

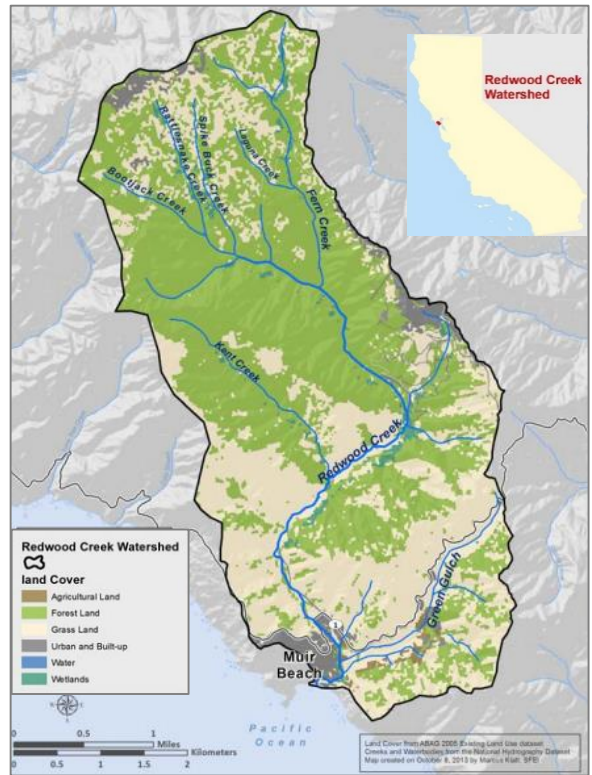
Water Quality Improvement Report Card	
Regional Water Board:	San Francisco Bay, Region 2
Beneficial Uses Affected:	REC-1
Implemented Through:	CAFO Order, Stakeholder Action
Effective Date:	May 14, 2014
Attainment Date:	2014

Bacteria in the Pacific Ocean at Muir Beach	
STATUS	<input type="checkbox"/> Conditions Improving
	<input type="checkbox"/> Data Inconclusive
	<input type="checkbox"/> Improvement Needed
	<input checked="" type="checkbox"/> <b>Targets Achieved/Waterbody Delisted</b>
Pollutant Type:	<input checked="" type="checkbox"/> Point Source <input checked="" type="checkbox"/> Nonpoint Source <input type="checkbox"/> Legacy

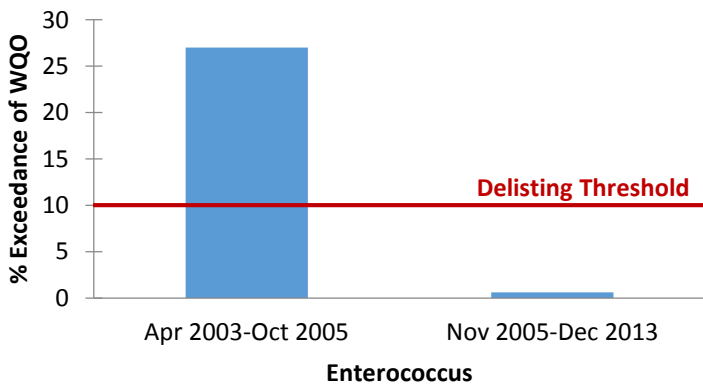
### Water Quality Improvement Strategy

Muir Beach is located 16.5 miles northwest of San Francisco, in western Marin County. In 2006, the Pacific Ocean at Muir Beach was added to the 303(d) list for excessive levels of bacteria (as observed during April 2003–October 2005). The key sources of bacteria in the catchment that drains to Muir Beach are: septic systems, public restroom facilities, horse facilities and riding trails, wildlife, and storm water runoff. However, since the 2006 listing, contributions from the identified sources have changed due to various activities. The area near the mouth of Redwood Creek, the main tributary to Muir Beach, has been the focus of an extensive ecological [restoration project](#) that coincided with a substantial decrease in bacteria discharges to the creek and, ultimately, the beach, by: (1) limiting human and animal access; (2) creating natural vegetated buffers that act as bacteria filters; and (3) relocating the creek channel away from residential areas with potentially faulty septic systems. In 2013, as part of TMDL development, Region 2 staff reviewed the available bacteria data (2005–2013), which demonstrate significant improvement in water quality conditions as a result of stakeholder actions. In May 2014, Region 2 [recommended that Muir Beach be removed from the 303\(d\) list for bacteria impairment](#); it is pending State Water Board and USEPA approval.

### Muir Beach and the Redwood Creek Watershed



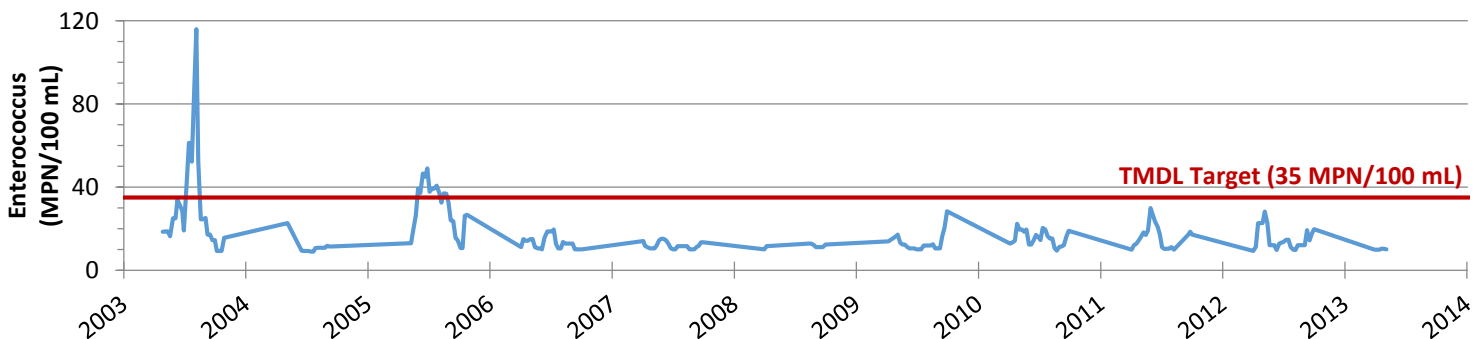
### Percent Exceedance of REC-1 Water Quality Objectives for Enterococcus<sup>a</sup> at Muir Beach (30-day Geometric Mean)



### Water Quality Outcomes

- Water quality data collected since 2005 show significant improvement such that the waters at Muir Beach are no longer impaired by bacteria.
- Water quality data collected since 2005 show that 1,207 of 1,215 data points met the indicator bacteria<sup>a</sup> water quality objectives for the REC-1 beneficial use.
- Water quality data indicate that Muir Beach meets the [Delisting Policy](#) threshold for indicator bacteria.<sup>a</sup>
- Water quality monitoring will continue and Region 2 staff will periodically (every 5-10 years) evaluate data to ensure beneficial uses remain protected.

### Enterococcus Concentrations in the Pacific Ocean at Muir Beach



<sup>a</sup> Enterococcus is used as indicator bacteria for the presence of pathogens that could impair the beneficial use.