Appendix C - BACTERIA SOURCE LOAD CALCULATOR (BSLC) SPREADSHEETS

Animal Inventory for BSLC spreadsheets

Add New Livestock Species...






Please Enter the Numbers of the Following Animals for Each Subwatershed:

	Cattle				Chickens			Turkeys					
	Dairy												
Subwatershed	M	D	H	Beef	Layers	Broilers	Broiler Breeders	Toms	Hens	Breeders	Horses	Ewes	Goats
Alamo				2659	168	3	43		3		370	370	290
Betteravia Area				106	4	3	0		0		25	4	8
Blosser Street				0	0	0	0		0		0	0	0
Bradley Canyon				135	5	3	0		0		28	5	9
Bradley Channel				49	4	3	0		0		24	4	8
Corralitos Canyon				87	2	1	0		0		11	2	4
Cuyama				16961	1677	112	160		77		3620	1380	1257
Lower Cuyama				376	15	4	2		1		55	24	26
Green Canyon				110	9	6	0		1		53	9	18
Guadalupe Area				9	1	1	0		0		7	1	2
Guadalupe Dunes				319	18	1	4		0		44	37	31
Huasna				2812	180	4	46		3		397	397	311
Ineffective Watershed Area				74	2	1	0		0		10	2	3
Main Street				4	2	1	0		0		10	2	3
Nipomo Creek				435	39	1	10		1		87	87	68
Orcutt or Solomon Creek				479	14	9	0		1		80	13	26
Oso Flaco				91	27	1	7		0		60	60	47
Santa Maria River				680	38	10	6		2		137	64	68
Santa Maria River Channel				50	7	1	2		0		21	15	13
Sisquoc				6833	164	100	0		16		937	154	311

Add New Wildlife Species...






					Geese			Ducks			Wild
Subwatershed	Deer	Raccoons	Muskrats	Beavers	Peak	Season 2	Season 3	Peak	Season 2	Season 3	Turkeys
Alamo	530	446			1			12	6	6	714
Betteravia Are	57	48			7			68	34	34	43
Blosser Street	0	0			2			17	9	9	0
Bradley Canyo	63	53			3			29	15	15	55
Bradley Chan	54	45			5			50	25	25	20
Corralitos Car	26	22			0			1	1	1	36
Cuyama	5461	4593			30			304	152	152	7127
Lower Cuyam	134	113			1			11	6	6	170
Green Canyor	118	100			11			106	53	53	44
Guadalupe Ar	15	13			1			14	7	7	3
Guadalupe Du	102	86			0			5	3	3	137
Huasna	711	598			2			24	12	12	950
Ineffective Wa	23	19			0			1	1	1	31
Main Street	23	19			3			30	15	15	2
Nipomo Creek	111	94			5			45	23	23	105
Orcutt or Solo	192	162			6			61	21	21	213
Oso Flaco	80	67			63			630	315	315	27
Santa Maria F	287	242			10			101	51	51	274
Santa Maria F	47	39			3			27	14	14	32
Sisquoc	2837	2386			11			106	53	53	3763

Additional animals (both wildlife and livestock) entered for the watersheds for BSLC spreadsheets

Number Special Wildlife:						
Watershed	**Feral Pig**	**Opossum**	**Coyote**	**Skunk**	**Other-unknown***	**Other-bird****
Alamo	148	431	71	460	530	12
Betteravia Area	16	46	4	49	57	68
Blosser Street	0	0	0	0	0	17
Bradley Canyon	18	51	6	55	63	29
Bradley Channel	15	44	2	47	54	50
Corralitos Canyon	7	21	4	23	26	1
Cuyama	1522	4441	713	4745	5461	304
Lower Cuyama	37	109	17	117	134	11
Green Canyon	33	96	4	103	118	106
Guadalupe Area	4	12	0	13	15	14
Guadalupe Dunes	28	83	14	89	102	5
Huasna	198	578	95	617	711	24
Ineffective Watershed Area	6	19	3	20	23	1
Main Street	6	18	0	20	23	30
Nipomo Creek	31	90	11	97	111	45
Orcutt or Solomon Creek	54	156	21	167	192	61
Oso Flaco	22	65	3	69	80	630
Santa Maria River	80	234	27	250	287	101
Santa Maria River Channel	13	38	3	41	47	27
Sisquoc	791	2307	376	2465	2837	106
* = assume equal to all deer in the watershed						
** = assume equal to all ducks in the watershed						

Number Special Livestock:	Return
Hogs	Population
Alamo	11
Betteravia Area	1
Blosser Street	0
Bradley Canyon	1
Bradley Channel	1
Corralitos Canyon	1
Cuyama	103
Lower Cuyama	2
Green Canyon	2
Guadalupe Area	0
Guadalupe Dunes	1
Huasna	12
Ineffective Watershed Area	0
Main Street	0
Nipomo Creek	3
Orcutt or Solomon Creek	4
Oso Flaco	2
Santa Maria River	5
Santa Maria River Channe	1
Sisquoc	42

Land Use Data for the watersheds for BSLC spreadsheets (NCLD 2001)

Please Enter the Following Information About the Land Uses in Each SubWatershed:

Subwatershed	Total Forest Acreage	Total Cropland Acreage	Total Pasture Acreage	Loafing Lot Time Dairy	Loafing Lot Time Beef	Pasture 1 Fraction of Total	Pasture 2 Fraction of Total	Pasture 3 Fraction of Total	Stream Access Pasture 1	Stream Access Pasture 2	Stream Access Pasture 3	Straight Pipes
Alamo	6834	565	48194		0	1			0.2			0
Betteravia Are	80	2603	3257		0	1			0.2			0
Blosser Stree	1	9	13		0	1			0.2			0
Bradley Canyo	91	2349	4175		0	1			0.2			0
Bradley Chan	14	4107	1524		0	1			0.2			0
Corralitos Car	99	2	2669		0	1			0.2			0
Cuyama	109923	23447	439621		0	1			0.2			0
Lower Cuyam	3041	951	10097		0	1			0.2			0
Green Canyo	29	9002	3390		0	1			0.2			0
Guadalupe Ar	1	1304	266		0	1			0.2			0
Guadalupe Di	3923	116	6667		0	1			0.2			0
Huasna	22261	1317	50972		0	1			0.2			0
Ineffective Wa	121	12	2278		0	1			0.2			0
Main Street	1	2227	134		0	1			0.2			0
Nipomo Creel	240	3551	7884		0	1			0.2			0
Orcutt or Solo	1663	3746	14772		0	1			0.2			0
Oso Flaco	433	6294	1652		0	1			0.2			0
Santa Maria F	3213	8999	17945		0	1			0.2			0
Santa Maria F	1358	2422	1135		0	1			0.2			0
Sisquoc	79396	7436	210787		0	1			0.2			0

References for BSLC Spreadsheets

Parameter	Number	Units	Source
Beef Cow Parameters			
Average weight of beef cow	1000	lb	
Fecal coliform production by 1000-lb beef cow	3.30E+10	total cfu/day-animal	within range of values from literature (Mountain Run TMDL, ASAE Standards, Geldreich)
Ratio of beef cattle on: Pasture 1	4	ratio	Assumed to be 4:2:1 based on information gathered from
to Pasture 2	2	ratio	beef extension specialists at Virginia Tech.
to Pasture 3	1	ratio	
Manure excreted by beef cow	60	lb/day-animal	Livestock Waste Facilities Handbook, MWPS - 18
Fraction of cows defecating in stream as compared to the cows that are in/around streams (beef)	0.3	ratio	assumed
Sheep and Goat Parameters			
Ewe Weight	60	lbs	ASAE 1998 Standards: D384.1 DEC93
Lamb Weight	30	lbs	BPJ - 1/2 weight of ewes
Goat Weight	140	lbs	ASAE 1998 Standards: D384.1 DEC93
How many lambs should be associated with each ewe?	2	lambs/ewe	BPJ
Ratio of sheep and goats on: Pasture 1	3	ratio	
to Pasture 2	2	ratio	
to Pasture 3	0	ratio	
Fraction of sheep defecating in stream as compared to the sheep that are in/around streams	0	ratio	
Fecal coliform production by 60-lb sheep	1.20E+10	total cfu/day-animal	ASAE 1998 Standards: D384.1 DEC93
Manure excreted by sheep	2.4	lb/day-animal	ASAE 1998 Standards: D384.1 DEC93
Horse Parameter			
Fecal coliform production by 1000-lb horse	4.20E+08	total cfu/day-animal	
Ratio of horses on: Pasture 1	1	ratio	Assume all are on pasture 1 right now
to Pasture 2	0	ratio	
to Pasture 3	0	ratio	
Fraction of horses defecating in stream as compared to the horses that are in/around streams	0	ratio	
Poultry Parameters			
Length of layer cycle (including down time)	336	days	
Length of broiler cycle (including down time)	56	days	
Length of turkey cycle (including down time)	70	days	
Manure production by layers	0.256	lb/day-bird	ASAE D384.1 DEC93
Manure production by broilers	0.168	lb/day-bird	ASAE D384.1 DEC93
Manure production by turkeys	0.705	lb/day-bird	ASAE D384.1 DEC93
Fecal coliform production by layers	1.40E+08	cfu/day-bird	ASAE D384.1 DEC93
Fecal coliform production by broilers	8.90E+07	cfu/day-bird	based on relative manure production of layers & broilers
Fecal coliform production by turkeys	9.30E+07	cfu/day-bird	ASAE D384.1 DEC93
Layer litter produced	30	lb/cycle-bird	Va. Nutrient Management Handbook
Broiler litter produced	2.6	lb/cycle-bird	Va. Nutrient Management Handbook
Turkey litter produced	18	lb/cycle-bird	Va. Nutrient Management Handbook
Occupancy Factor for layers	0.958	ratio	
Occupancy Factor for broilers	0.787	ratio	
Occupancy Factor for turkeys	0.865	ratio	
Die-off coefficient for poultry litter	0.035	1/day	Kimberly Panhorst's research
Survival Factor for poultry litter	0.099	factor	
Wildlife Parameters			
Deer fecal coliform produced	3.50E+08	total cfu/day-animal	Yagow (2001) FC and Harlow (1983) forage
Fraction of deer defecating in stream	0.01	ratio	
Raccoon fecal coliform produced	5.00E+07	total cfu/day-animal	
Fraction of raccoons defecating in stream	0.1	ratio	
Muskrat fecal coliform produced	2.50E+07	total cfu/day-animal	Mountain Run TMDL (Yagow, 2001)
Fraction of muskrats defecating in stream	0.25	ratio	
Goose fecal coliform produced	8.00E+08	total cfu/day-animal	Moyer and Hyer, 2003
Fraction of geese defecating in stream	0.25	ratio	
First Month of Goose Peak Season (mm format, e.g., Dec=12)	9	month number	
Last Month of Goose Peak Season (mm format, e.g., Dec=12)	2	month number	
Duck fecal coliform produced	2.40E+09	total cfu/day-animal	ASAE 1998 Standards: D384.1 DEC93
Fraction of ducks defecating in stream	0.25	ratio	
First Month of Duck Peak Season (mm format (e.g., Dec = 12))	9	month number	

Other assumptions include that mammals spend about 1% of their time in the creek/river and that waterfowl spend about 25% of their time in the creek/river.

The estimation for the population of cattle in the watershed was performed as follows:

	Cattle/calves (number) per County	No. of acres suitable for grazing in the County	No. of cattle/calves per acre	Acres of county land in the Santa Maria Watershed	Acres of grazing land in Santa Maria Watershed	No. of cattle in the Santa Maria Watershed
Santa Barbara	38,961	1,201,810	0.0324186	685,648	457,352	14,827
San Luis Obispo	56,830	1,030,000	0.0551748	331,741	244,069	13,466
Ventura	6,968	199,004	0.0350144	153.401	115,692	4,051
Total						**32,344**