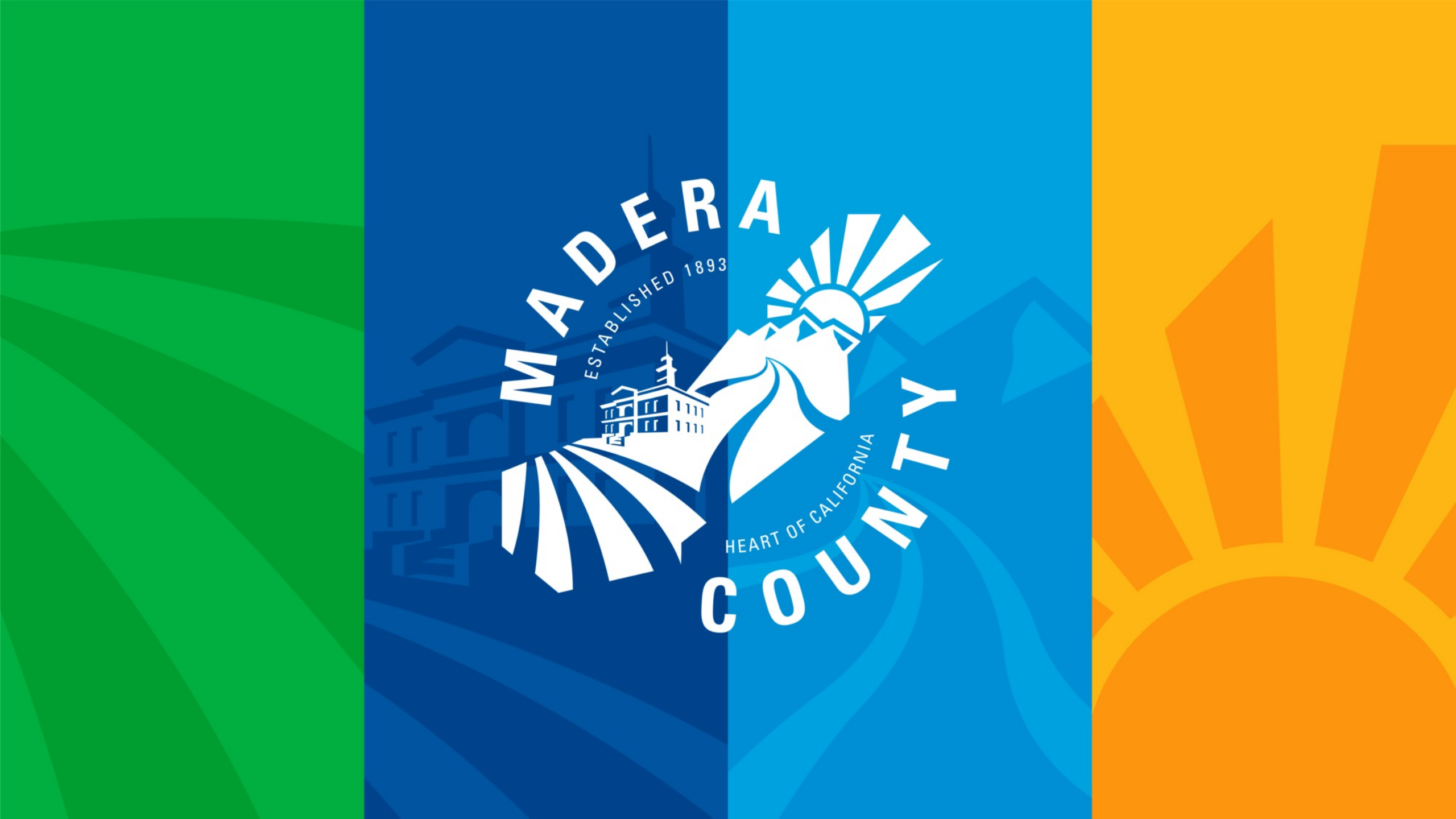
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Discussion of Initial Concepts of an Allocation Approach for the Madera County GSAs September 1, 2020

Madera County

Water and Natural Resources Department

Stephanie Anagnoson, Mike Linden, and Greg Young

Reminder of the SGMA “Big Picture”

- SGMA was enacted to require local Groundwater Sustainability Agencies (GSAs) to achieve sustainability by 2040
- SGMA empowers GSAs to find solutions to reach sustainability
- If GSAs are unable to show progress in accordance with their Groundwater Management Plans (GSPs), the State will step in and take control
- The GSA’s actions should alleviate any need to pursue a court-imposed adjudication

Demand Reduction Options

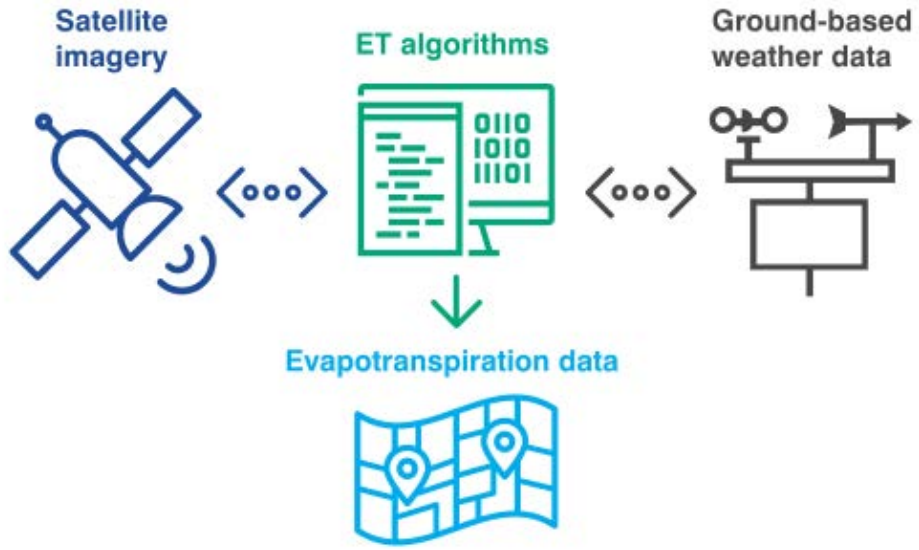
- Allocation 
- Allocation with Market
- Land Resting/Retirement of Land
- Fee structures

Why is an Allocation Important to Do Now?

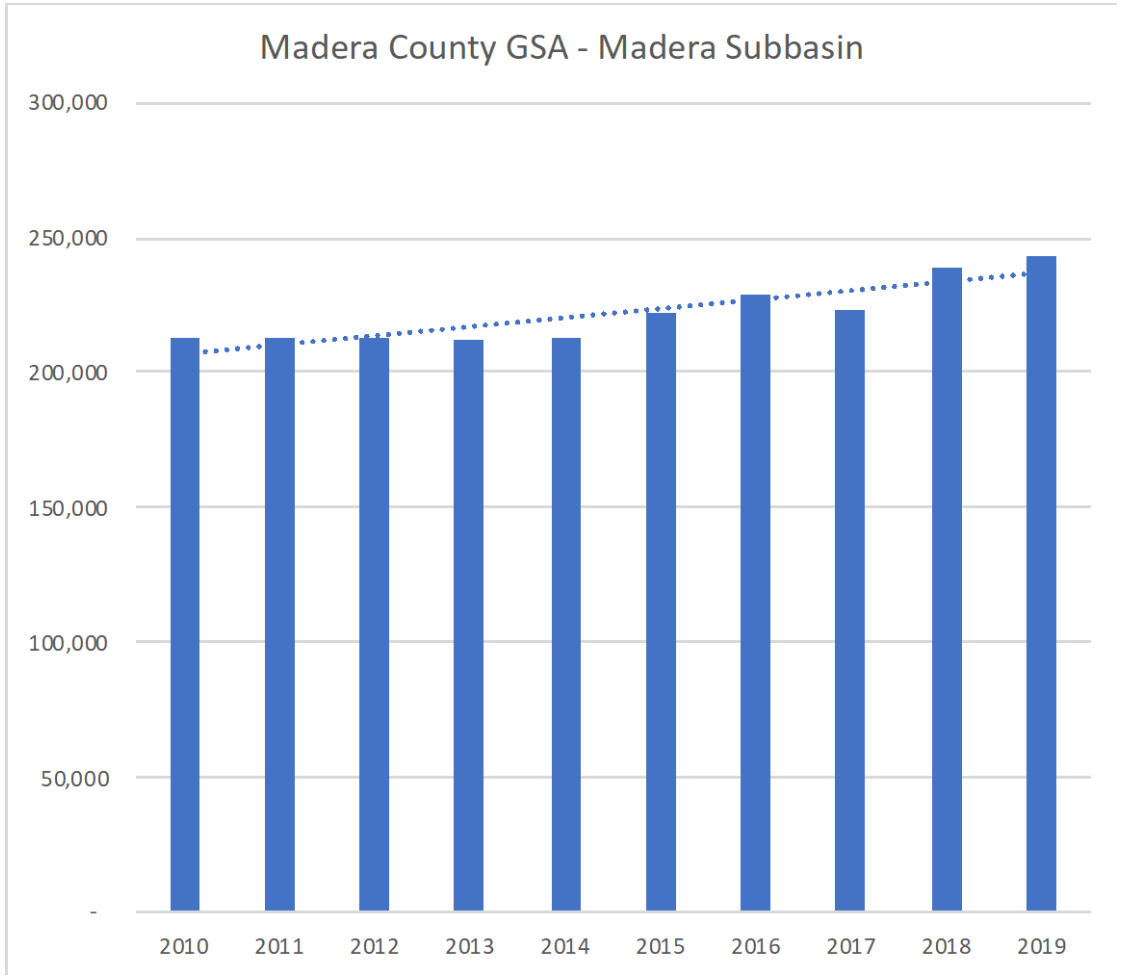
- GSP requires the County GSA to reduce consumptive use of groundwater
- Agricultural interests need information to help with near- and long-term decisions
- Consumptive use in County GSAs is trending higher as shown through recent Satellite-based ET analysis

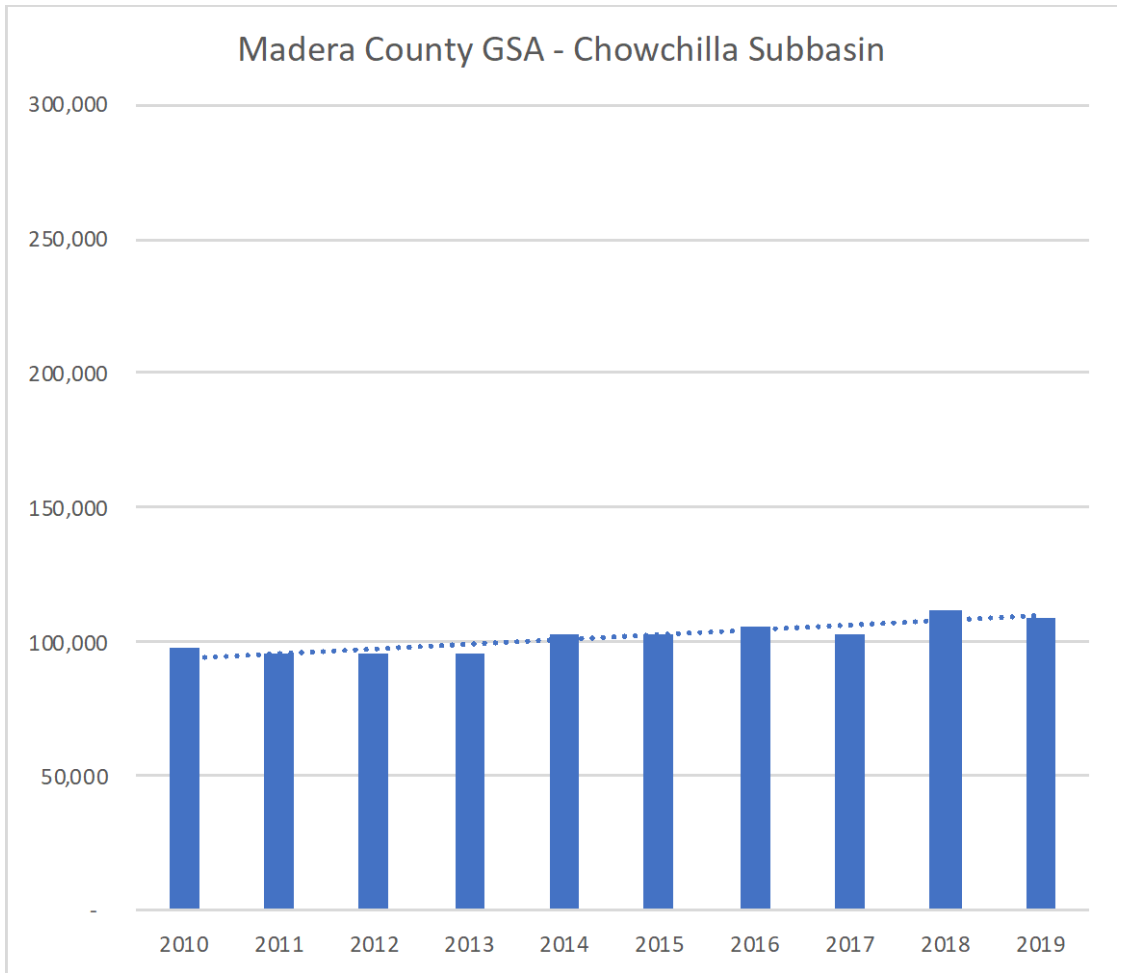
What is Satellite-based ET Analysis?

- Satellite-based ET is used by growers, water agencies, and the state to measure consumptive water use
- Consumptive water use is evaporation and transpiration by the plants
- Consumptive water use is NOT pumped water
- ETAW is ET minus the consumption of rainfall

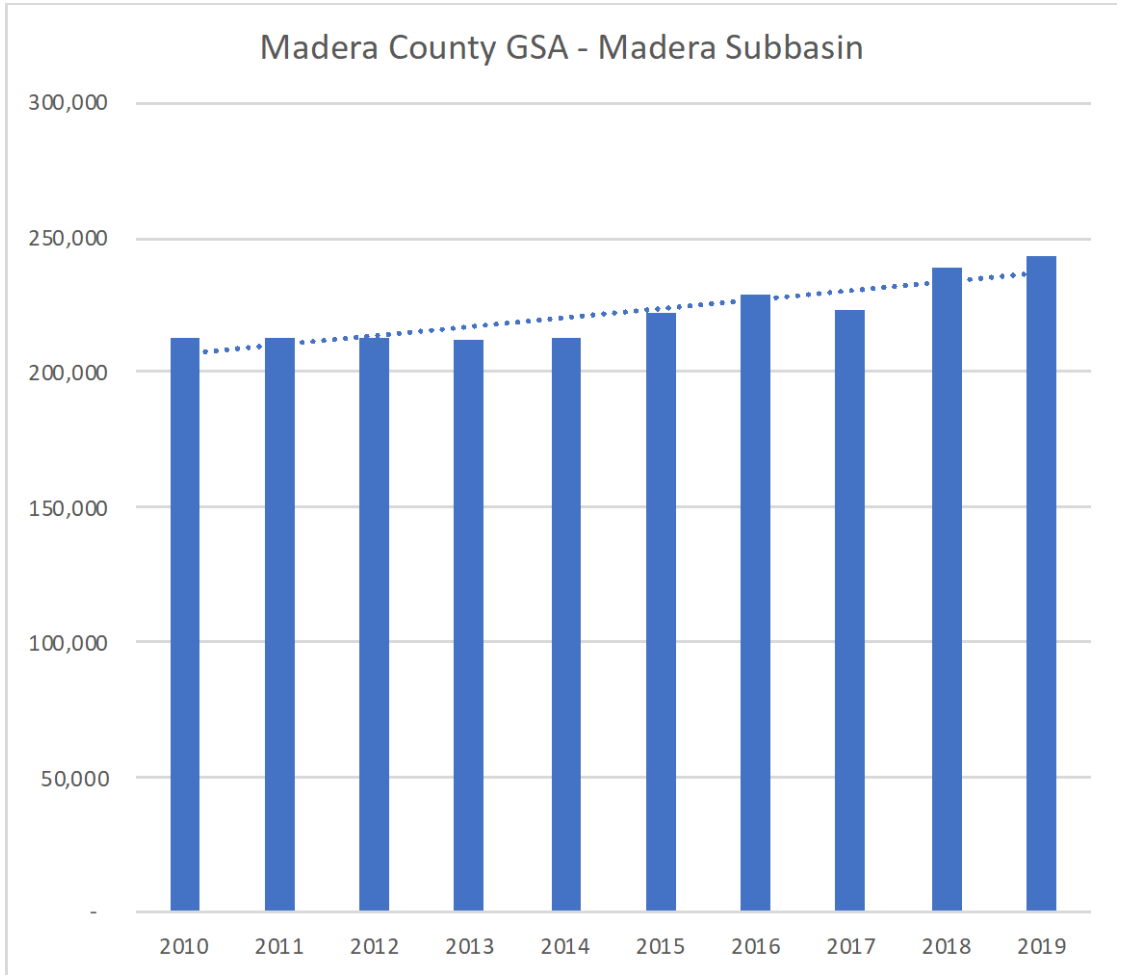


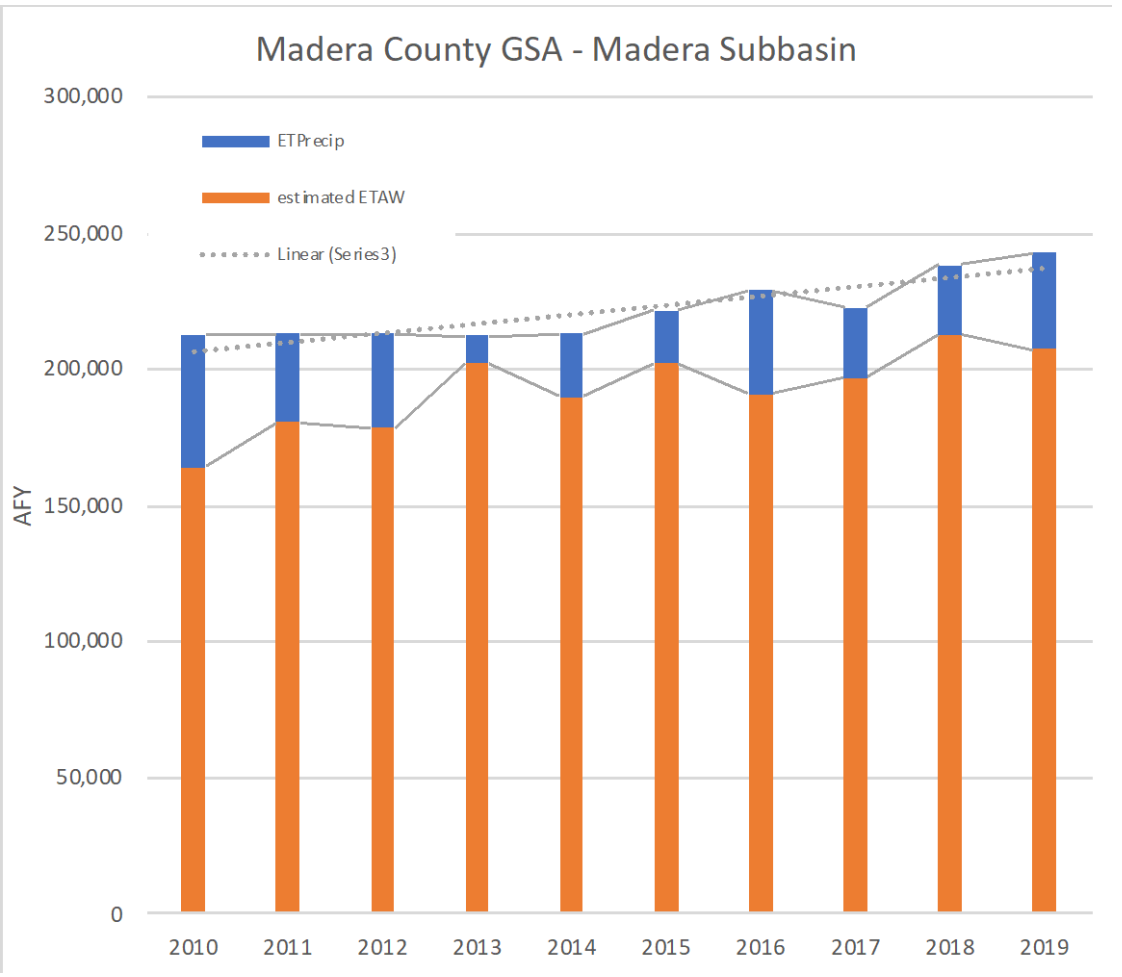
Satellite-based ET results for two Madera GSAs





Estimated ETAW from ET Estimate





Example of crop change on parcel over time

What is an Allocation?

- An allocation is being considered for agricultural water users in the County GSAs
- An allocation is a water budget that may be made available to each agricultural water user
- To reach sustainability by 2040, the allocation (water budget) will decrease over time
- The allocation has multiple parts
  - Quantities of water available to distribute
  - Rules of participation
  - Fees for use

Allocation Timeline

- May 15 and 23, 2019 – Advisory Committee – presentations and discussions about allocation approaches and important factors
- July 2020 – Advisory Committee - land use change presentation to Advisory Committee and staff recommendation of an allocation approach
- July 2020 – County GSAs – land use change presentation to Board and recommendation of an allocation approach
- August 2020 – Advisory Committee – conceptual presentation
- September 2020 – County GSAs – conceptual presentation to the Board
- September 2020 – Advisory Committee - numbers in allocation presented
- October 2020 – County GSAs – numbers in allocation presented to Board
- 2021 – Establish budgets/allocation and use as informational
- 2022 – Budgets/allocation are tied to a rate structure

Principles of Allocation

- **Fairness** – allocation approach must equitably reflect for all agricultural types and operations in the County GSAs
- **Flexibility** – provide flexibility to agricultural in the County GSAs as it transitions to consuming significantly less groundwater
- **Certainty** – allocation approach should provide users certainty on water quantities and predicted annual costs
- **Simplicity** – allocation rules should be easy to understand and follow and be helpful for future decisions
- **DAC Protection** – allocation approach will seek to maintain/enhance groundwater conditions for DACs
- **Overlying Rights Protection** – the County GSAs' allocation approach will not affect a landowner's overlying right to groundwater

Conceptual Allocation Approach

- County GSAs will define quantities based on conditions in the subbasin in accordance with the GSP
- County GSAs will manage available resources consistent with principles
- Allocation will manage available groundwater resources
  - ***Sustainable Yield of Native Groundwater***
    - Available to the entire subbasin from stream seepage, deep percolation of rainfall, and natural lateral inflow (e.g. from the east)
    - Equally shared among GSAs proportional to area in subbasin
    - Madera County GSAs will have a ‘share’ to manage
  - ***Transitional Water***
    - Continued overdraft within the Madera County GSAs
    - Accepted by other GSAs to help with economic transition to lower consumptive use of groundwater

Legal Framework

- Approach is to protect overlying groundwater rights.

- A water right is legal permission to use a reasonable amount of water for a beneficial purpose.
  - The right is in the use of the water, not the water itself.

- Overlying groundwater rights arise solely from property ownership.
  - Not determined by the history or frequency of use.
  - If use is not active, right is considered to be dormant

Legal Framework

Reasonable, beneficial use on the land.

Reasonable: Overdraft is per se unreasonable, so there is no right to pump more than the sustainable yield to the basin.

Beneficial: Types of beneficial uses are in Title 23 of the Water Code, and includes domestic, irrigation, municipal, industrial, and fish and wildlife protection.

On the Land: Overlying rights are appurtenant to the land, and thus the use must be on the land itself. The right is not transferrable.

Legal Framework

- Overlying rights are correlative.
- Similarly situated property owners generally share an equal priority to use groundwater.
  - The use is for what a property owner needs for a beneficial purpose.
- Correlative rights change over time due to changing circumstances.
  - When basin is not overdrafted, no limit so long as the use is reasonable and beneficial.
  - When water is insufficient to meet the needs of all, the right is limited to a reasonable share of the water within the basin.
  - The exercise of the right should not deny other rights holders their reasonable share of the basin's safe yield.

Legal Framework

- There is no overlying groundwater right other than reasonable, beneficial use on the land.
  - It does not include the right to sell the water you would otherwise use.
  - It does not include the right to obtain credit for use on other lands.

Legal Framework

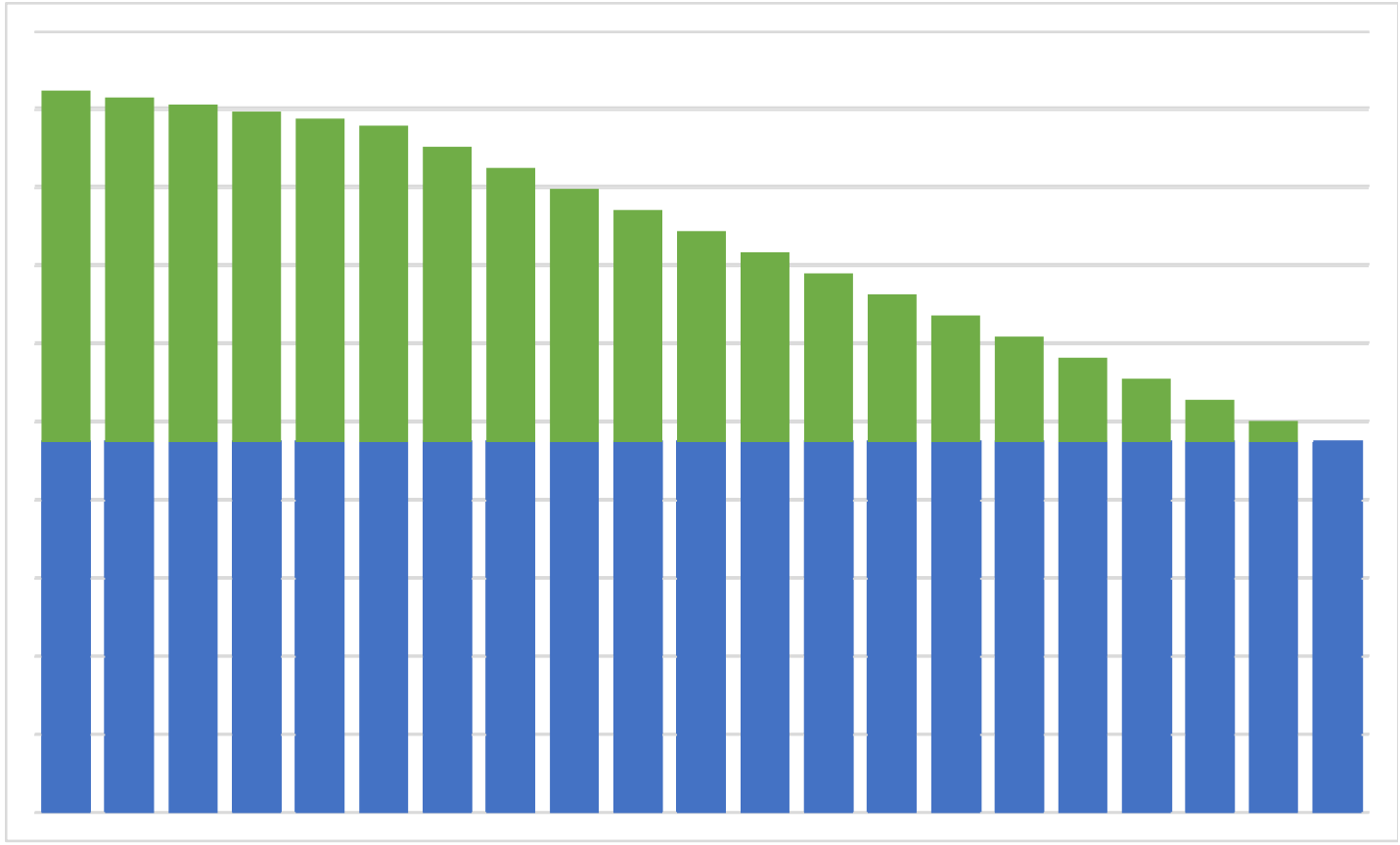
- An allocation is not the same as an overlying right.
  - SGMA allows GSAs to establish extraction allocations and to authorize transfers of allocations within a subbasin.
  - This is different than an overlying right, which is appurtenant to the land.

- SGMA allows a GSA to manage overdraft over a 20-year period.
  - To this end, a GSA may allocate more water than the owner has an overlying right to.
  - This is the “glide path” that has been referred to.

Legal Framework

- A full allocation to all non-irrigated land is not necessary to protect the overlying right.
  - The right is in the use of water, and non-irrigated land has no current use.
  - However, the right can change based on changed circumstances.
- Our allocation proposal is not the subordination of a dormant right.
  - SGMA only allows for subordination in an adjudication proceeding.

Conceptual Allocation Approach (cont)



Transitional Water

Sustainable Yield
of Native Groundwater

Now

2040

Implementation Period

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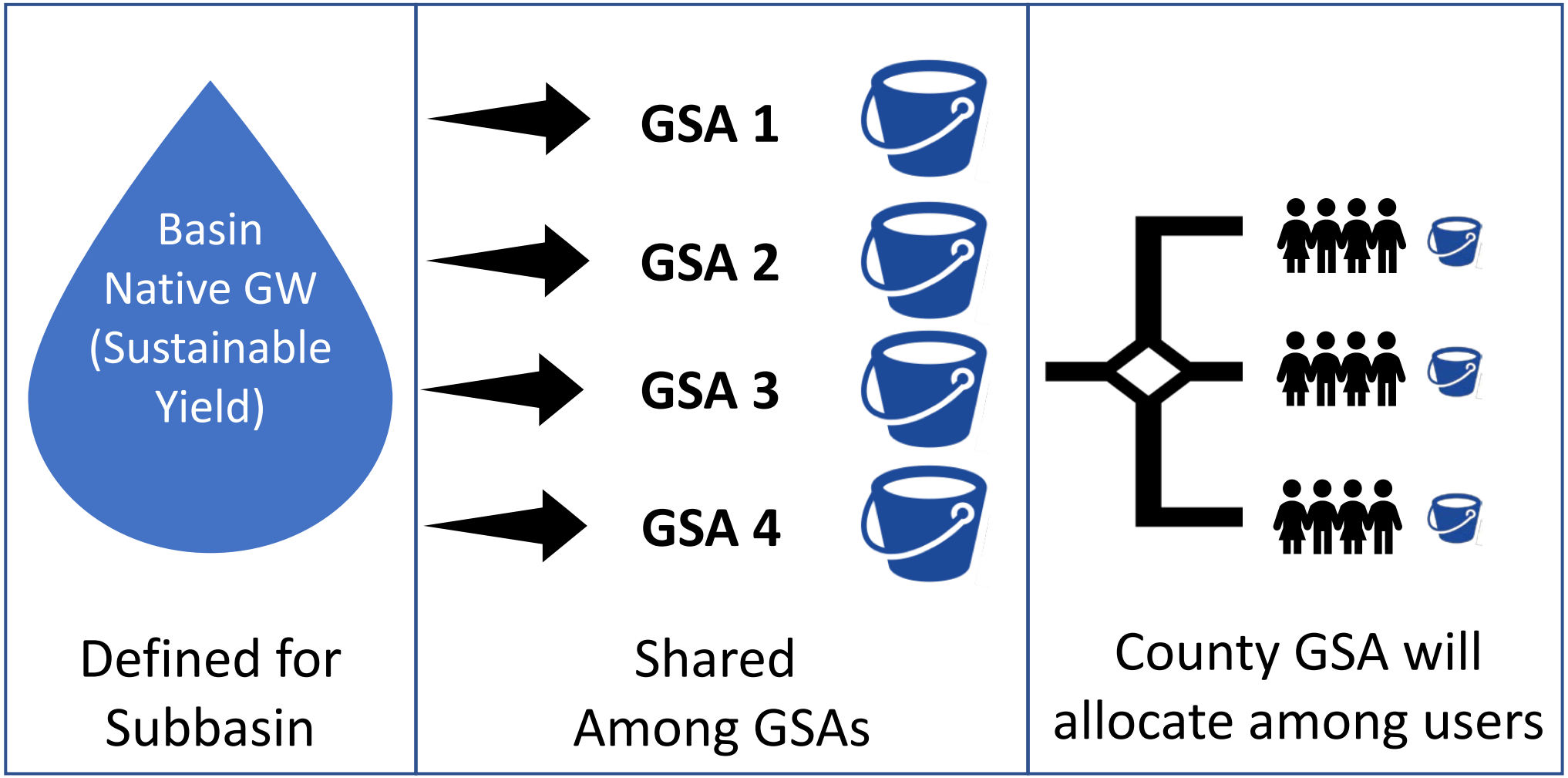
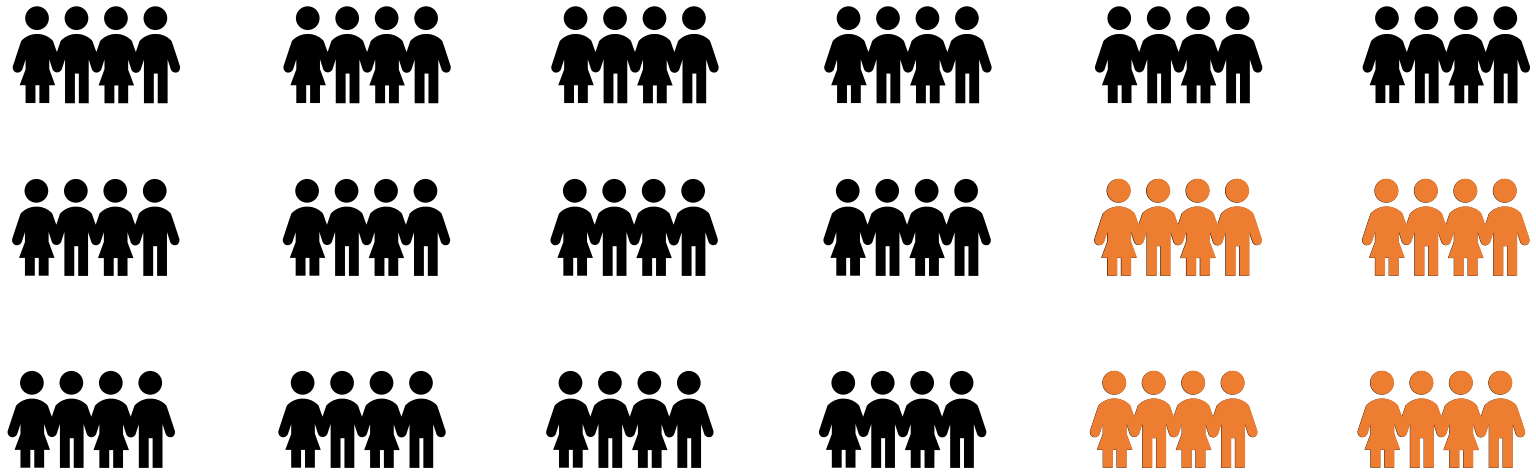
Sustainable Yield of Native Groundwater



Allocating Sustainable Yield of Native Groundwater within each Madera County GSA *[shorthand 'SY']*

- County GSA is considering an "opt-in" or "opt-out" approach
- All lands in each GSA initially "in" with an opportunity for a share of SY unless officially "opt-out" (or the converse)
- Opt-in has opportunities and obligations
  - Access to SY
  - Access to a market (if implemented)
  - Fees: Administrative and Volumetric
- GSA may allow SY to carryover or use to be averaged over a few years
- Opt-out would still have access to stock water and domestic water
- Perhaps an "opt-in" re-entry process with added fees for back payment

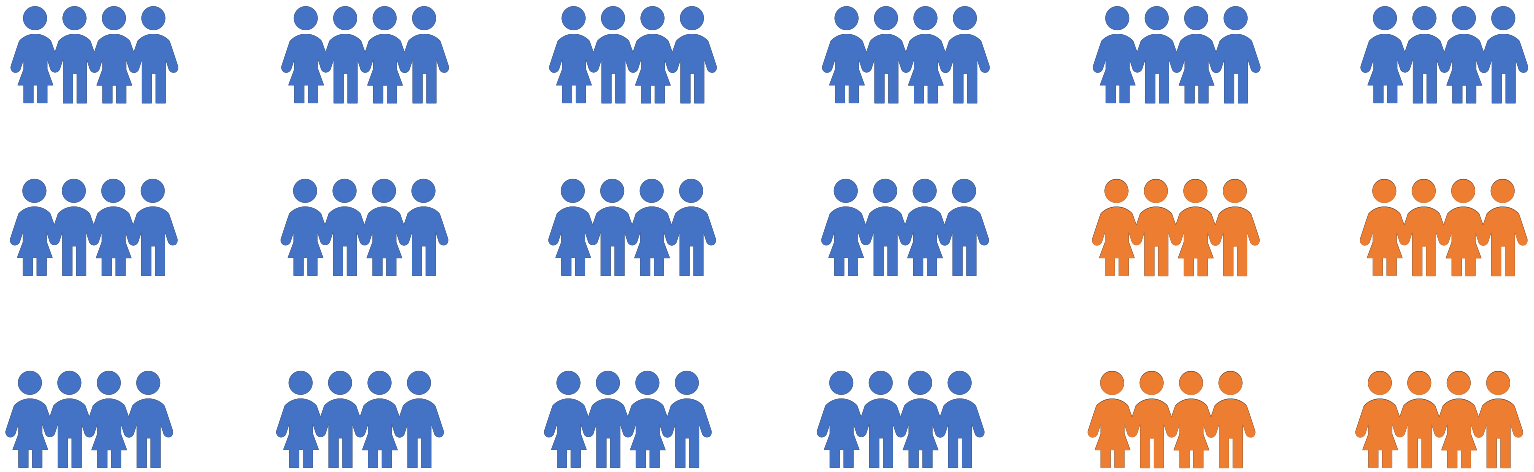
Example of Opt-Out Concept for Ag Landowners



All Landowners in each Madera County GSA

Subset of Landowners "opt-out" of SY

Example of Opt-Out Concept for Ag Landowners

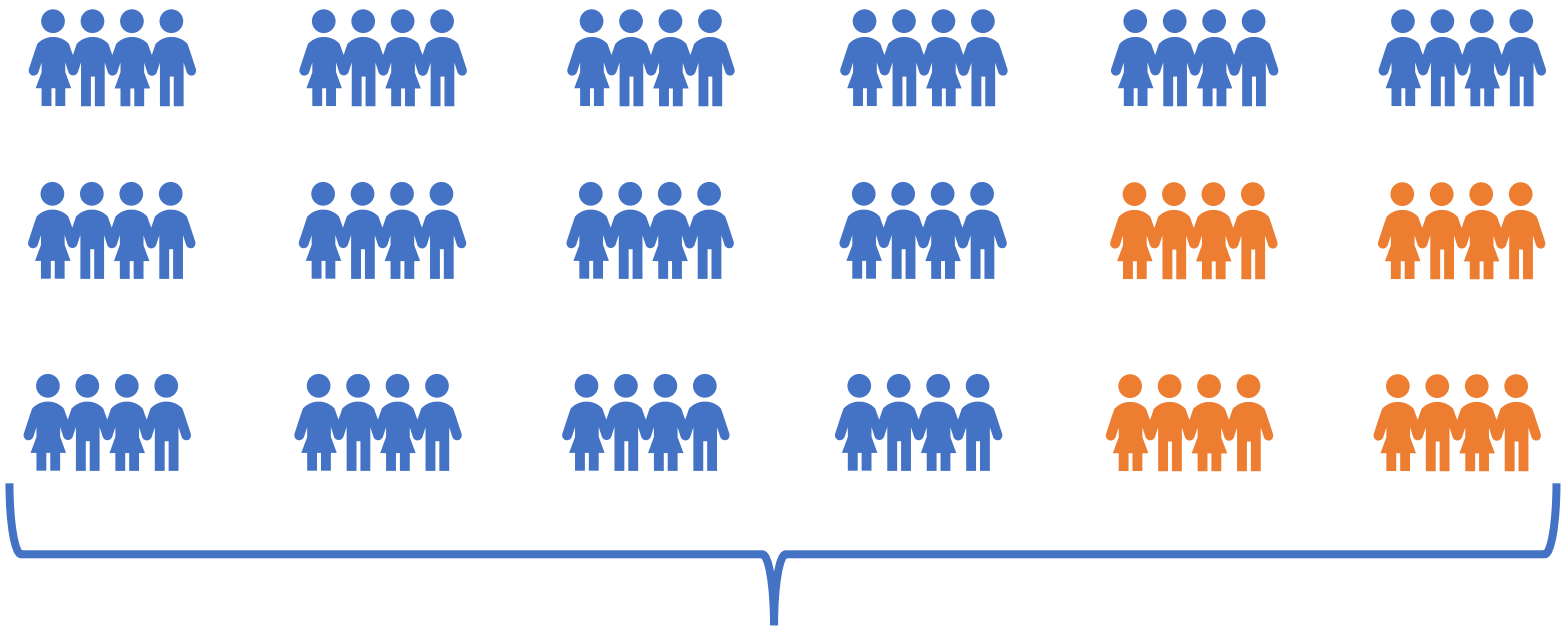


Remaining Landowners share SY

All Landowners in each Madera County GSA

Subset of Landowners "opt-out" of SY

GSA will define quantity by dividing total SY available by total acres “in” to define a per-acre volume



Example Calculation:
Total acres participating = X
Total SY available to GSA = Y
Per-unit SY allocation = Y/X (acre-feet/acre)

Example Only Calculation:
Total acres participating = 50,000 acres
Total SY available to GSA = 45,000 acre-feet
Per-unit SY allocation = 0.9 acre-feet/acre

Example at the parcel level

Total SY Available to the Parcel

Parcel 1:
Assume 90 acres
Total SY to Parcel 1 = 90 ac. x

Parcel 2:
Assume 450 acres
Total SY to Parcel 2 = 450 ac x

Parcel 3:
Assume 1,800 acres
Total SY to Parcel 3 = 1,800 ac x

More flexibility through linking parcels under a “farming unit”

Parcel 1:
Assume 90 acres
Total SY to Parcel 1 = 90 ac. x

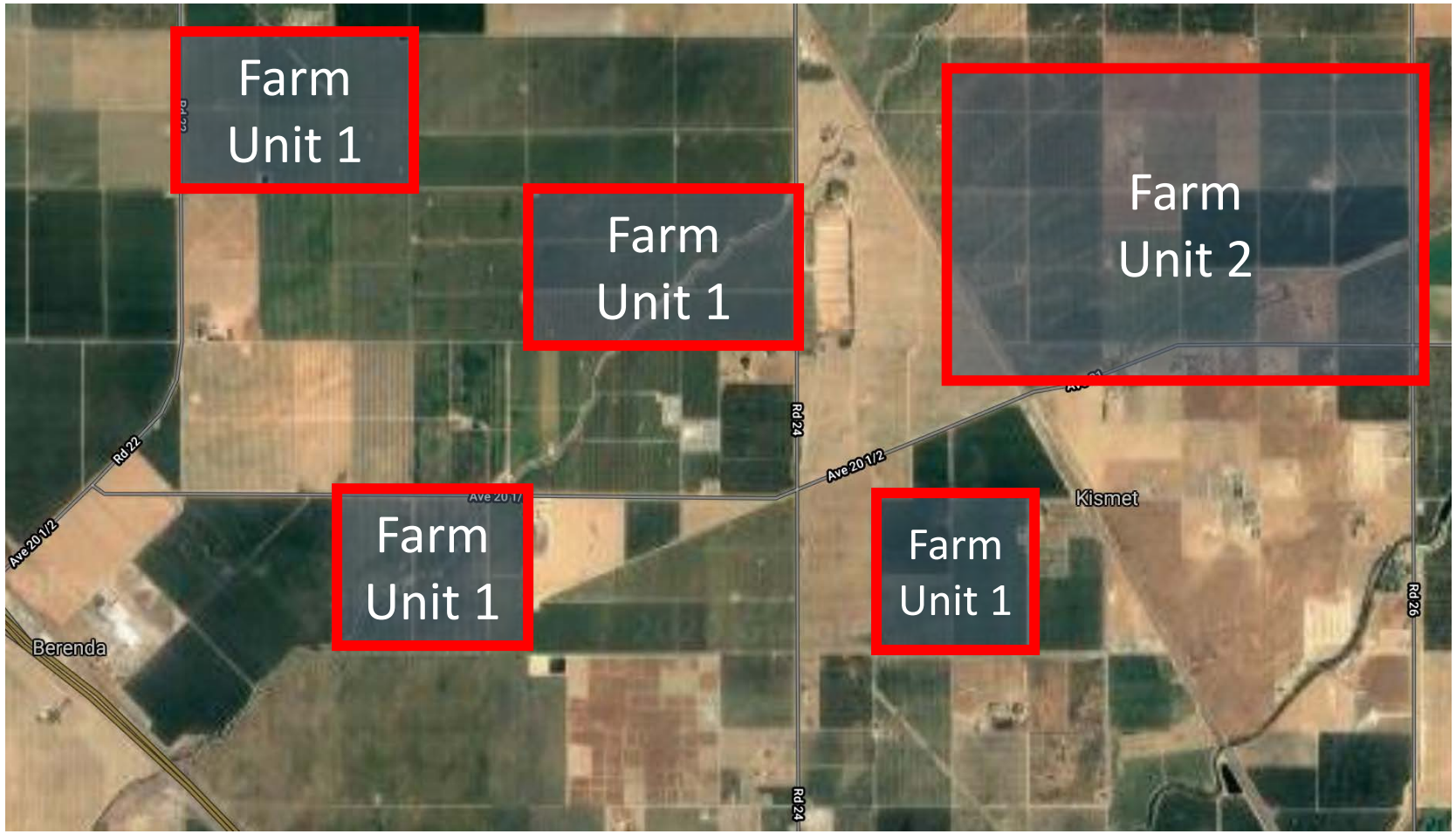
Parcel 2:
Assume 450 acres
Total SY to Parcel 2 = 450 ac x

Parcel 3:
Assume 1,800 acres
Total SY to Parcel 3 = 1,800 ac x

Farming Unit

Total SY available to the entire “farming unit”

Farming Units could be defined as a set of linked parcels owned/operated by one 'owner'

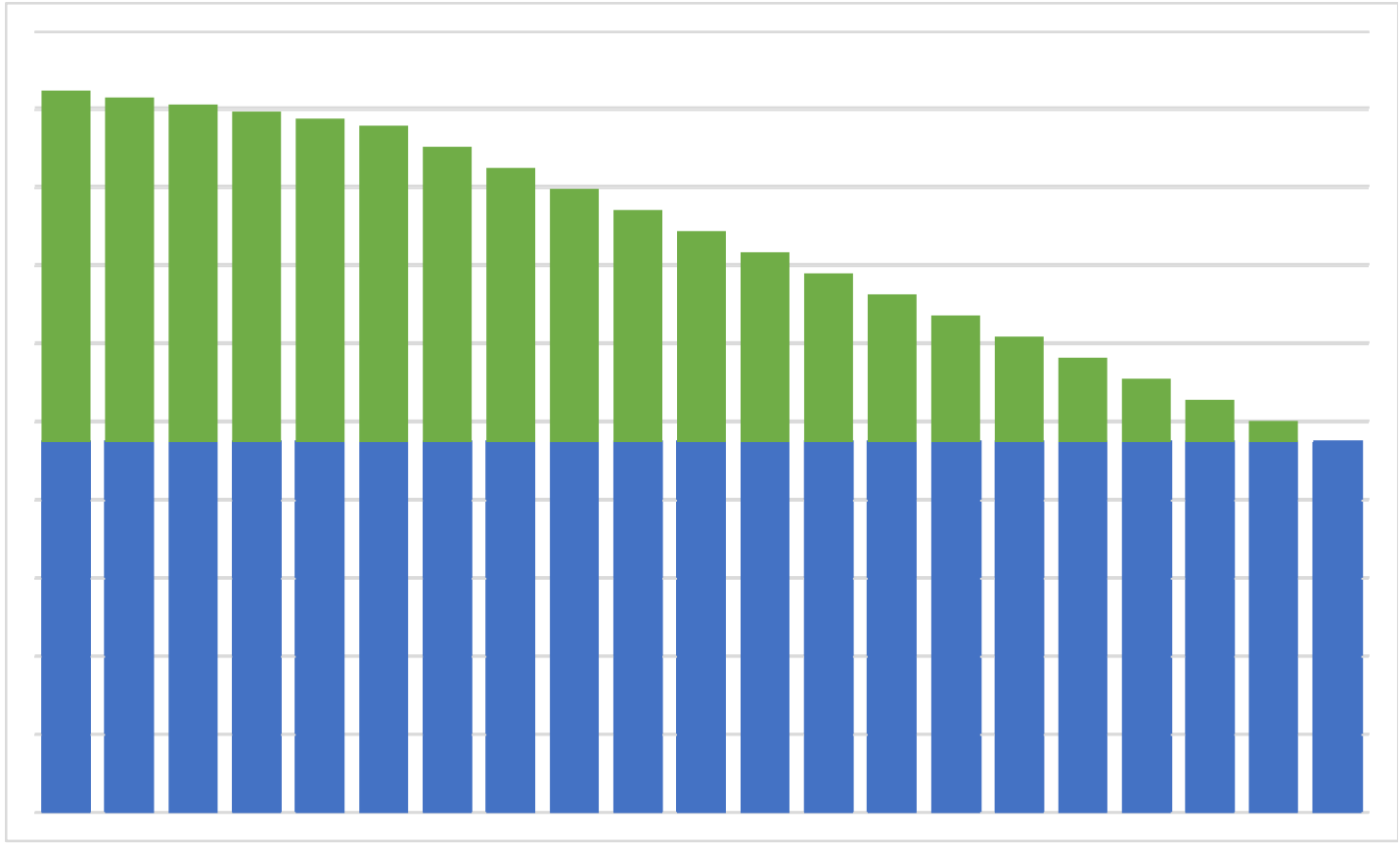


Farm Unit 1:
- 4 separate parcels
- multiple APNs with different owner on title
- same crop but different ages

Farm Unit 2:
- 1 large parcel
- multiple APNs but one owner on title
- different crops

GSA has not yet defined farm unit rules.

Conceptual Allocation Approach (cont)



Transitional Water

Sustainable Yield
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Now

2040

Implementation Period

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Quantifying and Offering “Transition Water”

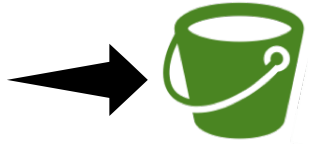
- County GSAs will define available quantity
  - Likely an annually adjusted value, but possible to include rolling average
  - Will be eliminated by 2040
  - Will relate to real-time and trending conditions in the subbasin
- County may offer in 2 blocks for the first 10 years
- 1st block ~ 60% to 75% of total determined available TW for that year
  - May be limited to only current (or historically) irrigated parcels
  - May be offered incrementally on a per-acre basis and tied to fee structure
    - up to 0.5 af/ac at price A
    - 0.51 to 1.0 af/ac at price B
- 2nd block would be any remaining from 1st block plus remaining to total TW
- May be limited to use in current year only

Interested parties would ‘sign-up’ for quantity of increment of 1st offering

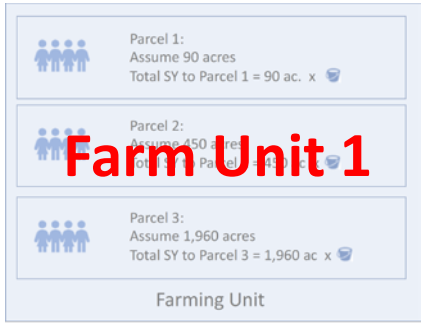
- County GSA quantifies TW for the particular year, then makes ~ 2/3 available in first offering.
- County GSA determines per-acre quantity based upon sign-up
  - Sign-up opportunity may be limited to a subset of SY participants
  - County GSAs have not yet defined participation rules

Example Calculation:
Total signed-up acres = X
Total TW available to GSA = Y
~2/3 of TW in 1st Offering = (% of Y)
1st Offering TW = (% of Y)/X (acre-feet/acre)

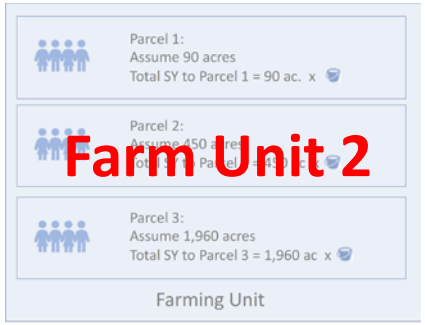
Example Only Calculation:
Total signed-up acres = 50,000 acres
Total TW available to GSA = 100,000 acre-feet
70% of TW in 1st Offering = 70,000 acre-feet
1st Offering TW = 1.4 acre-feet/acre



Example of TW 1st offering



Needs all available TW water to help meet crop needs



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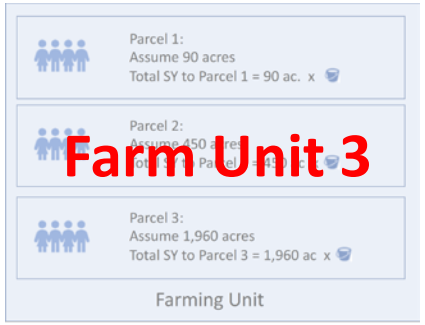
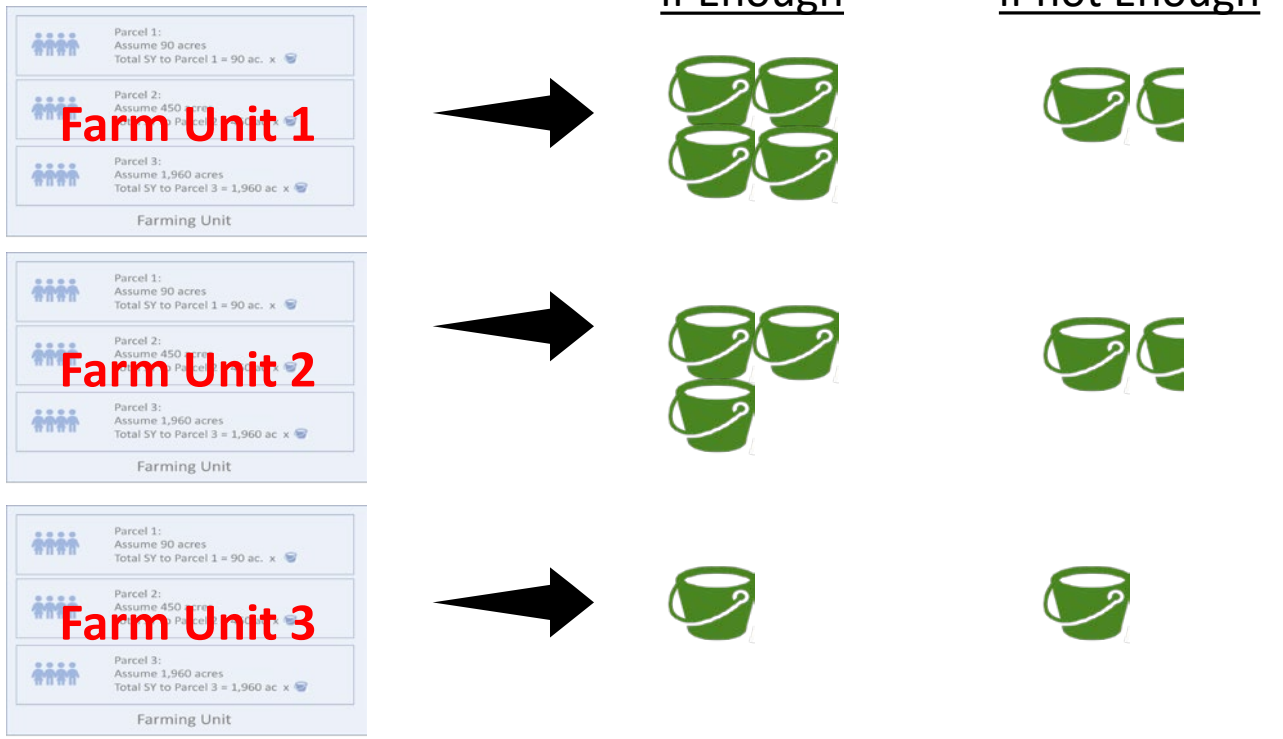


Needs only half of offered TW water to help meet crop needs

County GSA makes 2nd increment offering

1. The quantity available for the 2nd offering
   = remaining TW not offered in the 1st offering
   + any 1st offering not requested

2. Farming units choose to participate
   - if more participate than quantity available, GSA will allocate proportionally, otherwise available by request



Farming Unit would add TW to its SY and use the total allocation within the linked parcels

Parcel 1:
Assume 90 acres
Total SY to Parcel 1 = 90 ac. x

Parcel 2:
Assume 450 acres
Total SY to Parcel 2 = 450 ac x

Parcel 3:
Assume 1,800 acres
Total SY to Parcel 3 = 1,800 ac x

Farming Unit

Total SY available

+

Transitional Water for "farming unit"

1st Block Offering:

2nd Block Offering:

County GSA may use satellite-based ET analysis to quantify total annual use for the farming unit

- ET analysis may need to be adjusted to remove the benefit of rain to derive ETAW for the year
- County GSA may compare measured ETAW to total Allocation available for the farming unit
  - County GSA may not care how water was used among linked parcels
- County GSA may impose fees based upon the ETAW and use of allocation
  - Overuse may incur much higher fees
  - User may not be charged for allocation not used

Benefits and Drawbacks of Allocation Concept

Benefits

- Satellite ET analysis gives users feedback on water use
- Could accompany a rate structure
- Allows for individual decisions (flexibility)
- Provides certainty
- Market could layer on later

Drawbacks

- Administrative burden
- Fair amount of accuracy checking (needs a year to ramp up)

Questions

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