

# Updates from Fox Canyon & Kaweah Sub-Basin

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June 21, 2023



## SGMA's First Groundwater Market

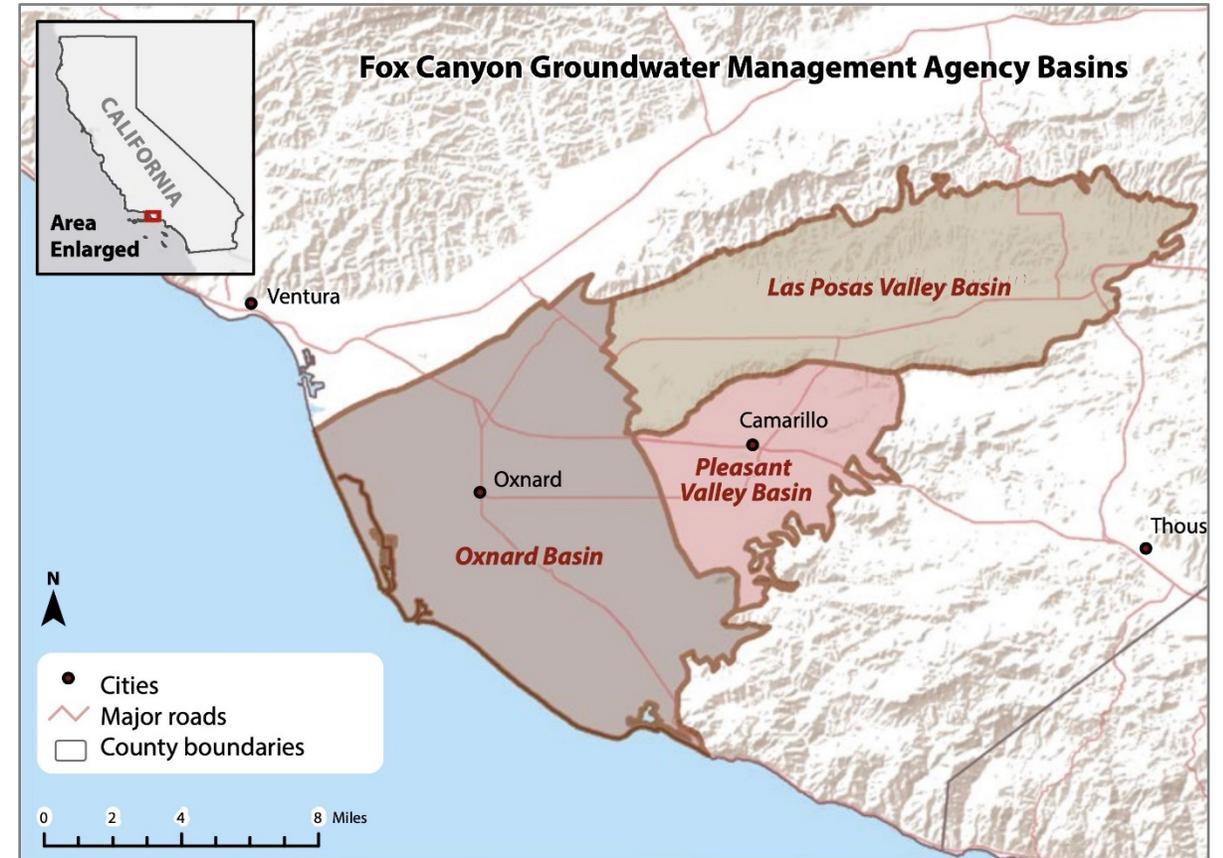
# Fox Canyon – a model water market

*“Locally driven groundwater trading programs have the potential to be an important tool for managing reduced groundwater pumping – and implementing SMGA.”*

--Water Commission’s May 2022 Recommendations

## Measurable Success

- 2019/20 Water Year was first year of basin-wide trading
- Enjoyed robust participation
  - 87% of eligible participants enrolled in the market
  - 47% of participants engaged in trading activity
- Created flexibility for farmers
  - One grower avoided \$345,000 in surcharges
- Reinforced sustainable management
  - Net transfer of pumping out most vulnerable management area

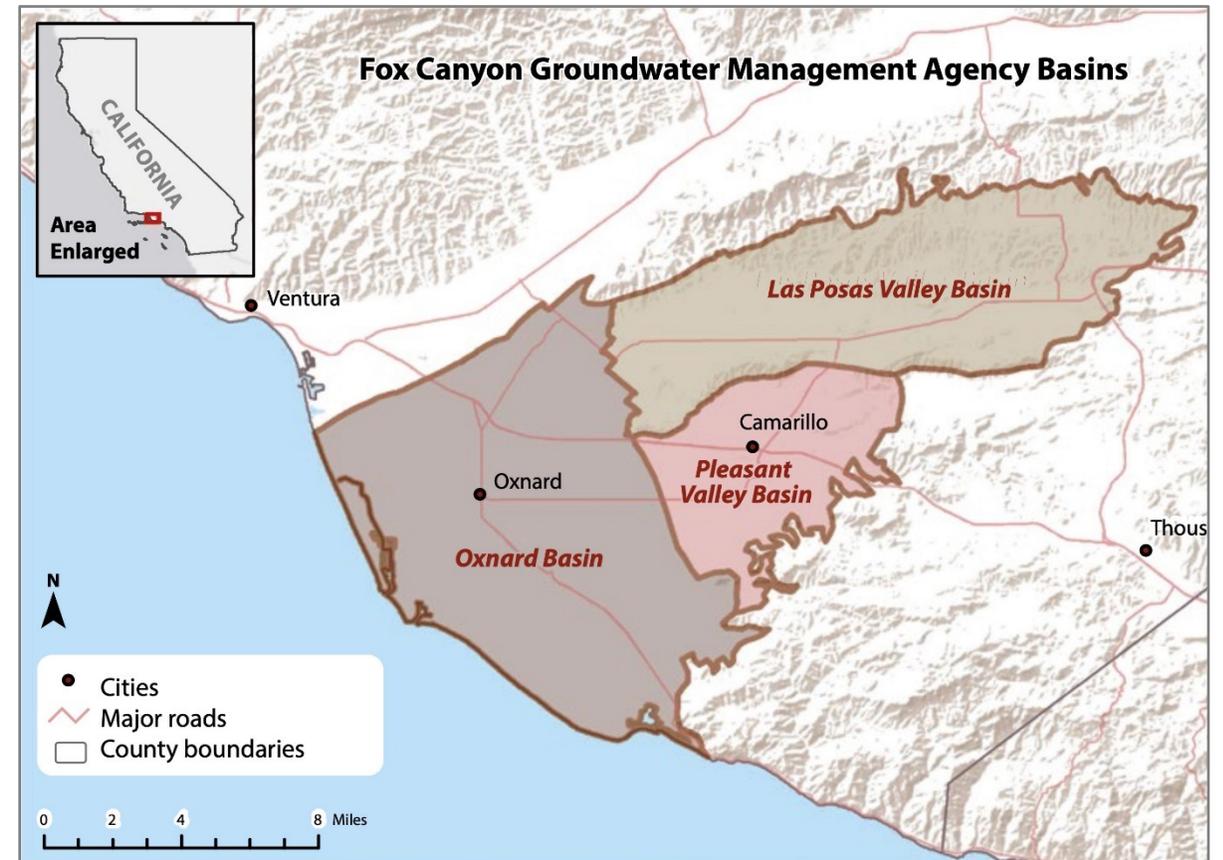


# Fox Canyon – a model water market

*“Locally driven groundwater trading programs have the potential to be an important tool for managing reduced groundwater pumping – and implementing SMGA.”*

## Exemplifies Good Market Design

- Program goals aligned with GSP
- Fully-engaged stakeholders
  - Including Ag, Urban and Environmental
- Anticipation and mitigation of adverse impacts to vulnerable users and resources
- Transparent, accurate and timely data
  - Including water use data and market data
- Transparent and timely process for monitoring and reporting progress



# Program goals aligned with GSP

*“Sustainable groundwater management generally – and well-managed groundwater trading specifically – requires a sound GSP.”*

## **Create fair & transparent market activity**

### Transparency

- Universal telemetric monitoring of extraction

### Reduction of Market Power

- Anonymized Market

### Reduction of Transaction Costs

- Formal Exchange, neutral third-party administrator
- Pre-approval of transfers by GSA, conditional on the rules

## **Start simple and create an adaptive approach**

- Series of water market pilots; Market requires annual re-authorization
- Only allow agricultural water users at first

## **Positively impact the distribution of water quality**

- Special management areas with directional restrictions on trade

## **Make trading neutral with respect to land use changes**

- Only allow temporary transfers of allocation at first

# Fully-engaged stakeholders

*“Groundwater management involves community members coming together to manage a shared resource collaboratively.”*

## Fox Canyon Water Market Group

- **50+ members**, representing Ag, Urban and Environmental water users
- **Over 40 hours of research & deliberation**
- **Unanimously approved recommendations**
  - Goals aligned with GSP
  - Rules, structures & operating mechanisms
- **Continue to meet to evaluate progress**
  - Recently recommended expanding the market to a second basin and including Urban water users in the market



# Mitigation of adverse impacts - vulnerable resources

*“It is possible that a groundwater trading program will lead to or exacerbate concentrations of pumping in certain areas.”*

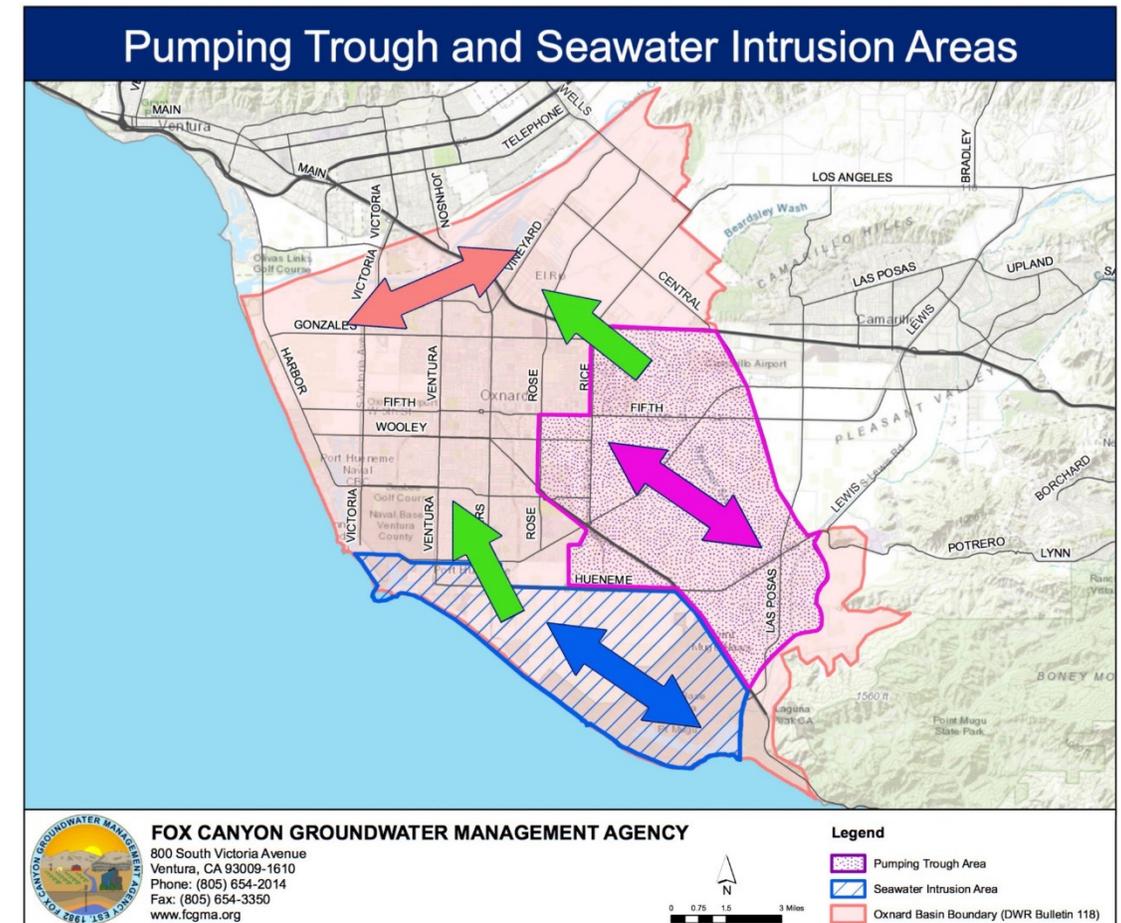
## Vulnerable resources

Special Management Areas with Directional Restrictions

## Vulnerable users

Protections for small- and medium-sized farms

- Formal, centralized market with 3<sup>rd</sup> party Exchange Administrator
- Anonymized Market



# Transparent, accurate and timely data

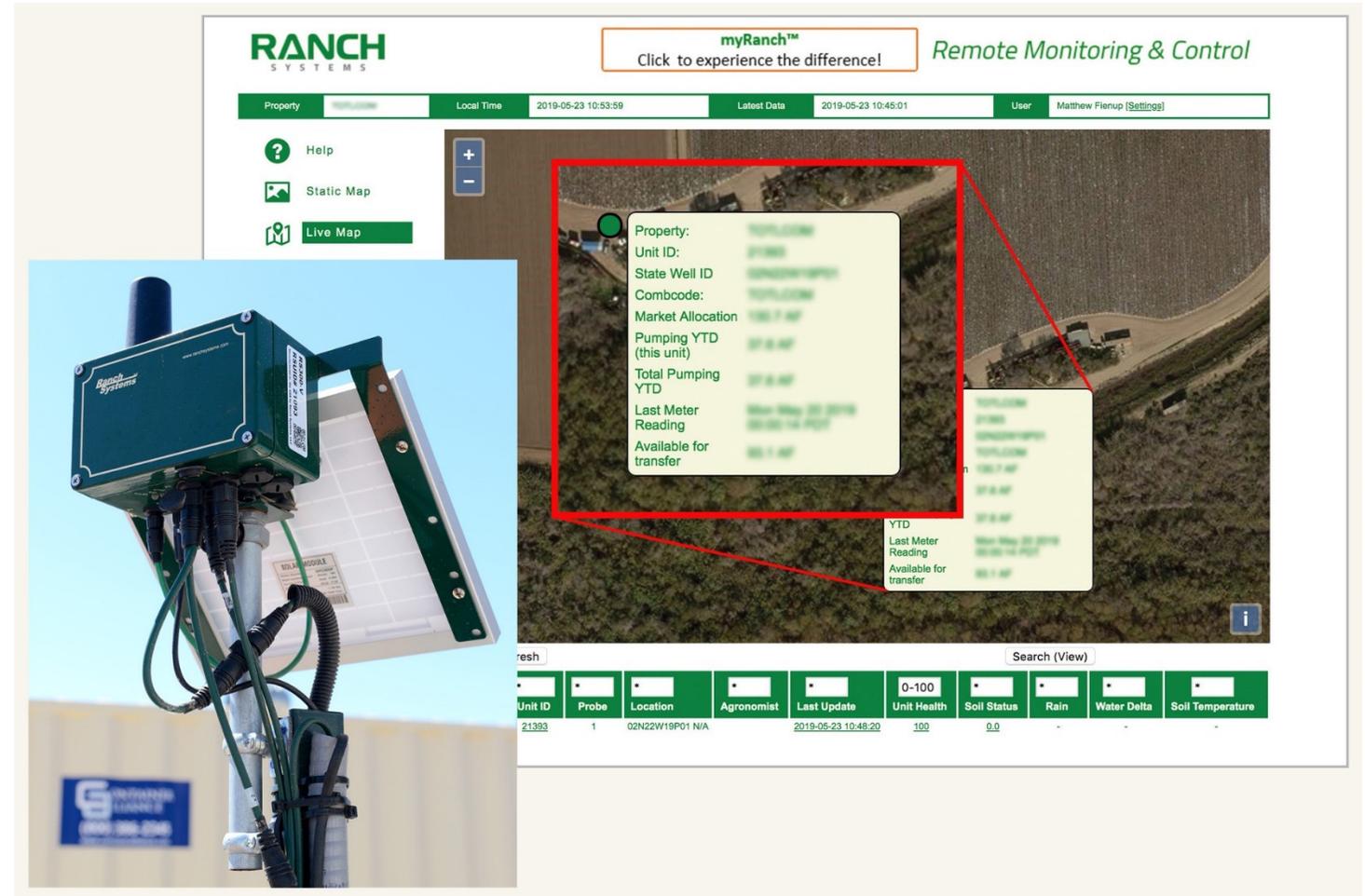
*“Good data is imperative for understanding likely impacts of trading and for ensuring that a trading program is meeting its goals.”*

## Accurate water use data

- Universal telemetric monitoring
- Automated reporting

## Timely Market Data

- Weekly public market updates with detailed quantity and price information



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Property: [redacted] Local Time: 2019-05-23 10:53:59 Latest Data: 2019-05-23 10:45:01 User: Matthew Fierup (Settings)

Help Static Map Live Map

Property: [redacted]  
Unit ID: [redacted]  
State Well ID: [redacted]  
Comocode: [redacted]  
Market Allocation: [redacted]  
Pumping YTD (this unit): [redacted]  
Total Pumping YTD: [redacted]  
Last Meter Reading: [redacted]  
Available for transfer: [redacted]

YTD Last Meter Reading Available for transfer

Unit ID	Probe	Location	Agronomist	Last Update	Unit Health	Soil Status	Rain	Water Delta	Soil Temperature
21393	1	02N22W19P01 N/A		2019-05-23 10:48:20	100	0.0	-	-	-

# Process for monitoring and reporting progress

*“Annual renewal of a groundwater trading program allows for the regular evaluation of the program and its impacts, creating an opportunity to improve the design.”*

## Annual Reauthorization

- Fox Canyon Market requires annual evaluation and *reauthorization* by GSA
- Oversight and input provided by the Water Market Group



# Fox Canyon Water Market – Market Power

*“Issues related to market power can show up during the implementation of a trading program, such as when powerful entities coerce others to trade or refrain from trading.*

*Small- and medium-sized farm operators may not wield sufficient market power, allowing more powerful entities to dominate the trading program and control how allocations are used.*

*Unbalanced market power could impact many other important factors involved in trading programs, such as trust, engagement, access, and compliance, posing a risk to groundwater trading programs and to SGMA implementation overall.”*

# Fox Canyon Water Market – Market Power

*“Well aggregation could happen outside of a trading program, allowing certain parties to control and trade groundwater outside of the formal groundwater trading program.”*

## Allocation aggregation, market power and threats to sustainability

Fox Canyon GMA Board Meeting (June 10)

- **GSA Board Member:**  
“We heard from Staff that, in fact, the large CombCodes are in a sense creating private markets.”
- **Packer-Shipper:**  
“You’re right...when we bigger operators consolidate all of those wells into a larger CombCode, we do have our own independent markets. We do...We are transferring water amongst ourselves.”

Transfers between wells within the un-sanctioned market have resulted in **net increase in pumping of 8%** in the Agency-designated Pumping Trough.

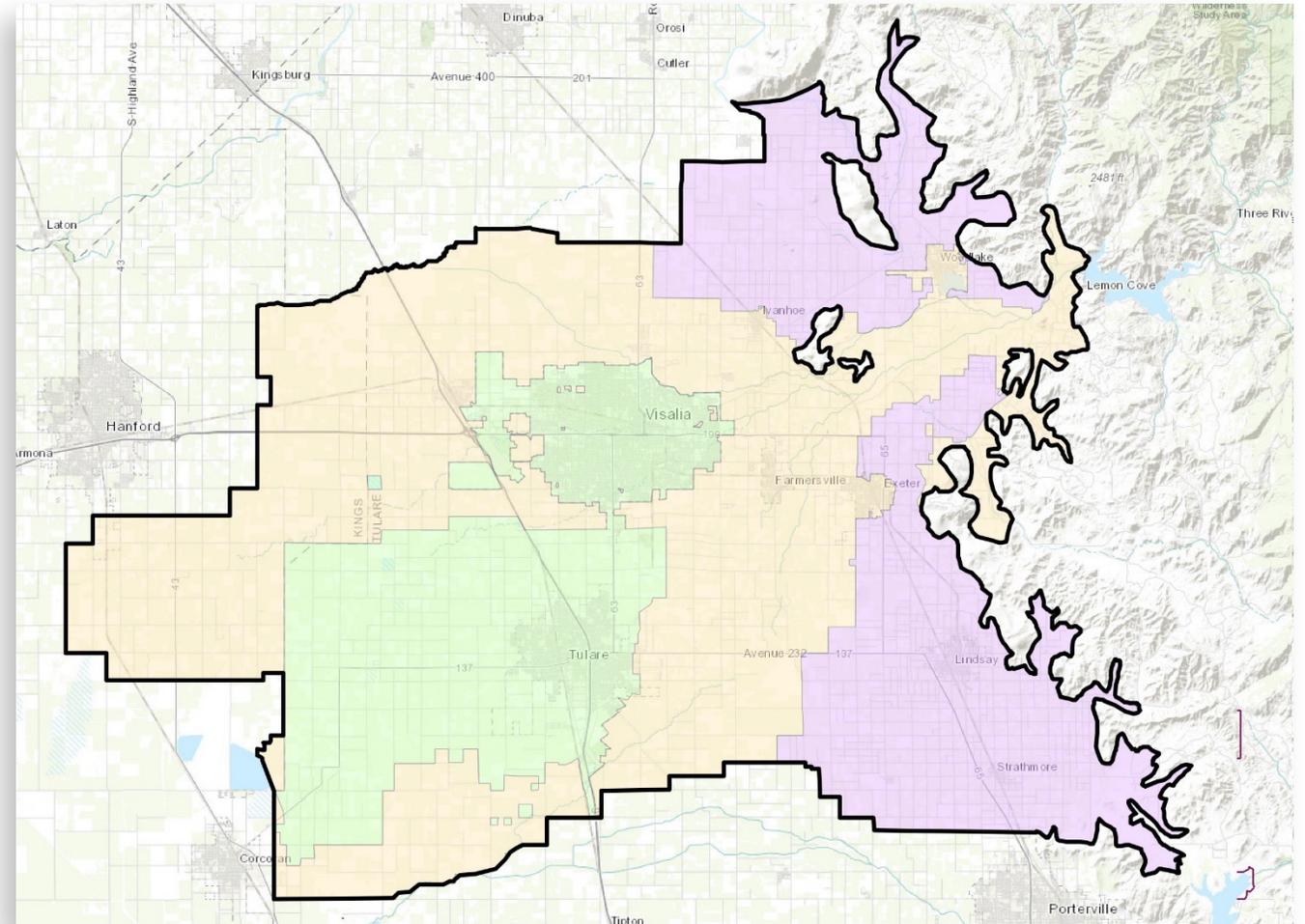


# Kaweah Subbasin – a second model water market

**Building on the demonstrated success in Fox Canyon**

## **Three GSAs**

- Greater Kaweah, Mid-Kaweah and East Kaweah GSAs



# Kaweah Subbasin Water Marketing Strategy Committee

## Stakeholder representatives

GSA	• Grater Kaweah GSA
GSA	• Mid-Kaweah GSA
GSA	• East Kaweah GSA
Ag	• Tulare Irrigation District
Ag	• Cardoza Company
DAC	• Self-Help Enterprises
Environment	• Sequoia Riverlands Trust
Ag	• Kaweah Ditch Companies
Urban	• Industrial Seat
Ag	• Lindsay-Strathmore Irrigation District
Ag	• Bee Sweet Citrus

# Stakeholders → Goals that support GSP

What should the water marketing strategy ACCOMPLISH?

Be very low cost to conduct and administer transactions ✓✓✓✓✓	Should provide Equitable trading policy ✓✓✓✓✓	Equitable water market that is protective of drinking water users ✓✓✓✓✓	Align the Human Right to Water with water market ✓✓✓✓✓	Adequate inclusion of the needs of DAC/SDACs re: drinking water and water quality protection ✓✓✓✓✓	Minimalistic approach to achieve sustainability goals	Identify potential benefits to DAC/SDAC communities	
 Simplicity ✓✓✓✓✓	Create a component of the marketing strategy to move water between all 3 GSA's in the Kaweah basin ✓✓✓✓✓	Transparency ✓✓✓✓✓	Strive to develop a Market to provide the most flexibility to landowners to develop their business plans and be a landowner driven process. ✓✓✓✓✓	Allowable movement of water should be directly tied to groundwater levels in monitoring program to avoid undesirable results	Anonymous trading ✓✓✓✓✓	Provide a market in which landowners can mitigate financial impacts of following by the sale of excess water assets	Transfer distances regulated on a case by case basis rather than an one size fits all. ie: ( 1 mile for a user transferring allocation to a location near a municipal well and 3+ miles for a user transferring allocation where there are no municipal wells) 
Buffer zones around disadvantaged communities: private & community wells ✓✓✓✓✓	Robust stakeholder engagement ✓✓✓✓✓	Clearly defined water carryover policy ✓✓✓✓✓	Disadvantaged communities need to be engaged in shaping groundwater markets (these types of meetings need to be held in the communities, bilingual educational materials) ✓✓✓✓✓	Incorporation of Following Program into market	Protection of groundwater dependent ecosystems	Daily reporting of water trades ✓✓✓✓✓	InterBasin and InterGSA Trading Policy along borders
Electronic clearinghouse for both viewing and making trades.	Include an emergency drinking water mitigation plan	Blockchain based Market using DAO Smartcontracts	Groundwater level monitoring near vulnerable groundwater areas, like communities that rely on shallow wells ✓✓✓✓✓	Open platform allowing direct communication between buyer and seller. Platform should still require reporting to GSA.	Identifying groundwater allocations that adequately address community needs now and into the future ✓✓✓✓✓	should not only detect the status and trends of groundwater conditions, but must also be deployed to ensure that the market is running well and is not resulting in adverse impacts to groundwater quality and/or groundwater	Use the emergency program to test some features of the permanent program

# Program Goals aligned with GSP

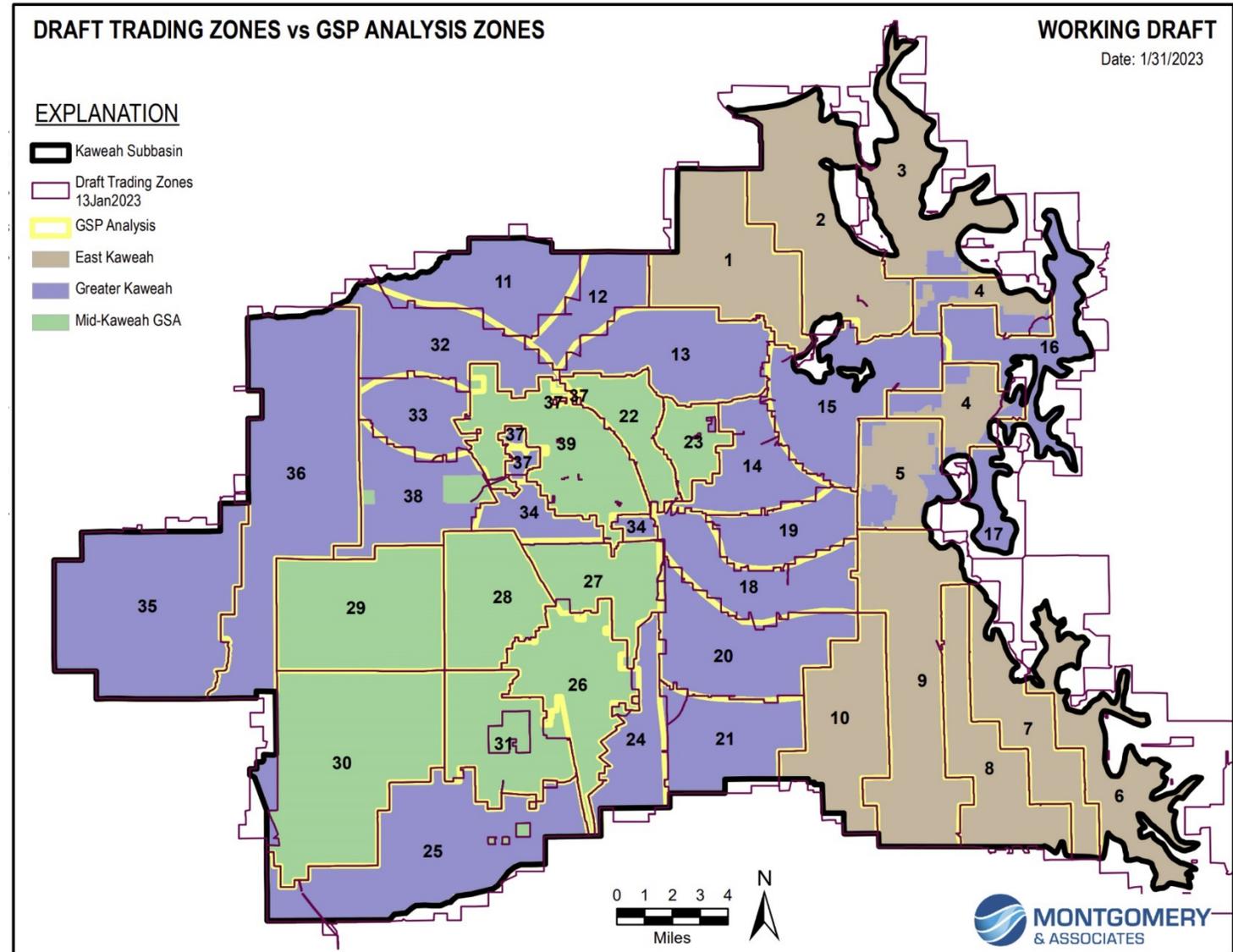
- **Flexibility**  
Provide water users with the flexibility to comply with new regulations and to respond to changing water availability.
- **Adaptability**  
The Water Market Strategy should promote adjustments in practices, rules and procedures as conditions change and as the experience of market participants grows and new information becomes available.
- **Transparency**  
The process of developing the Water Market Strategy and for conducting market activities should be visible and understandable to interested stakeholders. Transparency includes the availability of accurate and reliable water use data and the timely reporting of water market activity.
- **Do No Harm**  
The Water Market Strategy should anticipate and avoid adverse impacts to water users and uses (CWC §10721(x)).
- **Equity & Inclusion**  
The Water Market Strategy should be developed with an open process that includes the full range of potential market participants and other interested parties. Implementation of the Water Market Strategy should be relatively simple and understandable to interested parties.
- **One Basin-wide Strategy**  
The Water Market Strategy will develop a common framework available to all Kaweah Subbasin GSAs.



# Mitigation of Adverse Impacts - Trading Zones

## Two separate triggers

- Minimum Threshold Trigger
- Disadvantaged Community Trigger



# Kaweah Sub-Basin– Current Challenges

## Un-regulated transfers, market power and threats to sustainability

Two GSAs are implementing a system of non-market transfers which lack the explicit protections for small- and medium-sized farms and for Disadvantaged Communities .



# The role of state agencies

*“The State has a role to play in ensuring that groundwater management broadly, and groundwater trading more specifically, complies with the intent of SGMA.”*

**Transfers require oversight. Agencies should ensure that transfers of pumping comply with the intent of SGMA**

**Agencies should follow through on *Next Steps* identified by the Water Commission**

- Create well-defined oversight mechanisms and conduct SGMA-related oversight
- Engage and support vulnerable water users, especially small- and medium sized farms and DACs
- Incentivize well-managed groundwater trading programs by providing funding for GSAs who follow best practices

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