



# Sustainable Groundwater Management Terminology Sheet

## Agency Acronyms:

<b>BCWRC</b>	Butte County Department of Water and Resource Conservation
<b>Cal Water</b>	California Water Service
<b>CDFW</b>	California Department of Fish and Wildlife
<b>CNRA</b>	California Natural Resources Agency
<b>CSUC</b>	California State University, Chico
<b>DID</b>	Durham Irrigation District
<b>DWR</b>	California Department of Water Resources
<b>RCRD</b>	Rock Creek Reclamation District
<b>SHAC</b>	Vina Subbasin Stakeholder Advisory Committee
<b>SWRCB</b>	State Water Resources Control Board
<b>TWD</b>	Tuscan Water District

**Acre-Foot (AF)** – a unit of volume that measures the amount of water needed to cover one acre of land to a depth of one foot. It’s approximately 326,000 gallons, or enough water for two families of four for one year. Groundwater pumping in the Vina Subbasin averages 243,500 AF per year, supplying water for agriculture, municipal use, and industry.

**Aquifer** - a geological formation or group of formations capable of storing, transmitting, and yielding significant quantities of groundwater. In the Vina Subbasin, the primary source of groundwater is the Tuscan Aquifer, a large, productive volcanic aquifer system that supplies water for municipal, agricultural, and domestic use. The Tuscan Aquifer’s characteristics—such as high permeability and storage capacity—make it vital for regional groundwater sustainability efforts.

**Annual Report (AR)** – provides information on groundwater conditions and implementation of the Groundwater Sustainability Plan for the prior water year; submitted to the Department of Water Resources by April 1 of each year.

**Basin or Subbasin** – refers to an aquifer or a series of aquifers within a boundary; geographic management areas under the Sustainable Groundwater Management Act that are defined in the Department of Water Resources’ California Groundwater Bulletin 118.

**Bylaws** - The formal rules and procedures adopted by an organization to govern its operations, decision-making processes, and management structure. The Vina GSA’s Bylaws define the responsibilities of Member Agencies, committee roles, voting protocols, meeting procedures, and other governance details to ensure compliance with the Groundwater Sustainability Plan and the Sustainable Groundwater Management Act (SGMA).

**Cost Share Agreement** - a formal arrangement outlining the distribution of costs among participating agencies or stakeholders for implementing projects, studies, or management actions. In the Vina Subbasin, cost share agreements may be used to fund monitoring efforts, data collection, or infrastructure improvements that support groundwater sustainability.

**Data Gap** – a lack of information or missing data regarding the characteristics and conditions of a specific groundwater basin, which limits the ability to accurately assess its water availability, quality, and sustainability, potentially hindering effective management decisions related to the basin. In the Vina Subbasin, key data gaps identified in the GSP include domestic well depths, water quality trends, and surface water-groundwater interactions. The Vina GSA aims to address these gaps through well surveys, increased water quality sampling, and expanded monitoring networks.

**De Minimis Extractor** – a groundwater user who extracts fewer than two feet per year.

**Groundwater Dependent Ecosystem (GDE)** – ecological communities or species that depend on groundwater emerging from aquifers or occurring near the ground surface. In the Vina Subbasin, these ecosystems are primarily found in areas where vegetation depends on shallow groundwater and along streams and creeks with direct groundwater connections. Ongoing evaluation is needed to fully assess their extent due to limited shallow groundwater monitoring.

### Other Acronyms in Water

<b>AEM</b>	<b>Airborne electromagnetic</b>
<b>AFY</b>	<b>Acre-feet per year</b>
<b>BGS</b>	<b>Below ground surface</b>
<b>BMP</b>	<b>Best management practice</b>
<b>CASGEM</b>	<b>California Statewide Groundwater Elevation Monitoring</b>
<b>CEQA</b>	<b>California Environmental Quality Act</b>
<b>CFS</b>	<b>Cubic feet per second</b>
<b>DAC</b>	<b>Disadvantaged Community</b>
<b>DMS</b>	<b>Data management system</b>
<b>GIS</b>	<b>Geographical information systems</b>
<b>IRWM</b>	<b>Integrated regional water management</b>
<b>JPA</b>	<b>Joint powers authority or agreement</b>
<b>MOU</b>	<b>Memorandum of understanding</b>
<b>NCCAG</b>	<b>Natural communities commonly associated with groundwater</b>
<b>NEPA</b>	<b>National Environmental Policy Act</b>
<b>SDAC</b>	<b>Severely disadvantaged community</b>
<b>TAF</b>	<b>Thousand acre-feet</b>
<b>WMP</b>	<b>Water master plan</b>
<b>WCR</b>	<b>Well completion report</b>

**Sustainability Indicator (SI)** – any of the effects caused by groundwater conditions that, when significant and unreasonable, cause undesirable results: chronic lowering of groundwater levels, groundwater storage reduction, groundwater quality degradation, land subsidence, seawater intrusion, and depletion of interconnected surface water. In the Vina Subbasin, key concerns include declining groundwater levels, groundwater quality issues, and depletion of surface water connections, while seawater intrusion is not a risk. The Vina GSA tracks these indicators through groundwater level measurements, storage assessments, water quality sampling, and land subsidence monitoring to ensure long-term sustainability.

**Sustainable Management Criteria (SMC)** – collectively refers to a basin’s Sustainability Goal, Undesirable Results, Minimum Thresholds, and Measurable Objectives for each sustainability indicator. Together these are the criteria by which the plan defines conditions that constitute sustainable groundwater management for the basin. In the Vina Subbasin, SMCs are tailored to address local concerns, including declining groundwater levels and interconnected surface water depletion. The Vina GSP establishes specific thresholds and objectives to track progress and ensure long-term groundwater sustainability.

**Sustainable Yield (SY)** – maximum amount of water, calculated over a base period representative of long-term conditions in the basin, that can be withdrawn annually from a groundwater supply without causing an undesirable result. The SY is estimated by assessing the pumping reduction needed to halt long-term groundwater level declines. Historical data for the Vina Subbasin shows an average annual storage loss of 20,000 AFY from 2000–2018, largely due to increased pumping in dry years. Achieving sustainability by 2042 will require managing extractions and implementing projects to stabilize water levels.

**Undesirable Results** – one or more of the following effects caused by groundwater conditions occurring throughout the subbasin: significant and unreasonable 1) chronic lowering of groundwater levels, 2) groundwater storage reduction, 3) groundwater quality degradation, 4) land subsidence, 5) seawater intrusion, or 6) depletion of interconnected surface water. Key concerns in the Vina Subbasin include declining groundwater levels, groundwater storage loss, and depletion of surface water, while seawater intrusion is not a risk. The Vina GSP defines specific thresholds for each indicator to prevent undesirable results and ensure long-term sustainability.

**Water Budget** – an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin and the change in volume of water stored.

**Water Table** – the upper boundary of the underground zone where soil and rock are completely saturated with water, essentially marking the line between the unsaturated zone above and the saturated zone below; it represents the level at which groundwater can be found below ground surface, and its depth can fluctuate depending on rainfall and other factors.

**Water Year (WY)** – the period between October 1 and September 30 of the next year (i.e., Water Year 2023 starts October 1, 2022, and ends September 30, 2023).

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**Groundwater Level** - The depth at which groundwater is found below the surface, typically measured in wells. Groundwater levels fluctuate due to factors such as recharge, pumping, seasonal variations, and long-term climate patterns. The Vina GSA tracks 17 representative monitoring sites or wells to track changes and ensure groundwater levels remain above the minimum thresholds outlined in the Groundwater Sustainability Plan (GSP).

**Groundwater Recharge** – the natural or artificial replenishment of water into underground aquifers.

**Groundwater Storage** - The total volume of water contained in the pore spaces of soil and rock within a groundwater basin. Storage changes over time due to recharge, pumping, and natural discharge to surface water. The Vina GSA tracks storage trends to prevent long-term depletion and ensure sustainable groundwater use.

**Groundwater Sustainability Agency (GSA)** – a local agency formed to sustainably manage groundwater according to the Sustainable Groundwater Management Act. More than one GSA may exist in one basin/subbasin and a GSA may oversee more than one basin.

**Groundwater Sustainability Plan (GSP or Plan)** – a comprehensive roadmap developed by a Groundwater Sustainability Agency (GSA) or a coalition of GSAs to achieve and maintain long-term groundwater sustainability within a basin. The plan outlines Measurable Objectives, management actions, and milestones, and its implementation is monitored by the Department of Water Resources.

**Interim Milestone (IM)** – A five-year target in the Vina Groundwater Sustainability Plan (GSP) used to track progress toward Measurable Objectives. The Vina Subbasin evaluates IMs by tracking 17 representative sites to ensure groundwater levels remain above minimum thresholds, tracking storage changes to meet sustainability goals, and assessing 8 water quality sites to prevent degradation.

**Inter-basin Coordination** – coordination efforts between multiple agencies that share a boundary between hydrologically connected basins/subbasins. The Vina Subbasin coordinates with 11 neighboring subbasins in the Northern Sacramento Valley, including Butte, Colusa, Corning, Los Molinos, and Red Bluff. Efforts focus on information sharing, joint analysis of Groundwater Sustainability Plans, coordinated projects, and regional outreach.

**Interconnected Surface Water (ISW)** – a term used to describe surface water bodies, such as rivers and streams, that are connected to groundwater through a saturated zone. In the Vina Subbasin, ISWs include certain reaches of Big Chico Creek, Butte Creek, and the Sacramento River, though many upland creeks become disconnected during dry periods.

**Joint Powers Agreement (JPA)** – A legally binding agreement between public agencies to collaborate and share powers for common goals. The Vina Groundwater Sustainability Agency (GSA) was formed through a JPA, outlining the roles of its Member Agencies—City of Chico, County of Butte, and Durham Irrigation District—in jointly managing groundwater, implementing the Groundwater Sustainability Plan (GSP), and ensuring compliance with the Sustainable Groundwater Management Act (SGMA).

**Low, Medium, or High Priority Basin** – categories used to classify basins by level of groundwater dependence and determine the Sustainable Groundwater Management Act requirements. The Vina Subbasin is designated as a High-Priority Basin, requiring the formation of a Groundwater Sustainability Agency (GSA) and the development of a Groundwater Sustainability Plan (GSP).

**Management Area** – defined areas of a basin based on differences in water use sector source, geology, aquifer characteristics or other factors; used for groundwater management and monitoring. The Vina Subbasin includes three Management Areas: Vina North, Vina Chico, and Vina South, each with unique water demands, well characteristics, and recharge sources.

**Measurable Objective (MO)** – a basin’s quantifiable goal for the maintenance or improvement of specified groundwater conditions (ex. groundwater levels, water quality) as defined in its Groundwater Sustainability Plan to achieve the sustainability goal for the basin. MOs for the Vina Subbasin are based on historical groundwater trends and extended projections, ensuring sustainability by 2042. They apply to groundwater levels, water quality, and land subsidence and are monitored through 17 representative monitoring sites (RMS) for groundwater levels and 8 RMS for water quality.

**Member Agency** - A public agency with responsibilities for water supply, management, or land use, working within the Vina GSA to implement the Groundwater Sustainability Plan (GSP) under the Sustainable Groundwater Management Act (SGMA). Member Agencies include the City of Chico, County of Butte, and Durham Irrigation District.

**Memorandum of Understanding (MOU)** - A formal but non-binding agreement that outlines the roles, responsibilities, and mutual understanding between parties collaborating on shared objectives. The Vina GSA has MOUs with multiple agencies to establish cooperative frameworks for groundwater sustainability efforts.

**Monitoring Network** – groundwater wells that have been identified for regular testing to measure groundwater conditions including groundwater levels or water quality. They could be dedicated wells with no pump or could be a well for agricultural irrigation or household supply. There are five monitoring networks in the Vina Subbasin: a representative network for water levels; a broad network for water levels; a representative network for water quality; a broad network for water quality; and a broad network for land subsidence.

**Minimum Threshold (MT)** – a numeric value for each sustainability indicator used to define the conditions for which undesirable results occur. In the Vina Subbasin, MTs were established based on historical groundwater trends, domestic well depths, and stakeholder input, ensuring groundwater conditions remain above critical thresholds.

**Overdraft** – when the amount of groundwater pumped from a basin is greater than the inflows of water (i.e. from rainfall, streams, recharge activities) to the basin. Severe overdraft can cause undesirable results. In the Vina Subbasin, historical trends show a gradual decline in groundwater levels since 2000, with overdraft estimated at approximately 20,000 acre-feet per year (AFY) on average. Projects and management actions outlined in the Groundwater Sustainability Plan (GSP) aim to offset this imbalance and achieve sustainability by 2042.

**Condition of Long-term Overdraft** – the condition of a groundwater basin where the average annual amount of water extracted for a long-term period, generally 10 or more years, exceeds the long-term average annual supply of water to the basin. Groundwater storage in the Vina Subbasin has an average annual decline of 20,000 AFY from 2000 to 2018, with levels dropping further during dry years. While total storage remains significant, continued overdraft could lead to deeper wells and sustainability challenges.

**Periodic Evaluation** – a written assessment of whether the Groundwater Sustainability Plan implementation is meeting the sustainability goal in the basin. The evaluation is prepared by the Groundwater Sustainability Agency(s) and submitted to the Department of Water Resources at least every five years or any time the GSP is amended. The Vina Subbasin GSP was approved in 2023 and is scheduled for its first periodic evaluation by 2027.

**Plan Amendment** – formalized changes to a Groundwater Sustainability Plan adopted by the Groundwater Sustainability Agency and submitted to the Department of Water Resources for evaluation and consistency with requirements of the Sustainable Groundwater Management Act. A plan amendment requires submission of a Periodic Evaluation.

**Projects and Management Actions (PMA)** – Actions and policies identified in the Vina Groundwater Sustainability Plan to achieve groundwater sustainability. The Vina Subbasin's PMAs include projects to increase recharge, enhance water conservation, and improve monitoring, along with management actions to reduce groundwater demand and address data gaps. PMAs are categorized as Planned, Potential, or Conceptual, depending on their implementation stage.

**Representative Monitoring Site (RMS)** – part of a basin’s monitoring network used to assess and characterize groundwater conditions and for which Minimum Thresholds/Measurable Objectives are defined. The Vina Subbasin has 17 representative monitoring wells for groundwater levels and 8 RMS for water quality. RMS data is reported to the Department of Water Resources in Annual Reports and submitted to the state’s online portal.

**Saturated Zone** – the layer of soil or rock beneath the ground where all the pore spaces are completely filled with water, essentially meaning it is completely saturated with groundwater; the saturated zone is an aquifer, the upper boundary of this zone is called the water table. In the Vina Subbasin, the saturated zone supplies water for municipal, agricultural, and domestic use. Its depth fluctuates due to seasonal recharge, groundwater pumping, and drought conditions, making it a key focus of groundwater management.

**Subsidence** - The gradual sinking or settling of the land surface due to the compaction of underground materials, often caused by excessive groundwater extraction. In the Vina Subbasin, permanent subsidence has not been an issue, as monitoring data indicate minimal land surface changes. However, continued groundwater management is essential to prevent potential impacts on infrastructure and water resources.

**Sustainable Groundwater Management Act (SGMA)** – the 2014 legislation that set forth a statewide framework requiring local agencies to form a Groundwater Sustainability Agency for applicable basins to develop and implement Groundwater Sustainability Plans to sustainably manage their local groundwater resources to avoid undesirable results and mitigate overdraft.

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