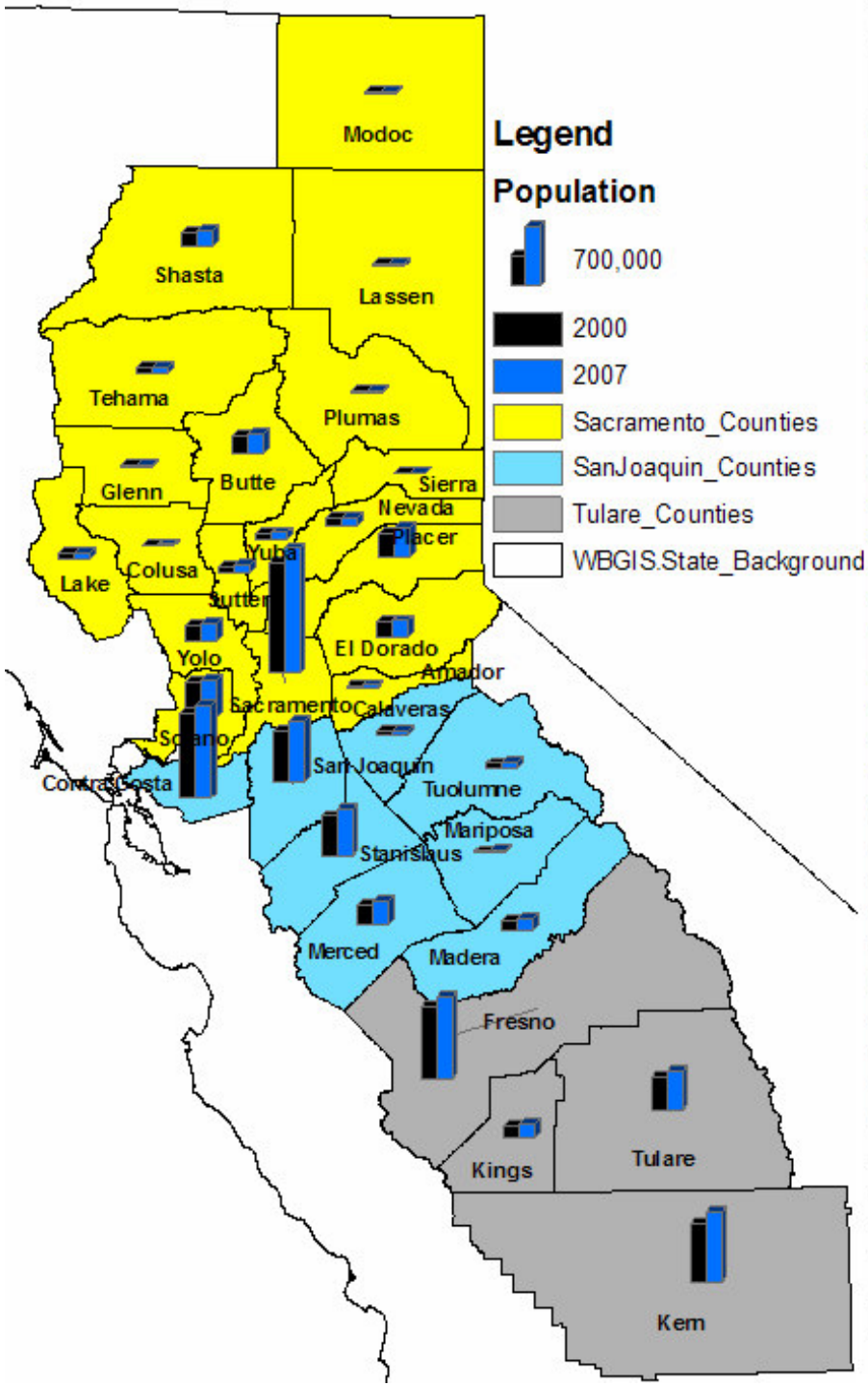
- Salt Sources and Current Accumulations
- Projections of Salt Accumulations
  - The REMI Model
- Cost of Salt Accumulations
- Model Assumptions



County, Basin and Central Valley Population,2000-2007				
County	Basin	2000	2007	% Change
Placer	SAC	252,076	324,495	28.73%
Sutter	SAC	79,524	93,919	18.10%
Yuba	SAC	60,433	70,745	17.06%
Colusa	SAC	18,928	21,951	15.97%
Yolo	SAC	170,001	193,983	14.11%
Sacramento	SAC	1,233,386	1,406,804	14.06%
El Dorado	SAC	158,531	178,674	12.71%
Tehama	SAC	55,931	61,774	10.45%
Shasta	SAC	164,659	181,401	10.17%
Lake	SAC	58,601	64,276	9.68%
Amador	SAC	35,327	38,435	8.80%
Glenn	SAC	26,625	28,915	8.60%
Nevada	SAC	92,378	99,766	8.00%
Lassen	SAC	33,980	36,375	7.05%
Solano	SAC	397,187	424,823	6.96%
Butte	SAC	203,921	218,069	6.94%
Modoc	SAC	9,527	9,721	2.04%
Plumas	SAC	20,719	21,128	1.97%
Sierra	SAC	3,632	3,485	-4.05%
Basin Totals		3,075,366	3,478,739	13.12%
San Joaquin	SJ	568,932	679,687	19.47%
Madera	SJ	124,544	148,721	19.41%
Merced	SJ	211,231	251,510	19.07%
Stanislaus	SJ	450,982	521,497	15.64%
Calaveras	SJ	40,738	46,028	12.99%
Contra Costa	SJ	956,328	1,042,341	8.99%
Mariposa	SJ	16,985	18,254	7.47%
Tuolumne	SJ	54,728	57,223	4.56%
Basin Totals		2,424,468	2,765,261	14.06%
Kern	TULARE	665,376	801,648	20.48%
Kings	TULARE	130,090	151,381	16.37%
Tulare	TULARE	369,727	429,006	16.03%
Fresno	TULARE	804,342	917,515	14.07%
Basin Totals		1,969,535	2,299,550	16.76%
Central Valley Totals		7,469,369	8,543,550	14.38%

State of California, Department of Finance

Central Valley Water Use, 2005 (1,000 af/year)

Sector	Sacramento Basin	San Joaquin Basin	Tulare Basin	Central Valley
Agricultural	**7,782**	**6,794**	**9,976**	**24,552**
Municipal & Commercial				
Single Family Interior	140	106	126	372
Single Family Exterier	273	197	193	663
Multi-Family Interior	89	94	133	316
Multi-Family Exterier	24	47	80	151
Commercial	138	40	46	224
Urban Landscape	120	36	20	175
Total Municipal & Commercial:	**784**	**519**	**598**	**1,900**
Industrial				
Industrial	85	90	66	241
Energy	0.10	0.00	0.00	0.10
Total Industrial:	**85**	**90**	**66**	**241**
Basin and Central Valley Water Use	**8,650**	**7,403**	**10,640**	**26,693**

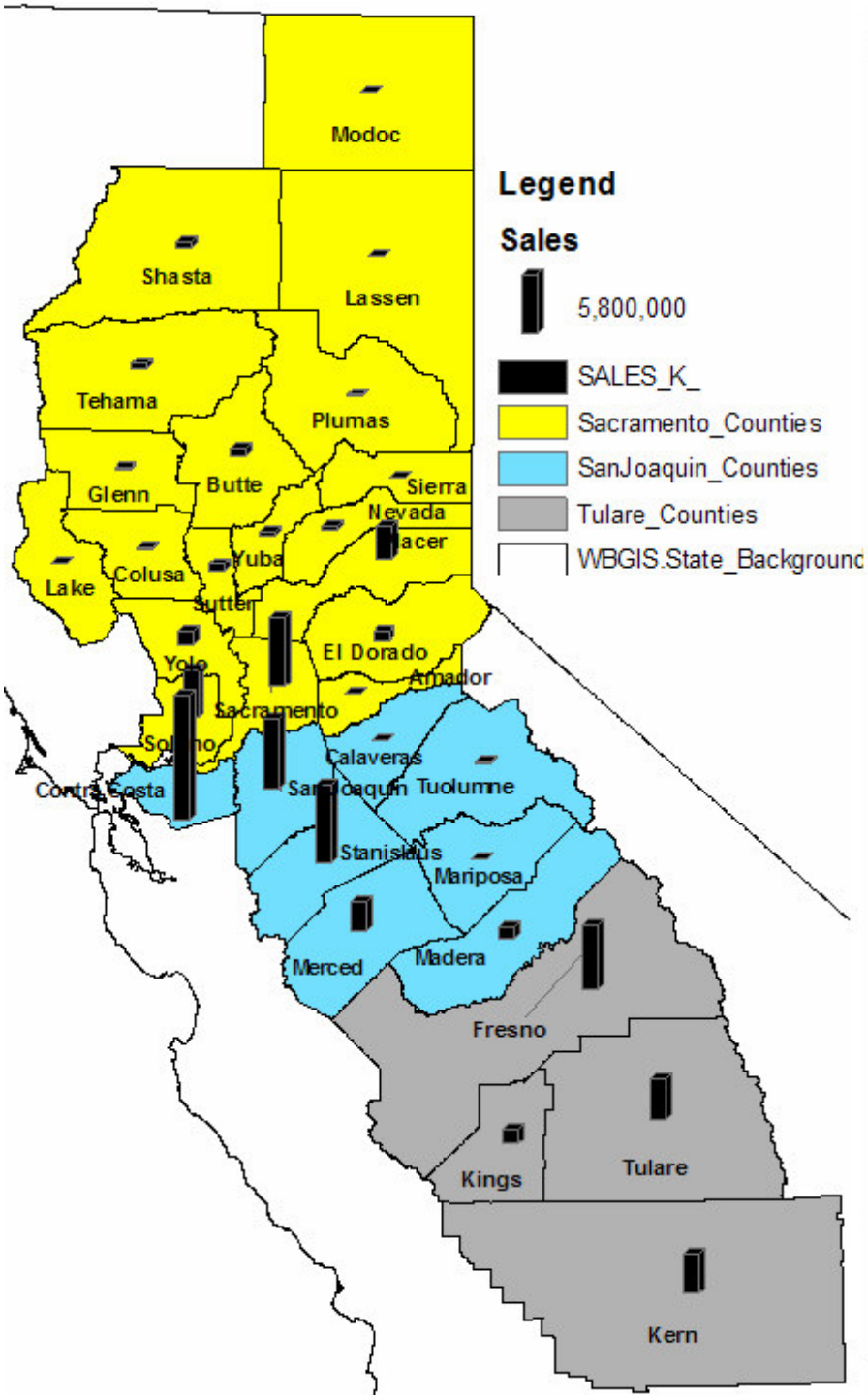
DWR, California Water Plan Update 2005

Population Salt Load

County	2007 Population	Use gal/person/day	2007 Water Use (af/yr)	Inflow TDS (mg/l)	Incremental TDS (mg/l)*	Salt Load (tons/yr)
Amador	38,435		8,839	200	350	6,610
Butte	218,069		50,151	200	350	37,504
Colusa	21,951		5,048	200	350	3,775
El Dorado	178,674		41,091	200	350	30,729
Glenn	28,915		6,650	200	350	4,973
Lake	64,276		14,782	200	350	11,054
Lassen	36,375		8,365	200	350	6,256
Modoc	9,721		2,236	200	350	1,672
Nevada	99,766		22,944	200	350	17,158
Placer	324,495		74,627	200	350	55,808
Plumas	21,128		4,859	200	350	3,634
Sacramento	1,406,804		323,534	200	350	241,948
Shasta	181,401		41,718	200	350	31,198
Sierra	3,485		801	200	350	599
Solano	424,823		97,700	200	350	73,063
Sutter	93,919		21,599	200	350	16,153
Tehama	61,774		14,207	200	350	10,624
Yolo	193,983		44,612	200	350	33,362
Yuba	70,745		16,270	200	350	12,167
Basin Totals	3,478,739	205	800,033			598,287
Contra Costa	1,042,341		199,798	200	350	149,415
San Joaquin	679,687		130,284	200	350	97,430
Stanislaus	521,497		99,962	200	350	74,754
Merced	251,510		48,210	200	350	36,053
Madera	148,721		28,507	200	350	21,318
Tuolumne	57,223		10,969	200	350	8,203
Calaveras	46,028		8,823	200	350	6,598
Mariposa	18,254		3,499	200	350	2,617
Basin Totals	2,765,261	171	530,051			396,387
Fresno	917,515		246,805	200	350	184,568
Kern	801,648		215,637	200	350	161,260
Tulare	429,006		115,399	200	350	86,299
Kings	151,381		40,720	200	350	30,452
Basin Totals	2,299,550	240	618,562			462,578
Central Valley Totals	8,543,550	204	1,948,646			1,457,252

*Metcalf & Eddy, Typical mineral increases from domestic water use: 150-380 mg/l

*Does this include salts from water softeners? Self-regenerative water softners yield 18.1-38.2 lbs of salt/unit/month depending on type, Brandt, Irvine Ranch Water District. 50 lbs/unit/mo, Ashktorab & Wong, Santa Clara Valley Water District. 300 mg.l yields 68 lbs./mo (assumes 4 persons/dwelling unit, 1 af/year). (need % units with softeners & # of people/unit)



Manufacturing, 2002

County	Basin	Firms	Sales(k)
Amador	SAC	52	90,089
Butte	SAC	235	800,607
Colusa	SAC	28	228,592
El Dorado	SAC	181	967,122
Glenn	SAC	30	289,383
Lake	SAC		
Lassen	SAC		
Modoc	SAC		
Nevada	SAC	168	399,853
Placer	SAC	299	2,999,601
Plumas	SAC	31	114,323
Sacramento	SAC	975	6,459,839
Shasta	SAC	178	597,203
Sierra	SAC		
Solano	SAC	303	4,347,543
Sutter	SAC	76	575,283
Tehama	SAC	56	483,533
Yolo	SAC	176	1,282,919
Yuba	SAC	46	263,837
Basin Totals		2,834	19,899,727
Calaveras	SJ		
Contra Costa	SJ	677	11,515,876
Madera	SJ	103	1,104,524
Mariposa	SJ		
Merced	SJ	127	2,734,324
San Joaquin	SJ	609	6,481,720
Stanislaus	SJ	488	7,232,823
Tuolumne	SJ	81	210,631
Basin Totals		2,085	29,279,898
Fresno	TULARE	701	6,008,599
Kern	TULARE	398	3,752,122
Kings	TULARE	79	1,269,196
Tulare	TULARE	293	3,763,077
Basin Totals		1,471	14,792,994
Central Valley Totals		6,390	63,972,619

2002 Economic Census

Manufacturing Other than Food Processing (NAICS 32-33)

County	Basin	NAICS 32-33 Sales (k)	Water Use (af/yr)	TDS (mg/l)	Incremental TDS (mg/l)*	Salt Load (tons/yr)
Amador	SAC	129,415	538	200	550	548
Butte	SAC	505,267	2,100	200	550	2,141
Colusa	SAC	228,592	950	200	550	969
El Dorado	SAC	967,122	4,019	200	550	4,098
Glenn	SAC	289,383	1,202	200	550	1,226
Lake	SAC	172,554	717	200	550	731
Lassen	SAC	86,277	359	200	550	366
Modoc	SAC	0	0	200	550	0
Nevada	SAC	399,853	1,662	200	550	1,694
Placer	SAC	2,999,601	12,464	200	550	12,711
Plumas	SAC	114,323	475	200	550	484
Sacramento	SAC	4,717,872	19,604	200	550	19,992
Shasta	SAC	597,203	2,482	200	550	2,531
Sierra	SAC	0	0	200	550	0
Solano	SAC	3,763,793	15,640	200	550	15,949
Sutter	SAC	308,298	1,281	200	550	1,306
Tehama	SAC	483,533	2,009	200	550	2,049
Yolo	SAC	890,337	3,700	200	550	3,773
Yuba	SAC	263,837	1,096	200	550	1,118
Basin Totals		16,917,260	84,600			71,686
Calaveras	SJ	43,138	179	200	550	183
Contra Costa	SJ	10,958,744	45,537	200	550	46,437
Madera	SJ	1,104,524	4,590	200	550	4,680
Mariposa	SJ	0	0	200	550	0
Merced	SJ	1,336,237	5,552	200	550	5,662
San Joaquin	SJ	3,964,886	16,475	200	550	16,801
Stanislaus	SJ	3,578,402	14,869	200	550	15,163
Tuolumne	SJ	210,631	875	200	550	893
Basin Totals		21,196,563	90,100			89,819
Fresno	TULARE	2,966,013	12,325	200	550	12,568
Kern	TULARE	2,538,011	10,546	200	550	10,755
Kings	TULARE	211,510	879	200	550	896
Tulare	TULARE	1,101,863	4,579	200	550	4,669
Basin Totals		6,817,397	66,400			28,888
Central Valley Totals		44,931,220	241,100			190,394

*MWTP Effluent Limitation: Water Supply + 500 mg/l (320 umhos/cm) domestic. Maximum 1,000 mg/l (640 umhos/cm) for industrial discharges.

Food Processing Other Than Fruit & Vegetable, Dairy Meat Processing, Wineries

County	Basin	Sales (k)	Water Use (af/yr)	TDS (mg/l)	Incremental TDS (mg/l)*	Salt Load (tons/yr)
Amador	SAC	0	0	200	550	0
Butte	SAC	102,912	428	200	550	436
Colusa	SAC	0	0	200	550	0
El Dorado	SAC	0	0	200	550	0
Glenn	SAC	0	0	200	550	0
Lake	SAC	0	0	200	550	0
Lassen	SAC	0	0	200	550	0
Modoc	SAC	0	0	200	550	0
Nevada	SAC	0	0	200	550	0
Placer	SAC	0	0	200	550	0
Plumas	SAC	0	0	200	550	0
Sacramento	SAC	1,132,450	4,706	200	550	4,799
Shasta	SAC	0	0	200	550	0
Sierra	SAC	0	0	200	550	0
Solano	SAC	583,750	2,426	200	550	2,474
Sutter	SAC	120,265	500	200	550	510
Tehama	SAC	0	0	200	550	0
Yolo	SAC	392,582	1,631	200	550	1,664
Yuba	SAC	0	0	200	550	0
Basin Totals		2,331,959	9,690			9,882
Calaveras	SJ	0	0	200	550	0
Contra Costa	SJ	557,132	2,315	200	550	2,361
Madera	SJ	0	0	200	550	0
Mariposa	SJ	0	0	200	550	0
Merced	SJ	252,136	1,048	200	550	1,068
San Joaquin	SJ	1,654,609	6,875	200	550	7,011
Stanislaus	SJ	1,697,223	7,052	200	550	7,192
Tuolumne	SJ	0	0	200	550	0
Basin Totals		4,161,100	17,291			17,632
Fresno	TULARE	1,071,909	4,454	200	550	4,542
Kern	TULARE	1,214,111	5,045	200	550	5,145
Kings	TULARE	456,161	1,895	200	550	1,933
Tulare	TULARE	629,548	2,616	200	550	2,668
Basin Totals		3,371,729	14,011			14,288
Central Valley Totals		9,864,789	40,991			41,802

*Central Valley Regional Water Quality Control Board, "Update Regarding the Regulaiton of Food Processing Waste Discharges to Land", Staff Report, 3/1/2006.

Fruit & Vegetable, Dairy, Meat Processing (NAICS 3114, 3115, 3116)						
County	Basin	NAICS 3114, 3115, 3116 Sales (k)	Water Use (af/yr)	TDS (mg/l)	Incremental TDS (mg/l)	Salt Load (tons/yr)
Amador	SAC	0	0	200	550	0
Butte	SAC	192,428	800	200	550	815
Colusa	SAC	0	0	200	550	0
El Dorado	SAC	0	0	200	550	0
Glenn	SAC	0	0	200	550	0
Lake	SAC	0	0	200	550	0
Lassen	SAC	0	0	200	550	0
Modoc	SAC	0	0	200	550	0
Nevada	SAC	0	0	200	550	0
Placer	SAC	0	0	200	550	0
Plumas	SAC	0	0	200	550	0
Sacrament	SAC	609,517	2,533	200	550	2,583
Shasta	SAC	0	0	200	550	0
Sierra	SAC	0	0	200	550	0
Solano	SAC	0	0	200	550	0
Sutter	SAC	308,298	1,281	200	550	1,306
Tehama	SAC	0	0	200	550	0
Yolo	SAC	0	0	200	550	0
Yuba	SAC	0	0	200	550	0
Basin Totals		1,110,243	4,613			4,705
Calaveras	SJ	0	0	200	550	0
Contra Cos	SJ	0	0	200	550	0
Madera	SJ	0	0	200	550	0
Mariposa	SJ	0	0	200	550	0
Merced	SJ	1,336,237	5,552	200	550	5,662
San Joaqu	SJ	862,225	3,583	200	550	3,654
Stanislaus	SJ	1,957,198	8,133	200	550	8,294
Tuolumne	SJ	0	0	200	550	0
Basin Totals		4,155,660	17,268			17,609
Fresno	TULARE	1,970,677	8,189	200	550	8,351
Kern	TULARE	0	0	200	550	0
Kings	TULARE	601,525	2,500	200	550	2,549
Tulare	TULARE	2,031,666	8,442	200	550	8,609
Basin Totals		4,603,868	19,131			19,509
Central Valley Totals		9,869,770	41,012			41,823

Winery (NAICS 31213)						
County	Basin	NAICS 31213 Sales (k)	Water Use (af/yr)	TDS (mg/l)	Incremental TDS (mg/l)	Salt Load (tons/yr)
Amador	SAC	129,415	538	200	550	548
Butte	SAC		0	200	550	0
Colusa	SAC		0	200	550	0
El Dorado	SAC		0	200	550	0
Glenn	SAC		0	200	550	0
Lake	SAC	172,554	717	200	550	731
Lassen	SAC	86,277	359	200	550	366
Modoc	SAC		0	200	550	0
Nevada	SAC		0	200	550	0
Placer	SAC		0	200	550	0
Plumas	SAC		0	200	550	0
Sacramento	SAC		0	200	550	0
Shasta	SAC		0	200	550	0
Sierra	SAC		0	200	550	0
Solano	SAC		0	200	550	0
Sutter	SAC		0	200	550	0
Tehama	SAC		0	200	550	0
Yolo	SAC	86,277	359	200	550	366
Yuba	SAC		0	200	550	0
Basin Totals		474,523	1,972			2,011
Calaveras	SJ	43,138	179	200	550	183
Contra Costa	SJ		0	200	550	0
Madera	SJ	301,969	1,255	200	550	1,280
Mariposa	SJ		0	200	550	0
Merced	SJ		0	200	550	0
San Joaquin	SJ	776,493	3,227	200	550	3,290
Stanislaus	SJ	129,415	538	200	550	548
Tuolumne	SJ		0	200	550	0
Basin Totals		1,251,016	5,198			5,301
Fresno	TULARE	568	2	200	550	2
Kern	TULARE	129,415	538	200	550	548
Kings	TULARE		0	200	550	0
Tulare	TULARE	86,277	359	200	550	366
Basin Totals		216,261	899			916
Central Valley Totals		1,941,799	8,069			8,228

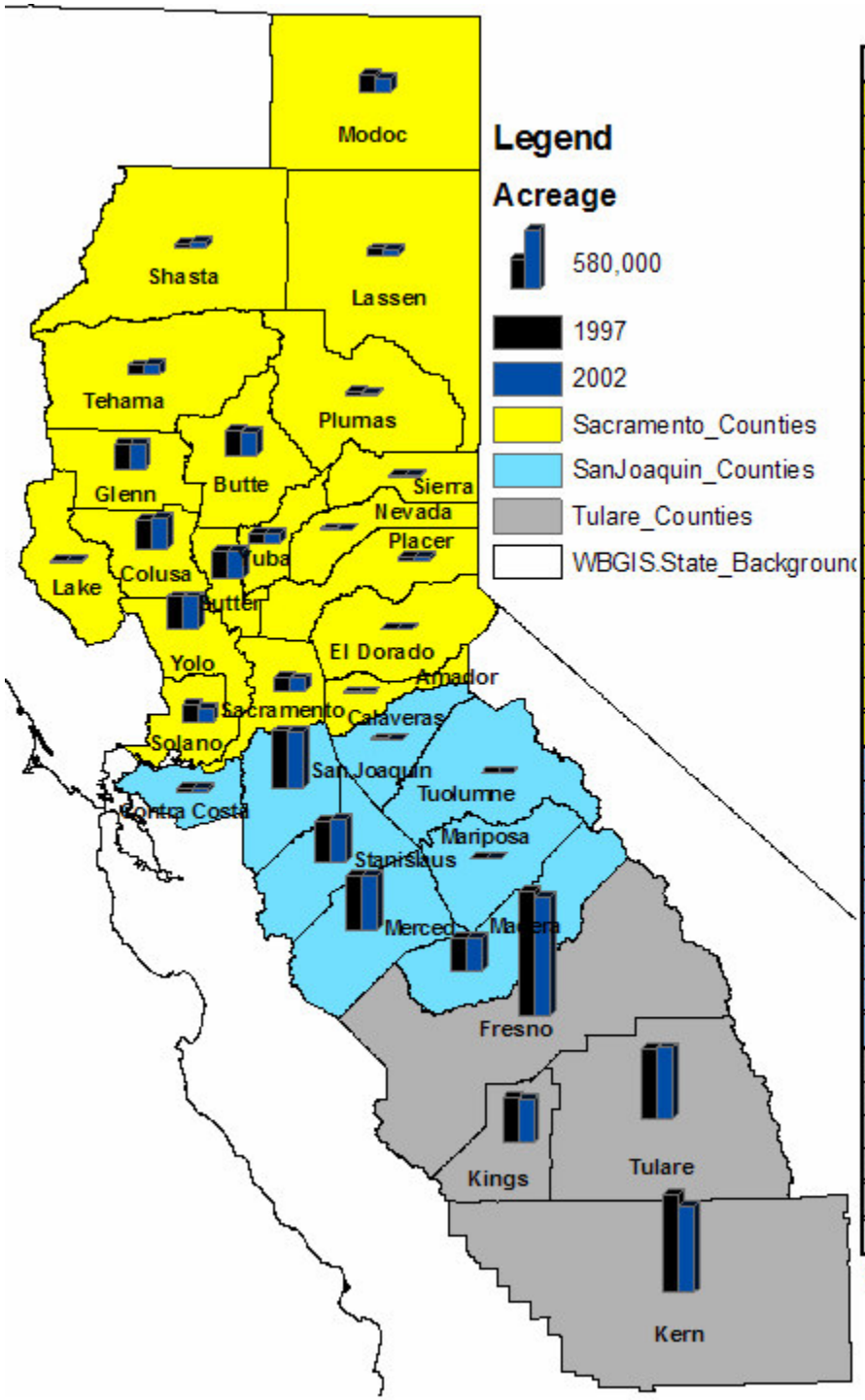
Confined Animal Feeding Operations-Animal Numbers, 2002*						Salt Load (yr)				
County	Basin	Poultry	Hogs	Dairy	Cattle on Feed	Poultry	Hogs	Dairy	Cattle on Feed	Total
Amador	SAC	723	94	20	482	0	4	4	77	86
Butte	SAC	4,583	6,961	1,261	174	3	297	269	28	597
Colusa	SAC	133	275			0	12	0	0	12
El Dorado	SAC	2,644	363	9	77	2	16	2	12	31
Glenn	SAC	780	1,692	21,325		0	72	4,553	0	4,626
Lake	SAC	6,198	242	4	13	4	10	1	2	17
Lassen	SAC	495	488	38		0	21	8	0	29
Modoc	SAC	389	181	14	180	0	8	3	29	40
Nevada	SAC	1,825	139	108	96	1	6	23	15	46
Placer	SAC	6,208	500		283	4	21	0	45	71
Plumas	SAC	594	153	840		0	7	179	0	186
Sacramento	SAC	490,214	1,797	18,133	298	314	77	3,871	48	4,310
Shasta	SAC	3,014	429	562	173	2	18	120	28	168
Sierra	SAC	52				0	0	0	0	0
Solano	SAC	22,786	294	3,812	1,380	15	13	814	221	1,062
Sutter	SAC	1,431	308	524		1	13	112	0	126
Tehama	SAC	2,846	649	5,489		2	28	1,172	0	1,201
Yolo	SAC	968	1,508	3,274		1	64	699	0	764
Yuba	SAC	1,866	804	3,032		1	34	647	0	683
Basin Totals		547,749	16,877	58,445	3,156	351	721	12,478	505	14,055
Calaveras	SJ	1,356	175	222	343	1	7	47	55	111
Contra Costa	SJ	3,306	137		66	2	6	0	11	19
Madera	SJ	1,239,441	593	69,345	2,500	794	25	14,805	400	16,025
Mariposa	SJ	551		245	375	0	0	52	60	113
Merced	SJ	6,281,469	8,197	267,888	928	4,023	350	57,194	149	61,716
San Joaquin	SJ	3,261,207	2,156	106,077	1,819	2,089	92	22,647	291	25,120
Stanislaus	SJ	3,693,799	23,172	199,415	3,020	2,366	989	42,575	484	46,414
Tuolumne	SJ	650,082	69	108	118	416	3	23	19	461
Basin Totals		15,131,211	34,499	643,300	9,169	9,692	1,473	137,345	1,468	149,977
Fresno	TULARE	10,972,535	7,830	125,902	150,000	7,028	334	26,880	24,019	58,261
Kern	TULARE	130	2,731	150,190	28,000	0	117	32,066	4,484	36,666
Kings	TULARE	1,012,531		160,194	32	649	0	34,201	5	34,855
Tulare	TULARE	2,295,329	116,500	494,102	197	1,470	4,975	105,491	32	111,967
Basin Totals		14,280,525	127,061	930,388	178,229	9,147	5,426	198,638	28,539	241,749
Central Valley Totals		29,959,485	178,437	1,632,133	190,554	19,189	7,619	348,460	30,512	405,781

*2002 Census of Agriculture, CA Dept of Food and Agriculture, Central Valley Regional Water Quality Control Board

Salt load per animal/year: 1.3 85.4 427.0 320.3

427 lbs/year. Source: UC Div of Ag and Natural Resources Committee of Experts on Dairy Manure Mgt (Sept. 2003)

Average Animal Weight: 3 200 1,000 750



Irrigated Land (acres)

County	Basin	1997	2002	% Change
Yolo	SAC	296,858	298,670	0.61%
Colusa	SAC	281,209	290,861	3.43%
Sutter	SAC	249,125	248,572	-0.22%
Glenn	SAC	226,225	233,127	3.05%
Butte	SAC	233,292	222,735	-4.53%
Modoc	SAC	164,590	129,373	-21.40%
Sacramento	SAC	127,898	124,931	-2.32%
Solano	SAC	164,635	124,535	-24.36%
Tehama	SAC	91,159	98,840	8.43%
Yuba	SAC	89,243	93,489	4.76%
Lassen	SAC	69,110	61,925	-10.40%
Shasta	SAC	40,698	46,021	13.08%
Placer	SAC	38,558	36,305	-5.84%
Lake	SAC	17,520	23,412	33.63%
Plumas	SAC	31,855	16,673	-47.66%
Sierra	SAC	10,450	12,136	16.13%
Amador	SAC	12,845	11,828	-7.92%
Nevada	SAC	8,503	6,700	-21.20%
El Dorado	SAC	5,079	5,927	16.70%
Basin Totals		2,158,852	2,086,060	-3.37%
San Joaquin	SJ	528,409	520,172	-1.56%
Merced	SJ	504,771	518,538	2.73%
Stanislaus	SJ	376,439	401,439	6.64%
Madera	SJ	311,204	317,241	1.94%
Contra Costa	SJ	30,810	32,921	6.85%
Calaveras	SJ	9,137	6,610	-27.66%
Tuolumne	SJ	4,179	3,738	-10.55%
Mariposa	SJ	3,171	1,541	-51.40%
Basin Totals		1,768,120	1,802,200	1.93%
Fresno	TULARE	1,156,117	1,098,941	-4.95%
Kern	TULARE	917,003	811,672	-11.49%
Tulare	TULARE	638,701	652,385	2.14%
Kings	TULARE	423,608	407,031	-3.91%
Basin Totals		3,135,429	2,970,029	-5.28%
Region Totals		7,062,401	6,858,289	-2.89%

2002 Census of Agriculture

Irrigated Agriculture Salt Load. 2002

County	Basin	Irrigated Acres	Water Use (af/acre)	Water Use (af/year)	TDS (mg/l)	Incremental TDS (mg/l)**	Salt Load (tons/yr)*
Amador	SAC	11,828		44,122	200	200	23,997
Butte	SAC	222,735		830,876	200	200	451,893
Colusa	SAC	290,861		1,085,009	200	200	590,109
El Dorado	SAC	5,927		22,110	200	200	12,025
Glenn	SAC	233,127		869,642	200	200	472,976
Lake	SAC	23,412		87,335	200	200	47,499
Lassen	SAC	61,925		231,001	200	200	125,636
Modoc	SAC	129,373		482,604	200	200	262,476
Nevada	SAC	6,700		24,993	200	200	13,593
Placer	SAC	36,305		135,430	200	200	73,657
Plumas	SAC	16,673		62,196	200	200	33,827
Sacramento	SAC	124,931		466,034	200	200	253,464
Shasta	SAC	46,021		171,674	200	200	93,369
Sierra	SAC	12,136		45,271	200	200	24,622
Solano	SAC	124,535		464,557	200	200	252,661
Sutter	SAC	248,572		927,257	200	200	504,312
Tehama	SAC	98,840		368,706	200	200	200,530
Yolo	SAC	298,670		1,114,139	200	200	605,952
Yuba	SAC	93,489		348,745	200	200	189,674
Basin Totals		2,086,060	3.73	7,781,700			4,232,272
Calaveras	SJ	6,610		24,918	200	200	13,552
Contra Costa	SJ	32,921		124,105	200	200	67,498
Madera	SJ	317,241		1,195,929	200	200	650,436
Mariposa	SJ	1,541		5,809	200	200	3,159
Merced	SJ	518,538		1,954,775	200	200	1,063,153
San Joaquin	SJ	520,172		1,960,935	200	200	1,066,503
Stanislaus	SJ	401,439		1,513,337	200	200	823,066
Tuolumne	SJ	3,738		14,091	200	200	7,664
Basin Totals		1,802,200	3.77	6,793,900			3,695,032
Fresno	TULARE	1,098,941		3,691,296	200	200	2,007,603
Kern	TULARE	811,672		2,726,371	200	200	1,482,805
Kings	TULARE	407,031		1,367,200	200	200	743,586
Tulare	TULARE	652,385		2,191,333	200	200	1,191,811
Basin Totals		2,970,029	3.36	9,976,200			5,425,806
Region 5 Totals		6,858,289	3.58	24,551,800			13,353,110

*Salt Load = Water Use (af) * TDS (mgl) * 2.7193 / 2000

**Need deep perc and tailwater salt concentations & quantities. Salt sources are from soil amendments, fertilizers, pesticides, and soil profile.

Total Central Valley Salt Load (tons/year)

County	Basin	Municpal & Commercial	Industry	Confined Animals	Irrigated Agriculture	Totals
Amador	SAC	6,610	1,097	86	23,997	31,790
Butte	SAC	37,504	3,393	597	451,893	493,387
Colusa	SAC	3,775	969	12	590,109	594,865
El Dorado	SAC	30,729	4,098	31	12,025	46,884
Glenn	SAC	4,973	1,226	4,626	472,976	483,801
Lake	SAC	11,054	1,462	17	47,499	60,033
Lassen	SAC	6,256	731	29	125,636	132,652
Modoc	SAC	1,672	0	40	262,476	264,188
Nevada	SAC	17,158	1,694	46	13,593	32,491
Placer	SAC	55,808	12,711	71	73,657	142,246
Plumas	SAC	3,634	484	186	33,827	38,131
Sacramento	SAC	241,948	27,373	4,310	253,464	527,095
Shasta	SAC	31,198	2,531	168	93,369	127,266
Sierra	SAC	599	0	0	24,622	25,221
Solano	SAC	73,063	18,422	1,062	252,661	345,208
Sutter	SAC	16,153	3,122	126	504,312	523,713
Tehama	SAC	10,624	2,049	1,201	200,530	214,405
Yolo	SAC	33,362	5,802	764	605,952	645,880
Yuba	SAC	12,167	1,118	683	189,674	203,642
Basin Totals		598,287	88,283	14,055	4,232,272	4,932,897
Calaveras	SJ	149,415	366	111	13,552	163,443
Contra Costa	SJ	97,430	48,798	19	67,498	213,744
Madera	SJ	74,754	5,960	16,025	650,436	747,175
Mariposa	SJ	36,053	0	113	3,159	39,325
Merced	SJ	21,318	12,393	61,716	1,063,153	1,158,580
San Joaquin	SJ	8,203	30,756	25,120	1,066,503	1,130,582
Stanislaus	SJ	6,598	31,197	46,414	823,066	907,275
Tuolumne	SJ	2,617	893	461	7,664	11,634
Basin Totals		396,387	130,362	149,977	3,695,032	4,371,759
Fresno	TULARE	184,568	25,464	58,261	2,007,603	2,275,896
Kern	TULARE	161,260	16,448	36,666	1,482,805	1,697,179
Kings	TULARE	86,299	5,378	34,855	743,586	870,118
Tulare	TULARE	30,452	16,311	111,967	1,191,811	1,350,542
Basin Totals		462,578	63,601	241,749	5,425,806	6,193,734
Central Valley Totals		1,457,252	282,246	405,781	13,353,110	15,498,389

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Version 9.0

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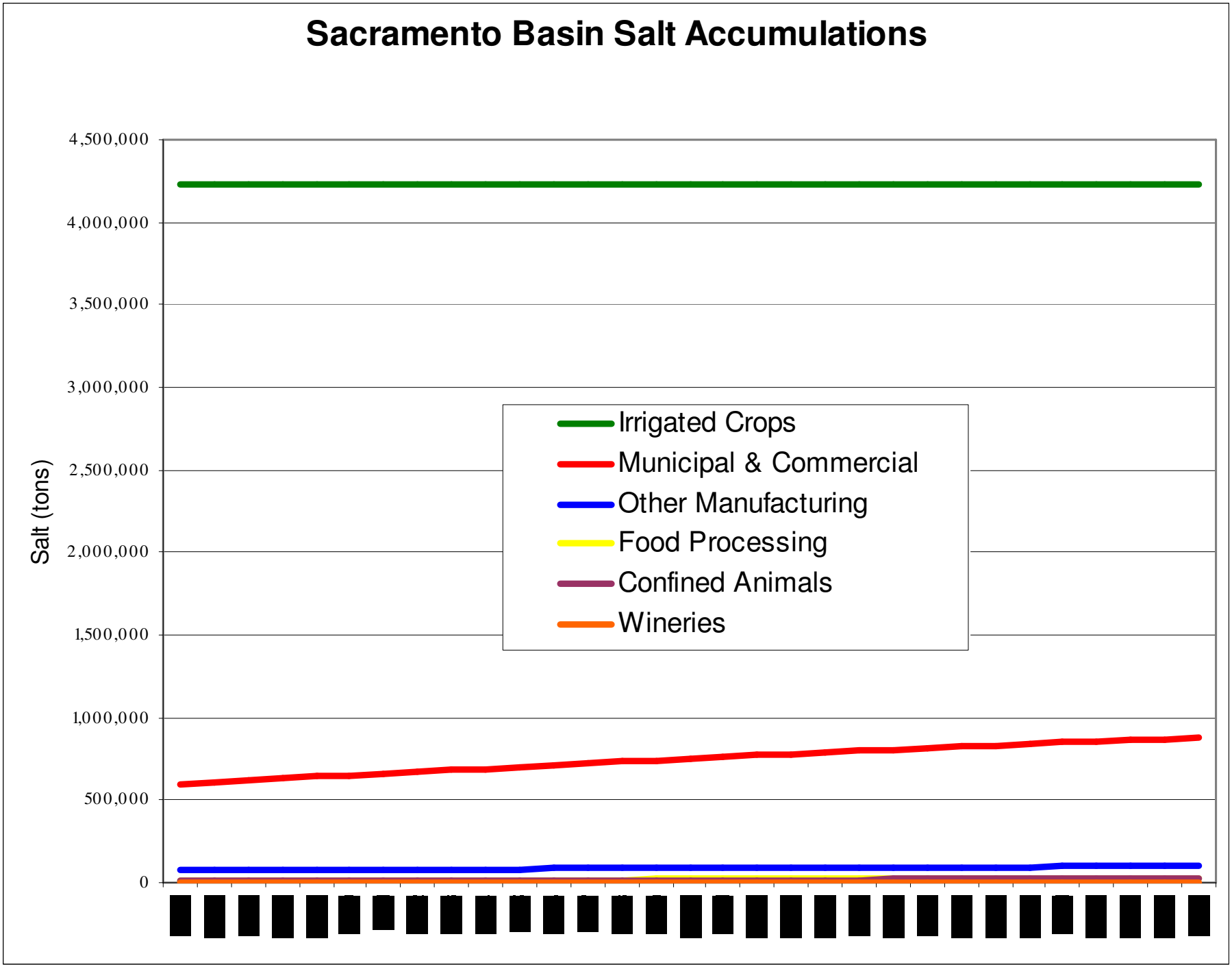
- User Specified Regions
- Regions are County or Multi-county
- Regional Economic Linkages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Salt (tons)
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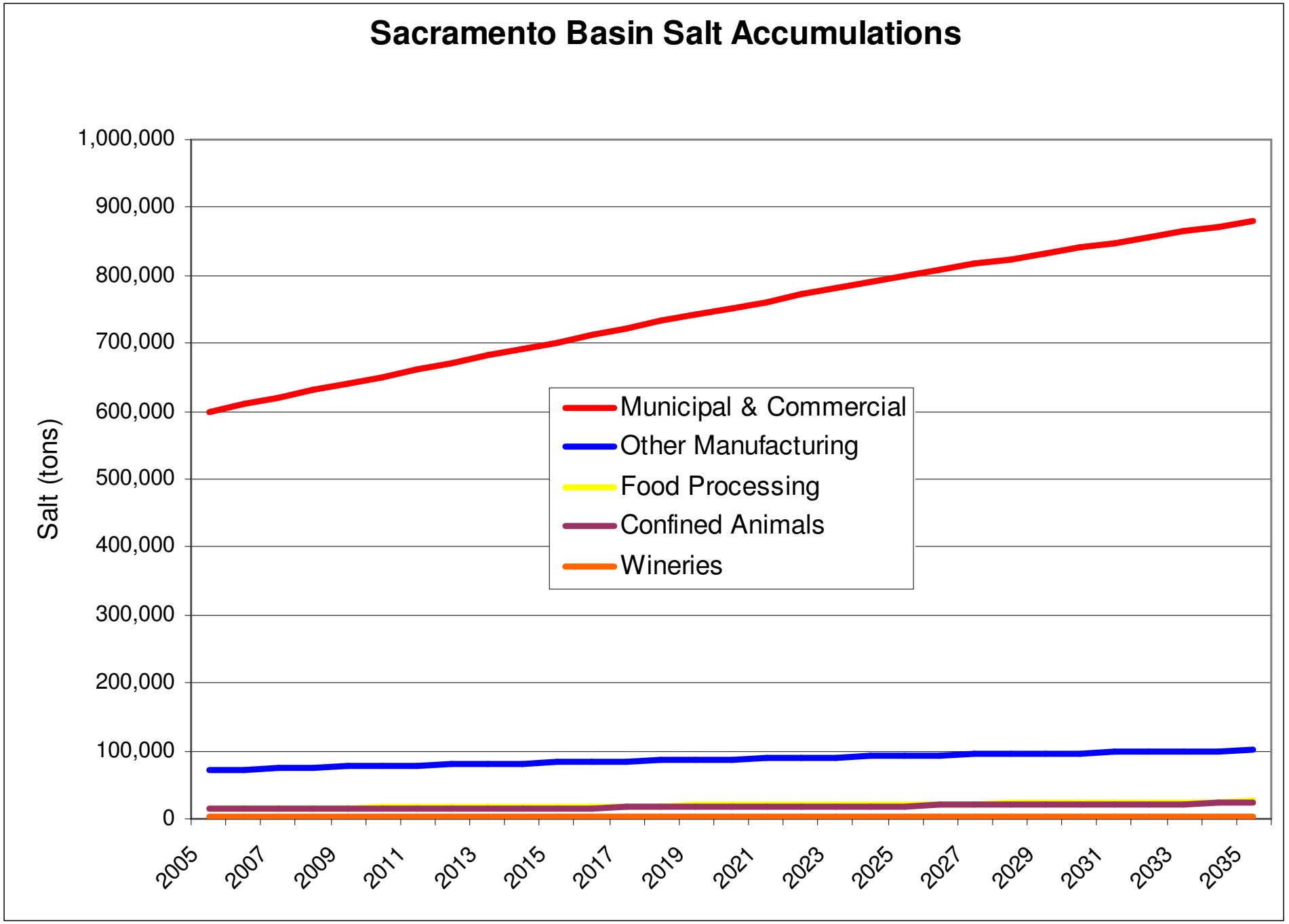
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
Irrigated Crops
Municipal & Commercial
Other Manufacturing
Food Processing
Confined Animals
Wineries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Salt (tons)
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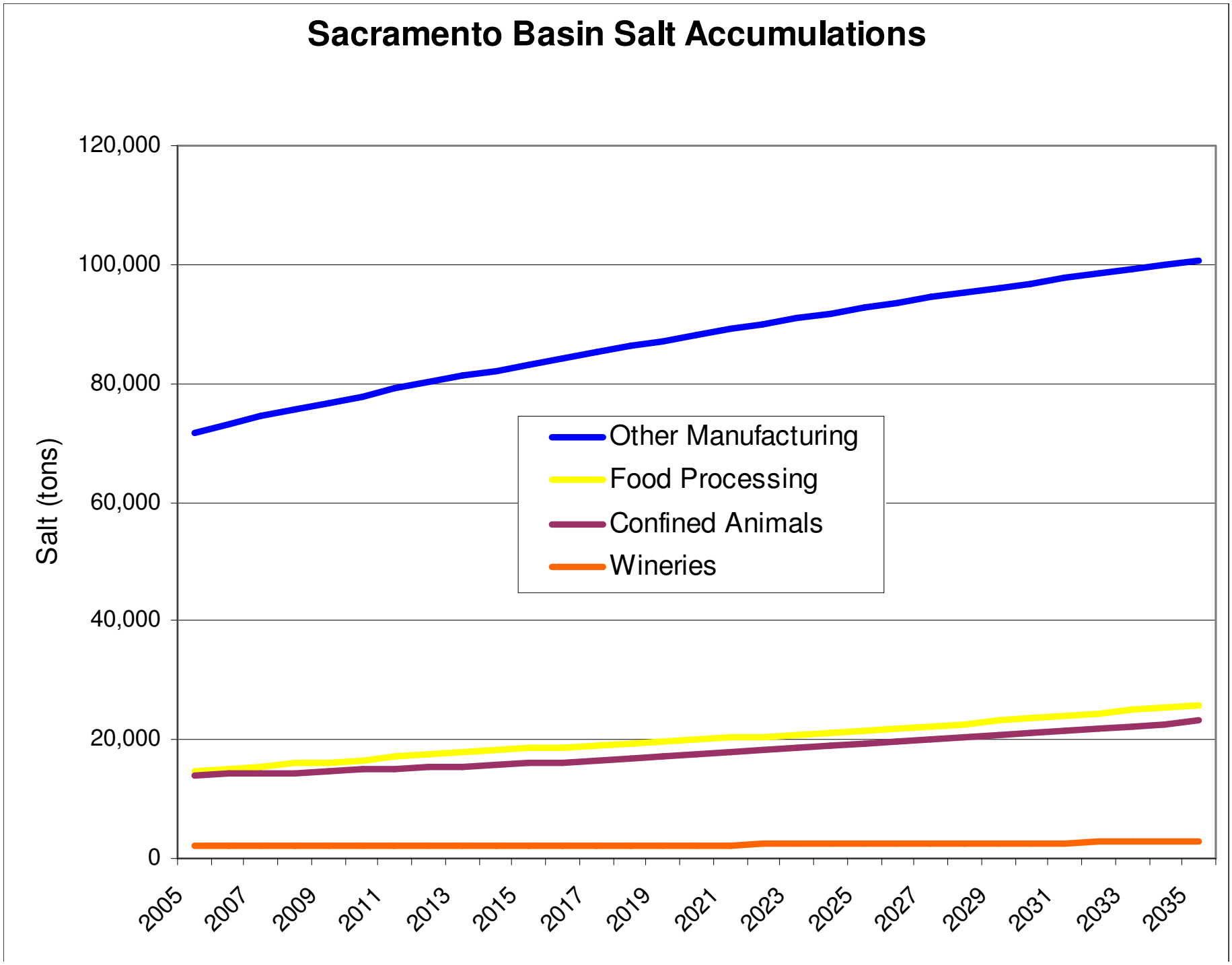
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
Municipal & Commercial
Other Manufacturing
Food Processing
Confined Animals
Wineries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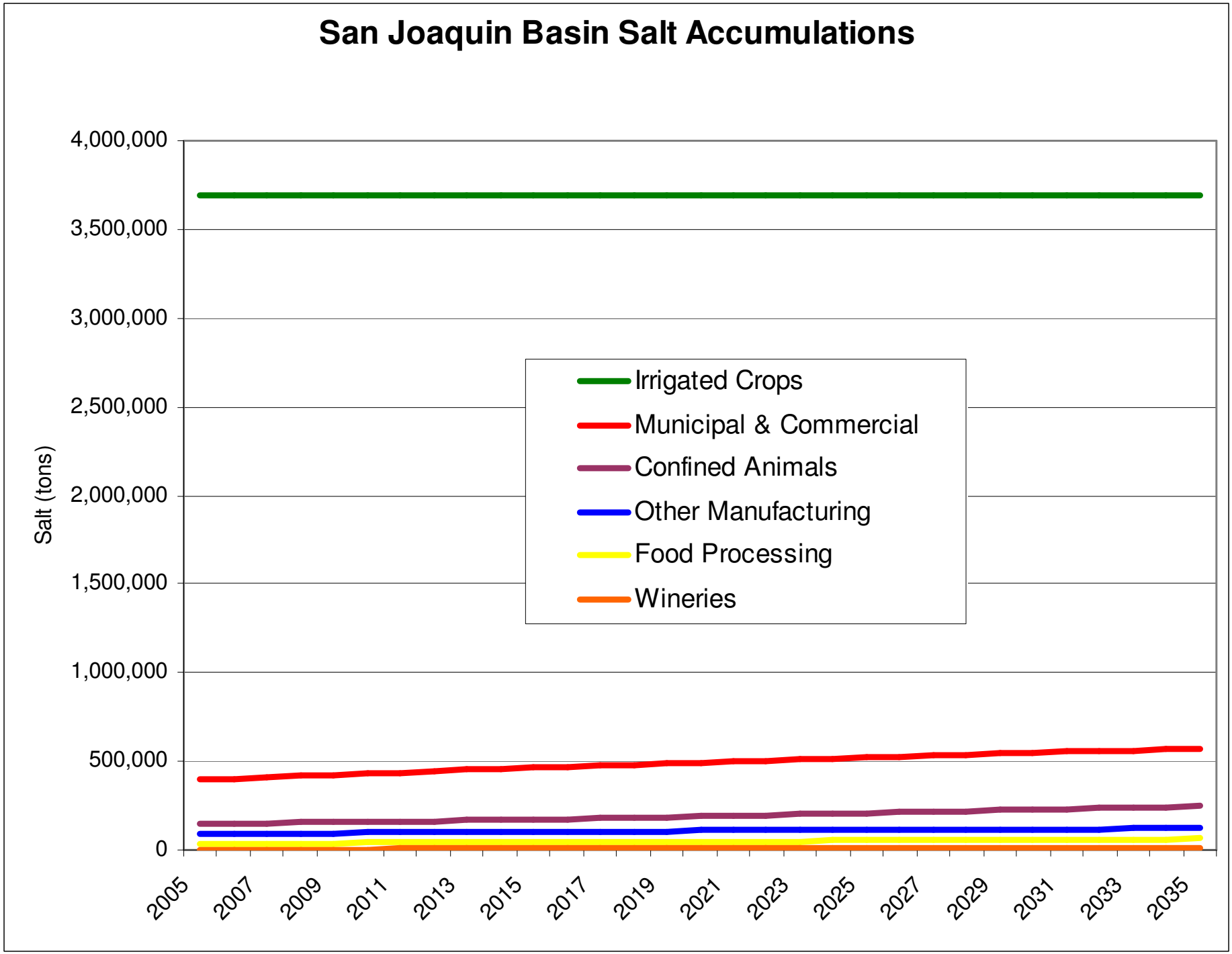
Salt (tons)
120,000
100,000
80,000
60,000
40,000
20,000
0
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
Other Manufacturing
Food Processing
Confined Animals
Wineries


San Joaquin Basin Salt Accumulations
Salt (tons)
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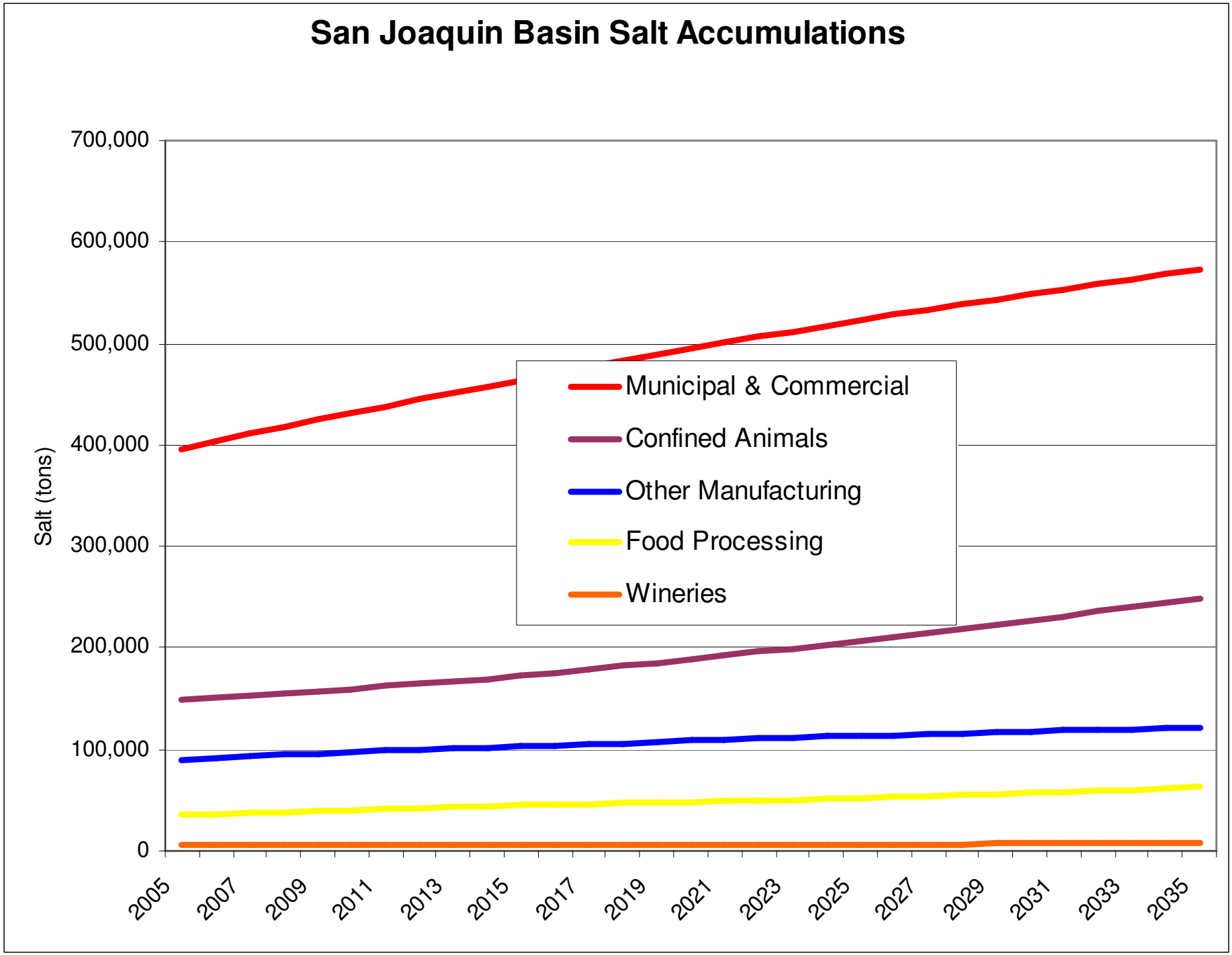
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
Irrigated Crops
Municipal & Commercial
Confined Animals
Other Manufacturing
Food Processing
Wineries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Salt (tons)
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
2025
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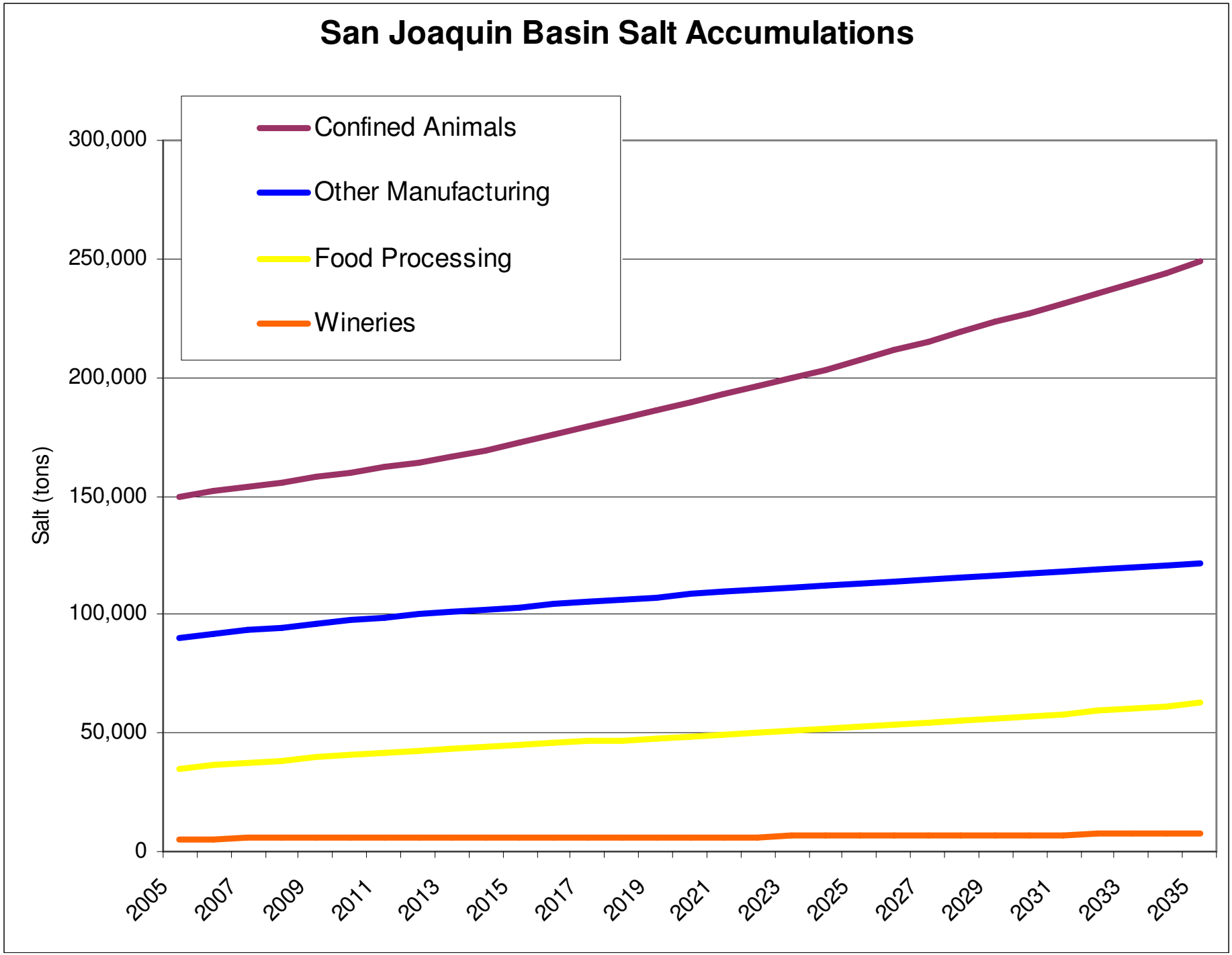
2031
2033
2035
Municipal & Commercial
Confined Animals
Other Manufacturing
Food Processing
Wineries


San Joaquin Basin Salt Accumulations
Confined Animals
Other Manufacturing
Food Processing
Wineries
Salt (tons)
300,000
250,000
200,000
150,000
100,000
50,000
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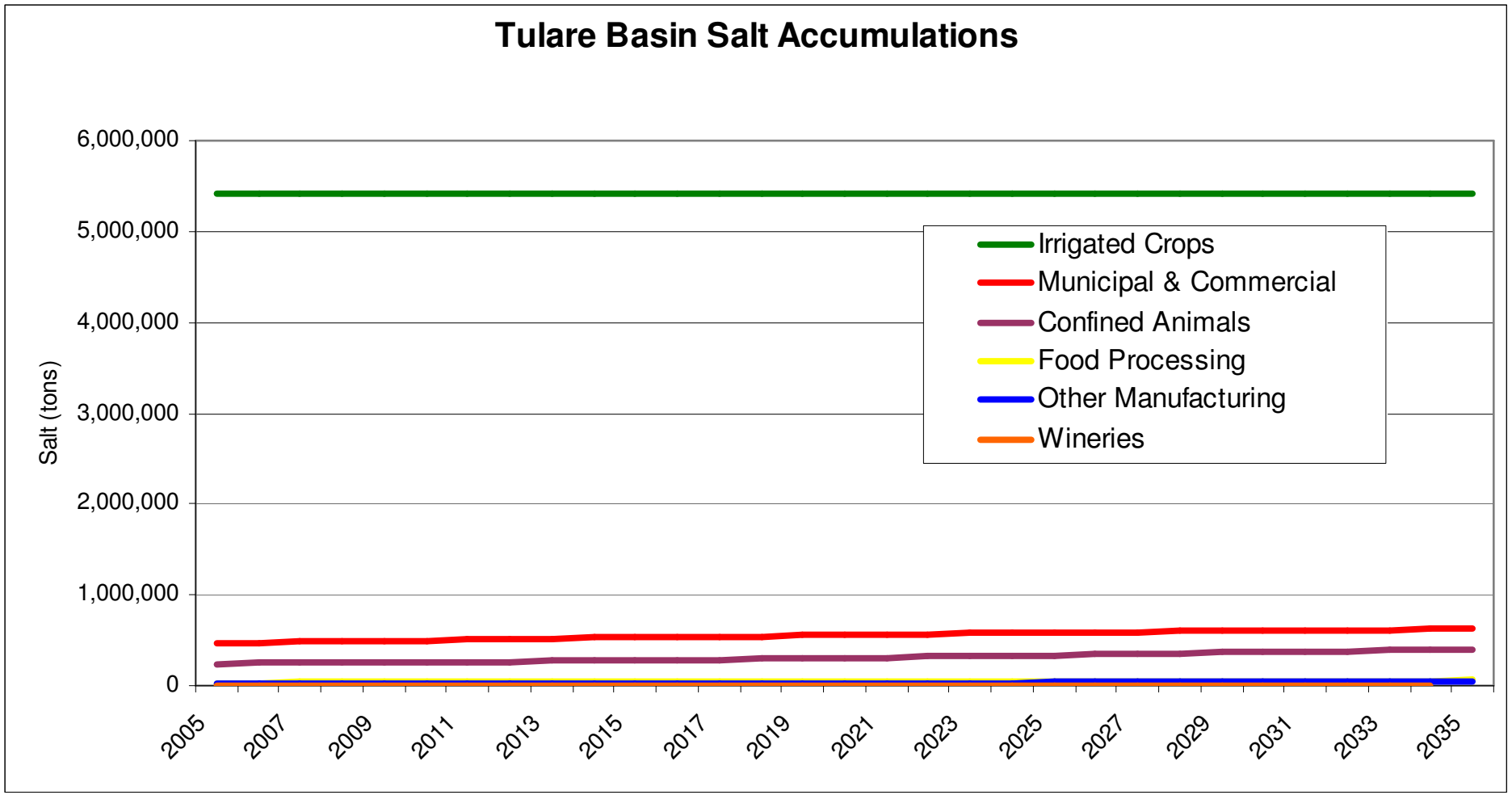
Tulare Basin Salt Accumulations
Salt (tons)
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023
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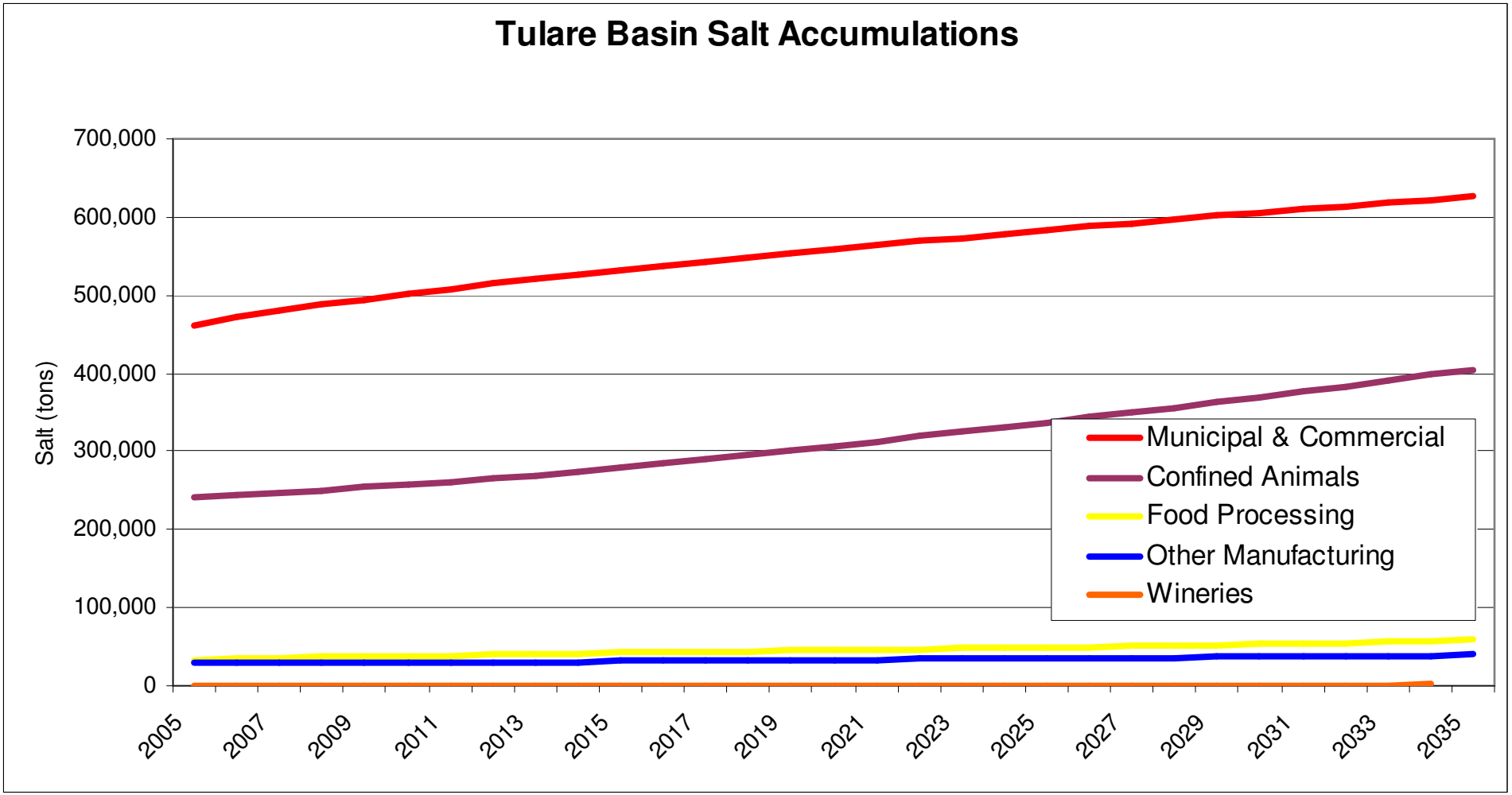
2035
Irrigated Crops
Municipal & Commercial
Confined Animals
Food Processing
Other Manufacturing
Wineries


Tulare Basin Salt Accumulations
Salt (tons)
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
2005
2007
2009
2011
2013
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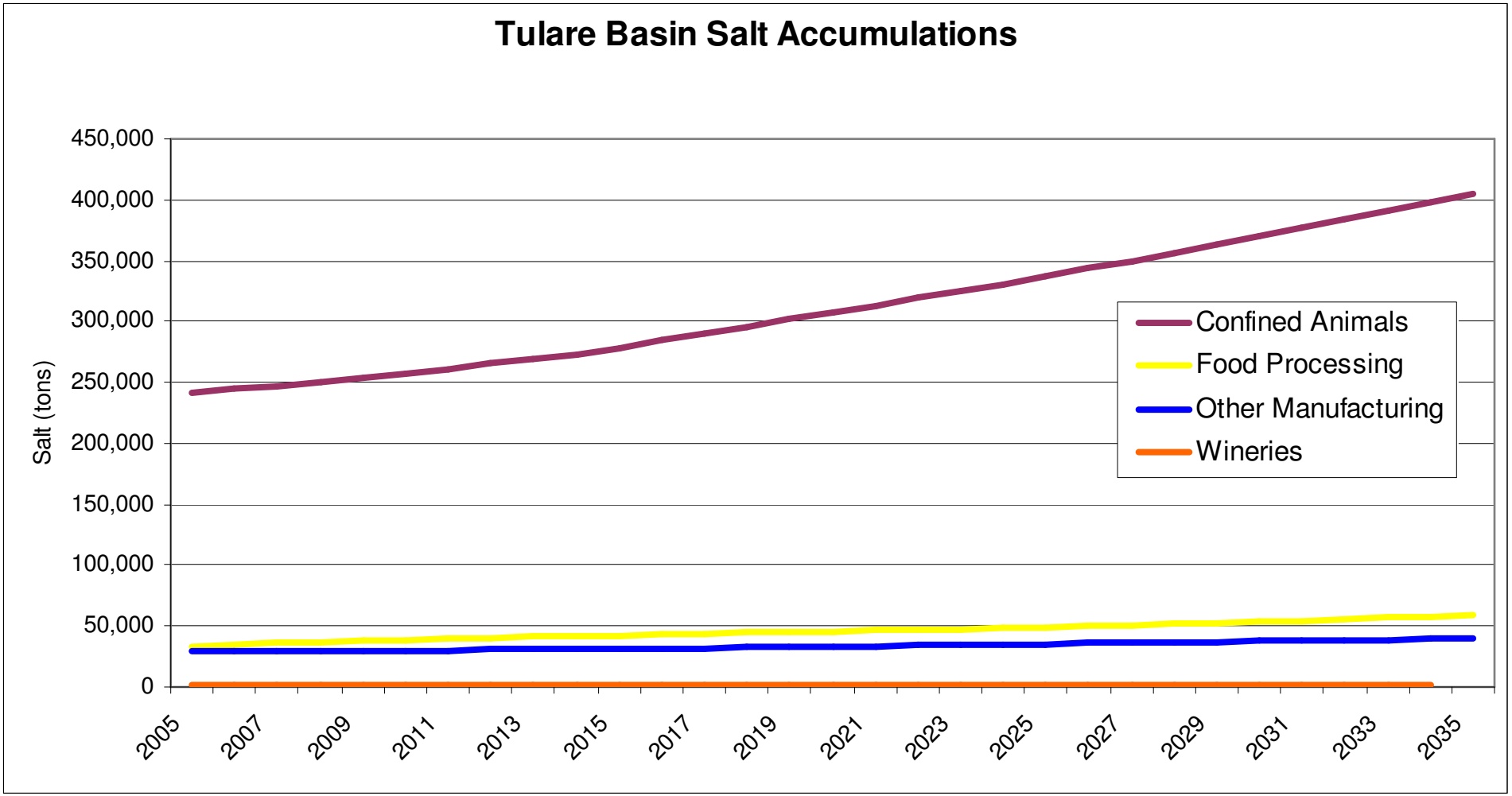
2035
Municipal & Commercial
Confined Animals
Food Processing
Other Manufacturing
Wineries


Tulare Basin Salt Accumulations
Salt (tons)
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
2005
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2027
2029
2031
2033
2035
Confined Animals
Food Processing
Other Manufacturing
Wineries

Costs of Salinity Accumulations

- Regulatory Costs
- Treatment Costs
- Disposal Costs
- Productivity Costs

Salinity Projections

(a) Separation of the Natural and anthropogenic sources of salinity

(b) Salinity projections. – Proportion to Ag Output
- Based on Shoup && Hopmans model

(c) Hydrograph and climate change.. A modified hydrograph for surface water supplies used in the Calvin climate change study can be used—Possible the projections of the Shoup & Hopmans model will incorporate this.

Agricultural Trade & Policy

(a) Dollar exchange rate—Given the effect of the deficit on the exchange rate—its not at all clear that the dollar rate will increase. A low $ is the most conservative policy for salinity projections--- maximizes export crop production.
(b) 2007 Farm Bill.. Yes-- lets try and assemble a coherent set of assumptions—see Sumner article.

C V Regional Water Quality Control Policies

(a) Salinity guidelines discussion
(b) TMDL statement

Agriculture

(a) Irrigated land retirement due to salinity—We can try and price out IFDM systems, and incorporate them in a run that is based on this new technology.. Again, our approach is more conservative as the widespread adoption of IDFM will lower the socio-economic impact of salinity..
(b) The impact of SJR restoration flows—
(c) Alternative rates of salinity build up – certainly
(d) Regionalization and timelines—certainly—this is the whole point of building regional models