

San Luis Obispo County
 Master Water Plan
Inventory of Existing Water Supplies

Water supplies in San Luis Obispo County include both groundwater and surface water. Groundwater represents the larger portion although it is not always underlying the users or areas of development. Quantities of water supplies, by Water Planing Area (WPA) can be summarized as follows:

**County Water Supplies
 (acre-feet per year)**

WPA	Community	Ground Water	Surface Water	Total
1	North Coast	5,664	4,737	10,401
2	Cayucos	1,191	2,224	3,415
3	Los Osos/Morro Bay	3,700	5,262	8,962
4	SLO/Avila	5,900	8,073	13,973
5	Five Cities	9,320	10,657	19,977
6	Nipomo Mesa	41,300	0	41,300
7	Cuyama	8,000	0	8,000
8	California Valley	600	0	600
9a	Salinas	48,000	3,693	NA
9b	Creston	See 9a	263	NA
9c	Shandon	See 9a	138	NA
10	Nacimiento	0	1,200	1,200

Groundwater Supplies

The ground water basins of San Luis Obispo County were first defined by the California Department of Water Resources in Bulletin 18 (DWR, 1958) and Bulletin 118 (DWR, 1975). On the basis of additional geologic and hydrologic information, some ground water basin boundaries were modified in the subsequent Bulletin 118-80 (DWR, 1980). These studies form the basis of the delineated ground water basins on the following map.

The following table lists each of the County’s ground water basins, according to WPA. Estimates of “basin yield” are provided for those basins that have been studied, coupled with estimates of ground water production. The “basin yield” values described in the table reflect the results of a variety of methods of determining yield, including annual recharge, safe yield, seasonal replenishment, and net safe annual extractions, and thus may or may not reflect an accurate perennial yield value for the basin. Shown in the table is the descriptive term used for each “basin yield” study.

The estimates represent the results of published data from numerous sources, some of which are as much as 40 years old. It is also important to note that most of the basins have not been studied in detail, and true perennial yield values are not known. Thus, much of the information does not reflect current conditions, population, water usage, and agricultural trends. It also tends to point out the necessity of developing new data to more accurately describe the hydrologic conditions of the basins.

An estimate of annual ground water production is

provided on the table, along with the year representing the estimate and a reference to the source of information. Most of the estimates of ground water extraction are at least 10 years old.

Few of the investigations have specifically addressed basins that would be considered to be in overdraft condition. According to the investigations cited on the table, the basins with reported ground water production greater than the “basin yield” include Paso Robles, Los Osos, Cuyama Valley, Nipomo Mesa, and Morro Valley. Many of the other, smaller basins have experienced short-term shortages, including San Luis Obispo, San Simeon, Santa Rosa, and Carrizo Plain.

None of the basins are currently managed under any form of effective ground water management. There are, however, several legal or jurisdictional issues that may directly impact the availability of water in some of the basins. Some of the larger basins, such as Santa Maria and Paso Robles, cross county lines, jurisdictional boundaries, and WPAs, and thus will be more difficult to develop basin-wide management schemes, should that be desired or necessary. Threats to both Santa Maria and Paso Robles basins in the form of intensive utilization by entities outside of San Luis Obispo County may have significant implications on the long-term health of the basins, and certainly on the effectiveness of local management of the resource. Discussions have been initiated in the Santa Maria Valley regarding the formation of a ground water management agency to regulate the Santa Maria Ground Water Basin, of which the Nipomo Mesa area and the Arroyo Grande Plain/Tri-Cities Mesa area are a part.

Listing of steelhead under the Endangered Species Act may have significant implications to San Luis Obispo basin and many of the smaller coastal valley basins.

Surface Water Supplies

Developed water supplies within the County (other than ground water) are summarized on the attached tables. These supplies include surface reservoirs such as Santa Margarita Lake, Lopez Lake, Whale Rock and Nacimiento Reservoirs. Other water supplies include State Water supplies, desalinated and reclaimed waters, and appropriated stream flows.

Appropriated stream flows -- the State Water Resources Control Board issues licenses entitling owners to divert or store a specified amount of water for use over a specified period during the year. The Board provided water rights information for all of San Luis Obispo County as of April 1998. The appropriated flows stated herein are based on that information.

While the water rights information states the amount of water individuals and agencies are entitled to withdraw, it does not tabulate actual withdrawals. For example, an owner may be entitled to divert 86,000 gallons per day from May through October of each year. This does not mean the owner typically diverts this each and every day for six months. On the other hand, this same owner may, in a dry year, want to divert his full entitlement over the six month period. However, if there is not enough water in the creek to support his diversion, it may not be physically possible to divert the full amount.

The reader is alerted to this especially when interpreting the estimates of appropriated stream flows stated on the attached table.

GROUND WATER BASIN CHARACTERISTICS
SAN LUIS OBISPO COUNTY
(see "References")

Water Planning Area	Basin Name	Basin Area in Square Miles	Basin yield with original descriptive term in acre-feet per year	Production - year in acre-feet
1	San Carpoforo			
1	Arroyo de la Cruz	1.2 ⁽¹⁾	1,244 safe yield ⁽¹⁾	66 - 1989 ⁽²⁾
1	Pico	0.1 ⁽³⁾	120 basin yield ⁽³⁾	50 - 1985 ⁽³⁾
1	San Simeon	0.5 ⁽⁴⁾	1,040 safe yield ⁽⁴⁾	1,050 - 1988 ⁽⁵⁾
1	Santa Rosa	1.1 ⁽⁴⁾	2,260 safe yield ⁽⁴⁾	1,110 - 1988 ⁽⁵⁾
1	Villa	1.5 ⁽⁶⁾	1,000 safe seasonal yield ⁽⁶⁾	100 - 1958 ⁽⁶⁾
2	Cayucos	0.9 ⁽⁷⁾	600 safe seasonal yield ⁽⁶⁾	350 - 1987 ⁽⁷⁾
2	Old			
2	Toro	0.8 ⁽⁷⁾	591 percolation of precipitation ⁽⁸⁾	532 - 1987 ⁽⁸⁾
3	Morro	1.3 ⁽⁹⁾	1,500 ground water yield ⁽⁹⁾	1,879 - 1992 ⁽⁹⁾
3	Chorro	1.1 ⁽⁹⁾		1,833 - 1992 ⁽⁹⁾
3	Los Osos	8.6 ⁽¹⁰⁾	2,200 long-term sustainable yield ^(10a)	3,540 - 1988 ^(10a)
4	San Luis Obispo	18 ⁽¹¹⁾	5,900 sustained yield ⁽¹¹⁾	6,000 - 1990 ⁽¹¹⁾
5	Pismo Creek-Edna Valley	10 ⁽¹²⁾	2,000 safe seasonal yield ⁽⁶⁾	1,000 - 1958 ⁽⁶⁾
5	Arroyo Grande Plain & Tri-Cities Mesa	22 ⁽¹³⁾	7,320 - 8,320 replenishment ⁽¹³⁾	5,900 - 1975 ⁽¹³⁾
6	Nipomo Mesa	33 ⁽¹³⁾	4,800 replenishment ⁽¹³⁾	6,840 - 1987 ⁽¹⁴⁾
6	Santa Maria (SLO Co.)	28 ⁽¹³⁾	36,500 replenishment ⁽¹³⁾	29,000 - 1975 ⁽¹³⁾
7	Cuyama	230 ⁽¹²⁾	8,000 safe yield ⁽¹⁵⁾	48,700 - 1992 ⁽¹⁵⁾
8	Carrizo Plain	269 ⁽⁶⁾	600 safe seasonal yield ⁽⁶⁾	600 ⁽⁶⁾
9	Paso Robles	640 ⁽¹⁶⁾	47,000 total annual recharge ⁽¹⁶⁾	104,621 - 1986 ⁽¹⁷⁾
9	Pozo	5.6 ⁽⁶⁾	1,000 safe available storage ⁽⁶⁾	300 - 1958 ⁽⁶⁾
9	Cholame			

GROUNDWATER REFERENCES

- (1) Envicom, May 1982, Final Stage EIR, Hearst Ranch Visitors Services Water Supply Project Development Plan, Application 25881 to Appropriate Unappropriated Water, SCH 80010801.
- (2) Hoover & Associates, June 1990, Arroyo de la Cruz Annual Monitoring Report - January 1989 to December 1989.
- (3) Cleath, Timothy, S., March 1986, Ground Water Availability - Pico Creek Ground Water Basin, San Simeon Acres Community Services District.
- (4) Cambria County Water District, February 1976, Engineering Report on Proposed Water System Improvements and Master Plan.
- (5) Yates, Eugene B., et al, (1991), Hydrogeology, Water Quality, Water Budgets, and Simulated Responses to Hydrologic Changes in Santa Rosa and San Simeon Creek Ground-Water Basins, San Luis Obispo County, USGS Water-Resources Investigations Report 91 - (draft currently unpublished).
- (6) California Department of Water Resources, 1958, San Luis Obispo County Investigation: State Water Resources Board Bulletin No. 18, vol. I and II.
- (7) Cleath, Timothy S., 1988, Ground Water Study, Cayucos Area.
- (8) McClelland Engineers, February 1988, Final EIR for Appropriative Water Rights for Toro Creek Underflow.
- (9) Cleath & Associates, October 1993, City of Morro Bay Water Management Plan - Appendix B Ground Water Analysis.
- (10) Yates, E.B. and Wiese, J.H., 1988, Hydrogeology and water resources of the Los Osos Valley ground-water basin, San Luis Obispo County, California: U.S. Geological Survey Water-Resources Investigations Report 88-4081, 74 p.
- (10a) California Department of Water Resources, 1989, Geohydrology and Management of Los Osos Valley Ground Water Basin, San Luis Obispo County: District Report.
- (11) Boyle Engineering Corporation, January 1991, City of San Luis Obispo - Ground Water Basin Evaluation.
- (12) California Department of Water Resources, 1975, California's Ground Water: Bulletin 118.
- (13) California Department of Water Resources, 1979, Ground Water in the Arroyo Grande Area: Southern District Report.
- (14) The Morro Group, July 1990, South County Area Plan, Draft EIR.
- (15) County of Santa Barbara Planning and Development Department, January 1995, Environmental Thresholds and Guidelines Manual.
- (16) California Department of Water Resources, 1979, Ground Water in the Paso Robles Basin: Southern District Report.
- (17) San Luis Obispo County, Department of Planning and Building, 1991 Annual Resources Summary Report.

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Surface Water Supplies Table

Water Planning Areas

A brief discussion of existing water supplies by WPA follows.

WPA 1 - North Coast

Within WPA 1, there are several coastal stream ground water basins. The northern-most basins (San Carpoforo and Arroyo de la Cruz) are to a great extent within the Hearst Ranch. The Pico Basin, although generally within the Hearst Ranch, is primarily utilized by the San Simeon CSD wells. The San Simeon and Santa Rosa Basins are tapped by Cambria CSD, agricultural, local domestic users and some artificial ground water recharge occurs at the District wastewater percolation ponds in San Simeon Creek. Villa Basin is tapped by agricultural and local domestic water wells.

The Arroyo de la Cruz Basin has been investigated by Envicom Corporation for the Hearst Corporation. The environmental impact report submitted by Envicom Corporation includes information on the yield of this basin and the annual production from this basin is quantified in some of the annual updates on water resources performed for the Hearst Corporation. California Department of Water Resources Bulletin 18, the San Luis Obispo County Investigation (1958), studied these basins (as well as most of the other northern coast basins) for reservoir sites, during which they estimated the basin yields. The basin yields estimated in the 1958 study for the San Carpoforo, Arroyo de la Cruz, San Simeon, Santa Rosa, and Old Basins were based on how much water would be required to irrigate the valley floor area downstream of proposed dams (pages 69-70) and not on actual recharge versus pumpage and storage analyses and therefore are not appropriate for use in planning, unless reservoirs are constructed as proposed in the DWR 1958 report. Instead, the Envicom EIR safe yield estimate has been selected as the only true effort of determining safe yield for the Arroyo de la Cruz Basin and the Cleath & Associates safe yield estimate was selected for the Pico Creek Basin.

The San Simeon and Santa Rosa Basins have been studied extensively by consultants for the Cambria CSD as well as by the US Geological Survey. Some of these studies are for conjunctive use of the two basins and therefore do not provide safe yield estimates for each individual basin and other studies focus on drought reliability under various management scenarios. The wastewater percolation ponds in San Simeon Basin are managed in such a way as to maintain a seaward hydraulic gradient, minimizing the occurrence of sea water intrusion.

In addition to ground water supplies from several coastal basins, WPA 1 benefits from stream flows with an estimated 4,737 AFY in appropriated stream flows. Approximately one-third of the appropriated flows are along the San Carpoforo Creek, half from San Simeon Creek, and the remainder from Santa Rosa Creek. Cambria CSD and the Hearst Corporation hold significant water rights in WPA 1.

WPA 2 - Cayucos

WPA 2 includes the San Geronimo, Cayucos, Old, and Toro ground water basins. These basins are used principally for local domestic and agricultural purposes. Old Basin is the small alluvial deposit downstream of Whale Rock Dam which is also used by Cayucos water purveyors. The Chevron tank farm at the mouth of Toro Basin has some use for industrial purposes. The California Department of Water Resources and consultants to the County of San Luis Obispo, to the Cayucos water purveyors and the City of Morro Bay (Cleath & Associates and Converse Consultants) has performed ground water studies of these basins.

The water purveyors in Cayucos have utilized Old Basin downstream of Whale Rock dam also through a ground water recharge and extraction type of operation. But the recent installation of a water treatment plant for use by the Cayucos Area Water Organizations (CAWO), has replaced this operation, resulting in only the use of wells which obtain water in the basin from very limited local runoff and dam seepage and overflow.

WPA 2 receives surface water supplies from Whale Rock Reservoir. The three domestic purveyors in Cayucos (Morro Rock Mutual Water Company, Paso Robles Beach Water Association, and County Service Area 10A) hold a collective entitlement of 600 AFY from Whale Rock Reservoir. Supplies from the reservoir are treated at the new (1997) surface water treatment plant for subsequent delivery to citizens of Cayucos. Water rights information list an estimated 1,560 AFY appropriated stream flows in WPA 2. This supply appears to be associated with California Men's Colony entitlement in Whale Rock Reservoir and is not representative of supply to users within WPA 2.

WPA 3 - Morro Bay/Los Osos

Within WPA 3, there are two coastal valley ground water basins (Morro and Chorro) and the Los Osos ground water basin. These three basins provide ground water to municipal, agricultural, recreational, institutional and local domestic users. While these three basins have been grouped together within this WPA, the three basins are very different in terms of their management issues.

The Morro Basin is similar to some of the north coastal basins where agricultural and local domestic water uses occur over most of the basin with municipal wells located at the downstream end of the basin. The municipal wells are somewhat different than in other basins in that they include wells designed to produce brackish sea water for supply to the desalination plant, as well as the conventional water wells downstream of Highway 1. Sea water intrusion has been documented by both the DWR and consultants to the City of Morro Bay (Cleath & Associates).

Chorro Basin has a complex management situation in that different sources of imported water are brought into the basin and discharged to the basin through wastewater disposal and irrigation returnflow, along with a reservoir on Upper Chorro Creek which serves to delay runoff and increase off peak ground water recharge. Ground water is supplied for institutional uses, agricultural uses, recreational uses, local domestic uses and for municipal uses. This basin, along with the Los Osos ground water basin, is upstream of Morro Bay, which is designated as a national estuary. The water quantity and quality, which issue from these basins into the bay, are important to the management of these basins. Ground water studies of the Chorro Basin have been performed by the DWR, Boyle Engineering/Cleath & Associates and Converse Consultants-both for the City of Morro Bay and in environmental studies performed for the County of San Luis Obispo by Envicom/Cleath & Associates.

Los Osos ground water basin provides water primarily to the communities of Los Osos-Baywood Park as well as to agricultural and recreational water users. The DWR and US Geological Survey, as well as several consultants to the County of San Luis Obispo and the Regional Water Quality Control Board, have studied the ground water basin. Sea water intrusion and nitrate concentrations in ground water have been identified as important issues in this basin. Improvements to wastewater treatment and disposal practices in the basin are being considered to improve the basin water quality while maintaining the benefit of wastewater reuse. The problem

of shallow ground water in some residential areas is also an important issue in water management for this basin.

Surface water supplies to WPA 3 include Whale Rock Reservoir supplies (to CMC and Cuesta College), State Water supplies (to the City of Morro Bay, Cuesta College, County Operations Center, and CMC), and appropriated stream flows in Morro and Chorro Creeks estimated at 1,758 AFY. The City of Morro Bay also owns a seawater desalination plant which is capable of being operated during a water supply emergency.

The Dairy Creek Golf Course is intended to be irrigated with reclaimed water from the CMC wastewater treatment plant. The golf course is being irrigated with Whale Rock water temporarily, until the improvements to the wastewater treatment plant are completed.

WPA 4 - San Luis Obispo/Avila

The ground water basin in WPA 4 is the San Luis Obispo Basin. This basin has been studied by the DWR for the County of San Luis Obispo, and by consultants for the City of San Luis Obispo including Boyle Engineering Corporation, John L. Wallace & Associates/Cleath & Associates and, for the downstream portion, by Stetson Engineers. A draft of the report prepared by the DWR has been circulated for public comment and when completed will be the most recent document upon which ground water management can be based. The main management issues relate to ground water use in the Airport Area, municipal wastewater reuse, aquifer compaction, and some water quality issues such as PCE and nitrates and salinity.

Surface supplies to WPA 4 include water from Salinas and Whale Rock Reservoirs (principally supplying the City of San Luis Obispo), Lopez Reservoir (to Avila Beach) plus State Water supplies (to Avila CSD, Avila MWC, and others). A seawater desalination plant is operated at the Diablo Canyon Nuclear Power Plant to satisfy high quality process water needs at the plant.

Appropriated stream flows comprise a small percentage of water supplies to WPA 4.

WPA 5 - Five Cities

WPA 5 includes the Edna/Pismo Creek Basin and the Arroyo Grande Plain/Tri-Cities Mesa portion of the Santa Maria Valley Basin. Studies performed in these basins include those prepared by the DWR and consultants to the County of San Luis Obispo (LFM/Hoover & Associates) and consultants to the Cities of Pismo Beach, Arroyo Grande and Grover Beach. Management issues in these areas include the impact of Lopez Dam modifications, increasing demands on water resources, wastewater reuse, and localized high levels of nitrate concentrations. Sea water intrusion is something which is a potential impact which could result from excessive pumping and inadequate recharge. The DWR investigations of the Edna/Pismo Basin and the Nipomo Mesa-TriCities Mesa area are nearing completion and will provide the most recent information for these basin areas for planning purposes.

Lopez Reservoir is the major source of surface supplies to the Five Cities Area, supplying an estimated 8,665 AFY. This figure is under review now as the State Division of Safety of Dams requires seismic evaluations at the dam, and is also mandating that the reservoir level be kept at or below 83% of capacity until such evaluations are completed.

Several communities in WPA 5 also hold entitlements to State Water Project. Other than water rights associated with stored water in Lopez Reservoir, appropriated stream flows are a small portion of overall water supplies in WPA 5.

WPA 6 - Nipomo Mesa

Ground water is by far the largest source of water supply in WPA 6 and includes the Nipomo Mesa and Oso Flaco portions of the Santa Maria Basin, which are within San Luis Obispo County. The water management issues in these areas revolve around the available yield for future development, the potential for increased ground water recharge and the water quality issues related to agricultural returnflow and domestic wastewater returnflow. The DWR investigation currently in draft form will provide the information for future planning. The ground water basin extends across the County line into Santa Barbara County, which is the boundary of the studies performed by the DWR. Future water planning for the area may require an understanding of ground water conditions and issues in the adjacent areas within Santa Barbara County as well as those within San Luis Obispo County.

Non-ground water supplies consist of some reclaimed water being used for irrigation purposes.

WPA 7 - Cuyama

Ground water is the predominant source of water supply in WPA 7, including the Cuyama ground water basin upstream of the Santa Maria ground water basin. The Cuyama Basin, also within Santa Barbara County, is in an overdraft condition according to the DWR. Studies in the area include those by the US Geological Survey and the Department of Water Resources. Water management issues in this area relate to pumping costs and salinity of the ground water.

WPA 8 - California Valley

Ground water is the predominant source of water supply in WPA 8 and includes the Carrizo Plain Basin which is said to be at its yield limit by the 1958 DWR Bulletin 18. The Carrizo Plain Basin water management issues include water quality problems such as locally high nitrate and salinity concentrations.

WPA 9

WPA 9 includes the Paso Robles ground water basin and the upstream basins of Pozo and Cholame. The Paso Robles ground water basin is herein broken into three different sub-basins based on geologic structure, hydrology and water use.

The level of investigation done by previous studies (DWR, 1979 and DWR 1958) performed for the **entire** Paso Robles ground water basin does not appear to provide sufficient detail for planning purposes. It is unreasonable, based on the existing data, to assign yields of the Paso Robles Basin to WPAs 9a, 9b or 9c.

Within each of the sub-basin areas, the water management issues need to be related to the predominant water uses. The urban water uses are predominant in the sub-basin which extends upstream of Paso Robles along the Salinas River. Agricultural water uses are greatest in the other two sub-basins, herein identified as the Creston sub-basin and the Shandon sub-basin.

The Regional Water Quality Control Board had a study of the Paso Robles ground water basin performed by the Coastal Resources Institute at Cal Poly State University for the purpose of establishing best management practices and salt objectives on which the basin plan was to be based. This report identifies the water quality issues within particular areas of the Paso Robles basin. Some of these issues include native boron and salinity, geothermal waters, and agricultural and municipal salt loading and locally high nitrate concentrations. Water planning will need to include the impact of future uses and management strategies on water quality as it relates to the basin objectives.

9a - Salinas

Ground water supplies, augmented by an estimated 3,693 AFY of appropriated stream flows, supply water to users throughout WPA 9a. Releases from Salinas Reservoir benefit ground water basin recharge and help maintain a “live stream” flow in the Salinas River.

WPA 9b - Creston

In addition to ground water, an estimated 263 AFY of appropriated flows along the Huerhuero Creek supplies water to WPA 9b.

WPA 9c - Shandon

Ground water is the predominant source of water supply in WPA 9c. The community of Shandon holds a 100 AFY entitlement in the State Water Project but has no facilities for delivery, and they are actively trying to sell their entitlement. There is also a small amount of appropriated flows along the San Juan Creek and Estrella River systems.

WPA 10 - Nacimiento

1,200 AFY of San Luis Obispo County Flood Control and Water Conservation District’s entitlement at Lake Nacimiento benefits users in WPA 10.