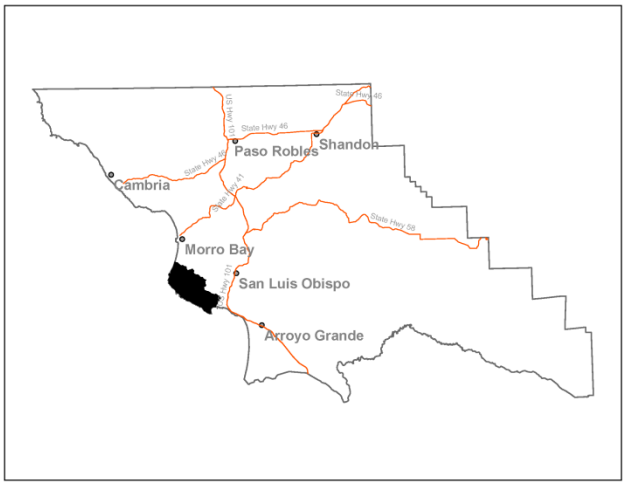
Irish Hills Coastal Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estero Bay HU 10	San Luis Obispo/ Avila WPA 6	27,922 acres	Pacific Ocean	None	County of San Luis Obispo CA Department of Parks and Recreation



Description:

The Irish Hills Coastal Watersheds are located in the San Luis Range, along the remote San Luis Obispo County coastline between the communities of Los Osos and Avila Beach. The drainages rise to a maximum elevation of 1,819 feet above sea level at Saddle Peak. The major creeks flowing to the Pacific Ocean and with their headwaters in the Coastal Range Mountains are Hazard Canyon, Islay Creek, Coon Creek, Diablo Creek, Irish Creek, Rattlesnake Creek, Hanford Creek and Wild Cherry Canyon.

The watershed is dominated by grazing lands some in conservation or agricultural easements and public lands. Other land uses include a regional nuclear power plant, passive recreation, natural resource preservation and limited oil drilling.

Watershed Plans:

Irish Hills Coastal Watershed Conservation Plan (Coastal Conservancy, 2001)

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Characteristics:

	Physical Setting	
	Rainfall	17 – 25 inches (NRCS Precipitation 1981-2010) 18 inches Mean Annual (SLO County Water)
	Air Temperature	Summer Range (August 1981-2010): 56° - 69° F Winter Range (December 1981-2010): 45°- 65° F At Morro Bay Fire Station, Morro Bay, CA. (NOAA National Climatic Data Center, viewed 2013)
	Geology Description	The Islay and Coon Creek sub watersheds consists of steep moderately infiltrative early to mid-Tertiary headwaters – category #8. The Diablo Creek and Pecho Creek sub watersheds consists of steep moderately infiltrative early to mid-Tertiary headwaters; flat pre-Q moderately infiltrative valley - category #11. (Bell, Ethan, personal communication, 2013) The wave-cut marine terraces, rocky headlands, and the rugged to rolling mountains and valleys are the result of millions of years of erosion of land that has been uplifted, folded, and tilted. Most of the oldest rocks are derived from the Franciscan Formation that forms the basement of most of the Coast Ranges. The Franciscan Formation is a result of the deformation of ancient sea floor sediments caught in a deep-water trench created by two colliding tectonic plates some 29 million years ago. Overlain on the Franciscan Formation are younger formations of sedimentary rock that are composed of mudstone deposited when the remains of tiny marine organisms such as diatoms and plankton drifted to the bottom and mixed with silt and sand. The mud solidified into thick layers of diatomite, clay porcellanite, dolomite, and chert. These sedimentary rocks and the basement rock itself were worn down again as the range was uplifted, although not uniformly throughout the area. As a result, sedimentary rock formations of many different ages and character occur. A number of faults occur within or in the vicinity. The Rinconada fault is the major northwest-striking fault east of the Indian Knob area. (Coastal Conservancy, 2001)
	Hydrology	
	Stream Gage	None.
	Hydrologic Models	None.
	Peak Flow	No source identified.
	Base Flow	No source identified.

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	Flood Reports	No source identified.
	Biological Setting	
	Vegetation Cover	Non-native grassland with some coastal scrub, coast live oak forest, blue-blossom chaparral, chamise and beaches and coastal dunes. (SLO County vegetation shapefile, 1990) Nearshore habitats, Coastal scrub, Maritime Chaparral, grassland, Bishop pine forest, oak woodland (Coastal Conservancy, 2001) Grasslands are present primarily along coastal margins, and the northern edge of the watershed. Scrub and woodland habitats are present throughout the watershed. Coastal bluff scrub is present on marine terraces at the coast edge in parts of this watershed. (Althouse and Meade, Inc., 2013). Limited spatial data. No alliance level vegetation mapping was available for the entire County.
	Invasive Species	Veldt grass, ice plant, blue bum eucalyptus (Althouse and Meade, Inc. 2013).
	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) Limited by the type of data included in CA Natural Diversity Database.

Common Name	**Status**	**MORRO BAY SOUTH**	**PISMO BEACH**	**PORT SAN LUIS**
	Animals			
American badger	SSC		x	
black legless lizard	SSC	x		x
California red-legged frog	**FT**		**x**	
coast horned lizard	SSC		x	
globose dune beetle	SA		x	
monarch butterfly	SA		x	
prairie falcon	SA (Nesting)		x	
sandy beach tiger beetle	SA		x	

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Common Name	Status	MORRO BAY SOUTH	PISMO BEACH	PORT SAN LUIS
steelhead - south/central California coast DPS	**FT**		**x**	
tidewater goby	**FE**		**x**	
vernal pool fairy shrimp	**FT**		**x**	
western pond turtle	SSC		x	
western snowy plover	**FT**		**x**	
Plants/Lichen				
Arroyo de la Cruz manzanita	CRPR 1B.2	x		
beach spectaclepod	**ST**		**x**	
black-flowered figwort	CRPR 1B.2		x	
Blochman's dudleya	CRPR 1B.1		x	
Blochman's leafy daisy	CRPR 1B.2		x	
Brewer's spineflower	CRPR 1B.3		x	
Cambria morning-glory	CRPR 4.2		x	
Chorro Creek bog thistle	**FE; SE**		**x**	
Congdon's tarplant	CRPR 1B.1		x	
Eastwood's larkspur	CRPR 1B.2	x		x
Hoover's bent grass	CRPR 1B.2		x	x
Hoover's button-celery	CRPR 1B.1		x	
Indian Knob mountain-balm	**FE; SE**		**x**	
Jones' layia	CRPR 1B.2		x	
La Panza mariposa-lily	CRPR 1B.3		x	
marsh sandwort	**FE; SE**		**x**	

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Common Name	Status	MORRO BAY SOUTH	PISMO BEACH	PORT SAN LUIS
mesa horkelia	CRPR 1B.1		x	
Morro manzanita	**FT**	**x**	**x**	**x**
most beautiful jewel-flower	CRPR 1B.2			x
mouse-gray dudleya	CRPR 1B.3		x	
Pecho manzanita	CRPR 1B.2	x	x	x
Pismo clarkia	**FE; SR**		**x**	
San Benito fritillary	CRPR 1B.2	x		
San Luis mariposa-lily	CRPR 1B.2		x	
San Luis Obispo County lupine	CRPR 1B.2		x	
San Luis Obispo owl's-clover	CRPR 1B.2	x	x	
San Luis Obispo sedge	CRPR 1B.2	x		
Santa Margarita manzanita	CRPR 1B.2	x	x	x
surf thistle	**ST**		**x**	

Steelhead Streams	No streams listed in the Steelhead Recovery Plan (NMFS, 2012). Islay Creek and Coon Creek (USFWS Critical Habitat Mapper, viewed 2013) Diablo Canyon (CEMAR, 2008)
Stream Habitat Inventory	None identified.
Fish Passage Barriers	Concrete Dam at Islay Creek, Total Barrier, PAD #711911.00000; Islay Falls at Islay Creek, Unknown, PAD #720498.00000 (CDFW Passage Assessment Database, viewed 2013)
Designated Critical Habitat	Yes; Steelhead Trout, Morro shoulderband snail, Morro Bay kangaroo rat, Western snowy plover (USFWS Critical Habitat Portal, viewed July 2013)
Habitat Conservation Plans	Yes; Morro shoulderband snail (USFWS Critical Habitat Portal, viewed July 2013)
Other Environmental Resources	Coastal Zone, Montana de Oro State Park, Irish Hills, Bishop Pine Forest Limited data.

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	Land Use	
	Jurisdictions & Local Communities	County of San Luis Obispo
	% Urbanized	0% (SLO County LUC)
	% Agricultural	42.3% (SLO County LUC)
	% Other	57.7% (4.6% public facility, 27.85% recreation, and 25.26% rural land) (SLO County LUC)
	Planning Areas	San Luis Obispo, San Luis Bay Coastal, San Luis Bay Inland
	Potential growth areas	No source identified.
	Facilities Present	Diablo Canyon Power Plant and Water Treatment System, Private wells and septic systems Limited data.
	Commercial Uses	Diablo Nuclear Power Plant; Montana de Oro State Park; Beecham Red Rock Pit for decomposed granite (SLO County, extractive shapefile)
	Demographics	
	Population	17 (U.S. Census Block, 2010)
	Race and Ethnicity	76.5% Caucasian (13), 17.6% Latino (3), and 5.9% Asian (1) (U.S. Census Block, 2010)
	Income	$62,829 (U.S. Census Tract, 2010) Census tract covers multiple watersheds.
	Disadvantaged Communities	No; 3% of individual are below poverty (U.S. Census, 2010) Census tract covers multiple watersheds.
	Water Supply	
	Water Management Entity	No source identified.
	Groundwater	Yes; alluvial only.
	Surface Water	No public reservoirs.
	Imported Water	No source identified.
	Recycled/ Desalinated Water	Yes; Desalinated water is used at the Diablo Canyon Power Plant for cooling and on-site potable drinking water. (Prato, et al., 2002)
	Infiltration Zones	No source identified.

	Water Budget	None to date.
	Water Uses	
	Beneficial Uses	*Islay and Coon Creek* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN). *Diablo Creek*– Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Spawning, Reproduction, and/or Early Development (SPWN). (RWQCB, 2011)
	Other Unique Characteristics	
	Historic Resources	No source identified.
	Archeological Resources	Human habitation of the watershed dates back over 9,000 years as evidenced by analyses of hundreds of archaeological discoveries including several village sites, numerous thick deposits of refuse mounds, called middens, burial sites, and bedrock mortars and tools. A majority of these findings have been made near the creek mouths on the coastal terraces. The site near the Diablo Canyon Nuclear Power Plant is considered the County's most significant archaeological site. (Coastal Conservancy, 2001) There were Chumash towns called Tsikyiw and Chanu at the time of European settlement (SB Museum of Natural History, viewed 2013).
	Other	No source identified.
	Climate Change Considerations	
		State climate change maps do not show dramatic increased areas of inundation due to sea level rise along the coast (USGS,Cal-Adapt, viewed 2013). Climate change could affect bishop pine forest. The small patch in

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this watershed is thought to persist in part due to supplemental moisture from fog drip

See IRWMP, 2014 Section H. Climate Change

Limited data and not local.

Watershed Codes

CalWater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3310.250001	2	Point Buchon	5	Point San Luis	310.25	undefined	Islay Creek
3310.250003	2	Point Buchon	5	Point San Luis	310.25	undefined	Coon Creek
3310.250002	2	Point Buchon	5	Point San Luis	310.25	undefined	Pecho Creek
Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)							

Major Changes in the Watershed

- Human habitation of the watershed dates back over 9,000 years as evidenced by analyses of hundreds of archaeological discoveries including several village sites, numerous thick deposits of refuse mounds, called middens, burial sites, and bedrock mortars and tools. A majority of these findings have been made near the creek mouths on the coastal terraces. The site near the Diablo Canyon Nuclear Power Plant is considered the County's most significant archaeological site.
- Pedro Unamuno, commander of a Manila galleon that sailed along the California coast in 1587, was the first to record the presence of San Luis Bay, noting the protected landing in the curve of the bay where Port San Luis is located today.
- In 1769, the diary of Franciscan Padre Juan Crespi provides the first written account of what is now the Irish Hills. (Coastal Conservancy, 2001)
- In 1772, a mission was established at San Luis Obispo.
- By the early 1840s, the lands in the vicinity of the Irish Hills begun to be divided among several great Spanish ranchos which were used for raising livestock for the lucrative hide-and-tallow trade.
- Between 1870 and 1890's, the pier, breakwater, a narrow gauge rail line, hotel and lighthouse were constructed.
- The Southern Pacific Railroad line, completed in 1894, shifted the focus of development and trade from coastal port towns of Port Harford (now called Port Son Luis) and Port Avila, to San Luis Obispo, on the inland rail route.

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- Today the majority of the watershed is still used for cattle grazing. (Coastal Conservancy, 2001)

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Islay Creek	No source identified.	Not assessed. (SWRCB, 2010)	Not assessed. (SWRCB, 2010)	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Coon Creek	No source identified.	No. (SWRCB, 2010)	Undetermined	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Diablo Creek	No source identified.	Not assessed. (SWRCB, 2010)	Not assessed. (SWRCB, 2010)	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Port San Luis	Near-shore	No. (SWRCB, 2010)	Undetermined	Not applicable.

Watershed Health by Major Groundwater Basin

Groundwater Basin	**Estimated Safe Yield**	**Water Availability Constraints**	**Drinking Water Standard Exceedance**	**Water Quality Objective Exceedance**
None	None	No source identified.	No source identified.	None.

Groundwater Quality Description: None

Primary Issues

Issue	**Potential Causes**	**Referenced from**
Residential development; loss of habitat	Growth inducing roads	Coastal Conservancy, 2001

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Issue	Potential Causes	Referenced from
Agricultural development; loss of habitat		Coastal Conservancy, 2001
Sedimentation and loss of riparian cover	Overgrazing	Coastal Conservancy, 2001
Proliferation of non-native species	Recreational uses, intentional planting	Coastal Conservancy, 2001
Habitat degradation	Recreational uses	Coastal Conservancy, 2001

The issues described above are in no way an exhaustive list but were identified by entities working in the watershed. Additional research would be needed to flush out all the issues facing the watershed. Issues were vetted by the community to various degrees based on the individual document. There was no countywide vetting process to identify the relative priority of each issue.

Bibliography

Althouse and Meade, Inc . (2013). Published and unpublished field notes.

Bell, E. (. (2013). Based on Tetra Tech and Stillwater Sciences-2011 Development and Implementation of Hydromodification Control Methodology, Watershed Characterization Part 1: Watershed Characterization Part 1, Precipitation and Landscape.

California Department of Fish and Wildlife. (2013). *Passage Assessment Database BIOS public viewer*. Retrieved from https://nrm.dfg.ca.gov/PAD/Default.aspx

California State Coastal Conservancy, T. N. (2001). *Irish Hills Coastal Watershed Conservation Plan.* Author.

Cleath & Associates. (2005, 2006a, 2006b).

National Oceanic and Atmospheric Administration. (2013). Retrieved 2013, from National Climatic Data Center: http://www.ncdc.noaa.gov

Natural Resource Conservation Service. (2010). Precipitation 1981-2010 GIS Data [computer files] Using: ESRI ArcMap GIS Version 9.3.1.

Natural Resource Conservation Service, National Geospatial Management Center. (2010). *1981-2010 Annual Average Precipitation by State.* Vector Dataset.

Prato, T. E. (2006, February 26). *Production of High Purity Water From Seawater*. Retrieved 2013, from Water and Wastes Digest: http://www.wwdmag.com/desalination/production-high-purity-water-seawater

Regional Water Quality Control Board. (n.d.). *Central Coast Basin Plan.*

San Luis Obispo County. (1990). Vegetation GIS Data. Using: ESRI ArcMap GIS Version 9.3.1. San Luis Obipso, CA.

San Luis Obispo County. (2012). *Master Water Report.*

San Luis Obispo County Planning and Building Geographic Technology and Design. (n.d.). *County Land Use Classifications.*

San Luis Obispo County Planning and Building. (n.d.). *Geographic Technology and Design-Extractive Resources.*

Santa Barbara Museum of Natural History. (2013). *Chumash Towns at the Time of European Settlement*. Retrieved from Santa Barbara Museum of Natural History, The Chumash Region and Beyond: http://www.sbnature.org/research/anthro/chumash/dirmap.htm

State Water Resources Control Board. (n.d.). *2010 Integrated Report (Clean Water Act Section 303(d) List/ 305(b) Report.* http://www.swrcb.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

Stillwater Sciences. (2013). *Draft Instream Flow Study.*

U.S. Census . (2010). Census Tract GIS Data.

U.S. Census. (2010). Census Block GIS Data.

U.S. Census Bureau. (2010). *American Factfinder, Community Facts*. Retrieved 2013, from http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

U.S. Fish and Wildlife Service. (2013). *Critical Habitat Portal*. Retrieved from http://criticalhabitat.fws.gov/crithab/

U.S. Geological Survey and Pacific Institute. (n.d.). *Sea Level Rise: Threatened Areas Map*. Retrieved September 2013, from Cal-Adapt: http://cal-adapt.org/sealevel/