11 Groundwater Supply Sustainability

11.1 Introduction

The State defines sustainable groundwater management as "management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results" {Water Code § 10721(u)}. "Undesirable results" are defined as any chronic lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, degraded water quality, land subsidence and depletions of interconnected surface waters. The current drought has increased Californians' awareness of groundwater management issues. Zone 7 has been sustainably managing the Livermore Valley's groundwater storage and use for over 40 years. In this section, those groundwater management activities and their results are reviewed with regard to long-term sustainability of the basin's groundwater supply. The sustainability of groundwater quality is discussed in the next section (*Section 12*).

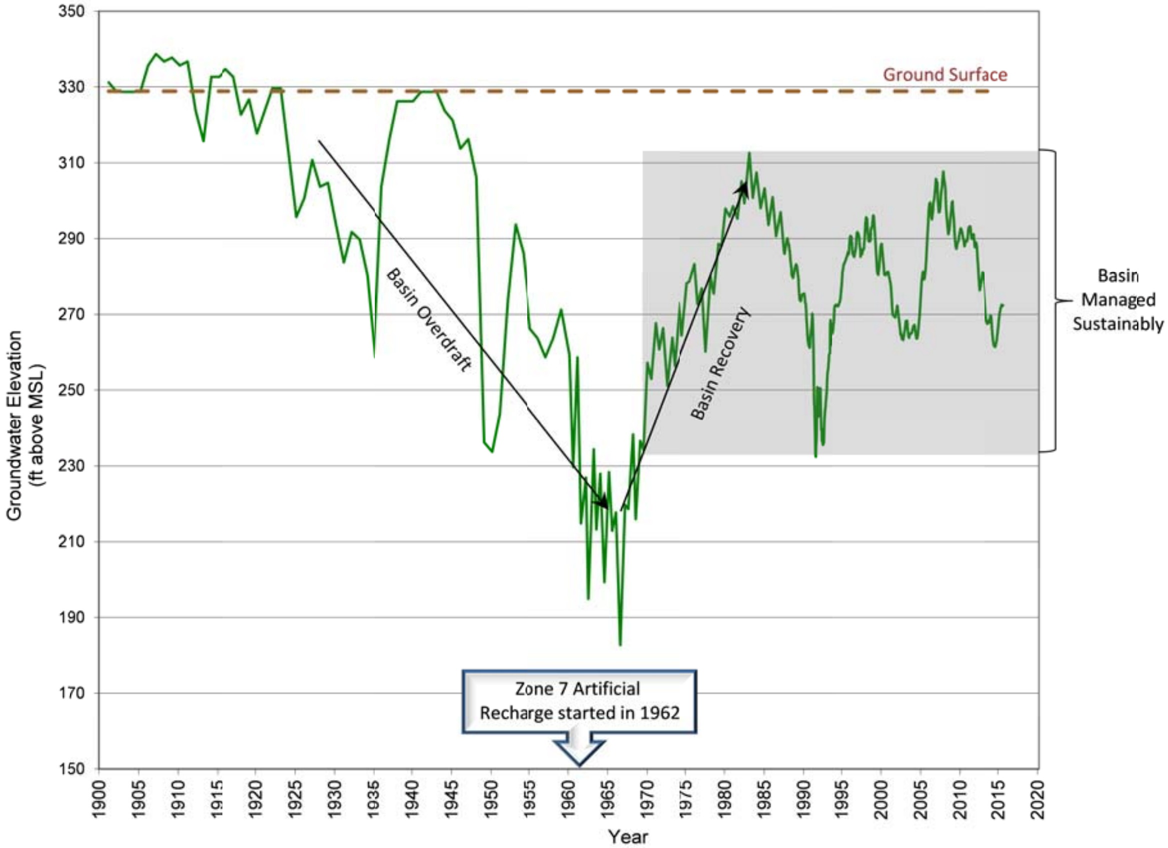
11.2 Historical Water Levels

Historically, much of the Main Basin experienced artesian conditions. In the late 1800s, the pre-development groundwater levels in the basin created a gradient, causing groundwater to flow from east to west and naturally exit the basin as surface outflow into the Arroyo de la Laguna. In the early and mid-1900s, groundwater began to be extracted in appreciable quantities, causing groundwater levels to drop throughout the basin. As a result, groundwater levels dropped below the point where groundwater would naturally outflow into the Arroyo de la Laguna, and continued to drop significantly during the 1940s and 1950s.

Zone 7 was established in 1957 partially to address the water supply overdraft. The downward trend in groundwater elevation began to reverse in 1962 when Zone 7 began importing water from the State Water Project (SWP) and later in the 1960s when Zone 7 began capturing and storing local runoff in Lake Del Valle. The first imports were diverted to an off-stream recharge facility called Las Positas Pit. This facility was operated from 1962 until the late 1970s and again, briefly, in the 1980s. Thus, after experiencing historical groundwater lows in the 1960s, Main Basin water levels stabilized in the late 1960s and started to rise in the early 1970s with the advent of regional groundwater management programs (see *Figure 11-A*). Following a 'very critical dry' year in 1977, groundwater levels continued to recover and peaked in 1983 establishing the modern "basin full" limit to the "Sustainable Operational Storage Range" (see *Section 5.1.1*).

Since 1983, water levels have been drawn down three separate times in response to times of limited water importation from the State Water Project; but none of them reached the managed lower limit (i.e., Historical Low). Groundwater levels were subsequently recovered following the first two episodes through Zone 7's managed aquifer recharge operations (aka "artificial recharge") and its reduction in groundwater production. The most recent episode was the 2012-2015 drought, and its recovery is just beginning in the 2016 WY.

Figure 11-A: Groundwater Basin Management: Historical Groundwater Elevations at Fairgrounds Key Well



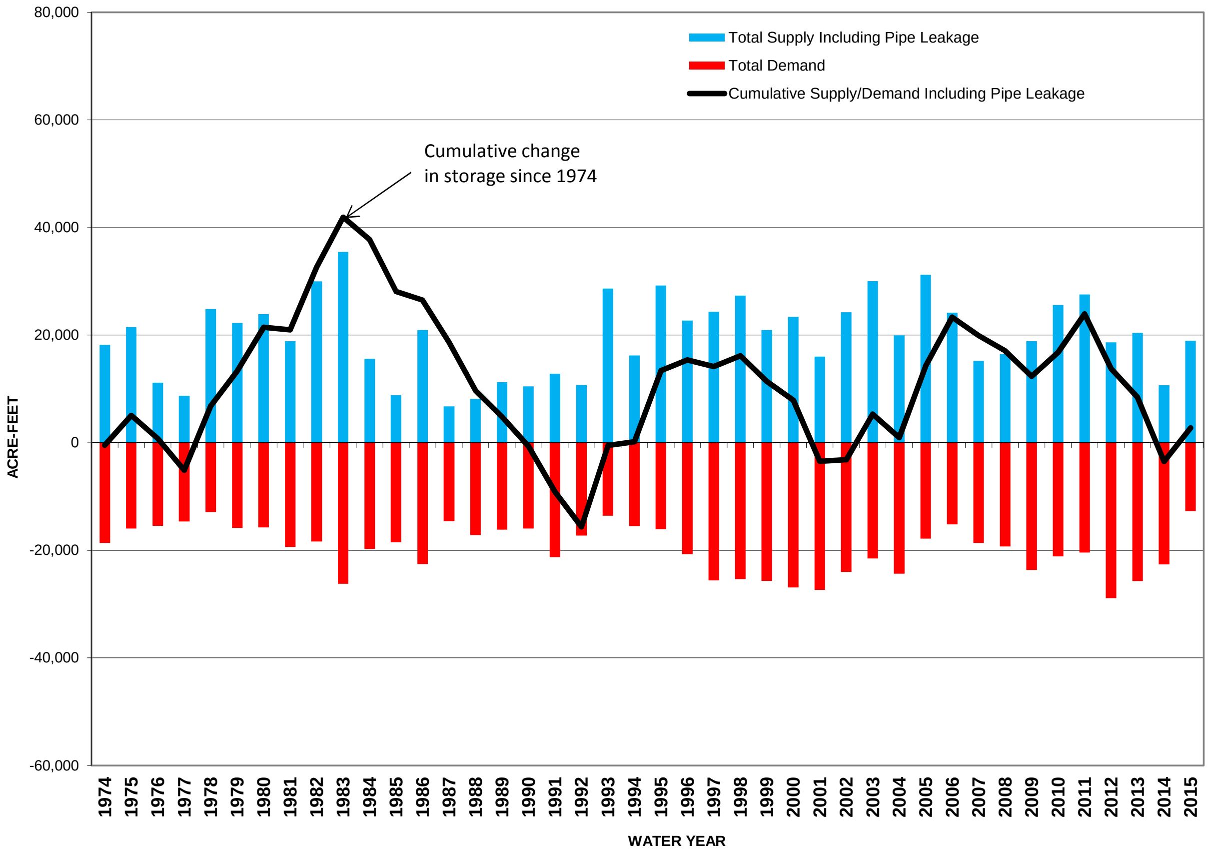
11.3 Sustainable Groundwater Management

Zone 7 is sustainably managing the Livermore Valley Groundwater Basin through numerous interrelated policies and programs to assess, manage, monitor, and protect the groundwater supply. In 2005, Zone 7 compiled and documented its groundwater management policies, objectives, and programs in its GWMP for Livermore Valley Groundwater Basin. Since then, Zone 7 has been generating annual reports that appraise the conditions of the basin and update the policies and objectives first outlined in the GWMP. Zone 7 adaptively manages its groundwater supply with regard for current hydrologic conditions (see *Section 10.2.3*), water demands (*Section 10.2.4*), water quality conditions, and future water supply/demand forecasts. More specifically, Zone 7 maintains the sustainability of the groundwater basin by:

- Monitoring the long-term natural groundwater budget (inflow described in *Section 11.4.2.1* and outflow described in *Section 11.4.2.2*),
- Importing, artificially recharging, and banking surface water to meet future demands (described in *Section 11.4.3.1*),
- Implementing a conjunctive use program that maximizes use of the storage capacity of the groundwater basin (described in *Section 11.4.3.3*),
- Limiting long-term groundwater pumping to sustainably manage the basin (described in *Section 11.4.3.2*),
- Maintaining sustainable long-term groundwater storage volumes, even when total outflows exceed the natural sustainable supply (see *Section 11.4.3.3*),
- Promoting increased and sound recycled water use (*Section 8.2*), and
- Identifying and planning for future supply needs and demand impacts (*Section 9*). This is often performed using Zone 7's groundwater model of the basin (*Section 11.5*).

Figure 11-B below shows the net results of Zone 7's groundwater supply management activities since 1974 for the Main Basin. As demonstrated by the graph, any given year may have an imbalanced inflow and outflow, but with proper management, long-term sustainability is achievable; in this case, for 42 years. The sustainability for each supply and demand component is discussed in the next section (*Section 11.4*)

Figure 11-B: Groundwater Inflows and Outflows since 1974



11.4 Groundwater Budget Components

11.4.1 Introduction

Groundwater inflows and outflows for the basin are divided into two budget categories:

- **Natural Sustainable Yield –** The Main Basin's "natural" sustainable groundwater yield (formerly referred to as the "safe yield") is the amount of water that can be pumped from the groundwater basin on average and replenished by long-term average natural supply (local runoff, precipitation, etc.). Natural groundwater inflow consists of recharge that is independent of Zone 7's activities (e.g., rainfall, applied water for irrigation, natural stream recharge, and subsurface inflow). Groundwater pumping by non-Zone 7 entities (by retailers, agriculture, or domestic use), mining area losses (e.g. pond evaporation, mining exports), and subsurface outflow are assigned to this sustainable water supply.

- **Zone 7 Groundwater Pumping and Recharge** – Zone 7's groundwater pumping is assigned to the supplies it imports and recharges into the groundwater basin. Although Zone 7 generally pumps groundwater every year, it typically pumps more groundwater when imported water supplies are limited (e.g., typically during the summer and "dry" hydrological years), and artificially recharges more water when surplus surface water imports are available ("conjunctive use").

11.4.2 Natural Sustainable Yield

11.4.2.1 Natural Groundwater Inflow

The Main Basin's "natural" groundwater inflow consists of the components listed in *Figure 11-C*. The long-term average, natural groundwater inflow into the Main Basin was originally estimated in 1968 to be about 18,000 AF for the entire groundwater basin (including the Fringe Basins) and about 15,400 AF just for the Main Basin. Subsequent analyses led to a revised estimate of about 13,400 AF annually for the Main Basin (*Zone 7, 1992*). This long-term average is primarily based on local precipitation and natural recharge over a century of hydrologic records and projections of future recharge conditions; however, the actual amount of natural recharge varies from year to year depending on the amount of local precipitation and irrigation during the year. Applied water (irrigation) recharge is also included in the "natural" inflow, because of its steady sustainable contribution to groundwater recharge.

For the 2015 WY, the recharge attributed to the natural groundwater inflow was about 13,186 AF, approximately 98% of the average (*Figure 11-C*).

Figure 11-C: Natural Groundwater Inflow Components

SUPPLY COMPONENT	**2015 WY (AF)**	**Sustainable Yield Estimate (AF/Yr)***
Natural Stream Recharge	6,822	5,700
Arroyo Valle Prior Rights	0	900
Rainfall Recharge	3,735	4,300
Applied (Irrigation) Water Recharge	1,629	1,600
Subsurface Groundwater Flow	1,000	900
Subsurface Inflow	*1,000*	*1,000*
Basin Overflow	*0*	*-100*
TOTAL	13,186	13,400

* as calculated in *Zone 7, 1992*

11.4.2.2 Natural Groundwater Outflow/Demand

The Main Basin's outflow/demand components assigned to the natural groundwater inflow are shown in *Figure 11-D*. As a routine, Zone 7 monitors each demand component and checks whether it is within the acceptable long-term average:

Figure 11-D: Natural Sustainable Yield Demand Components

DEMAND COMPONENT	2015 WY (AF)	Sustainable Yield Estimate (AF/Yr)*
Municipal pumping by Retailers	5,432	7,214**
City of Pleasanton	*2,775*	*3,500***
California Water Service	*2,012*	*3,069***
*DSRSD**	*645*	*645***
Other pumping for potable supply	932	1,186
Agricultural pumping	590	400
Mining Area Losses	3,843	4,600***
TOTAL	10,797	13,400

* as calculated in *Zone 7, 1992*
** Retailer Groundwater Pumping Quota (GPQ) for a Calendar Year
*** Remainder of total Sustainable Yield for Demand to equal Natural Supply

As a condition to the water supply contracts that Zone 7 has with its retailers, each retailer is limited to an annual independent Groundwater Pumping Quota (GPQ), which is generally based on average historical uses and is pro-rated based on the agreed upon natural sustainable yield of the groundwater basin. Together, the retailers are permitted to pump a total average of 7,214 AF annually per calendar year without paying recharge fees to Zone 7. Averages are maintained by allowance of "carry-overs" when less than the average is used in a given year. A retailer must pay a "recharge fee" for all groundwater pumped exceeding their GPQ, unless the retailer has sufficient carry-over credit from a previous year of un-pumped GPQ allocation. Such carryover is limited to 20% of the GPQ. This practice helps avoid over-drafting of the basin by the larger municipal users.

The sustainable yield estimates for other groundwater pumping (for potable supply or agriculture) are based on long-term averages and/or current trends. The sustainable yield volume for mining area losses (4,600 AF) takes up the remainder of the sustainable yield total of 13,400 AF. Mining Area discharges diverted to other ponds are not considered as losses (*Section 10.2.4.3*).

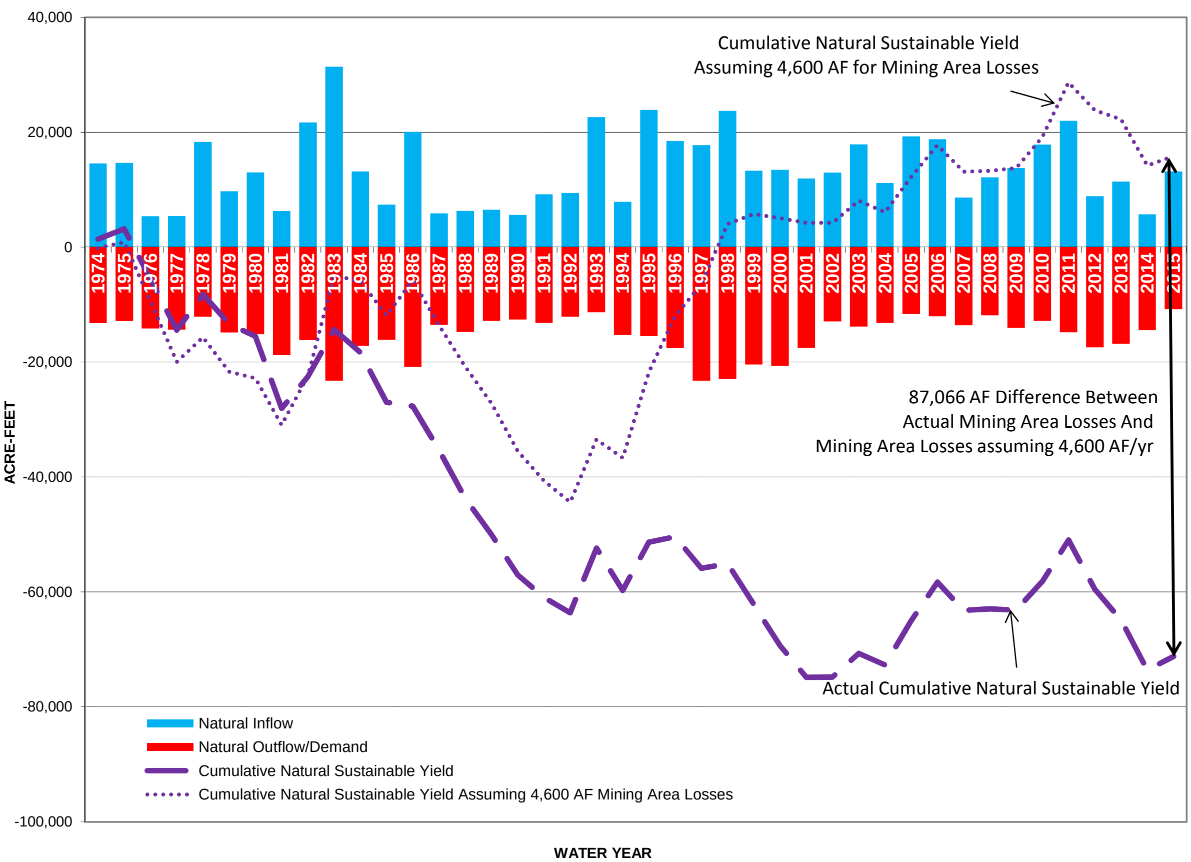
For the 2015 WY, the estimated total for these demand components was 10,797 AF; or approximately 81% of long-term sustainable yield of 13,400 AF. The two largest contributors to the demand component were municipal pumping by the retailers and mining area losses which is typical. *Figure 11-E* below shows the annual inflow and outflow totals assigned to the Natural

Sustainable Yield and the cumulative net of inflow and outflow components since 1974. Excess mining losses during that time account for most of the net loss shown by the "actual cumulative" plot.

11.4.2.3 Mining Area Sustainability

The capture and subsequent recharge of Vulcan's dewatering activity discharges in 2015 WY (*Section 10.2.4.3*), kept the total Mining Use losses (3,843 AF) lower than the assigned sustainable yield estimate (4,600 AF) for the first time since 2003. However, excess Mining Use losses that occurred during the periods 1980-1986, 1994-2001 and 2009-2014 have contributed to an -87,066 AF difference between the actual cumulative net 'Natural Yield' components and that that would have occurred if the annual mining losses averaged only 4,600 AF/yr, and to a 71,218 AF deficit of in the net of the 'Natural Yield' (inflow minus outflow) since 1974 (see *Figure 11-D*). All of this 'Natural Yield' deficit was made up for by Zone 7's surplus artificial recharge (52,842 AF) and incidental 'Pipe Leakage' (21,140 AF).

Figure 11-E: Long-Term Natural Sustainable Yield

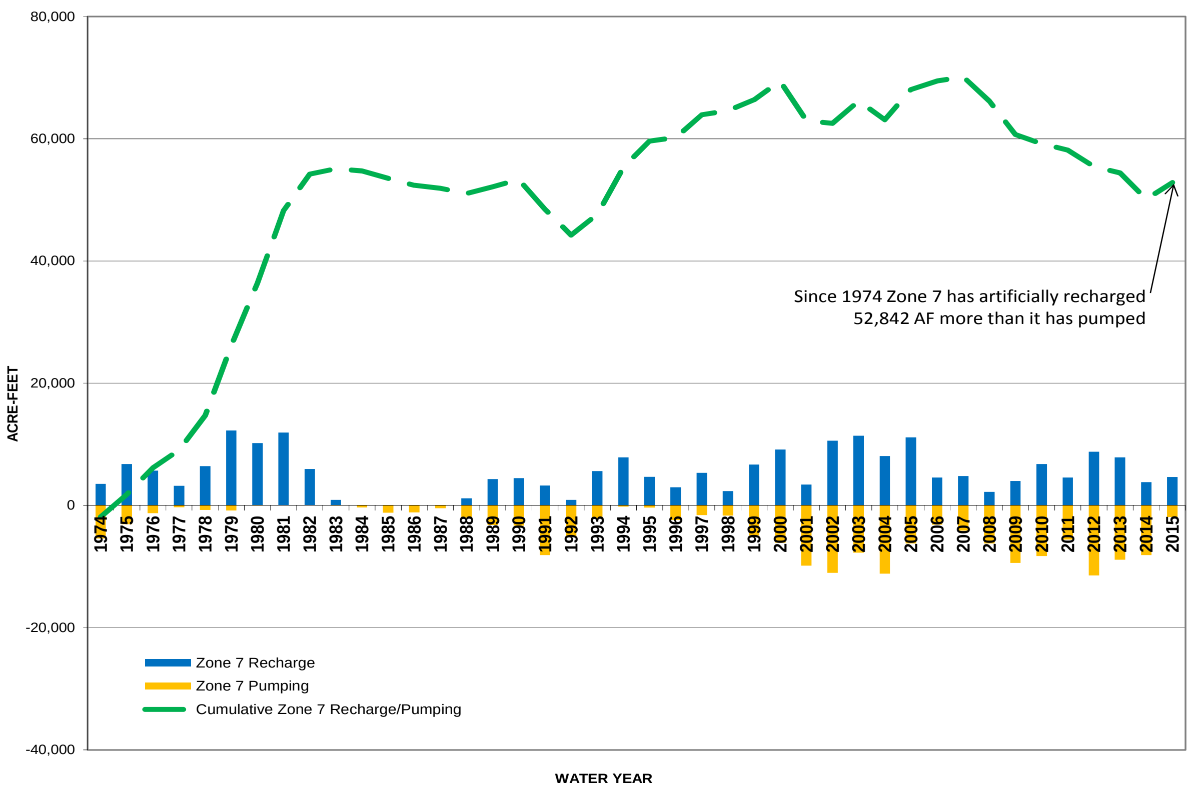


Future Mining Area losses will likely continue to be less than 4,600 AF/yr in the immediate future as most mining releases are now being captured and re-percolated in various mining area ponds (*Sections 4.3* and *10.2.4.3*). Mining Area dewatering operations may ramp up in the mid-term as several of the active pits are being deepened which may lead to an increase of evaporative losses, depending on the storage of the additional discharges. All dewatering operations are expected to cease altogether when aggregate reserves have been sufficiently depleted and extraction are halted; currently anticipated by 2058.

11.4.3 Zone 7 Supply and Demand

The sustainability of Zone 7's groundwater pumping is dependent on its 'Artificial Recharge' program. The 'Artificial Recharge' operation is in turn dependent on Zone 7's annual SWP allocations and resource plans. Typically, Zone 7 will commence 'Artificial Recharge operations during times of surplus import water availability. Since 1974, Zone 7 has artificially recharged over 52,800 AF more water than it has pumped. The annual put and takes are depicted on *Figure 11-F* below along with the cumulative net results. Additional information on Zone 7's import water availability, groundwater pumping and 'Artificial Recharge' operations are contained in the following sections.

Figure 11-F: Long-Term Zone 7 Recharge/Pumping



11.4.3.1 Imports and Surface Water Supplies

Zone 7 ensures that local water supplies (e.g., groundwater) are not depleted by importing approximately 75% of the Valley's water supply (delivered to Zone 7's retailers and agricultural customers) and recharging the Main Basin with surplus surface water when available (artificial recharge). These surplus surface water supplies, which are accounted for by calendar year, come from the following sources:

- **State Water Project (SWP deliveries via the South Bay Aqueduct [SBA])** - As a SWP contractor, Zone 7 imports supplies from the SWP through the SBA. As of 1998, Zone 7 has had an annual maximum SWP contract amount of 80,619 AF/yr referred to as the "Table A Contract Amount." However, actual SWP deliveries are usually allocated in any given year by DWR at a lower level based on numerous factors, including hydrologic conditions. Currently, the long-term reliable yield of the SWP is approximately 60% of the Table A amount (48,370 AF/yr). This should increase if the California Water Fix is implemented by the State.

- **Arroyo Valle Water Rights (Lake Del Valle) –** Zone 7 has temporary water rights for a portion of the natural flows into Lake Del Valle. Accordingly, Zone 7 coordinates releases from the reservoir into the Arroyo Valle to maintain downstream flows and recharge through the streambed at the levels that would have occurred had the reservoir not been constructed. Additional releases of Arroyo Valle water can be made from the lake when such water is available for Zone 7. Maintaining minimum flows is a condition of Zone 7's water rights permit for the Arroyo Valle water and allows Zone 7 to use other portions of Arroyo Valle water for supply to its treatment plants and for supplemental aquifer recharge. Zone 7 is currently pursuing the permanent rights to this surface water source.

- **Byron-Bethany Irrigation District (BBID)** - Zone 7 has a contract with Byron-Bethany Irrigation District (BBID) for up to an additional 5,000 AF/yr of supplemental water made available to Zone 7 as a transfer of BBID's pre-1914 water rights water when surplus supplies are declared by BBID. When available, it is delivered upon request to Zone 7 through the SBA and can be used to supply Zone 7's artificial recharge program as well as Zone 7's water treatment plants. This water is only available in years when BBID declares a surplus is available for the transfer and approvals from DWR and the US Bureau of Reclamation are received. It was not available in the 2015 WY.

- **Kern Groundwater Basin (storage rights only)** - Zone 7 has purchased water storage rights in the Semitropic Water Storage District (78,000 AF) and in the Cawelo Water District (120,000 AF) groundwater basins in Kern County. These rights give Zone 7 the ability to remotely store surplus SWP water when available. When Zone 7 is ready to use the water locally; it can import that quantity of SWP water through an exchange procedure within the SWP system.

- **Yuba Accord –** In 2008, Zone 7 entered into a contract with DWR to purchase additional water under the Lower Yuba River Accord (Yuba Accord). The contract was amended in November 2014 to cover the period from October 2015 through 2020. New pricing would be negotiated at that time. There are four different Components (types) of water available; Zone 7 has the option to purchase Component 2 and Component 3 water during drought conditions, and Component 4 water when Yuba County Water Agency has determined that it has water supply available to sell. Zone 7 estimates the average yield from the Yuba Accord to be 850 AF/yr. In the 2015 CY, Zone 7 received 276 AF.

- **Multi-Year Pool –** In 2013 and 2015, DWR implemented the Multi-Year Water Pool Demonstration Program, intended to facilitate the transfer of water between SWP contractors and to serve as an alternative to the under-used Turnback Pool Program. This program remains a pilot program. Zone 7 participated in the Multi-Year Pool in 2013 and 2015, and expects to participate in 2016.

- **Dry Year Transfer Program –** The State Water Contractors, an organization composed of contractors of the SWP, facilitates the purchase of water from the Feather River Watershed for transfer to SWP contractors during dry years. This is an optional program, and in 2015 Zone 7 opted out of this program.

Supplemental supply totals, which are based on the Calendar Year (CY) to be consistent with DWR's allocation and accounting of State Project Water, are summarized in *Figure 11-G* below:

Figure 11-G: Supplemental Sources for the 2015 Calendar Year

Source	**Available in 2015 CY (AF)**	**Used in 2015 CY (AF)**	**Carry-Over to 2016 CY (AF)**
State Water Project	**25,239**	**13,218**	**12,021**
Table A (20% Allocation for 2015)	*16,124*	*4,402*	*11,722*
Article 56	*9,115*	*8,816*	*299*
Lake Del Valle (AV Water Rights)	**2,994**	**2,861**	**133**
BBID	**0**	**0**	**0**
Kern Groundwater Basin	**92,202**	**17,813**	**74,389**
Semitropic	*72,018*	*12,784*	*59,234*
Cawelo	*20,184*	*5,029*	*15,155*
Other		**-1,057**	
Kern transfer to San Luis Reservoir		*-1,333*	*1,333*
Yuba		*276*	
TOTAL	**120,435**	**32,835**	**87,876**

Other highlights for the 2015 CY include:

- Zone 7's treated surface water made up 77% of regional potable water deliveries in the 2015 WY, just above the annual average of 75%.
- Due to the drought, Zone 7 recovered a record amount of water from storage banks, Semitropic and Cawelo (12,784 and 5,029 AF, respectively).
- Also because of the severe drought, Zone 7 curtailed its artificial recharge program early in the year, only releasing 3,924 AF to the local arroyos for the entire 2015 CY.
- Superb conservation by the Valley's residents, businesses and public agencies during the 2015 CY resulted in about 36% reduction in Valley-wide demand from the 2013 CY level.
- 1,333 AF of the 17,813 AF of water received from the Kern Groundwater Basin was sent to San Luis Reservoir for carryover to the 2016 CY.

11.4.3.2 Zone 7 Groundwater Pumping

Historically, Zone 7's annual groundwater production has varied with the availability of surface water and the capacity to treat that surface water. While groundwater pumping by the retailers is accounted for in the 'Natural Sustainable Yield', Zone 7's groundwater pumping is a component of its conjunctive use demands (i.e., withdrawals from the artificially-recharged supplies).

Zone 7 operates its supply wells to augment production during demand peaks and whenever a shortage or interruption occurs in its surface water supply or treatment (e.g., during droughts, and SWP and treatment plant outages). However, Zone 7 also pumps groundwater as a salt management strategy. When groundwater is distributed to the Retailers, a certain percent of the water becomes wastewater that is exported from the valley along with its dissolved salts. Likewise, four of Zone 7's supply wells are connected to Zone 7's Mocho Groundwater Demineralization Plant (MGDP), which when operated, strips salts from the produced groundwater and discharges them to the same wastewater export pipeline that discharges treated wastewater to San Francisco Bay (*see Section 12.1.5*). The decision of which well(s) to pump first is based on pumping costs, pressure zone needs, delivered aesthetic water quality issues, groundwater levels, and demineralization facility capacity. Although reduced groundwater pumping may have a positive impact on groundwater storage and delivered water quality, increased groundwater pumping has a beneficial impact on the basin's salt loading because much of the salt in the pumped groundwater eventually leaves the basin as wastewater export.

For the 2015 WY:

- Zone 7 only pumped 1,920 AF of groundwater (not including 645 AF pumped as DSRSD's Groundwater Pumping Quota – *Section 11.4.2.2*).
- Zone 7's groundwater production contributed about 7% of the total treated water production that was delivered to the retailers by Zone 7 during 2015 WY *(Figure 11-1*).
- Despite being in the fourth year of a drought (operationally), groundwater pumping was kept low enough to allow groundwater levels (and storage) to begin to recover from the impacts of the previous three years

11.4.3.3 Zone 7 Artificial Recharge

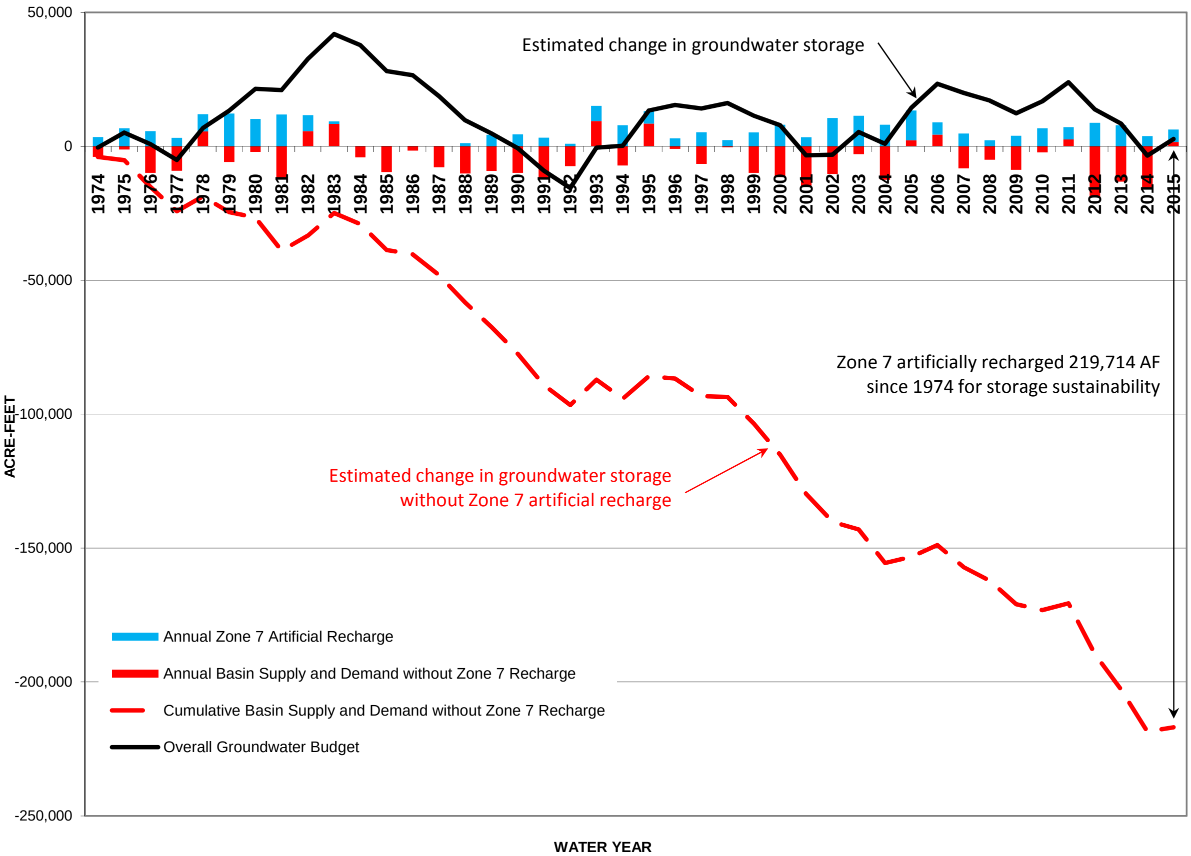
Zone 7 has been importing and recharging SWP water (artificial recharge) since the 1960s to replenish what has been pumped from the groundwater basin. Zone 7 actively embraces a conjunctive use approach to Basin Management by integrating management of local and imported surface water supplies with the management of local conveyance, storage and groundwater recharge features, including; local arroyos (which are also used as flood protection facilities during wet seasons); and two former quarry pits (Lake I and Cope Lake).

A key component of Zone 7's conjunctive use program has been its artificial recharge program, which consists of releases of surface water to dry arroyos to recharge the groundwater basin. The timing and quantity of artificial recharge are typically dependent upon available supply, available recharge capacities, source water quality, and regulatory requirements.

The location and timing of artificial recharge operations can be used as a water quality management tool as well as a temporal water storage activity. When practical to do so, Zone 7 prioritizes its SWP releases for recharge to occur in the spring and summer when TDS of the source water is low. Because each acre-foot that is subsequently pumped from the Basin removes water with higher TDS, this can eventually improve the salinity of the groundwater basin, helping achieve salt management objectives. The salt removal effectiveness of the conjunctive use is related to the difference in the TDS of recharge and pumped water and the annual volumes involved (see *Section 12.1*)

The historical artificial recharge for the Main Basin has averaged about 5,300 AF per year. Below, *Figure 11-H* shows the long-term importance of Zone 7's artificial recharge program for the sustainability of groundwater in the basin. The graph shows the long-term groundwater budget (since 1974, the earliest date for which Zone 7 has detailed hydrologic inventory records) if Zone 7 had not been recharging the basin. The graph also shows that since 1974, Zone 7 has imported and recharged about 220,000 AF to keep the basin sustainable.

Figure 11-H: Effect of Zone 7's Artificial Recharge



For the 2015 WY, Zone 7's Conjunctive Use Program included the following activities and highlights:

- Zone 7 released 5,884 AF of imported surface water to the local arroyos, of which about 4,648 AF artificially recharged the groundwater basin.
- EBRPD diverted a total of 1,107 AF into Shadow Cliffs for maintaining the lake level to facilitate recreational opportunities, with the ancillary benefit of recharging the basin.
- This was the second year of active recharge of mining use water capture in Lake I and Cope Lake. These lakes will continue to be available to store, convey, and artificially recharge imported surface water in the future.
- Approximately 26,700 AF of surface water left the Valley through the Arroyo de la Laguna during storm events in the 2015 WY. In the future, a portion of this resource may

be captured and recharged back into the groundwater basin as part of planned diversions for Zone 7's permanent Arroyo Valle Water Rights (*see Section 3.2.1*).

Looking farther into the future, Zone 7 plans to increase its conjunctive use to keep up with growing demands. Acquisition of additional former quarries (Lakes A through H) will become the area's future "Chain of Lakes" allowing enhanced artificial recharge and regional flood protection projects to be fully implemented (see *Section 4.3*).

11.5 Groundwater Model

11.5.1 Model Description

Zone 7 maintains a numerical groundwater model of the basin for predicting the consequences of proposed groundwater basin management actions. The model, originally created in Visual MODFLOW, has been converted to Groundwater Vistas and uses MODFLOW-SURFACT to perform the modeling calculations. In 2006, Zone 7 and HydroMetrics WRI (HydroMetrics) reevaluated, recalibrated, and revised the model as described in the Annual Report for the Groundwater Management Program – 2005 WY (*Zone 7, 2006d)*.

The active part of the groundwater model encompasses the Amador, Bernal, Bishop, Camp, Castle, Dublin, and Mocho II Subbasins of the Valley. The model consists of three layers: the upper aquifer (Layer 1), an aquitard (Layer 2), and the lower aquifer (Layer 3). Most municipal water supply production wells in the basin are screened in the lower aquifer (Layer 3). Many small private wells are screened in the upper aquifer (Layer 1).

In addition to modeling for salt in groundwater (*Section 12.2*), the groundwater model has been used for water supply well siting and planning (*Zone 7, 2003*). More recently, for Zone 7's Water Supply Evaluation (*Zone 7, 2011c*), the groundwater model was used to identify the maximum amount of groundwater Zone 7 could pump using existing wells during a six year drought without going below historical lows. In 2014, the model was used to predict the impacts that Zone's planned groundwater pumping would have on groundwater levels if the drought continued for two additional years.

11.5.2 Groundwater Model Update and Improvements

In December 2013, DWR awarded Zone 7 a Proposition 84 Local Groundwater Assistance Program grant of $200,000 to update the groundwater model so that it can better evaluate future groundwater management and salt mitigation strategies. The approved scope of work for the project includes:

- Converting the model software from MODFLOW SURFACT to MODFLOW NWT.
- Incorporating the MODFLOW Streams and Lakes Packages.
- Adding additional layers to the model that represent hydrostratigraphic boundaries identified in recent geologic studies.
- Recalibrating the model using both water elevation and salt concentration datasets.
- Running up to three scenarios to test the operation of the model and its ability to optimize Zone 7's maximum pumping capacity under various drought conditions.

In 2014 and 2015, Zone 7 and its consultant, HydroMetrics Water Resources Inc., worked on converting the model software to MODFLOW NWT, incorporating the Streams and Lakes packages, and adding additional layers to the model. This project's completion date was extended to March 2016 to allow new data from the ongoing drought to be incorporated along with some recent software updates.

11.6 Future SGMA Compliance

In 2014, the State of California passed the Sustainable Groundwater Management Act (SGMA) to "empower local agencies to adopt groundwater management plans that are tailored to the resources and needs of their communities". The act designates Zone 7 as the exclusive Groundwater Sustainability Agency (GSA) for the Livermore Valley Groundwater Basin. However, a small portion of the basin extends north into Contra Costa County beyond Zone 7 Service Area. As part of its application to become the GSA of the basin, Zone 7 is working to get acceptance from local agencies (e.g., Contra Costa County, City of San Ramon, East Bay Municipal Utilities District) that potentially could claim to be the GSA for that area outside of Zone 7's service agency. Zone 7 is also closely monitoring the development of the Groundwater Sustainability Plan (GSP) regulations and may submit an alternative GSP based on its GWMP and Annual Reports.

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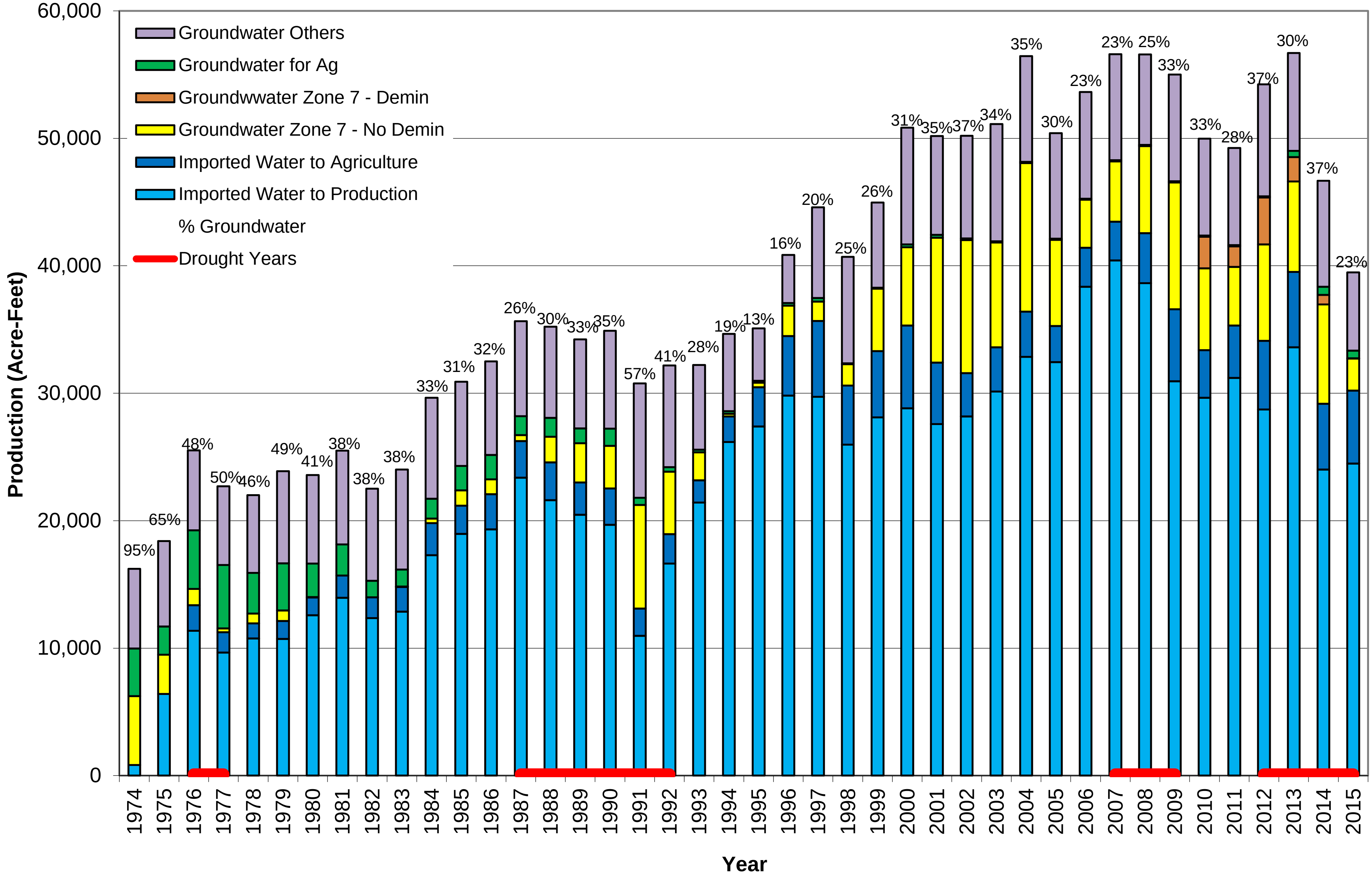
FIGURE 11-1
VALLEY WATER PRODUCTION FROM IMPORTED WATER AND GROUNDWATER
1974 TO 2015 WATER YEARS



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