

Water Quality Report Card		Pathogens in the Sonoma Creek Watershed	
Regional Water Board:	San Francisco Bay, Region 2	STATUS	<input type="checkbox"/> Conditions Improving <input checked="" type="checkbox"/> <b>Data Inconclusive</b> <input type="checkbox"/> Improvement Needed <input type="checkbox"/> Targets Achieved/Water Body Delisted
Beneficial Uses Affected:	REC-1, REC-2		
Implemented Through:	NPDES Permits, CAF WDR, Grazing WDR, Sanitary Sewer Overflow, Stormwater Phase II Permit, OWTS	Pollutant Type:	<input checked="" type="checkbox"/> Point Source <input checked="" type="checkbox"/> Nonpoint Source <input type="checkbox"/> Legacy
Effective Date:	December 7, 2007	Pollutant Source:	Municipal Wastewater Treatment Discharges
Attainment Date:	N/A		Sanitary sewer lines
			Grazing
		Onsite Wastewater Treatment Systems	Confined animal facilities
			Urban storm runoff

### Water Quality Improvement Strategy

The Sonoma Creek Watershed is in the California Coast Range to the north of San Pablo Bay. The San Francisco Bay Regional Water Board adopted the [Sonoma Creek Pathogen TMDL](#) to address pathogen impairments in the watershed. *E. coli* is closely linked to the presence of human pathogens in freshwater and is commonly used as a bacterial indicator species with a numeric target. The primary sources of pathogens identified in the TMDL include septic systems, sanitary sewer system failures, municipal stormwater runoff, municipal wastewater treatment discharge, livestock grazing, and dairies. Multiple actions have been taken to implement the TMDL including: 1) implementing the statewide Onsite Wastewater Treatment Systems (OWTS) Policy to reduce pathogens from septic systems; 2) implementing statewide Waste Discharge Requirements (WDR) for Sanitary Sewer Systems; 3) incorporating TMDL loads into the small municipal stormwater NPDES permit to regulate urban runoff; 4) adopting the [dairy permits](#) in 2015 and 2016; and 5) reissuing the [grazing operation permit](#) in the Napa and Sonoma Watersheds in 2017. Future implementation actions include grazing and dairy inspections, approval of the Sonoma County OWTS management plan, and continued monitoring.

### TMDL *E. coli* Numeric Targets

Indicator	TMDL (MPN/100 mL)
<i>E. coli</i>	Geomean < 126 (MPN/100 mL)
	90th percentile < 409 (MPN/100 mL)

### Water Quality Outcomes

- Water quality improvements include a 20% decrease in percent exceedance of *E. coli* geomean during the dry season (April – August) (top graph).
- Exceedance frequency of *E. coli* geomean increased 10% during the post-TMDL wet season (December – March).
- Water quality during the dry and wet seasons is still not meeting the TMDL target for the percent exceedance geomean of *E. coli*.
- When looking across all single samples, we observed a minor reduction in the mean *E. coli* concentrations following TMDL adoption in both seasons (bottom graph).

### Sonoma Creek Watershed

