

# Appendix H

## Historical and Current Water Budgets

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## Appendix H-1

# Historical and Current Annual Surface Water Budget

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Water Year	Type	Inflows			Outflows	Inflows
		Sespe Creek	Santa Clara River (from Piru)	Pole Creek	Santa Clara River (to Santa Paula)	- Outflows
1988	Dry	46,701	687	12,169	-72,462	12,905
1989	Dry	14,145	461	8,510	-30,185	7,070
1990	Critical	4,465	196	746	-12,970	7,563
1991	Dry	78,093	732	21,423	-100,892	643
1992	Wet	203,648	2,166	67,169	-260,137	-12,847
1993	Wet	460,968	4,578	229,354	-703,454	8,554
1994	Above Normal	28,845	4,701	36,368	-93,003	23,090
1995	Wet	332,734	12,759	117,371	-505,381	42,517
1996	Above Normal	29,947	1,948	28,796	-87,822	27,131
1997	Below Normal	80,970	1,473	21,928	-126,572	22,200
1998	Wet	386,503	6,468	259,158	-697,457	45,328
1999	Wet	22,665	1,152	29,933	-81,776	28,027
2000	Dry	44,231	1,043	27,837	-88,631	15,521
2001	Above Normal	145,439	2,753	48,454	-213,991	17,345
2002	Critical	7,661	525	32,596	-55,479	14,697
2003	Below Normal	52,213	683	16,717	-79,777	10,164
2004	Below Normal	28,919	1,149	9,106	-50,245	11,072
2005	Wet	541,667	12,881	400,598	-997,965	42,819
2006	Wet	152,871	2,023	49,941	-239,125	34,289
2007	Critical	11,013	373	23,382	-56,333	21,565
2008	Critical	137,048	1,490	43,937	-198,016	15,541
2009	Below Normal	28,645	484	30,248	-73,127	13,750
2010	Above Normal	71,584	668	23,114	-110,769	15,403
2011	Wet	158,553	1,036	48,170	-231,034	23,275
2012	Below Normal	15,183	962	24,437	-60,889	20,307
2013	Critical	4,316	107	12,222	-29,662	13,018
2014	Critical	18,583	108	3,007	-26,714	5,016
2015	Critical	8,556	191	3,522	-13,865	1,596
2016	Critical	6,615	28	2,012	-9,551	897
2017	Below Normal	94,766	2,747	35,899	-126,990	-6,422
2018	Dry	17,653	156	1,013	-16,718	-2,105
2019	Above Normal	143,365	1,842	47,834	-177,241	-15,801

## Notes:

- Flows are in acre-feet/year (AFY), based on values from United (2021a).
- Water year types are based on those provided by DWR (2018a).

## Appendix H-2

# Historical and Current Annual Groundwater Budget

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Water Year	Type	Inflows				Inflow/ Outflow	Outflows			Change in Groundwater in Storage		Error	
		Underflow from Piru	Recharge (Basin Floor)	Recharge (Mountain Front)	Underflow from Outside		Stream Exchange	Underflow to Santa Paula	Evapo- transpiration (ET)	Annual	Cumulative	Annual	Cumulative
1988	Dry	43,246	22,324	6,506	2,289	-4,568	-46,352	-16,561	-13,418	-6,539	-6,539	-5	-5
1989	Dry	43,140	19,714	5,458	1,842	-1,686	-52,726	-16,794	-10,819	-11,867	-18,406	4	-1
1990	Critical	39,774	19,089	4,962	1,677	-3,933	-58,655	-17,246	-7,105	-21,435	-39,841	2	1
1991	Dry	35,280	24,296	7,955	1,553	3,816	-57,039	-17,454	-6,085	-7,678	-47,519	0	1
1992	Wet	40,111	27,606	10,023	1,320	15,029	-50,168	-17,192	-8,529	18,211	-29,308	11	12
1993	Wet	52,296	29,764	12,147	1,321	11,780	-46,023	-17,071	-14,740	29,468	160	-6	6
1994	Above Normal	53,385	17,981	5,878	1,768	-4,046	-47,536	-17,155	-14,752	-4,483	-4,323	-6	0
1995	Wet	51,179	29,241	12,135	2,138	-4,168	-41,914	-17,320	-17,143	14,143	9,820	-5	-5
1996	Above Normal	52,531	18,284	6,111	2,054	-8,201	-50,613	-17,599	-15,504	-12,941	-3,121	-4	-9
1997	Below Normal	50,856	19,404	7,014	1,843	-4,226	-45,588	-17,601	-14,875	-3,177	-6,298	-4	-13
1998	Wet	52,892	26,651	11,462	1,752	-3,799	-39,920	-17,304	-17,512	14,236	7,938	14	1
1999	Wet	53,107	16,522	4,649	1,977	-6,286	-50,890	-17,015	-15,051	-12,990	-5,052	-3	-2
2000	Dry	50,979	18,767	5,983	1,585	-1,687	-51,763	-17,372	-13,554	-7,066	-12,118	-4	-6
2001	Above Normal	50,476	25,122	8,799	1,483	-427	-47,139	-17,420	-15,027	5,862	-6,256	-5	-11
2002	Critical	48,492	16,130	4,715	1,496	-2,814	-47,918	-17,492	-13,028	-10,422	-16,678	-3	-14
2003	Below Normal	45,347	21,375	7,129	1,220	-1,057	-41,681	-17,483	-13,444	1,401	-15,277	-5	-19
2004	Below Normal	45,358	17,534	5,863	1,205	-2,646	-45,744	-17,594	-12,297	-8,326	-23,603	-5	-24
2005	Wet	48,644	30,578	14,207	1,446	2,055	-35,935	-17,766	-16,627	26,598	2,995	-4	-28
2006	Wet	53,935	20,577	7,487	1,705	-8,460	-40,074	-17,937	-17,191	40	3,035	-2	-30
2007	Critical	50,055	14,599	4,361	1,459	-4,904	-47,561	-18,803	-13,908	-14,706	-11,671	-4	-34
2008	Critical	50,217	22,999	7,497	1,303	695	-50,440	-18,702	-14,017	-451	-12,122	-3	-37
2009	Below Normal	50,837	19,387	5,760	1,123	-1,602	-47,353	-18,976	-13,375	-4,204	-16,326	-5	-42
2010	Above Normal	51,404	22,688	7,617	1,056	-2,520	-43,707	-18,924	-14,520	3,089	-13,237	-5	-47
2011	Wet	52,098	23,347	9,060	1,170	-3,951	-38,956	-18,568	-16,203	7,993	-5,244	-4	-51
2012	Below Normal	49,849	16,434	5,075	1,324	-5,408	-42,730	-18,555	-14,456	-8,473	-13,717	-6	-57
2013	Critical	45,120	13,762	4,464	1,034	-3,534	-45,680	-16,706	-11,718	-13,263	-26,980	-5	-62
2014	Critical	39,154	16,052	4,931	1,050	-881	-53,018	-17,365	-7,620	-17,699	-44,679	-2	-64
2015	Critical	34,095	14,462	5,039	1,091	1,024	-42,599	-17,629	-5,671	-10,191	-54,870	-3	-67
2016	Critical	31,342	16,543	5,316	1,020	1,938	-49,486	-17,610	-4,792	-15,732	-70,602	-3	-70
2017	Below Normal	31,643	22,665	8,848	1,119	10,306	-44,877	-17,043	-5,245	7,412	-63,190	-4	-74
2018	Dry	35,765	15,785	5,980	889	4,057	-48,399	-16,323	-4,335	-6,584	-69,774	-3	-77
2019	Above Normal	36,003	18,236	8,374	910	16,318	-34,551	-16,876	-5,998	22,412	-47,362	-4	-81

Notes:  
 - Flows are in acre-feet/year (AFY) from the United Water Conservation District Ventura Regional Groundwater Flow Model (United, 2021a).  
 - Water year types are provided by DWR; water year type for 2019 was determined based on DWR (2021).