

# Nacimiento River Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Salinas 9	Nacimiento WPA 16	237,886 acres total with 128,974 acres within San Luis Obispo County (includes 6,578 acres of San Antonio Watershed)	Salinas River (through Monterey County) to Pacific Ocean (Monterey Bay National Marine Sanctuary)	Paso Robles; Tierra Redonda Mountain (San Antonio watershed)	County of San Luis Obispo, Heritage Ranch, Oak Shores, Camp Roberts (ptn)



### Description:

The Nacimiento River Watershed is located at the northern boundary of San Luis Obispo County with a few sub-watersheds located in Monterey County. For the purposes of this snapshot, only those sub-watersheds within SLO County are included in this data compilation. This watershed also contains 6,578 acres of land from the San Antonio Watershed, however, the area within the County is relatively small and best categorized with its neighboring Nacimiento Watershed for the purposes of this project. The Nacimiento Watershed contains Lake Nacimiento, the largest reservoir in San Luis Obispo County totaling 2.26 square miles. The highest elevation in the watershed occurs in the Santa Lucia Range, within the Los Padres National Forest, reaching approximately 3,560 feet above sea level. Lake Nacimiento supplies water to the Salinas Valley and, as of 2010, supplies supplemental water to some communities in San Luis Obispo County. The dominant land use is agriculture with a majority of land used for rural grazing activities.



### Existing Watershed Plans:

San Antonio and Nacimiento Rivers Watershed Management Plan (MCWRA, 2008)

Camp Roberts Integrated Natural Resource Management Plan, (Camp Roberts JLUS, 2013)

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## Characteristics:

Physical Setting	
Rainfall	Average Annual: 11 in. (valley floor) - 41 in. (mountain) (NRCS shapefile, 2010)
Air Temperature	Summer Range (August 1990-2012): 49°-95°F Winter Range (December 1990-2012): 32°-62°F (Las Tablas Creek, NOAA National Climatic Data Center, viewed 2013)
Geology Description	<p>Franklin Creek and Town Creek are steep Franciscan non-infiltrative headwaters with flat pre-Quaternary moderate infiltrative valleys – Category #1.</p> <p>Nacimiento Ranch sub-watershed is flat highly infiltrative Quaternary – Category #3.</p> <p>Oro Fino Canyon is moderate steep moderately infiltrative early to mid-Tertiary headwaters and flat highly infiltrative Quaternary inland – Category #6.</p> <p>Little Burnett Creek, Gould Creek, Bee Rock Canyon and Tobacco Creek have steep Franciscan non-infiltrative headwaters – Category #7.</p> <p>Las Tablas Creek is steep moderately infiltrative early to mid-Tertiary material – Category #8.</p> <p>Asbury Creek, Kavanaugh Creek and Pebblestone Creek are steep moderately infiltrative early to mid-Tertiary headwaters with flat pre-Quaternary moderately infiltrative valleys – Category #11.</p> <p>Turtle Creek, Gulch House Creek, Snake Creek, Nacimiento Reservoir and Dip Creek have steep pre-Quaternary non-infiltrative headwaters – Category #13.</p> <p>Mile 7 to 11 Nacimiento River is moderately infiltrative early to mid-Tertiary headwaters with a flat Quaternary highly infiltrative valley – Category #14 (Bell, pers. comm., 2013).</p> <p>Paso Robles Formation and Vaqueros Formation are important for groundwater in the Nacimiento River watershed. Paso Roble Formation are mid to late Pliocene aged alluvial sediments. Early stream channels supplied sediment to the Nacimiento basin, allowing for the formation of sedimentary structures from mineral grains, and pebbles. (Chipping, 1987). Vaqueros Formation is well-developed east of Nacimiento and San Antonio Lakes. It is evidenced by bold sandstone and conglomerate outcroppings with beds of</p>

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shale. The sandstone here is subject to cave formation due to the dissolution of calcareous cements. Lime Mountain has enough shell debris such that mine operations for liming materials is economically viable. The environment in which these fossils and associated Vaqueros materials were deposited is consistent with shallow tropical seas. Pancho Rico Formation is present near the Nacimiento Dam. It is considered to be the deep-water equivalent of the Santa Margarita Formation. The Pancho Rico contains Pliocene aged fossils and has been mapped up to 20 feet thick in the Adelaida area (Chipping, 1987).

<b>Hydrology</b>	
Stream Gage	Yes; USGS 11149500 (near San Miguel); USGS 11149400 (Nacimiento Dam near Bradley); USGA 11148900 (Sapaque Creek near Bryson)
Hydrology Models	Yes; Monterey County Water Resources Association. 2001. Hydrologic impact of Salinas Valley Water Project.
Peak Flow	Near Bryson: 57,600 (USGS, 1971-2012) Near Bradley: 8,110 (USGS, 1958-2012) Near San Miguel: 58,600 (USGS, 1938-1957)
Base Flow	Bradley: 402 cfs (USGS)
Flood Reports	No source identified  Flood Hazard Areas identified by the County and listed within the Flood Hazard (FH) designation
Flood Control Structures	Nacimiento River Dam  Bridges: 4 over Las Tablas Creek on Klau Mine Road, Chimney Rock Road and Cypress Mountain Drive (2); 2 over Klau Creek on Cypress Mountain Drive (PWD Bridges GIS Layer)
Areas of Flood Risk	Nacimiento River and Canyon; Dip, Franklin, Las Tablas, Snake and Town Creeks; and Lake Nacimiento - Flood Hazard (FH). These water courses are identified as having potential flood hazards and development proposals must incorporate mitigation measures. All are natural drainage courses which should be maintained in their natural state with native vegetation and habitats retained. At Lake Nacimiento, the 800 foot elevation constitutes the lake's high water level and no habitable structures are permitted below the 825 foot elevation. (Heritage Ranch Village Plan, 2013)
<b>Biological Setting</b>	
Vegetation Cover	Primarily blue oak and foothill pine; chamise-redshank chaparral consisting mainly of chamise; coastal oak woodland consisting mainly of blue oak and coast live oak; and blue oak woodland with non-native annual grassland, valley oak woodland consisting mainly of continuous coast live oak; foothill pine and valley oak; mixed chaparral consisting mainly of chamise and serpentine Manzanita;

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	<p>orchards, vineyards, and nurseries; and montane hardwood-conifer consisting mainly of coulter pine. (SLO County vegetation shapefile, 1990)</p> <p>Grassland, scrub/shrub, mixed forest (MCWRA, 2008)</p> <p>Native perennial bunchgrasses occur within the watershed. Valley needlegrass grassland habitat occurs within the watershed; valley needlegrass grassland is designated as a sensitive natural community by the California Department of Fish and Wildlife (Althouse and Meade, Inc. 2006). Valley oak woodland occurs within the watershed, and is designated a sensitive natural community by the California Department of Fish and Wildlife (Althouse and Meade, 2013).</p> <p>Wetlands and riparian woodland are present in this watershed, and although their areal extent is small relative to the size of the watershed these habitats provide crucial ecosystem functions (Althouse and Meade, 2013).</p>
Invasive Species	Bromus spp. (MCWRA, 2008)
Special Status Wildlife and Plants (CNDDDB)	<p>Vernal pool fairy shrimp - FT; Santa Lucia purple amole - FT; bald eagle -SE; San Joaquin kit fox - FE, SE.</p> <p>CDFG species of concern: western pond turtle, San Joaquin whipsnake, Monterey dusky-footed woodrat, Salinas pocket mouse, western spadefoot toad, American badger, silvery legless lizard, coast horned lizard, two-striped garter snake, golden eagle, pallid bat, Santa Lucia mint</p> <p>(CNDDDB Database, viewed 2013)</p> <p>Arroyo Toad, Western Pond Turtle, California Red-Legged Frog, California Condor (Nacitone Watershed Management Plan)</p> <p>Key: Federal endangered – FE, Federal threatened – FT, State endangered – SE, State threatened – ST, California Department of Fish and Wildlife: Special Species of Concern - CDFW - SSC</p>
Steelhead Streams	Yes; Lower Nacimiento River (San Antonio and Nacimiento Rivers Watershed Management Plan)
Stream Habitat Inventory	Yes; DFG, lower Nacimiento River 2001; upper Nacimiento River 2002.
Fish Passage Barriers	PAD ID: 718837- Dam at Nacimiento Lake on Nacimiento River. Total Barrier. PAD ID: 719387- Dam at Las Tables Creek on Nacimiento River. Unknown Status. PAD ID: 719878- Dam at Hughes Reservoir on Aqua Fria Creek, tributary to Nacimiento River. Total Barrier. 3.95239 miles upstream. PAD ID: 719877- Dam at El Piojo on El Piojo Creek, tributary to Nacimiento River. Total Barrier. 6.01579 miles upstream

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	PAD ID: 718839- Dam at Lower Stony Valley on Stony Creek, tributary to Nacimiento River. Total Barrier. 52.86096 miles upstream. PAD ID: 705325- Non-structural barrier (waterfall, grade, temperature etc) on Salmon Creek, a tributary to Nacimiento River. Total Barrier (End of anadromy). 37.1145 miles upstream.
Designated Critical Habitat	Yes; Nacimiento <i>River</i> (50 CFR <u>226</u> - National Marine Fisheries Service - NOAA) and Vernal Pool Fairy Shrimp (US Fish and Wildlife – Critical Habitat Mapper)
Habitat Conservation Plans	Yes; North San Luis County Habitat Conservation Program – Multiple species, initially San Joaquin kit fox
Other Environmental Resources	Paso Robles Groundwater Basin, Nacimiento Reservoir, Lake Nacimiento, Tierra Redonda Mountain National Area, various fisheries
<b>Land Use</b>	
Jurisdictions & Local Communities	County of San Luis Obispo, Oak Shores (Lake Nacimiento), Heritage Ranch (Lake Nacimiento), Camp Roberts
% Urbanized	5.02% [0.02% commercial retail; 5% residential (oak shores & Heritage Ranch)] (SLO County LUC)
% Agricultural	46%: fields, vineyards, orchards and rangeland (SLO County LUC)
% Other	49.4 % (9.4% open space; 15.7% public facilities (majority Camp Roberts); 2.3% recreation; 22% rural lands)(SLO County LUC)
Planning Areas	Nacimiento and Adelaida Planning Areas (SLO County)
Potential growth areas	Oak Shores, Heritage Ranch (SLO County General Plan, 2011)
Facilities Present	Camp Roberts, Lake Nacimiento , Heritage Ranch CSD pump station at the southerly bank of Nacimiento River downstream from lake (Heritage Ranch CSD); Jim McWilliams Water Treatment Plant (Heritage Ranch CSD); Heritage Ranch Sewer Treatment Plant; Oak Shores Wastewater Treatment Plant (County service area 7A);
Commercial Uses	Recreation at Lake Nacimiento, grazing, mining, agriculture, retail and service providers.
<b>Demographics</b>	
Population	3,108 in watershed (US Census Blocks, 2010) 337 in the community of Oak Shores (US Census, 2010)
Race and Ethnicity	Watershed: Caucasian, representing 84%. Latinos represent 10.4%. Mixed-race representing 2.5%. The remaining races each represent less than 4%, including African American, American Indian, Pacific Islander, and Asian. (US Census Blocks, 2010)  Oak Shores: 86.9% Caucasian; 9.2% Latino and Hispanic; 1.5% Mixed Race; 0.9% Black or African American; 0.9% Asian (2010 Demographic Profile Data, US Census Bureau)
Income	MHI \$62,721 in watershed (US Census Tracts, 2010) MHI \$ 97,639 in Oak Shores (US Census, 2010)

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Disadvantaged Communities	No; 4.0% of individuals are below poverty level in Watershed (US Census Tracts, 2010) 8.6% of individuals below poverty level in Oak Shores (2007-2011 American Community Survey 5-Year Estimates)
<b>Water Supply</b>	
Water Management Entities	Heritage Ranch CSD; Nacimiento Water company (Oak Shores); outlying areas served by Individual wells
Groundwater	Yes; Paso Robles Basin; Tierra Redonda Mountain (San Antonio watershed); Understream flows (Heritage Ranch CSD – Nacimiento River)
Surface Water	Yes. Lake Nacimiento - SLOCountyWater.org  San Luis Obispo County Flood Control and Water Conservation District has an entitlement for 17,500 acre feet per year from the lake (secured in 1959). Of this amount, the proposed Nacimiento Water Supply Project will transport a maximum of 15,750 acre feet of water per year from the lake for delivery to 5 purveyors throughout San Luis Obispo County. (San Luis Obispo County Nacimiento Water project website)  Atascadero Mutual Water Company – 2,000 afy City of Paso Robles – 4,000 afy Templeton Community Services District – 250 afy City of San Luis Obispo Community Services Area 10, Benefit Zone A (Southern Cayucos)
Imported Water	None
Recycled/Desalinated Water	None
Key aquifer percolation zone	No data available
Water budget	Yes; Todd Engineers, 2013 for Paso Robles Groundwater Sub-basin Management Plan Update
<b>Water Uses</b>	
Beneficial Uses	<i>Nacimiento Reservoir</i> – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRESH), Navigation (NAV), and Commercial and Sport Fishing (COMM).  <i>Upper Las Tablas Creek</i> - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2),

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	<p>Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE), and Commercial and Sport Fishing (COMM).</p> <p><i>Salinas River (Nacimiento River-Santa Margarita Reservoir) -</i> Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PRO), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE) and Commercial and Sport Fishing (COMM). (CCRWQCB, 2011)</p>
<b>Other Unique Characteristics</b>	
Historical Resources	Adelaida School (9001 Chimney Rock Road, Paso Robles); Adelaida Cemetery (Chimney Rock & Adelaida Road, Paso Robles); J.F. MacGillivray Residence (PLN_DES_HISTORIC_POINTS GIS layer)
Tierra Redonda Mountain	Broad table-top mountain that encompasses approximately 1,300 acres in the Santa Lucia Range. Has outstanding ecological importance and been given high priority for preservation by State Department of Parks and Recreation
Camp Roberts	Thirteen ponds and reservoirs (65 acres) which are either natural or artificially created for use as livestock ponds or flood control. A total of 120 aquatic species representing 64 families of organisms were recorded from rivers, ponds, and reservoirs on Camp Roberts. Eight species of fish, 44% of species native to Salinas River drainage, have been recorded at Camp Roberts from Nacimiento River
Buena Vista and Klau mines	Identified as the primary point and nonpoint sources of mercury contamination in the watershed. Annual mercury loadings depend on the proportion of mercury rich sediment that reaches the lake in any given year. Mercury mining and ore processing operations occurred at the mines between 1868 and 1970. The site consists of mining wastes and releases from two abandoned mercury mines located on contiguous properties on a northwest-southeast trending ridge of the Santa Lucia Range in the California coastal mountains
Nacimiento Dam	Facilities include the embankment dam, powerplant, spillway, and high and low-level reservoir outlets. Created primarily for water conservation, flood control and replenishment of the Salinas River groundwater basin, it is one of the major recreational attractions on the Central Coast. It has 165 miles of shoreline and a maximum pool surface of 5,400 acres supporting swimming, boating, water skiing, and fishing
Los Padres National Forest	Forest vegetation classified into two major types: chaparral and forested lands. Provides a diverse wildlife habitat with 23 threatened

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	<p>and endangered animals. Member of the California Condor Recovery Program and has been an active player in the reintroduction of California condors in the wild. The Forest has one endangered plant, two threatened plant species and 71 sensitive plant species. Management of riparian vegetation focuses on supporting fish and wildlife populations. There are over 870,000 acres of livestock grazing allotments in the Forest. Considerable risk of wildfire in the forest, with historic average of 25,000 acres burned per year.</p>
Hearst Ranch	<p>Hearst Ranch encompasses an impressive variety of habitats and topography - elevations on the Ranch rise from sea level along the coastline to 3,600 feet on some of the peaks along the ridgeline of the Santa Lucia Mountains. Grassland-covered coastal terraces extend to natural sea bluffs, rocky headlands and sandy beaches. Over 1,400 acres of riparian woodland is present on the property. Riparian woodland species include Sycamore and Coast live oak.</p>
Grasslands Reserve Program	<p>1478 acres held by the Natural Resource Conservation Service (National Conservation Easement Database, viewed 2013)</p>
Lake Nacimiento Drive Interlake Road – Sensitive Resource Area (SRA).	<p>The portion of this route from Chimney Rock Road northwest to the Monterey County line is an adopted State scenic highway route. All development in this corridor must be sited to minimize visual impacts. (Heritage Ranch Village Plan, 2013)</p>
<b>Climate Change Considerations</b>	
	<p>San Luis Obispo County expected to become 2-4°F warmer by 2050, and depending on emissions, 4-8°F warmer by late-century, with greater warming in summer as compared to winter. Northern and northeastern parts of the county, especially areas of higher elevation, could see increases in the area burned annually by wildfire due to higher temperatures and stress to vegetation from climate change. The state’s \$30 billion agriculture industry could be disrupted by changes in temperature and rainfall patterns and the increased pests and diseases that may accompany those changes. Differential social vulnerabilities, with the elderly, infants, socially and culturally isolated individuals, and outdoor workers – especially in the hotter inland areas – experiencing relatively greater exposure, sensitivity and/or lower adaptive capacity. Threats to agriculture include higher temperatures causing heat stress to plants, reduced water availability, potential for increased water costs, more intense downpours leading to fruit, vegetable and flower damage, increased risk of soil erosion, increased water demand by plants and animals and increased risk of pest infestations and spread of invasive plants. Freshwater and riparian systems will be affected by increased groundwater pumping, sedimentation, higher peak flows during severe storms, sensitive species at risk due to stress, negative impacts on vernal pools, and new dams or dam expansions. Oak woodlands and coniferous forest may decline due to increased temperatures, disease, drought and fire. Saltbrush and other native</p>



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shrubs are expected to decline, Pronghorn and Tule elk could decline as grasslands are less productive, marginal farmland may become less productive and retired in the Carrizo Plain area (ClimateWise, 2010).

See IRWMP, 2014 Section X. Climate Change

## Watershed Codes:

CalWater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-Area Name	SWRCB Name	CDF Super Planning Watershed Name	CDF Watershed Name
3309.810504	8	Paso Robles	1	Atascadero	309.81	Bradley	Oro Fino Canony
3309.810504	8	Paso Robles	1	Atascadero	309.81	S. Side San Antonio Res.	Bee Rock Canyon
3309.810504	8	Paso Robles	1	Atascadero	309.81	Bryson	Turtle Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Bryson	Gulch House Creek (ptn in Monterey Co.)
3309.810504	8	Paso Robles	1	Atascadero	309.81	Lynch Canyon	Asbury Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Lynch Canyon	Pebblestone
3309.810504	8	Paso Robles	1	Atascadero	309.81	Lynch Canyon	Kavanaugh Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	McLaughlin Canyon	Tobacco Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	McLaughlin Canyon	Gould Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	McLaughlin Canyon	Town Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	McLaughlin Canyon	S. Shore Nacimiento Res.
3309.810504	8	Paso Robles	1	Atascadero	309.81	McLaughlin Canyon	Little Burnett Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Adelaida	Lower Las Tablas Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Adelaida	Franklin Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Adelaida	Dip Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Adelaida	Snake Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Adelaida	Upper Las Tablas Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Lower Nacimiento River	Mile 7 to 11 Nacimiento River
3309.810504	8	Paso Robles	1	Atascadero	309.81	Lower	Nacimiento

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						Nacimiento River	Ranch
3309.820000	n/a	Paso Robles	n/a	Nacimiento Reservoir	309.82	Undefined	Undefined
Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)							

## ***Major Changes in the Watershed***

- In 1956, Nacimiento Dam was constructed, designed to provide irrigation water, flood control, and recreation opportunities by the Monterey County Water Authority. They use the lake to recharge their groundwater basins.
- Prior to dam construction Nacimiento River and Las Tablas Creek were among the most important Salinas River tributaries for steelhead populations.
- The concern of low water elevation in Lake Nacimiento is almost an annual occurrence during the fall season. Lake Nacimiento is totally dependent on annual rain fall run off into the main body of the lake. The lake is the most active watershed in the State and can reach capacity during one wet season. Conversely, low rain fall years severely impact the amount of water collected each winter. Historically, the lake has gone through multiple years of high water elevations and corresponding multiple years with low water elevations.
- Heritage Ranch did not really become established and begin to grow before early 70s
- For much of the Ranch’s history the community was mainly used as a summer recreation area and as part-time residences with very little development growth. However in the last few years, stimulated by high property values in the County, we have experienced rapid growth with larger traditional single family homes with full-time residents living on large lots with extensive landscaping. A new school has been built, and plans are moving forward with a commercial retail center.
- The Water Conservation Plan and a Staged Water Use Reduction Plan
- Jill McWilliams Water Treatment Plant constructed in 1994 to comply with Surface Water Treatment Rules.
- The effluent is then collected and piped to the adjacent ephemeral drainage way which courses northeasterly to and across Camp Roberts Military Reservation. The point of discharge, and the entire service area of the District, overlays the “Paso Robles” geological formation whose characteristics include low permeability. The discharge flows largely intact for about 1.5 miles whereupon it percolates almost immediately upon meeting the “Monterey” formation, characteristically a high permeable formation. The discharge is down gradient of Lake Nacimiento, but can occasionally flow all the way to the Nacimiento River during significant storm runoff. The discharge does not impact the water quality of Lake Nacimiento.
- The wastewater system serving Oak Shores adjacent to Lake Nacimiento was originally constructed as part of the community’s development in 1974 and is operated by the county as part of County Service Area No. 7. There are 606 total water connections at Oak Shores, and it’s

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the county's understanding that there are 275 permanent residents. North Shore Boat and Ski Club has a total of 40 service connections with 15 permanent residents; and Lake Nacimiento Resort has 300 connections total for their campgrounds with 10-year-round residents – for a grand total of 946 total service connections.

- Oak Shores WWTP constructed in 1975
- 2007 – EPA installed several monitoring probes in streams to measure effects of acid mine drainage on pH levels
- 2008 – Assessment to identify endangered, threatened or sensitive plants or animals that may be affected by site contamination.

### *Watershed Health – Summary by Major Tributary*

<b>Tributary Name</b>	<b>Ephemeral / Perennial</b>	<b>303d Listed/ TMDLs</b>	<b>Pollution Sources NP (non-point) MP (Major Point)</b>	<b>Environmental Flows</b>
Asbury Creek	Unknown	None	n/a	X Cfs (TBD by Stillwater Sciences)
Dip Creek	Unknown	None	n/a	
Franklin Creek	Unknown	None	n/a	
Gould Creek	Unknown	None	n/a	
Gulch House Creek	Unknown	None	n/a	
Kavanaugh Creek	Unknown	None	n/a	
Little Burnett Creek	Unknown	None	n/a	
Las Tablas Creek	Unknown	Yes; Metals	Surface Mining	
Mile 7 to 11 Nacimiento River	Unknown	None	n/a	
Nacimiento Ranch	Unknown	None		
Nacimiento Reservoir	Perennial	Yes; Mercury, Metals	Surface mining, Natural Sources	
Pebblestone Creek	Unknown	None	n/a	
Snake Creek	Unknown	None	n/a	
Tobacco Creek	Unknown	None	n/a	
Town Creek	Unknown	None	n/a	
Turtle Creek	Unknown	None	n/a	
*Bee Rock Canyon (subset)	Unknown	None	n/a	
*Oro Fino Canyon (subset)	Unknown	None	n/a	

### *Watershed Health – Summary by Major Groundwater Basin*

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Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Paso Robles	97,700 AF (SLO County, 2012)	Physical limitations, water rights and water quality issues (Carollo, 2012).	Yes; see description below.	None (CCRWQCB, 2011)

*Groundwater Quality Description:* The predominant cations in the watershed are calcium and sodium and the predominant anion is bicarbonate (DWR 1981; Fugro West 2001b). Analysis of 48 public supply wells in the subbasin show an average Total Dissolved Solid (TDS) content of 614 ppm and a range of 346 to 1,670 ppm.

In one study (Fugro West 2001b), 23 of 74 samples collected exceeded one or more of the drinking water standards. The Maximum Contaminant Level (MCL) for TDS was exceeded in 14 samples (Fugro West 2001b). The MCL for nitrate was exceeded in 4 samples. The Bradley portion of the subbasin had the highest percentage of samples with constituents higher than the drinking water standards (Fugro West, 2001b) Trends show an increasing concentration of nitrate between the Salinas and Huer Huero rivers south of San Miguel (Fugro West, 2001b; Carollo, 2012)

Generally high concentrations of TDS, chlorides, sulfates, and boron were identified for the Cholame Valley Basin (Chipping, et al., 1993). Increasing chlorides in the deep, historically artesian aquifer northeast of Creston (Carollo, 2012)

## **Critical Issues**

<b>Issue</b>	<b>Potential Causes</b>	<b>Referenced from</b>
Significant water level declines	Range of groundwater uses in close proximity, including agricultural irrigation, municipal supply wells, golf course irrigation, and a relatively dense aggregation of rural “ranchette” users	Carollo, 2012
Groundwater Quality	High concentrations of TDS, chlorides, sulfates, and boron	Carollo, 2012

According to multiple studies of this basin, annual basin pumping is now at or near the basin’s perennial yield (Paso Robles Groundwater Management Plan, 2011). From 1997–2009, water levels declined on average of 2–6 feet per year, depending on the location. A Todd Engineering monitoring report (2007) indicated that the Basin was not approaching the safe yield level and some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009 suggested groundwater

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pumping was approaching the safe yield level of the Basin. The 2010 Resource Capacity Study prepared by the San Luis Obispo County Planning Department stated that the Basin is now near or at perennial yield levels. The County Board of Supervisors certified a Level of Severity III for the Paso Robles Basin in October, 2012, due to declining water levels. In August 2013, the County Board of Supervisors adopted an urgency ordinance to limit new draws from the Paso Robles Groundwater basin.

The Paso Robles Groundwater Basin encompasses an area of approximately 790 square miles and is the primary, and in many places the only, source of water available to property owners throughout Northern San Luis Obispo County. The basin extends from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon. The basin supplies water for 29% of SLO County's population and an estimated 40% of the agricultural production of the County (Paso Robles Groundwater Basin Blue Ribbon Committee, 2013).

Paso Robles, Atascadero, and Templeton draw their water from the groundwater basin (primarily the Atascadero sub-basin), the underflow of the Salinas River and from the Nacimiento Pipeline Project. The remaining communities (Shandon, San Miguel, Creston, Bradley, Camp Roberts, Whitley Gardens, and Garden Farms) are entirely dependent on the groundwater basin for their water supply.

An established bi-annual well monitoring program overseen by the SLO County Flood Control and Water Conservation District reported these water declines in groundwater dependent communities (Through April, 2013):

- a. Shandon: Water levels have dropped approximately 17 feet from 2011 to 2013.
- b. Creston: Water levels have dropped approximately 25 feet from 2011 to 2013.
- c. Estrella: Water levels have dropped approximately 25 feet from 2011 to 2013.
- d. San Juan: Water levels have dropped approximately 5 feet from 2012 to 2013.

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