How your involvement can help improve our collective understanding of local groundwater hydrology.

SGMA encourages a bottoms-up, stakeholder driven planning process, relying on the reporting from farmers, landowners and other stakeholders. The information collected at the local level adds up to make a big difference.

Good Local Information

The SGMA planning process relies on good local data to understand the groundwater basin and hydrology. Data on groundwater levels, stream flows, and irrigation patterns can all contribute to a better conceptual model of your basin and will help ensure effective management and continued availability of groundwater over time.

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Good SGMA Modeling Tools

Modeling tools are an essential component of the SGMA process. These tools will rely on local data. It is important that local stakeholders assist in the development of these tools so that the output can be trusted. The tools can be used to inform the effectiveness of various management options and ensure the legal and technical adequacy of a local plan.

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A Foundation For a Good GSP

A solid foundation of local information and output from modeling tools leads to well-informed decisions regarding management strategies, sustainable criteria and other important Groundwater Sustainability Plan (GSP) outcomes.

The California Farm Bureau developed this resource to assist farmers and landowners in understanding the concepts and terminology of groundwater hydrology that are important to the Sustainable Groundwater Management Act.

This brochure is a companion to the Farm Bureau's earlier publication titled: *California's Sustainable Groundwater Management Act (SGMA): Understanding the Law.* We suggest using these documents in tandem to provide an overview of the legal and technical underpinnings of SGMA.

Local information is needed to develop effective sustainability plans.

The balancing act required to develop effective Groundwater Sustainability Plans relies on the participation of farmers, landowners and other stakeholders to provide reliable and accurate local information. Shared understanding of the characteristics and functioning of your local groundwater basin is vital. **This is only achievable through your involvement.**

What types of local data are most important to the SGMA process?

- Groundwater elevations
- Well logs
- Farming practices
- Local stream flow conditions

This data will be used to create modeling output which will inform your Groundwater Sustainability Agency with historic, current and projected conditions. Local farmer and landowner involvement in ground truthing the validity of these modeling outputs is very helpful.

To learn more

Department of Water Resources
SGMA portal at:
sgma.water.ca.gov/portal

Groundwater Exchange
groundwaterexchange.org

California Farm Bureau Federation
www.cfbf.com

California Farm Bureau Federation | www.cfbf.com | Phone: 916-561-5570

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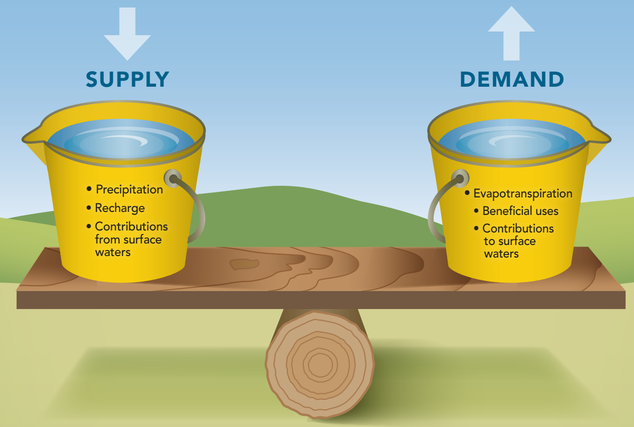
CALIFORNIA FARM BUREAU FEDERATION

California's Sustainable Groundwater Management Act (SGMA): Groundwater Hydrology



Groundwater supply and demand is a balancing act.

At the core of SGMA is the need to manage supply and demand, creating groundwater conditions that are sustainable over the long term, protecting beneficial users.

How does this impact my farm and community?

How does understanding my local groundwater hydrology contribute?

What type of local information is important?

Water Budget

An accounting of all the water that flows into and out of a project area.

Groundwater basins operate like a bank account. Landowners and water users in a basin all draw from the same "account." The goal is to balance the debits and credits, not draw down the principal. In some basins, we have depleted our groundwater "principal" by pumping more than what has been replenished.

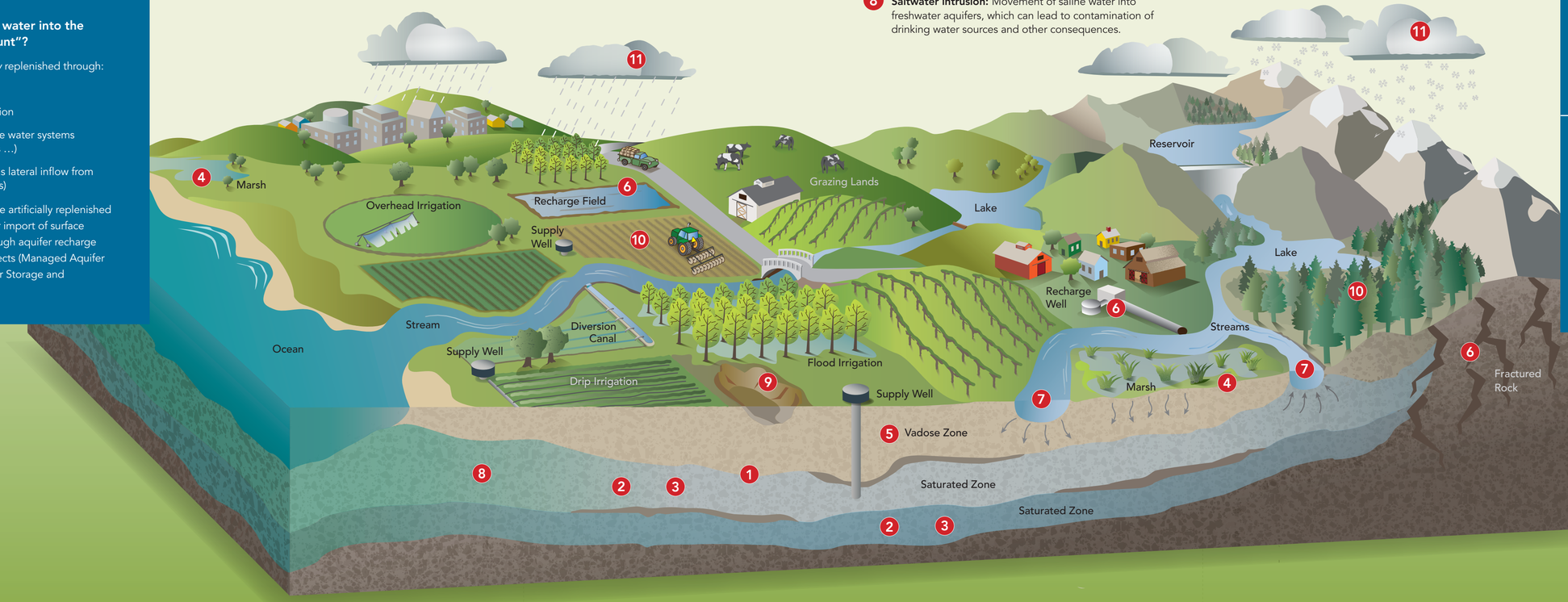
How do we deposit water into the groundwater "account"?

Groundwater is *naturally* replenished through:

- Precipitation
- Infiltration from irrigation
- Infiltration from surface water systems (rivers, lakes, channels …)
- Groundwater inflow (as lateral inflow from neighboring subbasins)

Groundwater can also be artificially replenished through the diversion or import of surface water supplies and through aquifer recharge and replenishment projects (Managed Aquifer Recharge (MAR), Aquifer Storage and Recovery (ASR)).

1. **Water table:** The upper surface of the saturated zone; i.e. all soil pores are filled by water.
2. **Groundwater:** Water available in the saturated zone below the water table is called groundwater.
3. **Aquifer:** An aquifer is a body of saturated rock or sediment underneath the water table, where groundwater exists. Aquifers are permeable and porous.
4. **Infiltration:** The process of water on the ground surface entering the soil.
5. **Vadose zone:** The underlying, unsaturated earth material extending downward from the soil surface to where the soil becomes saturated; i.e. all soil pores are filled by water.
6. **Recharge/replenishment:** The process of water moving downward through the soil or fractured rock. It can happen naturally to an aquifer, or artificially.
7. **Gaining/losing streams:** When a stream reach is gaining, the groundwater moves from the ground into the channel. When a stream reach is losing, water moves from the channel into the aquifer.
8. **Saltwater intrusion:** Movement of saline water into freshwater aquifers, which can lead to contamination of drinking water sources and other consequences.
9. **Subsidence:** Lowering of the land-surface elevation due to changes that take place underground, such as lowering of groundwater levels.
10. **Evapotranspiration:** The sum of evaporation from the land surface plus transpiration from plants. Put simply, evaporation occurs when water vapor leaves the soil or a plant's surface. Transpiration involves the passage of water through a plant, from its roots through its vascular system.
11. **Precipitation:** Rain, snow, sleet or hail that falls to the ground.



Withdrawals from the groundwater "account" happen in various ways:

- Groundwater use/extractions:
  - Irrigation
  - Public supply for drinking water in cities and towns
  - Industrial uses
  - Domestic and livestock purposes
  - Natural ecosystems
- Subsurface groundwater outflows
- Groundwater discharge to surface water systems

SGMA will lead to new actions to manage groundwater: To be involved with SGMA, you need to understand the terminology of how groundwater works and how it is sustained.

Under SGMA, local Groundwater Sustainability Agencies (GSAs) use the water budget to define "sustainable yield" — an amount that is locally defined and avoids undesirable results.