

Informing Action and Tracking the Dramatic Water Quality Improvement in San Simeon Creek

By Mary S. Hamilton (mary.hamilton@waterboards.ca.gov)

San Simeon Creek is currently on the Clean Water Act Section 303(d) List of polluted waters due to elevated levels of nitrate, chloride, and sodium, and low dissolved oxygen conditions. Elevated nitrate in lower San Simeon Creek is likely to pollute shallow groundwater and is problematic for aquatic life in the San Simeon Creek Lagoon. Although nitrate is an essential nutrient for aquatic ecosystems, excess nitrate can fuel algal overgrowth, which in turn affects the oxygen available in the water column for fish and bottom dwelling aquatic life. Excessive algal growth can also create nuisance conditions for irrigation and recreational uses, and may contribute to increased health risks as some algae can be toxic.

The primary source of nitrate in lower San Simeon Creek is treated wastewater applied to the land through percolation ponds located near the creek and the nearby State Park Campground (Figure 1). Prior to the origination of this discharge, water quality data showed nitrate concentrations below 1 mg/L in lower San Simeon Creek (Boyle 1977).

Figure 1. Map showing the location of the wastewater percolation ponds (four green polygon shapes) in proximity to lower San Simeon Creek and the monitoring station 310SSC on San Simeon Creek. Imagery from National Wetlands Inventory.



(Continued on next page)

Water quality data collected by the Central Coast Regional Water Board in the San Simeon Creek Lagoon (station 310SSC) shows increasing concentrations of nitrate since 2001 (Figure 2). These data informed the prioritization of this creek for Total Maximum Daily Load (TMDL) development in March of 2015, and subsequent revisions to the Order for Waste Discharge Requirement (WDR) for the treated wastewater issued June 2016. The draft [TMDL](#) stated that wastewater is percolating into San Simeon Creek at levels that negatively affect designated uses (including human health and aquatic life health), and that the revision of the WDR was necessary to implement the TMDL.

Modifications in operations at the treatment plant in 2015 resulted in significant reductions of nitrate concentrations in the discharge applied to land, adjacent to the creek. This reduction was also evident in water quality samples taken from the creek. As of October 2015, nitrate concentrations dropped below 1.0 (mg/L. NO₃ as N). This trend of reduced nitrate has continued into 2017 (Figure 2).

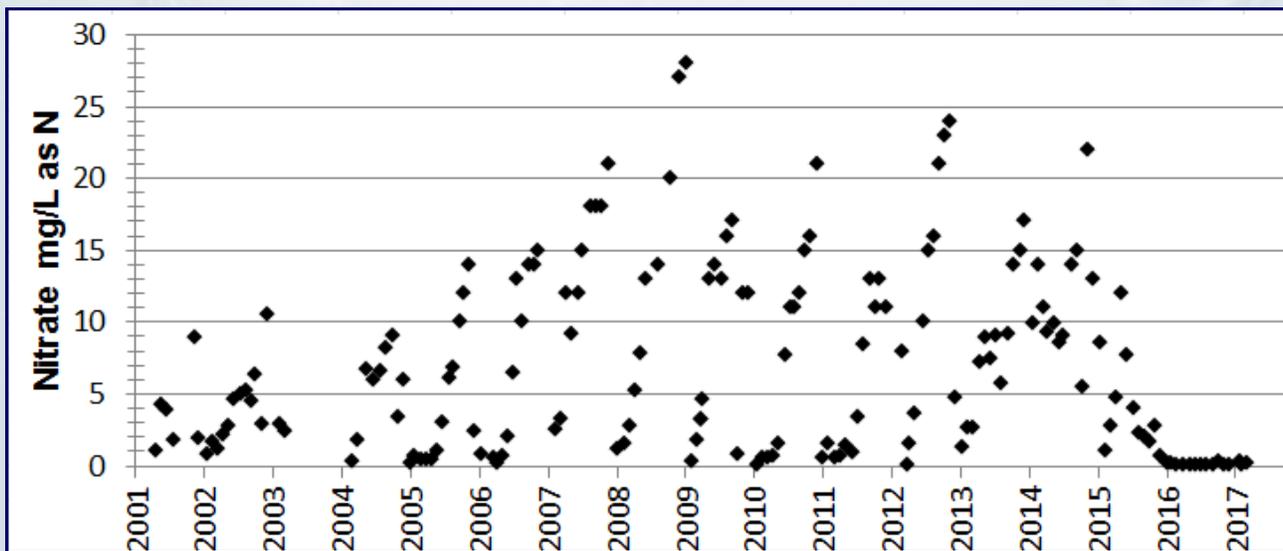


Figure 2. Nitrate data from monitoring station 310SSC on lower San Simeon Creek collected monthly from January 2001 – April 2017.

Download Data: [CCAMP Data Navigator](#)

Reference

Boyle Engineering Corporation. 1977. *Second Supplemental Report for County of San Luis Obispo on Cambria Wastewater Disposal Facilities, San Luis Obispo County, California.*