Lower San Juan Creek Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estrella 17	Rafael/ Big Spring WPA 11, Salinas/ Estrella WPA 14	114,329 acres	Salinas River via Estrella River – to Pacific Ocean (Monterey Bay National Marine Sanctuary)	Paso Robles	County of San Luis Obispo Shandon (ptn) Los Padres National Forest

Description:

The Lower San Juan Creek watershed is located in the eastern portion of the county to the north-west of the Carrizo Plains. The headwaters are located in the La Panza range with the highest point at approximately 3600-feet. The confluence of San Juan Creek with the Estrella River occurs at Shandon. The dominant land use is agriculture. The San Juan Creek Valley is generally used most intensively for agriculture because of better soils and water availability. Irrigated production has increased during the last 10 years, particularly in vineyards and alfalfa. Dry farming and grazing operations encompass the rest of the agricultural uses. The riparian forest and a portion of the adjacent upland areas associated with the Estrella River and San Juan Creek in the vicinity of Shandon are important wildlife habitat, and serve as important corridors for wildlife movement. San Joaquin kit fox and Western burrowing owl occur in open grasslands. Another important wildlife movement corridor is located near the base of the hillside near the eastern edge of Shandon.

Existing Watershed Plans:

No existing plans to date

Lower San Juan Creek Watershed

Characteristics

	Physical Setting	
	Rainfall	Average Annual: 9-13 in. (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 1990-2012): 58°-100°F Winter Range (December 1990-2012): 36°-56°F (Parkfield (*not a part of the watershed*), NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Tucker Canyon, Gillis Canyon, Hughes Canyon, McDonald Canyon, Camata Canyon, Tin Pan Canyon, and Lower Shell Creek have steep pre-Quaternary non-infiltrative headwaters with steep moderately infiltrative early to mid-Tertiary valleys. Upper Shell Creek, Fernandez Creek and Camatta Creek are flat highly infiltrative Quaternary materials (Bell, pers. comm., 2013). Groundwater is found in Holocene age alluvium and the Pleistocene age Paso Robles Formation. Specific yield values in the Paso Robles Sub-basin range from 7 to 11 percent, with an average specific yield of 9 percent (Fugro West 2001c). DWR (1958) estimated the average specific yield for the sub-basin at 8 percent. DWR (1999) estimated the average specific yield at 15 percent for the alluvium and 9 percent for the Paso Robles Formation. Alluvium. Holocene age alluvium consists of unconsolidated, fine- to coarse-grained sand with pebbles and boulders. This alluvium provides limited amounts of groundwater and reaches 130 feet thick near the Salinas River, but is generally less than 30 feet thick in the minor stream valleys (DWR 1999). Its high permeability results in a well production capability that often exceeds 1,000 gpm (Fugro West 2001a). Groundwater in Holocene alluvium is mostly unconfined. The Pleistocene age Paso Robles Formation, which is the most important source of groundwater in the sub-basin, is unconsolidated, poorly sorted, and consists of sand, silt, gravel, and clay (DWR 1979). This formation reaches a thickness of 2,000 feet and groundwater within it is generally confined (DWR 1958) (Carollo, 2012).
	Hydrology	
	Stream Gage	None (USGS, viewed August 2013)
	Hydrology Models	Yes; SLO County Flood Control and Water Conservation District, 2008, Paso Robles Groundwater Sub-basin Water Banking Feasibility Study.
	Peak Flow	No data available (USGS, viewed August 2013)
	Base Flow	No data available (USGS, viewed August 2013)

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	Flood Reports	No source identified
	Flood Control Structures	No data available
	Areas of Heightened Flood Risk	Poor drainage in Shandon (source); San Juan and Camatta creek listed as flood hazard areas (Shandon-Carrizo Inland Area Plan, County of San Luis Obispo, 2012)
	Biological Setting	
	Vegetation Cover	Primarily non-native annual grassland with mixed chaparral consisting mainly of California buckwheat and chamise; cropland, orchards and vineyards; chamise-redshank chaparral consisting mainly of chamise; blue oak and foothill pine; blue oak woodland; and valley foothill riparian consisting mainly of willow and saltbush. (SLO County vegetation shapefile, 1990) *Data limited by age of shapefile*
	Invasive Species	No data available
	Special Status Wildlife and Plants	Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. *Data limited to observations, not complete inventory*

Special Status Species	Status	CAMATTA CANYON	CAMATTA RANCH	CHOLAME	HOLLAND CANYON	LA PANZA RANCH	ORCHARD PEAK	POZO SUMMIT	SHANDON	SHEDD CANYON	WILSON CORNER
Animals											
American badger	SSC	x	x		x	x					x
bank swallow	ST			x					x		
blunt-nosed leopard lizard	FE; SE; FP	x			x						
burrowing owl	SSC (Burrow sites, some wintering sites)				x						

Lower San Juan Creek Watershed

Species	Status	CAMATTA CANYON	CAMATTA RANCH	CHOLAME	HOLLAND CANYON	LA PANZA RANCH	ORCHARD PEAK	POZO SUMMIT	SHANDON	SHEDD CANYON	WILSON CORNER
giant kangaroo rat	FE; SE	x			x						
prairie falcon	SA (Nesting)	x	x	x	x	x	x	x	x	x	
San Joaquin kit fox	FE; ST	x	x		x						
San Joaquin pocket mouse	SA	x									
Swainson's hawk	ST								x	x	
Tulare grasshopper mouse	SSC	x		x					x		
western spadefoot	SSC		x								
Plants											
Camatta Canyon amole	FT; SR		x								
chaparral ragwort	CRPR 2B.2		x								
dwarf calycadenia	CRPR 1B.1		x								
Indian Valley spineflower	CRPR 1B.2		x								
Kern mallow	FE		x								
La Panza mariposa-lily	CRPR 1B.3		x								
Lemmon's jewel-flower	CRPR 1B.2		x								
Mason's neststraw	CRPR 1B.1	x	x								
Munz's tidy-tips	CRPR 1B.2		x								
oval-leaved snapdragon	CRPR 4.2						x				
round-leaved filaree	CRPR 1B.1		x								
showy golden madia	CRPR 1B.1		x								
stinkbells	CRPR 4.2		x								
straight-awned spineflower	CRPR 1B.3		X								

Steelhead Streams	None (Not listed in Holland Canyon or Camatta Canyon Quads in CNDDB Database viewed 2013)
Stream Habitat Inventory	No source identified
Fish Passage Barriers	None listed in PAD Database
Designated Critical Habitat	Yes; Purple Amole (USFWS Critical Habitat Mapper, viewed 2013)
Habitat Conservation Plans	Yes; Shandon Community Plan Habitat Conservation Plan

Lower San Juan Creek Watershed

	Other Environmental Resources	San Juan River, Paso Robles Groundwater Basin, San Andreas Fault Zone of Eastern San Luis Obispo County (SLO County Flood Control and Water Conservation District, 2007)
	Land Use	
	Jurisdictions & Local Communities	County of San Luis Obispo, Community of Shandon
	% Urbanized	Less than 1%
	% Agricultural	90.4% (vineyard, alfalfa, dry farming)
	% Other	8.3% Open Space; 1.2% Rural Land
	Planning Area	Shandon-Carrizo Planning Area
	Potential growth areas	Shandon
	Facilities Present	Los Padres National Forest
	Commercial Uses	Agriculture
	Demographics	
	Population	488 in watershed (US Census Block, 2010) Approximately 305 in Shandon (US Census, 2010)
	Race and Ethnicity	Watershed: 49.2% Latino; 47.3% Caucasian; 1.4% Mixed Race; Less than 1% African American, Asian, American Indian (US Census Block, 2010) Shandon: 53.5% Latino; 41.1% Caucasian; 2.6% Black or African American; 0.9% American Indian and Alaska Native; 0.5% Asian; 0.2% Pacific Islander; 1.2% Mixed Race (US Census, 2010)
	Income	MHI $66,966 in watershed (US Census Tract, 2011) (from tract covering 6 watersheds) MHI $65,260 in Shandon (2007-2011 American Community Survey 5-Year Estimates)
	Disadvantaged Communities	No; 4% of individuals are below poverty level in watershed (US Census Tract, 2010) (from tract covering 6 watersheds) 19.1% of individuals are below poverty level in Shandon (2007-2011 American Community Survey 5-Year Estimates)
	Water Supply	
	Water Management Entities	County Service Area (CSA) No. l6 (Shandon); outlying properties served by individual wells - Depths of wells ranged from 100 to 665 feet (Carollo, 2012)
	Groundwater	Yes; Paso Robles Basin
	Surface Water	No public reservoirs.
	Imported Water	CSA 16 holds an allocation for 100 acre-feet per year (AFY) of the

Lower San Juan Creek Watershed

		State Water Project supply. In order to use this allocation, a turn-out on the State Water Project, which runs north-south along the eastern edge of San Juan Road, would have to be built. (SLO County, 2012)
	Recycled/Desalinated Water	None
	Key infiltration zone	No comprehensive studies have been completed to date however the Shell Creek/Camatta Creek and Lower San Juan Creek Recharge Areas in the Paso Robles Groundwater Sub-basin Water Banking Feasibility Study, 2008. Natural recharge in the basin is derived from infiltration of precipitation, seepage from streams, and return flow from irrigation and other uses (SLO County Flood Control and Water Conservation District, 2008)
	Water budget	Yes; Todd Engineers, 2013 for Paso Robles Groundwater Sub-basin Management Plan Update. *Water budget information limited by lack of data for the region*
	Water Uses	
	Beneficial Uses	*San Juan Creek* - 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), Warm Freshwater habitat (WARM), Threatened, or Endangered Species (RARE), and Commercial and Sport Fishing (COMM). (CCRWQCB, 2011)
	Other Unique Characteristics	
	San Andreas Fault Zone	Identified as Special Studies Zone by the State Geologist and is one of the most seismically active faults in North America. Because of the scarcity of wetlands in this arid part of the county, sag ponds along the fault have ecological significance
	Shandon Vicinity Creek Area and Habitat Area	The riparian forest and a portion of the adjacent upland areas associated with the Estrella River and San Juan Creek in the vicinity of Shandon are important wildlife habitat for the San Joaquin kit fox, Western burrowing owl and other wildlife species, and serve as important corridors for wildlife movement. Another important wildlife movement corridor is located near the base of the hillside near the eastern edge of Shandon.
	Hubbard Hill-Freeborn Mountain	Designated in Open Space land use category to emphasize protection of the area n its natural state, and use for passive recreation activities only. San Juan Creek has recreational possibilities. Mountain slopes excellent for hiking and riding with a spectacular view of Carrizo Plain.
	San Juan Ranch	44,000 acres with livestock production dating back to era of Mexican land grants. Antonio Herrera began grazing sheep in the area in 1843. In 1874, Canadian Robert Flint purchased headquarters of San Juan Ranch as well as acreage extending up

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		San Juan Creek.
	Palo Prieto	Located at an important crossroads for San Joaquin kit fox movement between the Carrizo Plain population, the Cirvo-Panoche population and the Salinas River Valley. Properties contain a natural lake (sag pond), Grant Lake, and numerous small vernal and seasonal ponds and pools. Wetlands support rare amphibians, crustaceans and flora. Sag ponds historically habitat for California tiger salamander, Western spadefoot toad and California toad.
	Climate Change Considerations	
		See IRWMP, 2014 Section H, Climate Change *Data is general for County, not watershed specific*

Watershed Codes

Calwater/DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-Area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3317.000402	0	Undefined	0	Undefined	317.00	San Juan Valley	San Juan Ranch
3317.000403	0	Undefined	0	Undefined	317.00	San Juan Valley	Wilinson Canyon
3317.000404	0	Undefined	0	Undefined	317.00	San Juan Valley	Upper Long Canyon
3317.000405	0	Undefined	0	Undefined	317.00	San Juan Valley	Lower Long Canyon
3317.000406	0	Undefined	0	Undefined	317.00	San Juan Valley	Holland Canyon
3317.000407	0	Undefined	0	Undefined	317.00	San Juan Valley	Tin Pan Canyon
3317.000408	0	Undefined	0	Undefined	317.00	San Juan Valley	Hughes Canyon
3317.000409	0	Undefined	0	Undefined	317.00	San Juan Valley	West of Red Hills
3317.000501	0	Undefined	0	Undefined	317.00	Shandon	Tucker Canyon
3317.000502	0	Undefined	0	Undefined	317.00	Shandon	Gillis Canyon
3317.000509	0	Undefined	0	Undefined	317.00	Shandon	McDonald Canyon
3317.001001	0	Undefined	0	Undefined	317.00	Shell Creek	Camata Canyon
3317.001002	0	Undefined	0	Undefined	317.00	Shell Creek	Lower Shell Creek
3317.001003	0	Undefined	0	Undefined	317.00	Shell Creek	Camatta Creek
3317.001004	0	Undefined	0	Undefined	317.00	Shell Creek	Fernandez Creek
3317.001005	0	Undefined	0	Undefined	317.00	Shell Creek	Upper Shell Creek

Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)

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Major Changes in the Watershed

The San Juan is the southern branch of the Estrella River, albeit the summer season finds only occasional pools in its broad, sandy channel. The rains convert this into a veritable river, fifty to 100 yards wide, running through small valleys and hills softly rounded, clothed in a luxuriant growth of alfilaria, wild oats, bunch-grass and flowering shrubs (Storke, 1891).

1890s - Original settlement of Shandon. Planning for original town site done by West Coast Land Company.

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Camata Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Camatta Creek	Undetermined	Not assessed	Undetermined	Not assessed
Fernandez Creek	Undetermined	Not assessed	Undetermined	Not assessed
Gillis Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Holland Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Hughes Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Lower Long Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Lower Shell Creek	Undetermined	Not assessed	Undetermined	Not assessed
McDonald Canyon	Undetermined	Not assessed	Undetermined	Not assessed
San Juan Ranch	Undetermined	Not assessed	Undetermined	Not assessed
Tin Pan Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Tucker Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Upper Long Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Upper Shell Creek	Undetermined	Not assessed	Undetermined	Not assessed
Wilkinson Canyon	Undetermined	Not assessed	Undetermined	Not assessed

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Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Paso Robles	97,700 AF (SLO County RCS, 2011)	Physical limitations, water rights and water quality issues (Master Water Report).	Yes; see description below.	No for basin. No information for sub-basin.

Groundwater Quality Description: The predominant cations are calcium and sodium and the predominant anion is bicarbonate (DWR 1981; Fugro West, 2001b). Analysis of 48 public supply wells in the sub-basin show an average Total Dissoved 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 drinking water standards. The maximum contaminant level (MCL) for nitrate was exceeded in 4 samples (Fugro West, 2001b). Water quality trends indicate an increasing concentration of TDS and chloride in the deep, historically artesian aquifer northeast of Creston (Carollo, 2012).

Another major problem is the unpredictable occurrence of hydrogen sulfide in the ground water (DWR, 1981)

Primary Issues

Issue	*Potential Causes*	*Referenced from*
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

Groundwater: Paso Robles Groundwater Basin

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

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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Significant Studies in Progress: