

PATTERNS OF CLIMATE, WATER PER CAPITA, WATERGY, & SUN: BOLINAS, CA¹

CLIMATE	AVERAGE HIGH & LOW TEMPERATURES: 1902 – 2010 <small>Source: www.wrcc.dri.edu</small>												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
	55.5	60.5	64.5	69.3	74.1	79.8	83.4	82.7	81.4	74.8	64.2	56.3	70.5
	38.6	41.0	41.9	43.8	46.5	49.4	50.1	50.1	49.5	47.0	42.8	39.1	45.0
	13.1	15.8	18.1	20.7	23.4	26.6	28.6	28.2	27.4	23.8	17.9	13.5	21.4
	3.7	5.0	5.5	6.6	8.1	9.7	10.1	10.1	9.7	8.3	6.0	3.9	7.2
	HIGHEST TEMP ON RECORD: 112 °F		44.4 °C		July 11, 1913		LOWEST TEMP ON RECORD: 17 °F		-8.3 °C		December 31, 1915		
	<small>Source: www.wrcc.dri.edu</small>												

WATER PER CAPITA	AVERAGE RAINFALL: 1952 – 2010 <small>Source: www.bcpud.org/BolinasRainfall_1952-2010.pdf</small>												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
	6.64	5.09	4.41	2.05	0.83	0.36	0.11	0.12	0.55	1.83	4.25	5.85	32.09
	168.7	129.3	112.0	52.1	21.1	9.1	2.8	3.0	14.0	46.5	108.0	148.6	815.1
		WETTEST YEAR'S RAINFALL: 70.05 INCHES		1779.3 mm		1982-83		DRIEST YEAR'S RAINFALL: 14.49 INCHES		368.0 mm		1958-59	
	<small>Source: bcpud.org/BolinasRainfall_1952-2010.pdf</small>												
	LONGEST PERIOD W/ NO MEASURABLE PRECIPITATION: 184 days (4/04 – 10/5/1924) <small>Source: see note # 2</small>												
	AREA: 5.83 SQ MILES	POPULATION: 1,246		RAINFALL INCOME: 7,144 GPCD									
	<small>Wikipedia</small> 15.1 km ²	<small>Source/Year: census.gov / 2000</small>		27,041 ¢pcd									

WATERGY	<i>Note: the percentages below are per energy source, and are not to be combined for percent of total energy consumption.</i>			
	% of CA's annual electricity consumption used for water-related purposes: ⁴	19%	2005	MUNICIPAL USE: 81 GPCD
	% of CA's ann'l natural gas consumption used for water-related purposes: ⁴	32%	2005	307 ¢pcd
	# of gallons of diesel fuel used annually in CA for water-related purposes: ⁴	88 million	2005	<small>Source/Year: see note #3 / 2009</small>

SUN	LATITUDE: 38	WINTER-SOLSTICE SHADOW RATIO: [*]	1: 1.84	ON MAR 21	ON JUN 21	ON SEP 21	ON DEC 21
	<small>Source: Google Earth</small>			0	30N	0	30S
	ELEVATION: 11 FT			0	30N	0	30S
	3 m	^B # of DEGREES SUN IS ABOVE THE SOUTHERN HORIZON AT NOON:		52	75	52	29

To find current magnetic declination for location: HarvestingRainwater.com/books/volume1/volume-1-resource-pages-appendix-6/#magdec

^{*}Object height:length of shadow cast at solar noon (Dec 21's is longest noontime shadow of year). The ratio is 1:x, where x = 1/(tangent(90-(latitude+23.44)))

Notes: 1. Climate section data are for Kentfield, as Bolinas doesn't have a weather station. // 2. Data from Muir Woods station, per Michelle Breckner, WRCC, via email 7/18/2011 // 3. In 2009, before mandatory water-rationing, the BCPUD water usage/connection/day was 188 gallons, per Jennifer Blackman, Gen'l Mgr, Bolinas Community Public Utility Dist, via phone 7/28/2011. This figure, divided by 2.32, the avg household size in Bolinas in 2000 (census.gov), yields 81 gpcd. Ms Blackman suggests gpcd is lower now, after rationing, as many residents made long-term changes to conserve water. // 4. CA Energy Commission, Final Staff Rpt on CA's Water-Energy Relationship, 2005. These data include energy consumption for supply & treatment, ag use, end-users & wastewater.

A. Rainwater Harvesting for Drylands & Beyond, Vol 1, or www.esrl.noaa.gov/gmd/grad/solcalc/ // B. RWHDB Vol 1, or Mar 21 =90-latitude, Jun 21 =90-(lat-23.44), Sep 21 =90-lat, Dec 21 =90-(lat+23.44)