

Policy Workshop for the Greater Kaweah GSA

October 26, 2023

Workshop Overview

- GSA Mission
- Review of Rules & Regulations
 - Objective
 - Categories of Water
 - Allocations of Water

GSA Mission

Achieve SUSTAINABILITY by 2040 & Avoid Significant & Unreasonable Impacts to Beneficial Uses and Users

Groundwater Levels

- Domestic Wells Dewatering

Land Subsidence

- Damaged Infrastructure

This is accomplished by the GSA through Implementation of:

Projects

- Groundwater Recharge
- Land Repurposing

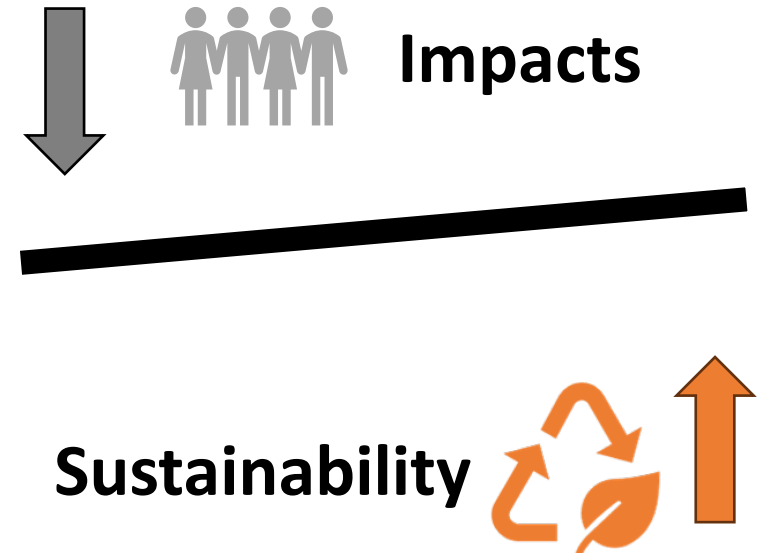
Management Actions

- Groundwater Allocation
- Mitigation

Rules & Regulations

Purpose

- Implementation of the Greater Kaweah GSA GSP & Kaweah Subbasin Coordination Agreement
- Balance between landowner flexibility and avoiding significant and unreasonable impacts during the transition to sustainability



Presentation Pause II

- Board Discussion
- Public Comments

GKGSA Categories of Water Matrix

2024 WATER YEAR ALLOCATIONS - GREATER KAWEAH GSA

| Categories of Water | Description | October 1, 2023 - September 30, 2024 Water Year Allocation | Priority of Use <i>R&R Section 3.04</i> | Carryover <i>R&R Section 4.03(c)</i> | Transferrable <i>R&R Section 4.03(c)</i> | Extraction Chargers |
|--|---|---|--|---|---|---|
| a) Surface Water for Direct Delivery | Any Owner within the GKGSA which utilizes surface water shall cause to be reported from the applicable surface water entity, the diversion of surface water to direct irrigation. | Reported by landowner to GKGSA monthly and verified by Surface Water Entity | Fixed as first priority of use | Unused amount annually can be carry over | Limitations of transfers TBD by Surface Water Entity | NA |
| b) Sustainable Yield | Consist of (1) Native Sustainable Yield, and (2) Precipitation as described below, and may be credited to an Owner's account. | Defined below | Defined below | Defined below | Defined below | NA |
| (1) Precipitation | Actual precipitation to have occurred within the Water Year allocation year. | Calculated and reported one calendar month after actual rainfall occurs | Fixed as second priority of use | No | No | NA |
| (2) Native Sustainable Yield Allocation | Calculated as the long-term average natural channel loss water within the natural tributaries of the Kaweah River and the calculated underflow from the Sierra Nevada Mountains | 0.62 AF/Acre | Landowner may elect priority of use for NSY after (b.1) Precipitation but before (h) Tier 3 | Yes, unused amount annually will be credited to e) Groundwater Credit (1) Carry Over Credit with a one-time 10% reduction. Credits expire 5-years from date of Allocation | Yes, within the GKGSA and no further than 3 zones from the transfers zone of allocation with the following leave behind: Adjacent Zone: 0% Two Zones: 10% Thre Zones: 20% | NA |
| c) Temporary Tier 1 Allocation | The allocations shall be consistent with the objectives of the GKGSA GSP, and will ramp-down pumping overtime calculated by a percentage of total overdraft as follows: | 0.56 AF/Acre | Landowner may elect priority of use for Temporary Tier 1 after (b.1) Precipitation but before (d) Temporary Tier 2 | Unused allocation may be carried over with a 10% reduction annually. Unused allocations will expire 5-years from year allocated. | Yes, within the GKGSA and no further than 3 zones from the transfers zone of allocation with the following leave behind: Same Zone: 20% Adjacent Zone: 30% Two Zones: 40% Thre Zones: 70% | Penalty Rate: \$60 per acre-foot; set annually by October 1 based on anticipated impacts that will need to be mitigated |
| d) Temporary Tier 2 Allocation | | 0.65 AF/Acre | Landowner may elect priority of use for Temporary Tier 2 after (c) Temporary Tier 1 but before (h) Prohibited Tier 3 | | | Yes, within the GKGSA and no further than 3 zones from the transfers zone of allocation with the following leave behind: Same Zone: 40% Adjacent Zone: 50% Two Zones: 60% Thre Zones: 90% |
| e) - Groundwater Credits | Maintained Separately by each Landowner | Quantity to Vary by Landowner | Landowner may elect priority of use for Groundwater Credits after (b.1) Precipitation but before (h) Tier 3 | Credits expire 5-years from the NSY Water Year allocation date | Yes | NA |
| (1) Carry over | Prior year unused Native Sustainable Yield | | | | | |
| (2) Transferred | Private Transfers between landowners, requires formal documentation to GSA for record | | | | | |
| f) Recharge & Banking Credits | To be provided by the Surface Water District or Surface Water Rights Holders. | Reported by landowner to GKGSA monthly and verified by Surface Water Entity | Landowner may elect priority of use for Recharge & Banking credits after (b.1) Precipitation but before (h) Tier 3 | Yes | Yes, when authorized by the applicable surface water entity | NA |
| g) Recycled Water | An Owner's account may be credited or debited with recycled water. Prior to a debit or credit proper documentation must be provided and approved by GKGSA staff. | Reported by landowner to GKGSA with proper documentation before approval by GKGSA | Landowner may elect priority of use for Recycled Water credits after (b.1) Precipitation but before (h) Tier 3 | Yes | TBD | NA |
| h) Prohibited Tier 3 Pumping | An Owner who consumes water in excess of all remaining credits shall be liable for a Tier 3 Penalty Rate, reduction in future Tier 1 and Tier 2 Allocations, and shall be subject to any and all other remedies as may be available to the GKGSA in law or in equity. | No Allocation | Last | No | No | \$500 per acre-foot |

Categories of Water
Section 3.03

a) Surface Water



Any Owner within the GKGSA which utilizes surface water shall cause to be reported from the applicable surface water entity, the diversion of surface water to direct irrigation.



Priority of Use: 1st



Carry Over: Unused amount can be carried over



Transfers: Limitations of transfers TBD by Surface Water Entity

b) Sustainable Yield Allocations

(1) Precipitation



Description: Actual precipitation to have occurred within the Water Year allocation year, to be calculated and reported one calendar month after the actual rainfall occurs based on the nearest Land IQ monitoring field station



Priority of Use: 2nd, after applied surface water



Carry Over: Not permitted



Transfers: Not Permitted

b) Sustainable Yield Allocations

(2) Native Sustainable Yield



Description: The long-term average natural channel loss water within the natural tributaries of the Kaweah River and the calculated underflow from the Sierra Nevada Mountains.



Priority of Use: Landowner may elect priority of use for NSY after (b.1) Precipitation but before (h) Tier 3



Carry Over: Yes, one-time 10% reduction. Expires 5-years from Allocation WY



Transfers: Yes, limited to 3 zones from zone of allocation with leave behinds.

| | Leave Behind for Distance Transferred from Zone of Allocation | | |
|-----|---|-----------|-------------|
| | Adjacent Zone | Two Zones | Three Zones |
| NSY | 0% | 10% | 20% |

c) Temporary Tier 1 & d) Tier 2 Allocations



Description: Consistent with the GKGSA GSP and will ramp-down pumping overtime calculated by a percentage of Total Overdraft.



Priority of Use: Default 4th, but landowner may elect priority of use for Temporary Tier 1 & 2 after (b.1) Precipitation but before (h) Prohibited Tier 3



Carry Over: Yes, unused amount with 10% reduction annually, expires 5-years from allocation year



Transfers: Yes, limited to three zones from zone of allocation with leave behinds

| | Leave Behind for Distance Transferred from Zone of Allocation | | | |
|--------|---|---------------|------------|-------------|
| | Within Zone | Adjacent Zone | TWO Zonees | Three Zones |
| Tier 1 | 20% | 30% | 40% | 70% |
| Tier 2 | 40% | 50% | 60% | 90% |

e) Groundwater Credit

- (1) Carryover – Prior year unused Native Sustainable Yield
- (2) Transferred - Private Transfers between landowners



Priority of Use: Default 6th, but Landowner may elect priority of use after (b.1) Precipitation before (h) Prohibited Tier 3



Carry Over: Yes, subject to origin credits carry over reduction and expiration policies



Transfers: Yes, subject to origin credit transfer zonal transfer leave behind and limitations

f) Recharge & Banking Credits



Description: An owner performing recharge or banking activities shall report, or cause to be reported, the diversion of surface water to underground storage to the GKGSA.



Priority of Use: Landowner may elect priority of use after (b.1) Precipitation before (h) Prohibited Tier 3



Carry Over: Yes, subject to origin credits carry over reduction and expiration policies



Transfers: Yes, subject to origin credit transfer zonal transfer leave behind and limitations

g) Recycled Water



Description: An Owner's account may be credited or debited with recycled water. Prior to a debit or credit proper documentation must be provided and approved by GKGSA staff.



Priority of Use: Landowner may elect priority of use for Recycled Water credits after (b.1) Precipitation but before (h) Tier 3



Carry Over: Yes



Transfer: TBD

h) Prohibited Tier 3



Description: An Owner who consumes water in excess of all remaining credits shall be liable for a Tier 3 Penalty Rate, reduction in future Tier 1 and Tier 2 Allocations



Priority of Use: Last



Carry Over: No



Transfer: No

Presentation Pause II

- Board Discussion
- Public Comments

NSY Allocation Methodology

- Native Sustainable Yield is derived from the Appendix 3- Water Accounting Framework of the Kaweah Subbasin Coordination Agreement. (i.e. Native Water Category)
- Allocated to the 219,440 gross acreage within the GKGSA
- Not all components of the Native Water Category are applicable when allocating using an ET Computation Model.
 - **Percolation of Precipitation - ET** consumption only measures losses through evaporation or transpiration therefore actual precipitation is credited separately (more to come on next slide)

Table 3.2
(values in acre-feet)

| | Native Water | | | |
|--|----------------|----------------|----------------|----------------------|
| | East | Greater | Mid | Total |
| Perc of Precip (Ag and 'Native' non-Ag land) | 23,666 | 44,213 | 20,974 | 88,854 |
| Streambed Perc from Kaweah River Sources | 16,767 | 31,324 | 14,860 | 62,952 |
| Irrigation Ret. Flow from Pumped GW | 41,484 | 77,501 | 36,766 | 155,752 |
| Mountain Front Recharge | 14,976 | 27,978 | 13,273 | 56,227 |
| Total Native | 96,894 | 181,017 | 85,874 | 363,784 |
| GSA % of Total Native | 27% | 50% | 24% | |
| | Foreign Water | | | |
| | East | Greater | Mid | Total |
| Streambed Perc from Imported Sources | 0 | 11,730 | 2,523 | 14,253 |
| Ditch Perc from Imported Sources | 0 | 1,204 | 21,745 | 22,949 |
| Basin Perc from Imported Sources | 0 | 1,050 | 14,305 | 15,355 |
| Irrigation Ret. Flow from Imported Sources | 12,073 | 1,241 | 7,140 | 20,453 |
| Total Foreign | 12,073 | 15,225 | 45,713 | 73,010 |
| GSA % of Total Foreign | 17% | 21% | 63% | |
| | Salvaged Water | | | |
| | East | Greater | Mid | Total |
| Ditch Perc from Kaw River Sources | 8,835 | 49,771 | 34,880 | 93,486 |
| Additional Recharge | 226 | 6,892 | 5,697 | 12,815 |
| Stormwater Return Flows | 508 | 2,370 | 8,491 | 11,368 |
| WWTP Return Flows | 1,470 | 3,129 | 13,878 | 18,477 |
| Basin Perc from Kaweah River Sources | 0 | 16,005 | 23,479 | 39,484 |
| Irrig. Ret. Flow from Kaweah River Sources | 4,555 | 31,039 | 11,981 | 47,574 |
| Total Salvaged | 15,593 | 109,205 | 98,406 | 223,205 |
| GSA % of Total Salvaged | 7% | 49% | 44% | |
| | East | Greater | Mid | Total ^(*) |
| Grand Total | 124,560 | 305,447 | 229,992 | 659,999 |
| GSA % of Total | 19% | 46% | 35% | |

(*) Excludes net sub-surface inflow of 60 taf/yr

Note: All data is derived from the Basin Setting and is based on water budget for the period Water Year 1997 to 2017 for the Kaweah Subbasin.

Total Precipitation Allocation

Precipitation - the actual precipitation to have occurred within the Water Year allocation year, to be calculated and reported one calendar month after the actual rainfall occurs.

Reason for allocating Precipitation:

- Goal is to measure groundwater usage
- ET does not distinguish between the water source
- Credits for all non groundwater sources are needed to deduct to groundwater usage



Methods for Allocating Precipitation

Actual Precipitation

Pro's

- Representative of real time conditions

Con's

- Growers do not have an allocation to plan their operations around

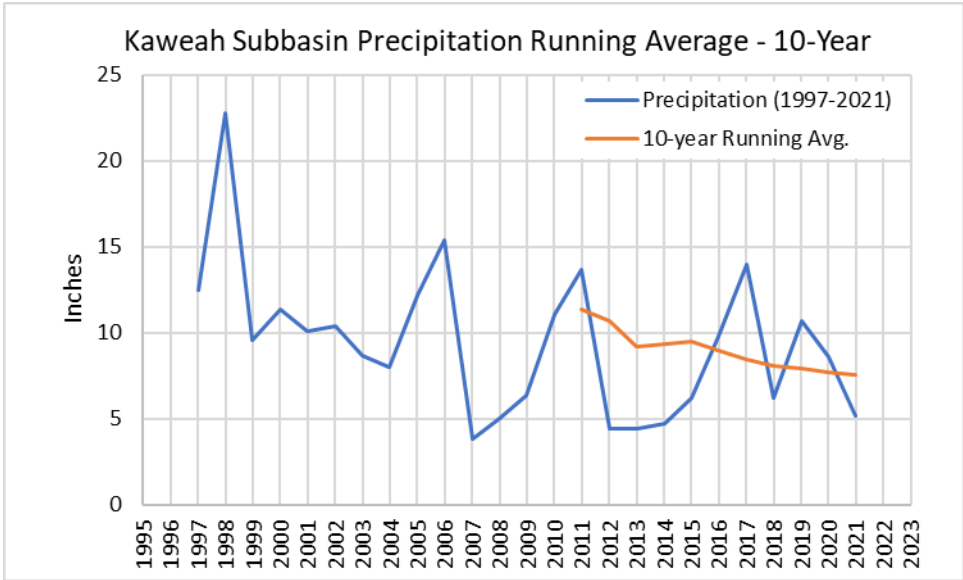
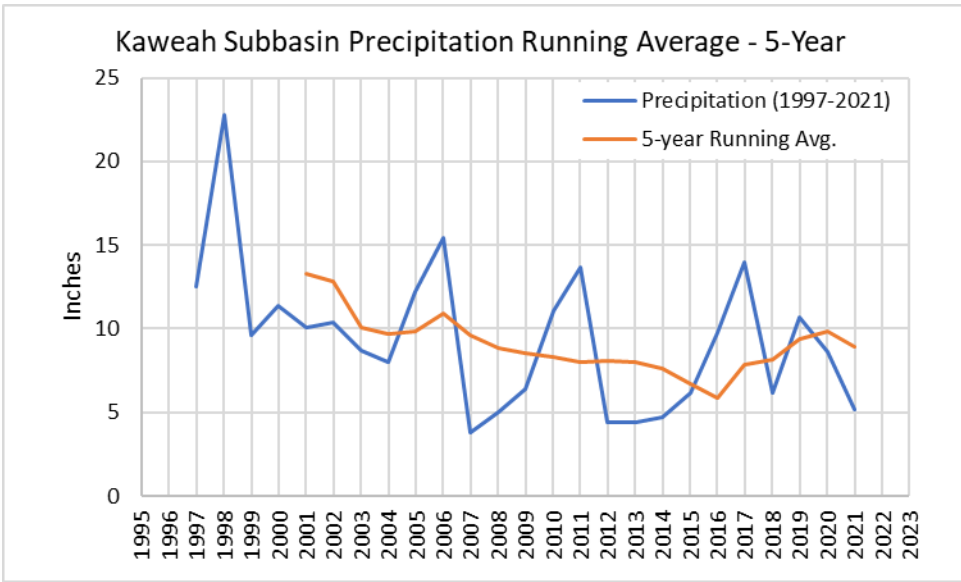
Average Precipitation

Pro's

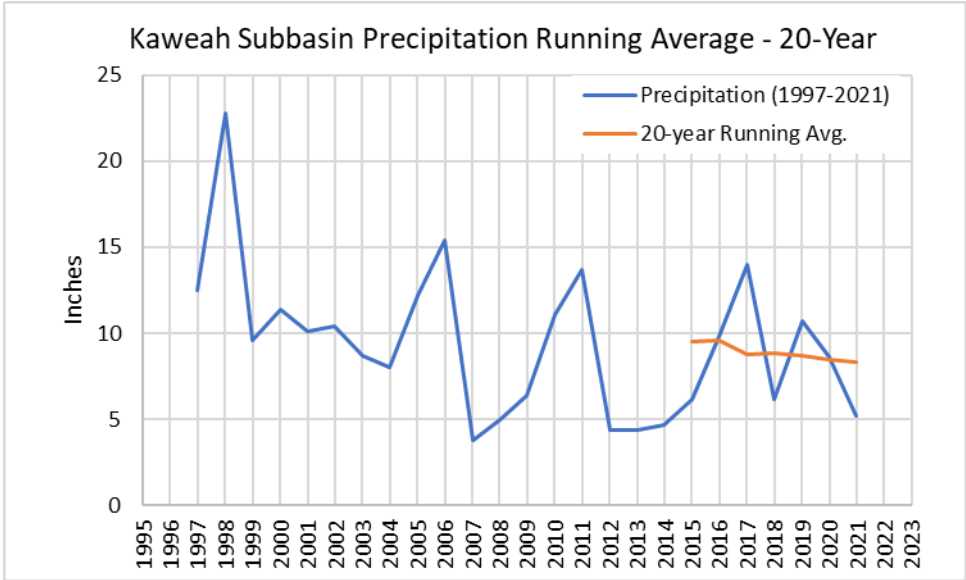
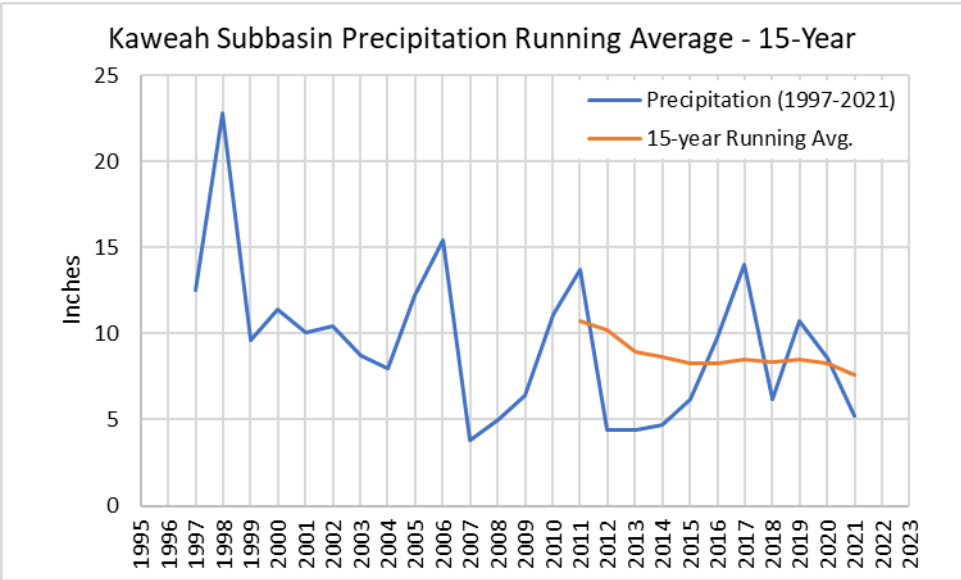
- Growers have an allocation to plan their operation around

Con's

- Over allocated in dry years
- Under allocated in wet years



| Running Avg. | 5-year | 10-year | 15-year | 20-year |
|----------------------|--------|---------|---------|---------|
| Max. Variance | 6.18 | 7.55 | 5.80 | 5.23 |
| Avg. Variance | 3.09 | 3.41 | 3.04 | 2.38 |



Presentation Pause II

- Board Discussion
- Public Comments

Tier 1 & Tier 2 Allocation

Reason for allocating Tier 1 & Tier 2

- To create a plan for growers to glide path from current overdraft to sustainability by 2040

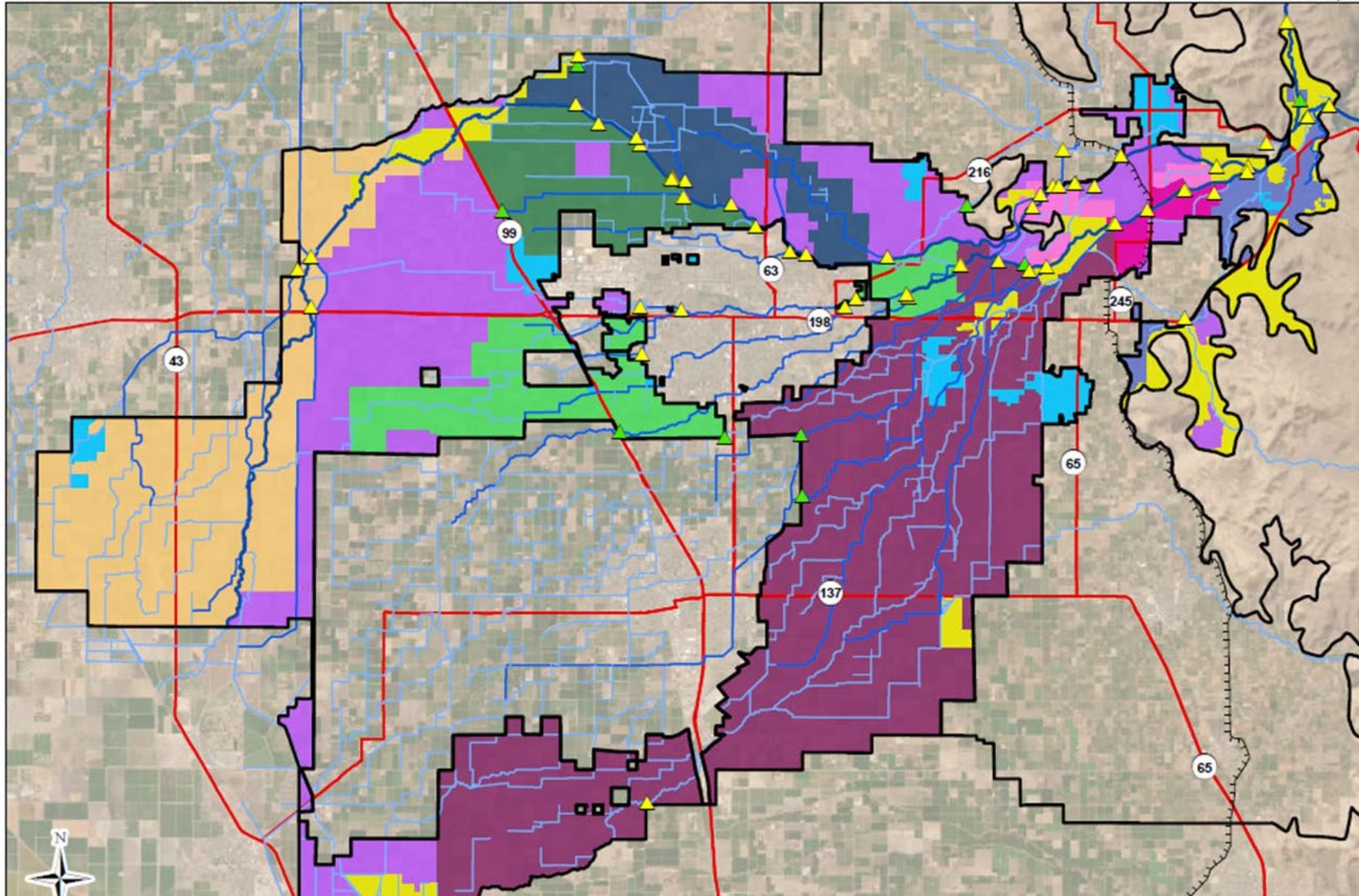
| Rampdown Schedule | | | |
|-------------------|--------|--------|---------------------------|
| Water Years | Tier 1 | Tier 2 | Total Allowable Overdraft |
| 2023-2025 | 40% | 50% | 90% |
| 2026-2030 | 40% | 30% | 70% |
| 2031-2035 | 20% | 20% | 40% |
| 2036-2040 | 20% | 0% | 20% |

Tier 1 & Tier 2 Allocation

Considerations when Allocating Tier 1 & Tier 2 for WY 2024

- All landowners are treated equal when setting allocations
- Overdraft varies from landowner to landowner based on access to surface water
- Groundwater Overdraft is calculated based long-term hydrologic averages..
- ..But Tier 1 & Tier 2 Allocations are made annually without knowing the forthcoming water year hydrologic conditions.

Tier 1 & Tier 2 Allocations were determined based on Drought Conditions (no surface water)



Map Features

Water Budget Subregion (WBS) Group

- Upper Kaweah River
- Upper Lower Kaweah River
- Upper St Johns River
- North of Lower St Johns River
- South of Lower St Johns River
- Downstream of Lower Kaweah River
- South of Lower Kaweah River
- Kings River / Cross Creek Area
- Groundwater Only
- Community
- Native
- Kaweah Subbasin GSA Boundary
- Diversion, Riparian Pump, or Gage
- Ungaged Outflow (Inter-GSA or Intra-GSA)
- Major River/Stream
- Major Surface Delivery Channel
- Minor Surface Delivery Channel
- Friant-Kern Canal
- State Highway

Presentation Pause II

- Board Discussion
- Public Comments

Temporary Tier 1 & Tier 2 Penalty Rate

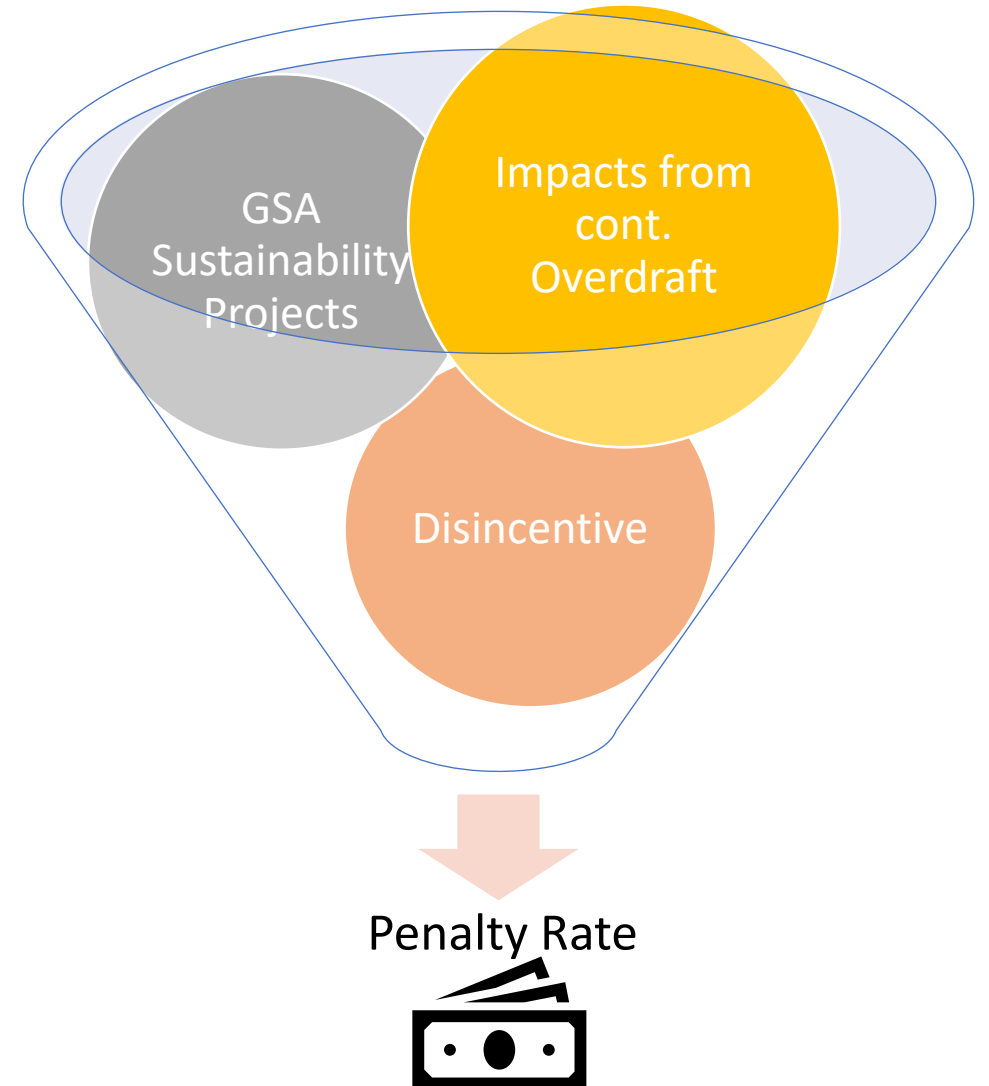
Purpose:

1. Funding Mitigation

- At a minimum the Tier 1 & Tier 2 Penalty Rate should be set to ensure the revenue generated will adequately fund the impacts resulting from its use
 - This is currently being evaluated in Kaweah Subbasin

2. Promoting Sustainability

- The Penalty Rate should disincentivize use in cases where other sustainable options are available
 - Tier 1 & Tier 2 Penalty Rate > Cost of Surface Water
- Fund sustainability projects and program



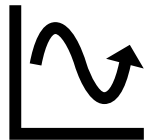
Presentation Pause II

- Board Discussion
- Public Comments

Water Dashboard



Is the mechanism the used to implement the Rules and Regulations.



Successful implementation in part, will be evaluated using the Water dashboard.

Next Steps – Data Driven Implementation

- The policies described today are based on the best available datasets today
- The Kaweah Subbasin GSA's are collectively working towards updating:
 1. Groundwater Flow Model
 2. Water Accounting Framework
 3. Sustainable Management Criteria
- These updates will result in updated, more robust datasets that will be used inform and improve the policies into the future

