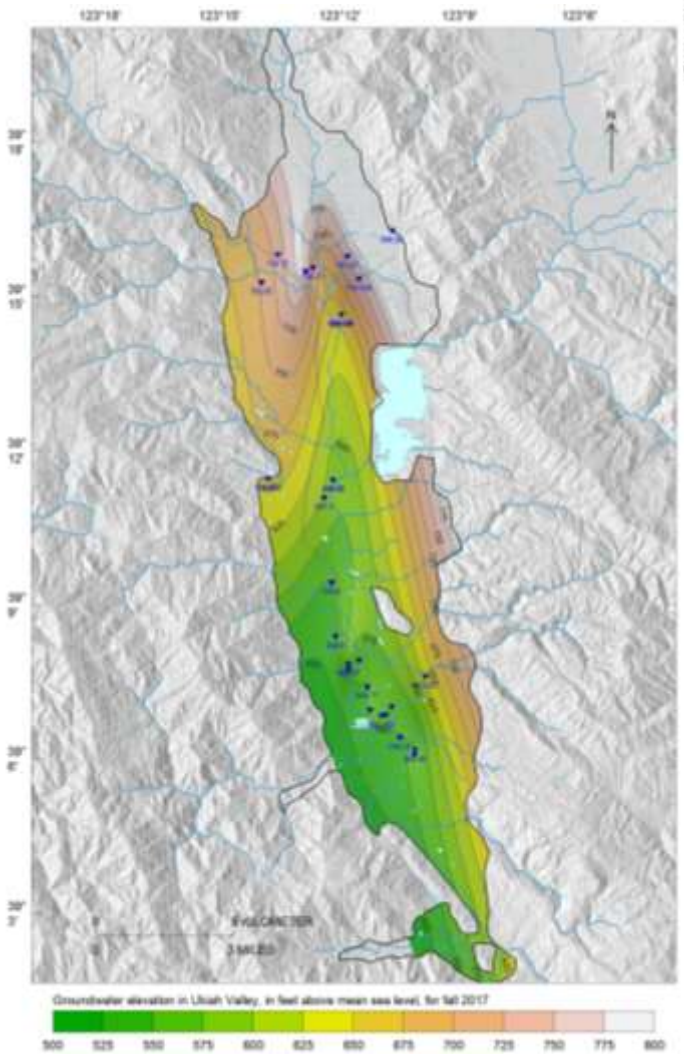


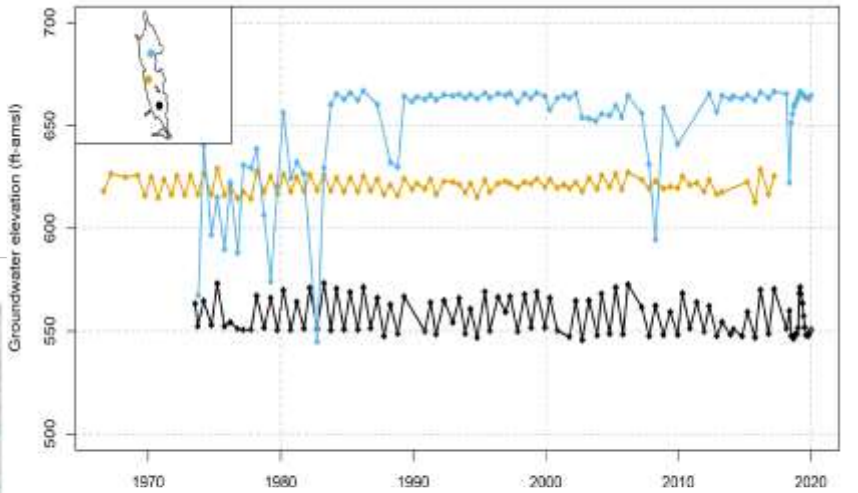
Results Not Final

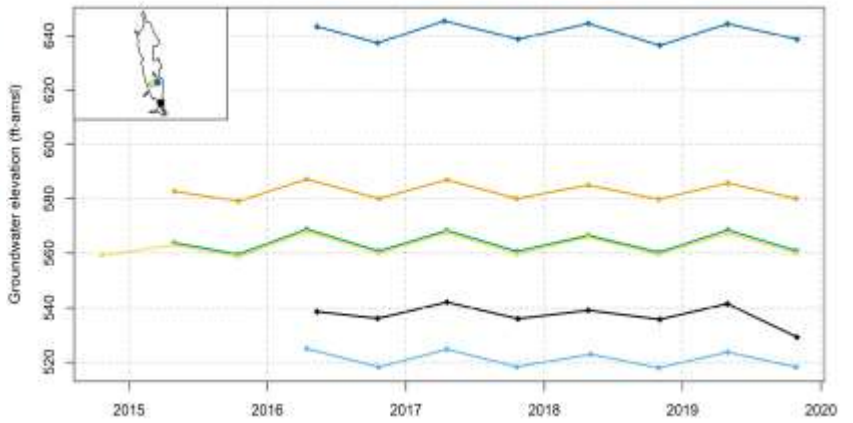
Current and Historical Conditions

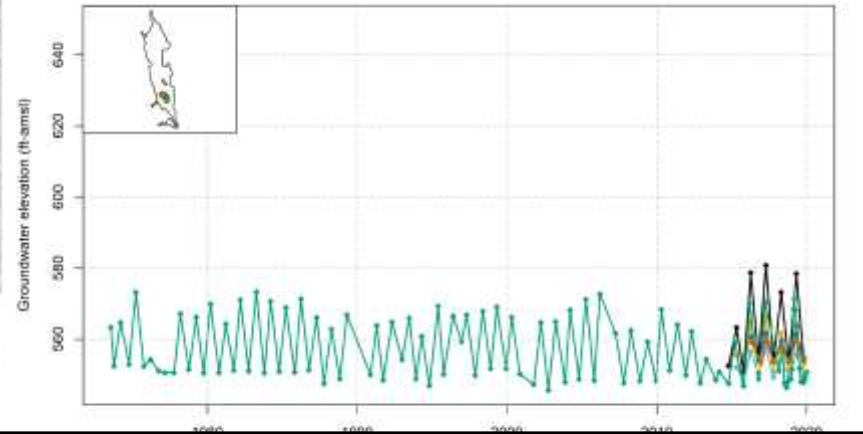
Groundwater Elevations

- No chronic historical declining trends are observed at wells.
- Basin is not in overdraft.
- Seasonal changes in groundwater levels are considerable.
- Data and observations are limited temporally and spatially.
- Groundwater generally flows southward.









Forecasted Well Failure Under a Return to Fall 2016 Groundwater Levels Are Not Significant

31-year retirement age

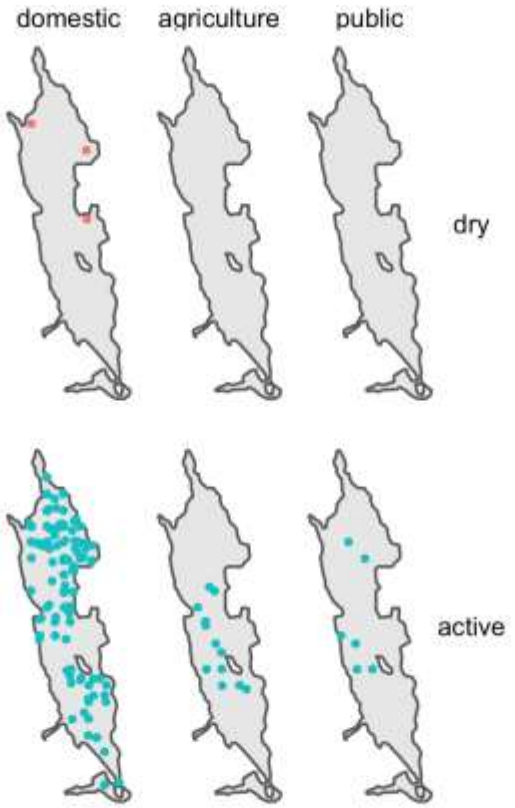
well type	n active	n dry
domestic	276	6
agricultural	15	0
public	6	0

~2%

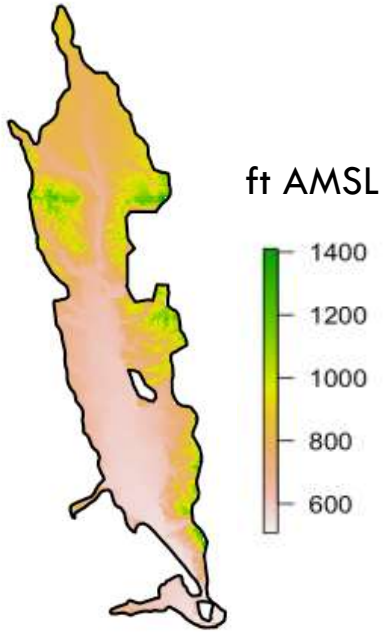
40-year retirement age

well type	n active	n dry
domestic	333	10
agricultural	19	0
public	10	0

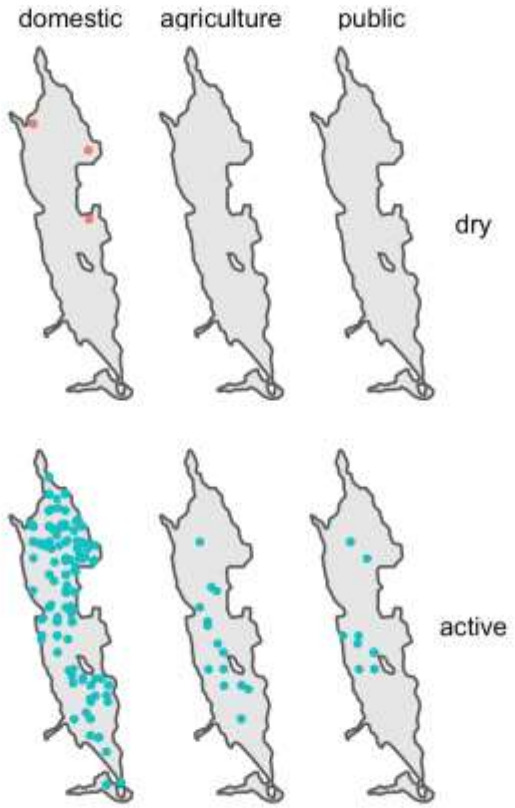
~3%



assuming a 31 year retirement age



Land surface elevation



assuming a 40 year retirement age

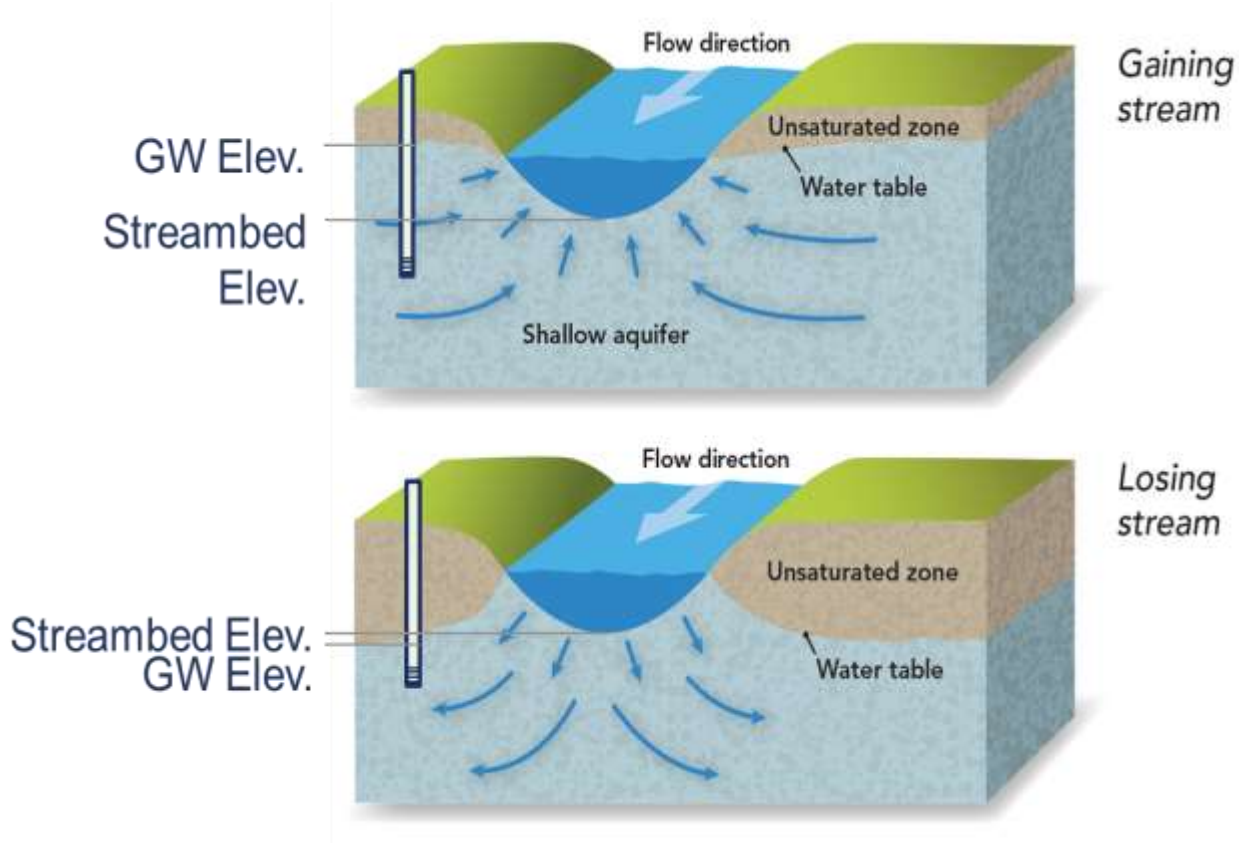
Groundwater Quality

- Public water quality data was analyzed for the period of 1951-2019 against federal, state, and local water quality standards and limits.
- Nitrate, Specific Conductivity, Iron, Manganese, and Boron were selected as Constituents of Interest for the Basin based on historical exceedances, importance to beneficial users, and representation of general water quality.
- Groundwater quality in the Basin is generally good and GSA's goal is to maintain current water quality.

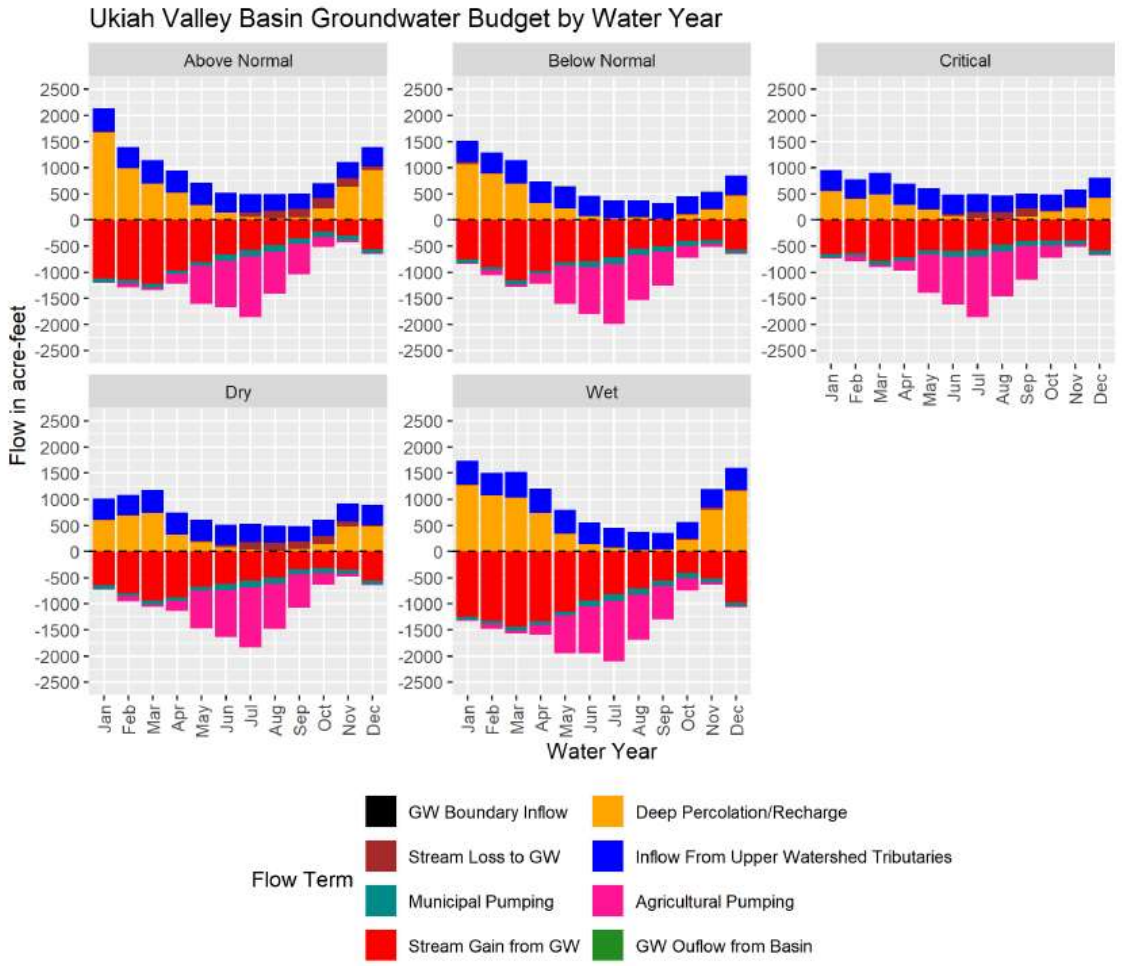
Constituent	Units	Applicable Regulation	Regulatory Threshold
Boron, Total	mg/L	DW Notification Level	1.0
Iron, Total	µg/L	Secondary MCL	300
Manganese, Total	µg/L	Secondary MCL	50
Nitrate	mg/L as N	Primary MCL	10
Specific Conductance	µmhos/cm	Secondary MCL	900 (Recommended) 1,600 (Upper) 2,200 (Short Term)

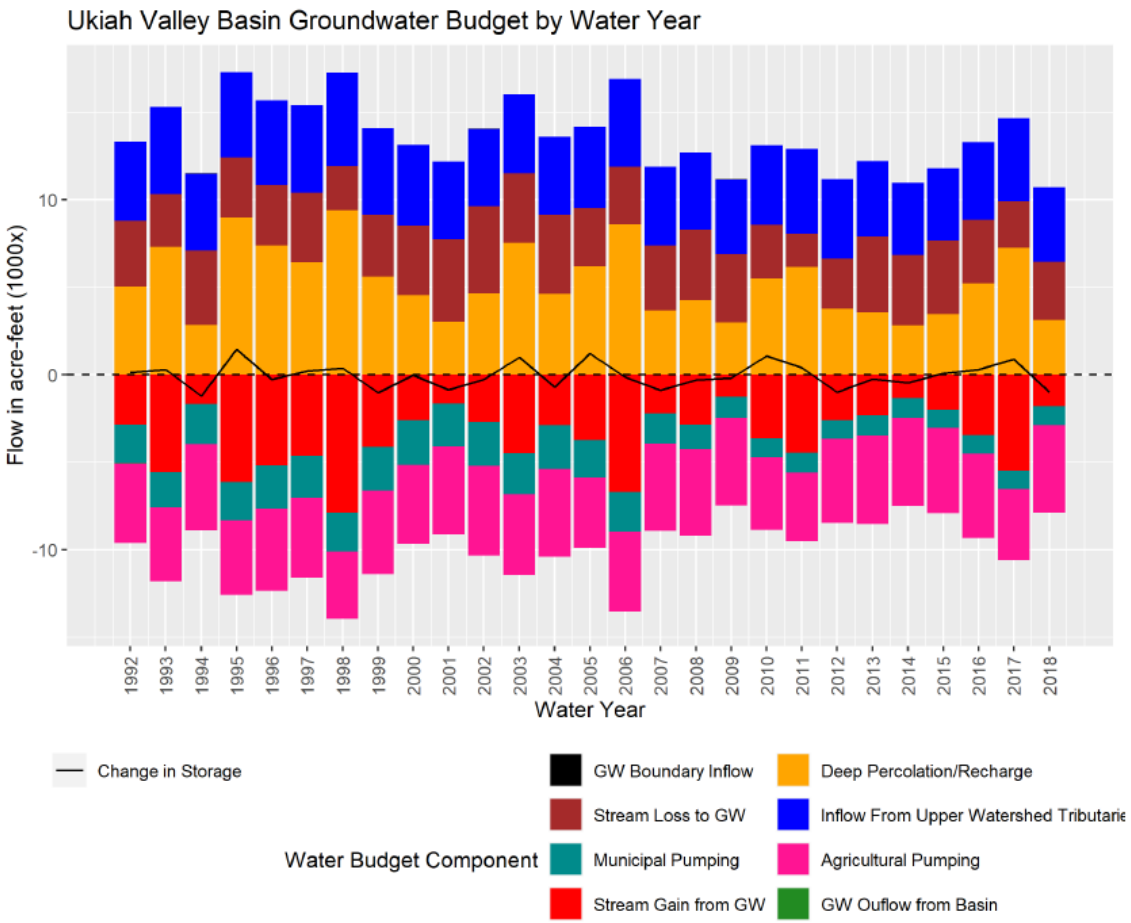
Depletion of Interconnected Surface Waters (ISWs)

- Mainstem Russian River and parts of its tributaries are connected to the groundwater seasonally or year-round.
- Generally, river loses to the aquifers during dry periods and gains from the aquifers during wet periods.
- Tributaries may have a different interaction pattern due to incision and flowing regime.
- Monitoring transects that the GSA installed and the UVIHM will help fill data gaps.

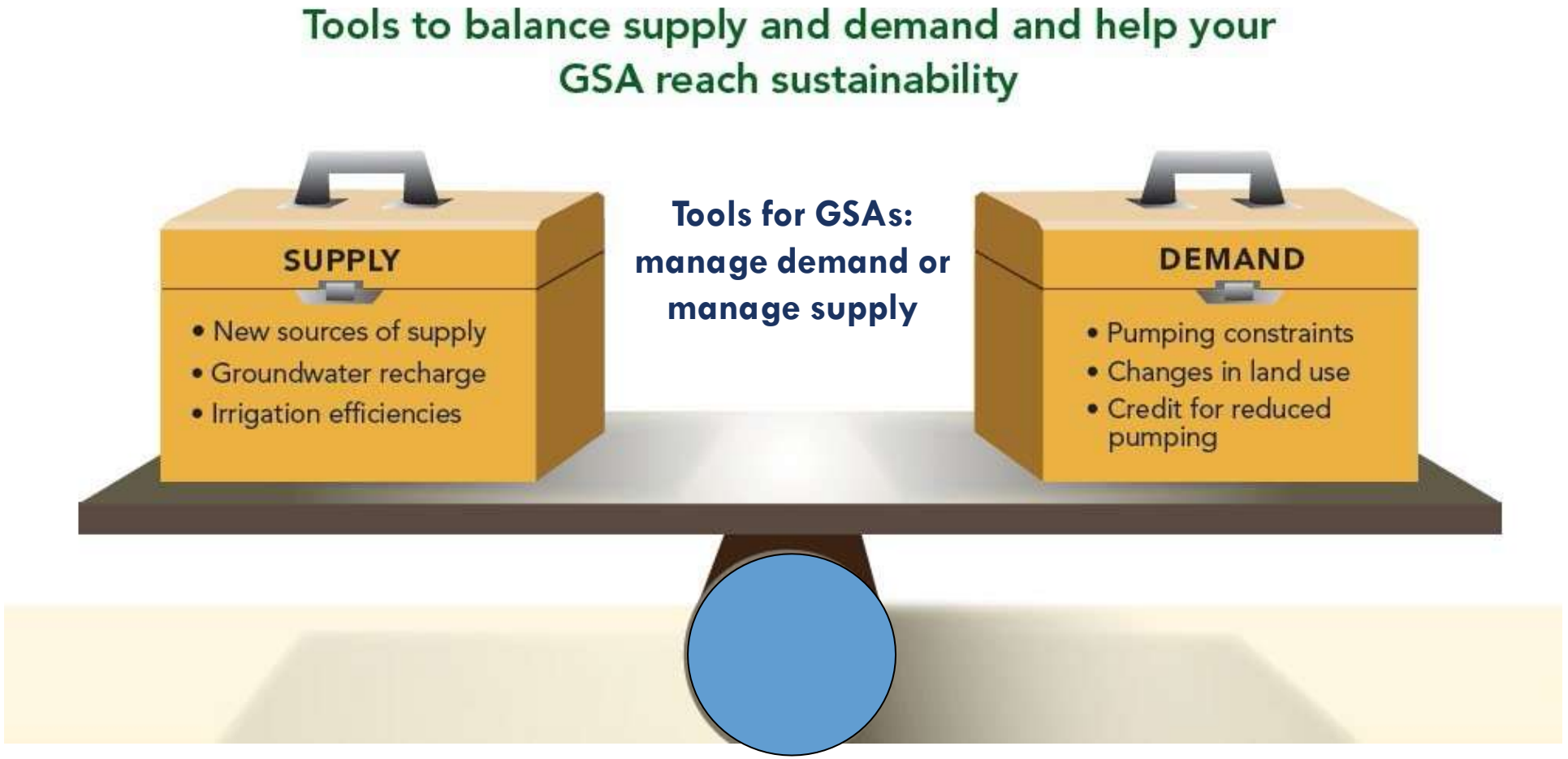


Water Budget





The Big Picture – opportunities and challenges for Groundwater Sustainability Agencies (GSAs)



Groundwater Sustainability Plan development and implementation: balancing act – between different interests, between water supply and water demand, between beneficial uses

Projects and Management Actions

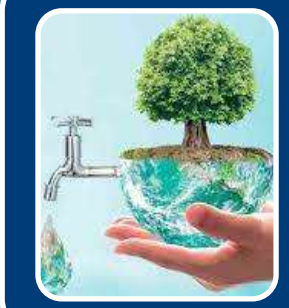
- Why do we need projects and management actions (PMAs)?
  - To **achieve the sustainability goal** by 2042 and avoid undesirable results through 2092
  - To respond to **changing conditions** in the Basin
  - Each of the PMAs may support achieving sustainability for **one or more sustainability indicators**
- Can be categorized into
  - Existing PMAs
  - Proposed or planned PMAs to reach sustainability
  - PMAs to be evaluated in the future

Projects and Management Actions

Existing (Tier I)

Supply Augmentation

- Recycled Water (Phase I-III)



Water Conservation

- Water Main and Meter Replacement
- Water System Upgrade (Redwood Empire)
- Rainwater Catchment
- Irrigation Upgrades
- Landscape Conversion

Water Quality Enhancement

- Forsythe Floodplain Restoration

Proposed/Planned (Tier II)

Supply Augmentation

- Recycled Water (Phase IV)
- Well Rehabilitation
- Western Hills Source Water Protection
- Reduce Evaporative Losses
- Off-stream Reservoirs (Construction and Rehabilitation)

Conjunctive Use

- Recharge Projects: Spreading Grounds

Water Conservation

- Upgrades to Potable Water Intertie
- Conservation Easements
- Conservation Programs and Green Infrastructure
- Irrigation Efficiency Improvements
- Voluntary Land Repurposing & Alternative, Lower ET Crops

Questions?

Thank you!