

Scott Valley Advisory Committee Meeting

June 22, 2021

LARRY
WALKER



ASSOCIATES

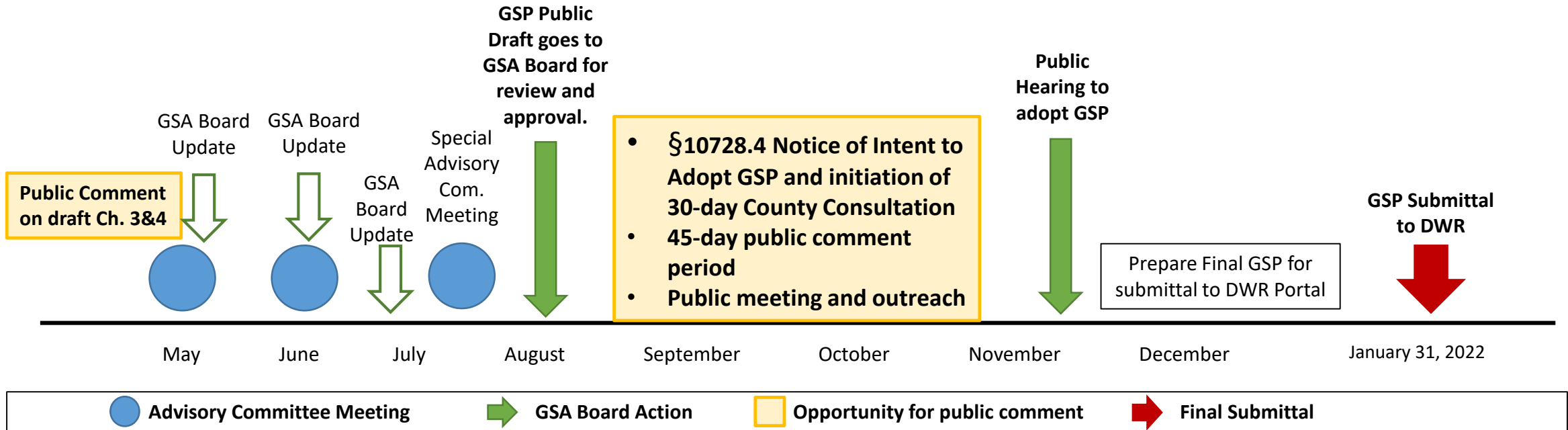


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**Discussion of Surface Water Depletion
Sustainable Management Criteria**
Ad hoc committee meeting report outs
Irrigator 6/16 & Surface Water 6/17

Irrigator Ad hoc (6/16)

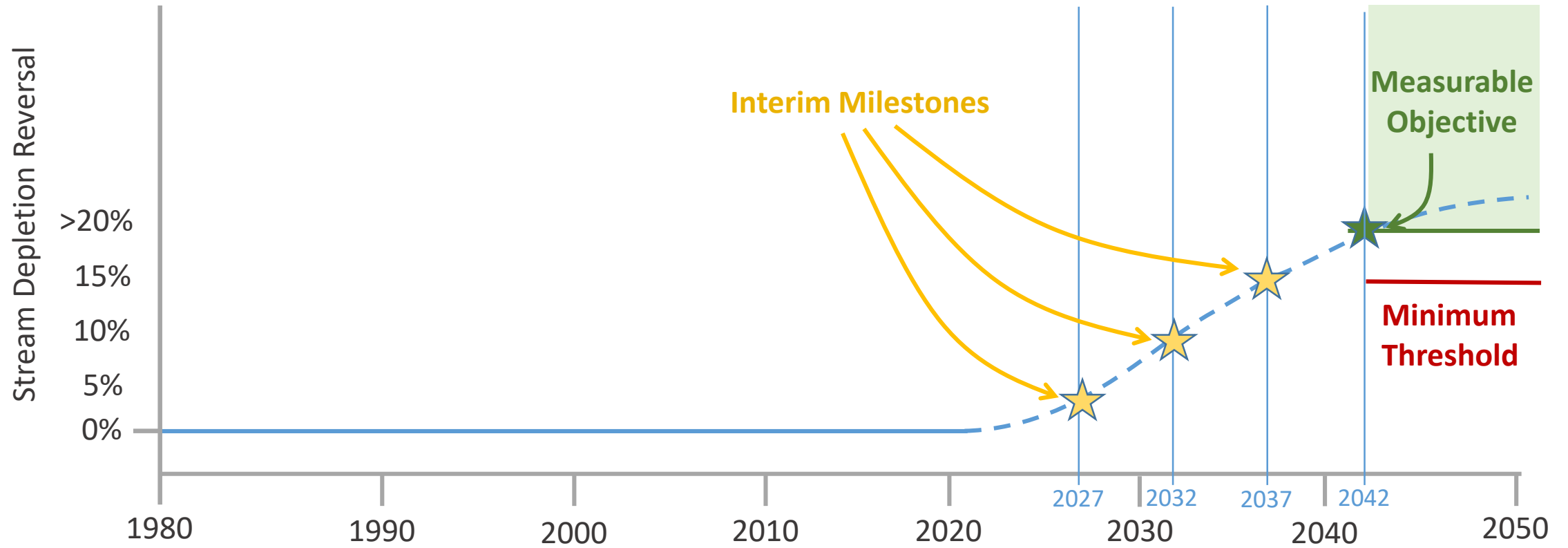
- Irrigator ad hoc looked at underlying assumptions of surface water depletion, impact of SGMA wells specifically, discussed what thresholds were achievable in relation to management actions, and discussed units used for SMC metric.
 - Irrigators were in favor of expressing the SMC metrics as percentages.

Surface Water Ad hoc (6/17)

- Surface Water ad hoc discussed what is achievable under SGMA and the watershed goal, how SGMA PMAs can incrementally benefit in stream flows, realistic implementation of PMAs to achieve SMC thresholds, and discussed units used for SMC Metric
 - SW ad hoc members were concerned that the SMC metrics defined (15% as the minimum threshold) would not be enough for Fish. The baseline condition is not enough to sustain GDEs.
 - Members discussed that referencing CDFW recommendations may be problematic.
 - Members discussed that showing the depletion reversal in different units (compared to translating it into different languages) was beneficial.

**Discussion of Surface Water Depletion
Sustainable Management Criteria
Discussion on SMC Definition**

DRAFT



What's Achievable Under PMA Implementation? **DRAFT**

Scenario Type	Scenario ID	Related PMAs (and Tier)	Calculated Relative Depletion Reversal, From Model		
			Percentage	CFS	Avg. Days Earlier Reconnection (>20 cfs at FJ Gauge)
Enhanced Recharge	MAR + ILR	NFWF Scott Recharge Project (II), MAR + ILR (III)	19%	5.2	5
Crop change	80% Irrigation demand	Voluntary Managed Land Use Practice, Changes in Crop Type (Tier II)	61%	16.5	14.2
	90% Irrigation demand		29%	8.1	6.8
Irrigation Efficiency	Improve irrigation efficiency by 0.1	Irrigation Efficiency Improvements (II)	4%	1.3	2.1
	Improve irrigation efficiency by 0.2		12%	3.3	5.6
Irrigation Schedule	Alfalfa irrigation schedule - Aug 15 end date	Voluntary Managed Land Use Practices, Strategic and Voluntary Pumping Reductions (Tier II)	33%	9.1	10.2
	Aug 15 end date, <i>dry years only ('91, '92, '94, '01, '09, '13, '14, '18)</i>		7%	2.0	3.5
Reservoir	9 TAF Reservoir, 30 cfs release, Etna	Reservoirs (III)	48%	13.1	9.6
	9 TAF Reservoir, 30 cfs release, French		58%	15.7	7.8
	9 TAF Reservoir, 30 cfs release, S. Fork		26%	7.1	5.9

Using real world observations and a computer model to take regular “measurements”

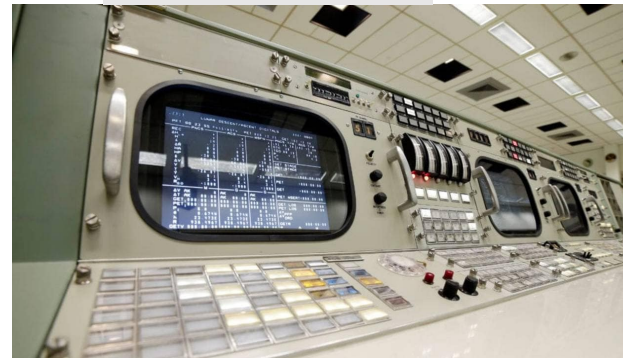
DRAFT

continuous monitoring: precipitation, snow-pack, stream-gages, water levels, stream transects, ...

projects and management actions: implementation, monitoring of implementation

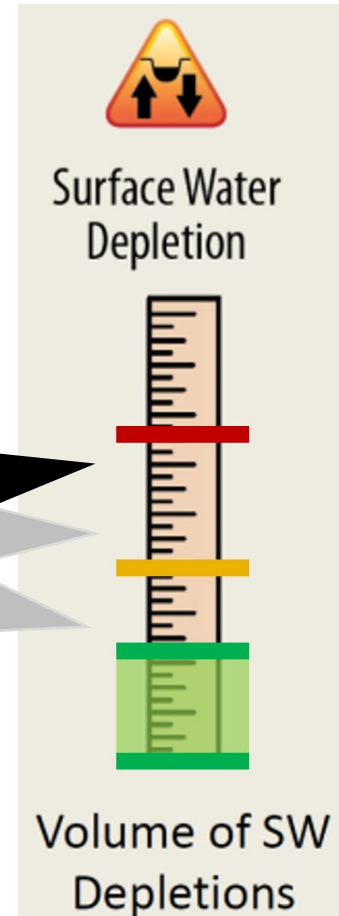


ShVIHM



“measurement”

- regular (annual?) update to extend simulation period to current using measured input data (stream inflow, precip, temp)
- regularly (every 5 years) recalibrated against new data, projects, research
- transparent input, model construction, public domain, peer review



Breaking Down the Model:

- **Input Data, Physical Measurements and Observations:**
 - **Climate/Precipitation Data: Weather Stations**
 - **ET Data**
 - **Stream Flow Data: USGS Fort Jones Gauge**
 - **Tributary stream flows**
 - **Existing biological monitoring**
 - **Groundwater levels**
 - **Documenting dates/locations of dry riverbeds**
 - **When flow triggers are exceeded**
 - **PMA data**

Breaking Down the Model:

- **Model Simulation Period = 1991 – Current;** Baseline = 1991-2018
- At determined frequency the model with run 3 simulations/scenarios and calculate **relative depletion reversal**. All three scenarios are run for the 1991-current period (for example in 2025 the analysis period would be 1991-2024) with **static conditions representing actual climate and streamflow data**.
 1. **No Pumping Reference:** No pumping outside of adjudicated zone and no implementation of PMAs.
 2. **Business as Usual:** Status quo ET/pumping and no implementation of PMAs
 3. **PMA Model:** Implementation of PMAs (single PMA, combination of PMA, or any other action that has been taken and where data is being collected that will benefit stream depletion reversal)

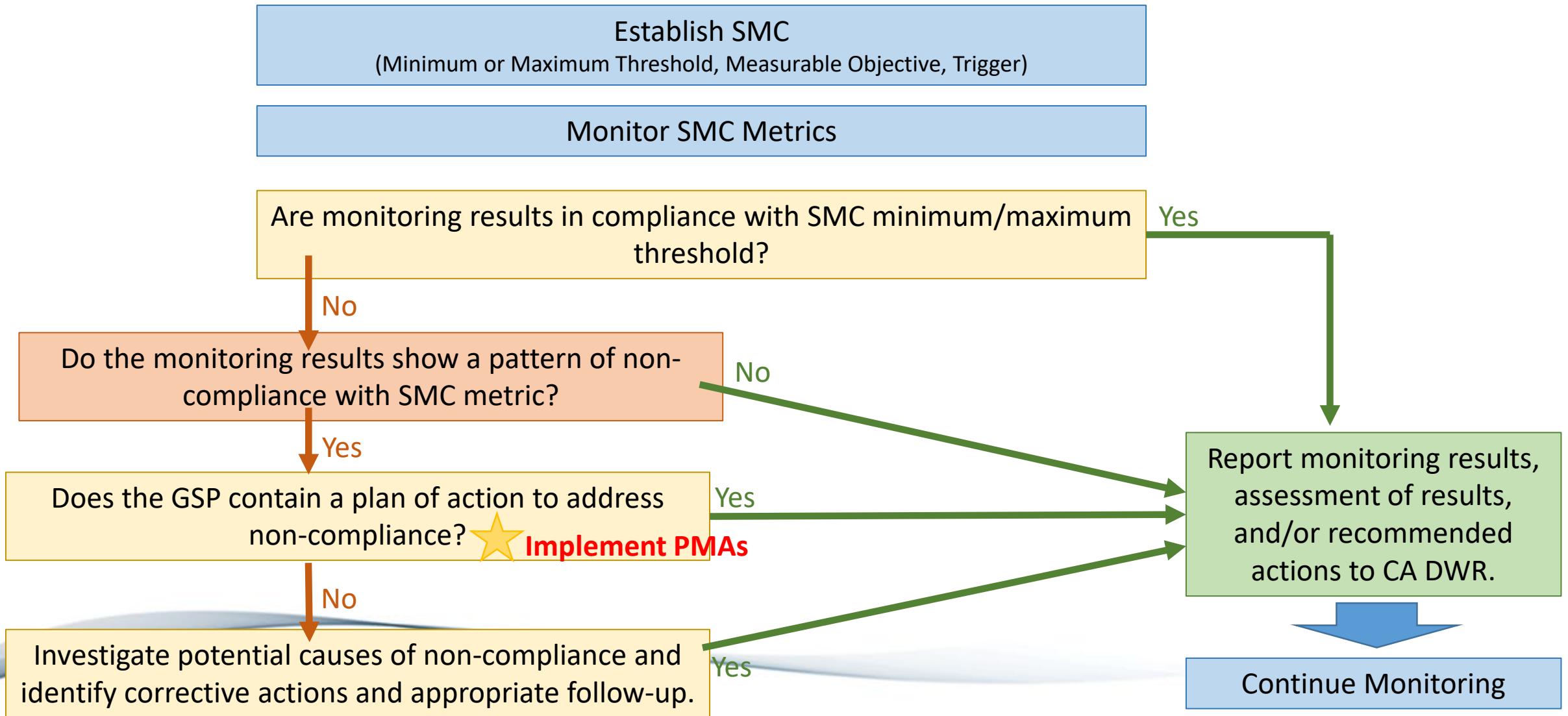
The model looks at the relative relationship between scenarios

The model calculates stream depletion reversal associated with implemented SGMA PMAs in the Scott Valley Basin.

$$\textit{Calculated Relative Depletion Reversal} = \frac{(\textit{PMA Model} - \textit{Business as Usual})}{\textit{Total Depletion}}$$

Total Depletion = No Pumping Reference – Business as Usual

SMC Monitoring and Compliance Flow Chart



Questions and discussion

**Discussion of Project and Management
Actions and GSP Chapter 4
Ad hoc Committee Report-Outs
Irrigator ad hoc 6/7**

Irrigator Ad hoc (6/7)

- Irrigator ad hoc discussed Chapter 4 content and agreed on changes that should be reflected in future draft.

**Discussion of Project and Management
Actions and GSP Chapter 4
Review of Proposed Changes to Chapter 4**

Projects and Management Actions List as seen in draft Chapter 4

Tier I: Existing or Ongoing Projects and Management Actions

Tier II: Planned Projects and Management Actions

- Avoiding Significant Increase of Total Net Groundwater Use from the Basin
- Beaver Dam Analogues
- Conservation Easements
- Conservation Programs and Green Infrastructure in the Upper Watershed
- East Fork Scott Project
- Irrigation Efficiency Improvements
- NFWF Scott Recharge Project
- Voluntary Land Repurposing (not including Conservation Easements)

Tier III: Potential Future Project and Management Actions

- Alternative, Lower ET Crops
- Floodplain Reconnection/Expansion
- Managed Aquifer Recharge and In-Lieu Recharge
- Reservoirs
- Sediment Removal and River Restoration
- Strategic Groundwater Pumping Reductions
- Watermaster Program

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This PMA is removed from the list as it more describes a sustainability goal for the basin and not a specific action that should be studied or implemented. All other PMAs support and benefit this goal.

Projects and Management Actions List as seen in draft Chapter 1

Tier I: Existing or Ongoing Projects and Management Actions

Tier II: Planned Projects and Management Actions

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These 4 PMAs are combined and repackaged under a Tier II PMA entitled **Voluntary Managed Land Use Practices**.

This is an umbrella PMA that describes a number of potential programs the GSA can implement including fish friendly farming practices, incentivized managed land repurposing, changes in crop types, reducing groundwater usage, or even more traditional conservation easements at the discretion of the private land owner. Language to be added to ensure avoidance of invasive vegetation taking over.

Projects and Management Actions List as seen in draft Chapter 4

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It was recommended that language be added to this PMA to recognize existing efforts and investments to improve irrigation efficiencies.

This type of program could be incentivized through Pacific Power.

Projects and Management Actions List as seen in draft Chapter 4

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Requested for PMA to be added to Tier III to describe the construction of a Clay Dam at bottom of the valley.

**Discussion of Project and Management
Actions and GSP Chapter 4
Discussion and questions**