



MONITORING & ASSESSMENT
 SAN DIEGO WATER BOARD
 February 2017

ASSESSING BACTERIA LEVELS IN SAN DIEGO BAY

Are ecosystems healthy	IS IT SAFE TO SWIM
Are fish and shellfish safe to eat	Is water safe to drink

This “status sheet” reports on current conditions of San Diego Bay in terms of its ability to support water-contact recreation (i.e., the “REC-1” beneficial use). Water quality standards are commonly used to determine if waters are safe for human contact. Fecal indicator bacteria such as *Enterococcus* have been linked to various pathogens commonly associated with sewage (or fecal matter). When *Enterococcus* levels in water exceed standards deemed safe for human water contact, the potential risk of contracting a water-borne illness increases.

Photo: C. Gorham

SAN DIEGO BAY: A RESOURCE OF MANY USES

San Diego Bay is an important water body in the San Diego region due to its ecological value and because it supports tourism; commercial, recreational, and subsistence fishing; and a variety of recreational, maritime, industrial, commercial, and military uses. For this reason, the San Diego Water Board endorsed a “[Strategy for a Healthy San Diego Bay](#)” via Resolution No. R9-2015-0086 in June 2015. The Strategy identified the key beneficial use categories of the Bay as:

- Recreation (water contact (“REC-1”) and non-water-contact (“REC-2”));
- Human consumption of fish and shellfish; and
- Habitats and ecosystems

A primary goal of the Strategy is to use monitoring data to assess attainment of these key beneficial uses, as well as changes in their status over time, and to communicate findings to the public.



Photo: J. Haas

Beach advisories are posted when bacteria levels are above the water quality standards and swimming is not advised. [SD County Department of Environmental Health](#) routinely monitors swimming areas to evaluate bacteria levels. In San Diego Bay, weekly samples are collected at six beaches between April 1st and October

31st of each year. In some cases (such as at Shelter Island Shoreline Park in 2015), monitoring continues through the winter months. This monitoring of bacteria levels allows for evaluation of how often each beach met or did not meet safe swimming water quality standards during the “dry” season (May through September) and “wet” season (October through April).



Photo: J. Anderson



Photo: E. Chan

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ASSESSING THE REC-1 BENEFICIAL USE IN SAN DIEGO BAY

For regulatory purposes, *Enterococcus* levels are expressed in two ways: The first is the one-time *Enterococcus* concentration detected in a single sample. The other is the average level of the *Enterococcus* concentrations detected in up to five samples collected during any 30-day period. Sample results are compared to *Enterococcus* REC-1 water quality standards. If concentrations in a given water body are greater than the REC-1 water quality standards more than 10 percent of the time, there is a greater risk for illness in humans from water contact. San Diego Bay *Enterococcus* data were compiled from a 2-year period (May 2014 through April 2016) to assess the bacteria conditions during the “dry” and “wet” seasons.

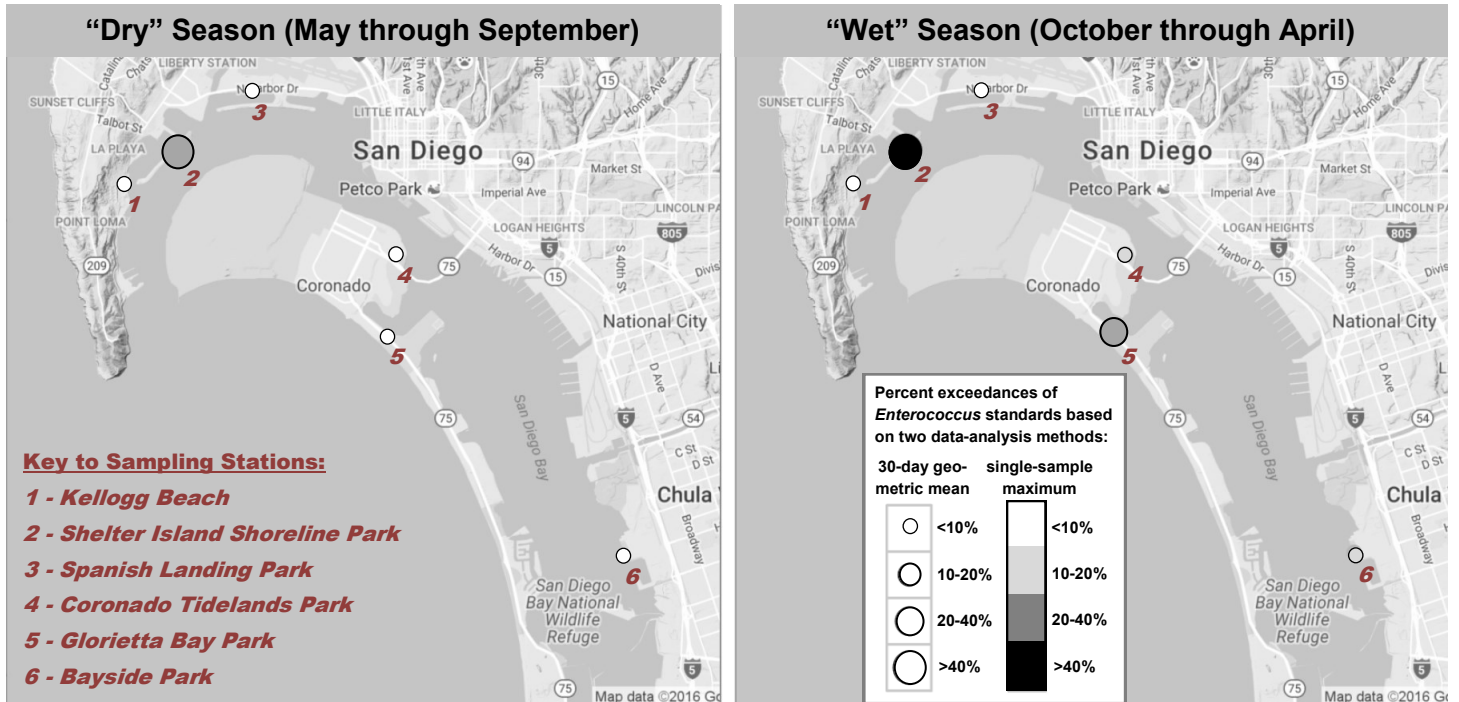


Figure 1. Frequencies at which contact-recreation standards for *Enterococcus* were exceeded, in the dry and wet seasons, reported in two ways, as: 1) 30-day geometric mean, and 2) single-sample maximum. For the former, increasing diameter of the data point, and for the latter, the shift from white toward black, represent higher percentages of exceedances of *Enterococcus* standards.

Enterococcus levels were found to be higher in the “wet” season, suggesting that the increased risk of illness in humans from water contact may be linked to storm water runoff.

ARE REC-1 STANDARDS BEING MET?

While *Enterococcus* results show water quality standards are being met and support water contact recreation much of the time, there were some variations by season and location. At Spanish Landing Park and Kellogg Beach, *Enterococcus* levels met REC-1 standards during both “dry” and “wet” seasons. At Glorietta Bay, Coronado Tidelands, and Bayside Parks, *Enterococcus* levels met REC-1 standards during the “dry” season, but did not meet REC-1 standards during the “wet” season. At Shelter Island Shoreline Park, where samples were collected throughout the year, *Enterococcus* levels did not meet REC-1 standards during both the “dry” and “wet” seasons.

BE PART OF THE SOLUTION

The San Diego Water Board and the Port of San Diego are working together to improve water quality throughout San Diego Bay. How can you be part of the solution?

- **KEEP YOURSELF INFORMED!** Visit the County of San Diego Beach Water Quality website to see the most up-to-date water quality data and closure information (<http://www.sdbeachinfo.com>).
- Avoid water contact in San Diego Bay following storm events and in areas where beach advisories are posted.
- Do your part to reduce human pathogens in San Diego Bay:
 - Properly pump out boat holding tanks.
 - Maintain your sewage lines to prevent leaks.
 - Report sewage spills to the local authorities.