

# FACT SHEET

## DEVELOPMENT OF NITRATE TOTAL MAXIMUM DAILY LOADS FOR GLEN ANNIE CANYON AND LOS CARNEROS CREEK WATERSHEDS

### What is a Total Maximum Daily Load?

TMDLs are strategies to restore clean water. The federal Clean Water Act requires every state to evaluate its waterbodies and maintain a list of waters that are considered “impaired” either because the water exceeds water quality standards or does not achieve its designated use. For each water on the Central Coast’s “303(d) Impaired Waters List,” the California Central Coast Water Board (Water Board) must develop and implement a plan to reduce pollutants so that the waterbody is no longer impaired and can be delisted.

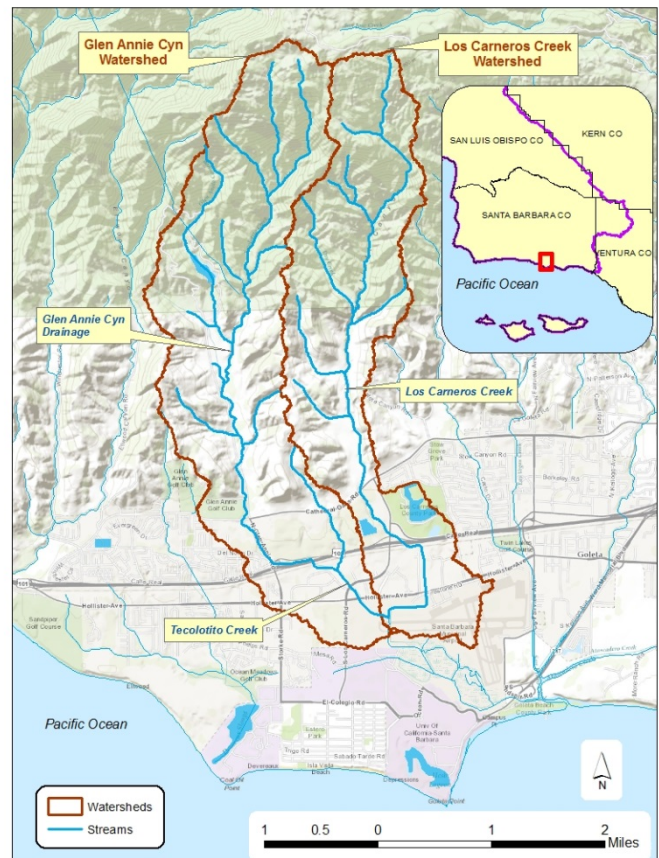
“Total Maximum Daily Load” (TMDL) is a term used to describe the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. A TMDL study identifies the probable sources of pollution, establishes the maximum amount of pollution a waterbody can receive and still meet water quality standards, and allocates that amount to all probable contributing sources.

### Location and Watershed Description

The proposed geographic scope of these TMDLs encompasses approximately 4.5 mi<sup>2</sup> for the Glen Annie Canyon watershed and 4.2 mi<sup>2</sup> for the Los Carneros Creek watershed, located in southern Santa Barbara County.

The watersheds are north-south trending drainages with headwater reaches originating from the southern face of the Santa Ynez Mountains in the north, and ultimately draining south through the Goleta Slough to the Pacific Ocean.

Upper reaches of these watersheds are characterized by forested lands, shrubs, and grasslands (source: National Land Cover Dataset, 2006). Middle reaches are comprised of agriculture (primarily orchards) and grazing lands while the lower portion of these watersheds contain a mix of commercial, industrial, and residential land uses.



### Why Do We Need TMDLs?

California’s water quality standards designate beneficial uses for each waterbody (e.g., drinking water supply, aquatic life support, recreation, etc.) and the scientific criteria to support those uses. The Water Board is required under both state and federal law to regulate and protect beneficial uses of waters of the state.

Water Board staff has identified nitrate pollution in surface waters of Glen Annie Canyon and Los Carneros Creek and is in the process of developing TMDLs for these water bodies. Elevated levels of nitrate can degrade municipal and domestic water supply and groundwater.

It is well established that infants younger than six months who drink water containing nitrate in excess of the maximum contaminant level (MCL) could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome, or methemoglobinemia.<sup>1</sup> Peer-reviewed epidemiological studies have suggested that nitrate in drinking water may be associated with elevated cancer risk<sup>2</sup>.

For this TMDL project, water supply is likely to be the most sensitive applicable beneficial use (i.e., the most stringent numeric water quality standards). A TMDL project developed by the Water Board will identify nitrate-impaired, identify numeric water quality targets to restore impaired designated beneficial uses, identify probable sources of nutrient loading, and propose an implementation plan outlining effective alternatives to restore water quality. To the extent possible, TMDLs leverage existing regulatory programs and permits to minimize cost and maximize effectiveness.

In addition to nitrate, Water Board staff has identified that surface waters of Glen Annie Canyon contain substances that are toxic to plants (plant toxicity). The specific substance causing this toxicity is not currently known. Water Board staff will assess toxicity within Glen Annie Canyon to ensure that waters are free of toxic substances that may produce detrimental physiological responses in, human, plant, animal, or aquatic life.

### What are the Sources of Water Quality Problems?

Source analysis is a key component of TMDL development. There are many potential sources within any given watershed; in general the following potential sources may be significant:

- Urban runoff
- Fertilizer
- Manure (domestic animals)
- Septic systems
- Natural background and atmospheric deposition
- Groundwater (baseflow into streams)

Water Board staff will assess these potential sources to determine the cause of nitrate impairment in Glen Annie Canyon and Los Carneros Creek, as well as sources of unknown toxicity in Glenn Annie Canyon.

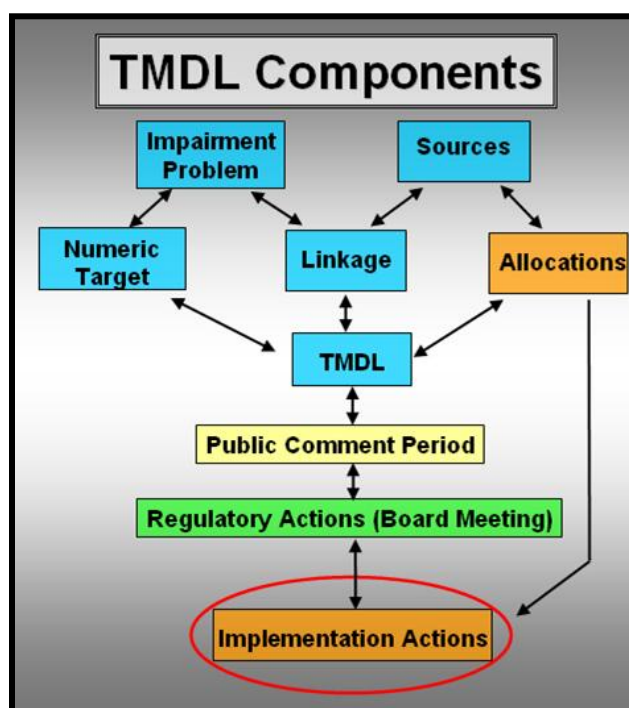
<sup>1</sup> U.S. Environmental Protection Agency: <http://water.epa.gov/drink/contaminants/basicinformation/nitrate.cfm>

<sup>2</sup> Nitrate is endogenously reduced to nitrite and subsequently nitrosamines in the stomach, colon and bladder. Nitrosamines are known carcinogens.

### The TMDL Process

TMDLs are developed by Central Coast Water Board staff and must go through a hierarchy of approvals before it can go into effect. Public participation is an element of TMDL development. Water Board staff notify interested parties of opportunities for public participation through public meetings/workshops, we also solicit public comments and encourage other forms of public participation through correspondence, email, and other informal contacts.

TMDLs must be approved by the Water Board and the U.S. Environmental Protection Agency. Should TMDL development be merited, we anticipate developing nitrate and unknown toxicity TMDLs for these water bodies over the next year.



TMDL Components

### For More Information

The Central Coast Water Board encourages interest and involvement in TMDL projects from stakeholders, interested parties, and the general public. For more TMDL Program information, please refer to the Water Board's TMDL webpage at:

[http://www.waterboards.ca.gov/centralcoast/water\\_issues/programs/tmdl](http://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl)

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