

**STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING OF JUNE 22-23, 2023

Prepared on June 6, 2023

ITEM NUMBER: 6

SUBJECT: **Proposed Resolution to Adopt an Amendment to the Water Quality Control Plan for the Central Coastal Basin to Establish Total Maximum Daily Loads for Nitrogen Compounds in the Santa Ynez River Basin, Santa Barbara County, California**

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ACTION: **Consider Proposed Resolution No. R3-2023-0003**

SUMMARY

Central Coast Regional Water Quality Control Board (Central Coast Water Board) staff recommends adoption of proposed Resolution No. R3-2023-0003 (Attachment 1). This Resolution directs staff to amend the Water Quality Control Plan for the Central Coastal Basin (Basin Plan) to establish total maximum daily loads (TMDLs)¹ for nitrogen compounds and an associated implementation strategy for improving surface water quality in the Santa Ynez River basin of Santa Barbara County. Figure 1 on page 11 of this staff report, is a map of the Santa Ynez River basin and TMDL Project area. Implementation of TMDLs to maintain acceptable levels of nitrogen loading to surface waters of the Santa Ynez River basin is expected to be protective of human health and aquatic habitat beneficial uses. The TMDL Project Technical Report (Attachment 2) includes a TMDL implementation strategy that describes how the Central Coast Water Board's regulatory mechanisms (e.g., permits) and non-regulatory actions (e.g., voluntary actions and grant funded restoration and treatment projects) will address loading of nitrogen compounds from various sources to attain water quality standards.

DISCUSSION

Background

Several streams² in the Santa Ynez River basin are impaired due to one or more of the following conditions: excessive concentrations of nitrogen compounds such as nitrate, total nitrogen, or un-ionized ammonia, and low dissolved oxygen. These surface waters

¹ TMDL development is a requirement of federal regulations (40 CFR section 130.7). A TMDL report is a written plan which describes how an impaired waterbody will achieve water quality standards.

² In the context of this TMDL Project, "streams" refers to any body of surface water (such as a river, creek, brook, slough, canal, ditch, ephemeral drainage) within the Santa Ynez River basin.

are referred to as impaired because they do not meet the Basin Plan water quality objectives for municipal and domestic water supply, groundwater recharge, and aquatic habitat beneficial uses. Impaired stream reaches include the Lower Santa Ynez River from Floradale Road downstream to the confluence with the estuary; San Miguelito Creek; and Sloans Canyon Creek. These waterbodies are on California's 2020-2022 Clean Water Act section 303(d) List of impaired waters. Maps illustrating the locations of impaired streams are found in Section 6.6 of the TMDL Project Technical Report.

Data Sources

To support this TMDL Project, staff evaluated water quality data, land use data, hydrologic data, climatic data, soils data, demographic data, and other types of environmental data from public agencies and scientific sources. Data acquisition, compilation, and analyses are described in detail in the TMDL Project Technical Report.

Numeric Targets and TMDL Loading Capacities

Numeric targets represent acceptable levels of pollutants that will result in the desired water quality conditions for streams of the Santa Ynez River basin. Numeric targets can also be thought of as the pollutant loading capacities³ of receiving waters. This TMDL Project identifies numeric targets for nitrogen compounds (i.e., total nitrogen, nitrate, and un-ionized ammonia), chlorophyll a, and dissolved oxygen. Table 1 presents proposed numeric targets for this TMDL Project.

Table 1. Numeric Targets (Loading Capacities) for Streams of the Santa Ynez River Basin

Parameter	Loading Capacity	Primary Water Quality Goal
Nitrate (as nitrogen)	10 mg/L	Protection of human health
Total nitrogen	8 mg/L	Protection of aquatic habitat from biostimulation
Un-ionized ammonia	0.025 mg/L	Protection against risk of aquatic toxicity
Chlorophyll a	15 mcg/L	Indicator for risks of eutrophic conditions including harmful algae or cyanobacteria blooms
Dissolved oxygen	> 7 mg/L COLD > 5 mg/L WARM	Indicator for risks of eutrophic conditions including harmful algae or cyanobacteria blooms

Units of Measurement: mg/L = milligrams per liter; mcg/L = micrograms per liter.

Beneficial uses: COLD = cold freshwater aquatic habitat beneficial use; WARM = warm freshwater aquatic habitat beneficial use.

The technical and regulatory bases for these numeric targets are described in detail in TMDL Project Technical Report. The nitrate numeric target is protective of human health (drinking water) and the un-ionized ammonia numeric target is protective against

³ The loading capacity (also called assimilative capacity) is the greatest amount of a pollutant that a water body can assimilate and still meet water quality standards.

the risk of toxicity to aquatic organisms. The numeric target for total nitrogen accounts for uncertainty for the risk of potential nutrient-related problems in sensitive downstream receiving water of the Santa Ynez River estuary.^{4,5} Chlorophyll a and dissolved oxygen represent receiving water responses to nitrogen loading and are used in monitoring programs to assess any potential emerging risks related to nitrogen-driven biostimulation.⁶

Source Analysis

Sources of nitrogen discharges to surface waters within the Santa Ynez River basin include, but may not be limited to, treated municipal wastewater effluent, runoff of fertilizer applied on irrigated cropland, urban stormwater runoff, industrial and construction stormwater runoff, manure from livestock and domestic animals, and natural sources including atmospheric deposition.

Treated municipal wastewater effluent has historically been a major source of nitrogen compounds in the lower Santa Ynez River downstream of the City of Lompoc Regional Wastewater Treatment Plant. Nitrogen is a common pollutant in municipal wastewater effluent.

The City of Lompoc completed major upgrades to the Regional Wastewater Treatment Plant in November 2009, resulting in significant reductions of nitrate and total nitrogen concentrations in the treated wastewater being discharged.

Nutrient water quality impairments in the Santa Ynez River basin are identified only in the lowermost portion of the basin. Based on available data, discharges of treated wastewater from municipal wastewater treatment facilities into San Miguelito Creek near the confluence with the Santa Ynez River are the most significant controllable source of nitrogen compounds in the lower Santa Ynez River and San Miguelito Creek.

Allocations

TMDLs are allocated to point and nonpoint sources to achieve the loading capacity of that pollutant. For this TMDL Project, proposed TMDL allocations are equal to the numeric targets for nitrogen compounds. Point source discharges, such as wastewater treatment plants or controllable stormwater discharges (i.e., urban, construction, or industrial stormwater) are regulated with National Pollutant Discharge Elimination System (NPDES) permits and receive waste load allocations. Irrigated agricultural discharges, grazing operations, and natural background are considered nonpoint sources and receive load allocations.

Table 2 summarizes the nitrogen compound allocations and the implementing parties identified in this TMDL Project.

⁴ The Santa Ynez River estuary is designated by the California Coast Commission as a Critical Coastal Area (CCA). CCAs are administrative designations for high resource-value coastal waters.

⁵ Staff used a TMDL margin of safety approach which has been used in previous USEPA-approved TMDLs to derive a total nitrogen numeric target of 8 mg/L.

⁶ Biostimulation refers to a nuisance water quality condition in which harmful blooms of algae or cyanobacteria impair the beneficial uses of the waterbody.

Table 2. Nitrogen Compound Allocations and Implementing Parties

Stream reaches	Implementing Parties and Sources of Nitrogen Compounds	Allocations ^A Assigned to All Implementing Parties	Primary Beneficial Uses Protected
Santa Ynez River and all tributaries upstream of the River's confluence with San Miguelito Creek	Wastewater treatment plants NPDES-permitted stormwater sources Owners/operators of irrigated agricultural lands Owners/operators of grazing and livestock operations Natural background	Nitrate 10 mg/L Un-ionized Ammonia 0.025 mg/L	MUN, GWR (human health) WARM, COLD (risk of toxicity)
San Miguelito Creek and Lower Santa Ynez River and all tributaries from downstream of the River's confluence with San Miguelito Creek to the estuary	Wastewater treatment plants NPDES-permitted stormwater sources Owners/operators of irrigated agricultural lands Owners/operators of grazing and livestock operations Natural background	Nitrate 10 mg/L Un-ionized Ammonia 0.025 mg/L Total Nitrogen 8 mg/L	MUN, GWR (human health) WARM, COLD (risk of toxicity) WARM, COLD (risk of biostimulation)

Beneficial uses: MUN = municipal and domestic water supply, GWR = groundwater recharge, WARM = warm fresh water aquatic habitat, COLD = cold freshwater aquatic habitat.

Implementation Strategy

Recognizing that impairments of water quality by nitrogen compounds appear to be limited to stream reaches in the lower parts of the Santa Ynez River basin, the proposed implementation strategy included in the TMDL Project Technical Report is briefly summarized as follows:

1. Attainment of the nitrate and un-ionized ammonia allocations will be sufficient to demonstrate compliance with human health and aquatic toxicity water quality objectives in the lower Santa Ynez River, its tributaries, and the downstream estuary.
2. Maintain existing nitrogen compounds levels in stream reaches where existing water quality is better than TMDL numeric targets, unless lowering existing nitrogen concentrations in water is otherwise consistent with the Anti-degradation Policy.

Table 3 summarizes the sources of nitrogen compounds in the Santa Ynez River basin, and the TMDL implementation mechanisms for those sources.

Table 3. Sources of Nitrogen Compounds and TMDL Implementation Mechanisms

Source of Nitrogen Compounds	TMDL Implementation Mechanisms
NPDES-permitted wastewater treatment plants (WWTP)	NPDES permits
Urban stormwater runoff	Municipal Stormwater NPDES permits
Construction and industrial stormwater runoff	Construction and Industrial Stormwater NPDES permits
Irrigated agriculture	Agricultural Order / waste discharge requirements
Grazing	Voluntary compliance with nonpoint source best management practices
Undeveloped areas and woodlands	Generally considered noncontrollable source

There are two NPDES-permitted wastewater treatment plants in the Santa Ynez River basin, the City of Lompoc Regional wastewater treatment plant, and the Chumash Resort wastewater treatment plant. Based on available data, discharges of treated wastewater from municipal wastewater treatment facilities are expected to be the most significant controllable source of nitrogen compounds in the lower Santa Ynez River basin, generally associated with discharges from the Lompoc Regional Wastewater treatment plant. Elsewhere in the Santa Ynez River basin, available data do not indicate that treated wastewater is a significant source of nitrogen pollution to monitored stream reaches. Permits issued to the identified wastewater treatment plants will implement the TMDLs through effluent and receiving water limitations for surface water discharges.

The source analysis summarized in the TMDL Project Technical Report found very few exceedances of nitrate objectives in areas with intensive agriculture; therefore, it is generally expected that owners and operators of irrigated croplands are currently achieving proposed nitrate and total nitrogen load allocations. To maintain existing water quality and prevent any further water quality degradation, owners and operators of irrigated agricultural land will need to continue to comply with the Agricultural Order requirements and any successor waste discharge requirements. An un-ionized ammonia impairment on Sloans Canyon Creek is based on one year of data from 2008. Given the vintage of this data, additional monitoring on this creek is recommended to confirm the status of water quality standards attainment and if un-ionized ammonia impairment is confirmed, un-ionized ammonia controls will need to be implemented as outlined in the TMDL Project Technical Report.

Furthermore, the source analysis section of the TMDL Project Technical Report finds municipal separate storm sewer system, or MS4, entities and NPDES-permitted industrial facilities and construction operators are likely achieving proposed waste load allocations for nitrogen compounds at this time. Therefore, no new requirements are proposed as part of this TMDL Project. To maintain existing water quality and prevent any further water quality degradation, entities discharging municipal, industrial, and

construction stormwater will comply with the relevant stormwater NPDES permits. Future revisions to effluent limitations in any NPDES permit shall be “consistent with the assumptions and requirements of any available waste load allocations.” (40 C.F.R. section 122.44(d)(1)(vii)(B).) Therefore, future permit revisions will incorporate approved waste load allocations.

TMDL Attainment Schedule and Milestones

Monitoring data from surface waters in the Santa Ynez River basin indicate that upstream of the Lompoc wastewater treatment plant discharge point there are relatively low concentrations of nitrogen compounds. However, monitoring data indicates the presence of elevated concentrations of nitrate and total nitrogen in the lower Santa Ynez River, downstream of the Lompoc Regional Wastewater Treatment Plant. Upgrades to the wastewater treatment plant in 2009, resulted in improved water quality in the treated wastewater that is discharged to the lower Santa Ynez River with respect to nitrogen compounds. As such, implementation and attainment of waste load allocations and load allocations do not require an extended attainment time schedule.

The TMDL Project states that within five years after the Office of Administrative Law (OAL) approval date of this Basin Plan amendment, implementing parties will achieve the nitrogen compounds waste load allocations and load allocations or meet all regulatory and policy requirements necessary for removing the impaired waters from the federal Clean Water Act section 303(d) List of impaired waters.

California Environmental Quality Act (CEQA)

The CEQA Checklist and Analysis Report (Attachment 3) provides the environmental analysis required by Public Resources Code section 21159. The draft CEQA Checklist and Analysis Report was posted for public comment on January 30, 2023, for a 45-day comment period. No potentially significant environmental impacts from implementation of this TMDL Project were identified in the analysis.

Scientific Peer Review

Health and Safety Code section 57004 requires external scientific peer review for certain water quality control policies. State policy and guidance for peer review states that scientific review is not required if a new application of an adequately peer reviewed work product does not significantly depart from the reviewed approach. The Central Coast Water Board and USEPA have adopted and approved several TMDLs where the scientific basis was drawn from previously-reviewed TMDLs, thereby negating the need for further review; such a practice is in the best interest of conserving and efficiently utilizing state resources.

The scientific portions of this TMDL Project are drawn exclusively from the Total Maximum Daily Loads for Nitrogen Compounds and Orthophosphate in the lower Salinas River and Reclamation Canal Basin and the Moro Cojo Slough Subwatershed,⁷

⁷ Resolution No. R3-2013-0008, adopted on March 14, 2013 and approved by USEPA on October 13, 2015.

which has undergone the required external [scientific peer review](#).⁸ As a result, the scientific portions of this TMDL Project have already undergone external, scientific peer review. Consequently, the Central Coast Water Board has fulfilled the requirements of Health and Safety Code section 57004, and the proposed Basin Plan amendment does not require further scientific peer review.

PUBLIC OUTREACH AND INVOLVEMENT

Public outreach and public involvement are a part of the TMDL development process. The Central Coast Water Board's public engagement process began in April 2016 and included regular TMDL updates, progress reports, scheduled public meetings, and solicitation of public feedback via a stakeholder email subscription list consisting of over 175 stakeholders and interested persons. These stakeholders represented a wide range of interests, including those representing agricultural industry, local residents, public agencies, researchers, environmental groups, local businesses, local resource professionals, and others.

The Central Coast Water Board staff conducted a public workshop in the City of Lompoc on May 2, 2016. The goal of this workshop was to present background information on TMDLs and water quality in the Santa Ynez River basin, engage and inform stakeholders, and solicit input, questions, and comments.

Staff also conducted a combined TMDL update presentation and CEQA scoping workshop remotely via Zoom on September 28, 2022, to seek input from public agencies and members of the public on the range of project actions, alternatives, reasonably foreseeable means of compliance, significant impacts to be analyzed, cumulative impacts if any, and mitigation measures.

The stakeholders who were contacted or who participated in public outreach meetings included representatives of irrigated agriculture, municipal and county agencies, resource professionals, wastewater facility operators, Santa Ynez Band of Chumash Indian leaders, environmental advocates, and other interested persons.

Public Comments

On January 30, 2023, staff distributed a notice of an opportunity to provide public comment on this proposed Basin Plan amendment (Attachment 4) and the supporting documents, including the TMDL Project Technical Report (Attachment 2), CEQA Checklist and Analysis Report (Attachment 3), and the proposed Resolution and Basin Plan amendment (Attachment 1). The notice was circulated to a wide variety of stakeholders including those associated with agricultural interests, public agencies, tribal representatives, wastewater operators, resource professionals, environmental groups and environmental justice representatives, and other interested parties. The 45-day written comment period ended on March 16, 2023.

⁸ Scientific Peer Review document link:

https://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/salinas/nutrients/sal_nut_s_tmdl_att5_peerreview.pdf

Staff did not receive any comment letters regarding the proposed Basin Plan amendment.

Climate Change

The Central Coast Region faces the threat and the effects of climate change for the foreseeable and distant future. To proactively prepare and respond, the Central Coast Water Board has launched the Central Coast Water Board's Climate Action Initiative, which identifies how the Central Coast Water Board's work relates to climate change and prioritizes actions that improve water supply resiliency through water conservation and wastewater reuse and recycling; mitigate for and adapt to sea level rise and increased flooding; improve energy efficiency; and reduce greenhouse gas production. The Climate Action Initiative is consistent with the Governor's Executive Order B-30-15 and the State Water Resources Control Board's Climate Change Resolution No. 2017-0012.

In the Central Coast Region, temperatures are projected to continue to increase through the next century, and periodic El Niño events dominate coastal hazard projections across the Central Coast. Flooding hazards are present along the Santa Ynez River but there are no available specific localized projections of climate change-induced flooding trends for the River basin. However, increasing temperatures are likely to result in an increase in algal blooms and could have detrimental effects on animals and people exposed to associated toxins.⁹

This TMDL Project incorporates regulatory mechanisms which address riparian management, stormwater management, and a non-point source program for the operation of agricultural drainage among other implementation strategies to protect surface water quality from nitrogen pollution. Riparian habitat management and stormwater management practices not only protects waterbodies from pollutants in runoff but also constitute adaptation and mitigation practices for climate change induced impacts to water quality.

Human Right to Water

Water Code section 106.3, subdivision (a) states, "It is...[a] policy of the [State of California] that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." On January 26, 2017, the Central Coast Water Board adopted Resolution No. R3-2017-0004, which affirms the realization of the human right to water and the protection of human health as the Central Coast Water Board's top priorities.

This TMDL Project furthers the human right to water by identifying sources of nitrogen compounds and establishing goals to reduce or maintain nitrogen loading so that municipal and domestic water supply beneficial uses are supported. This TMDL Project also establishes a TMDL implementation plan and schedule to attain water quality standards and improve water quality in the Santa Ynez River basin.

⁹ Source: California's Fourth Climate Change Assessment, Central Coast Region (September 2018).

Environmental Justice

Environmental Justice principles call for the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, in the development, adoption, implementation, and enforcement of all environmental laws, regulations, and policies that affect every community's natural resources and the places people live, work, play, and learn. The Central Coast Water Board implements regulatory activities and water quality projects in a manner that ensures the fair treatment of all people, including Underrepresented Communities. Underrepresented Communities include but are not limited to Disadvantaged Communities (DACs), Severely Disadvantaged Communities (SDACs), Economically Distressed Areas (EDAs), Tribes, Environmentally Disadvantaged Communities (EnvDACs), and members of Fringe Communities.

Furthermore, the Central Coast Water Board is committed to providing all stakeholders the opportunity to participate in the public process and provide meaningful input to decisions that affect their communities. Central Coast Water Board staff conducted focused outreach by identifying and compiling contact information for a wide range of stakeholder groups to ensure all interested persons are notified of opportunities to participate in the planning and implementation of this TMDL Project.

Several DACs and SDACs are located within the Santa Ynez River basin. In addition to the water quality and beneficial use protection and restoration benefits, staff recognizes that the cost of implementation could potentially be a burden to these communities. However, urban sources of nitrogen loading to surface waters appear to be currently meeting proposed waste load allocations and thus we do not anticipate substantial restoration activities by municipalities to implement the TMDLs. The TMDL Technical Project Report (Section 4.6) provides information on DACs in the River basin and a map showing their location.

Water Code section 189.7, effective January 1, 2023, requires the Water Boards, during their planning processes, to conduct equitable, culturally relevant outreach when considering proposed discharges of waste that may have disproportionate impacts on water quality in disadvantaged communities or tribal communities and ensure that outreach and engagement continues throughout the planning process. Although the TMDLs do not directly authorize discharges of waste; waste load allocations and load allocations in the Basin Plan must be implemented in waste discharge permits.¹⁰ Central Coast Water Board staff have determined that this Basin Plan amendment establishing TMDLs will not have disproportionate impacts on water quality in disadvantaged communities, or tribal communities, as defined in Water Code section 189.7. Nevertheless, the Central Coast Water Board has provided opportunities for interested persons from DACs and tribal representatives to participate in the decision-making process.

Staff contacted the California Native American Heritage Commission for a list of tribes with traditional lands or cultural places in Santa Barbara County and notified representatives of these tribes individually at the start of the public process for the

¹⁰ Water Code section [13263\(a\)](#) states that waste discharge requirements "shall implement any relevant water quality control plans [basin plans] that have been adopted..."

TMDL Project. In addition to individually contacting these tribal representatives, staff notified representatives of tribal organizations involved in wastewater and resource management issues in the River basin.

CONCLUSION

Surface waters in the lower Santa Ynez River basin are impaired due to excessive concentrations of nitrogen compounds such as nitrate, total nitrogen, and un-ionized ammonia. These surface waters do not meet the Basin Plan water quality objectives, and therefore, municipal and domestic water supply, groundwater recharge, and aquatic habitat beneficial uses are not fully supported. Surface waters elsewhere in the middle and upper reaches of Santa Ynez River basin have relatively low concentrations of nitrogen compounds. The water quality goals of this proposed TMDL Project can be summarized as follows: to restore water quality in nitrogen-impaired waterbodies of the lower Santa Ynez River basin; to prevent any further degradation of existing high quality waters¹¹ elsewhere in the River basin (unless degradation is consistent with State policy); and to provide an additional level of protection for ecologically sensitive downstream waters of the Santa Ynez River estuary. The TMDLs will be implemented via existing and reissued permits and non-regulatory actions to ensure protection of beneficial uses. The TMDL attainment date is within five years after the Office of Administrative Law (OAL) approval date of this Basin Plan amendment.

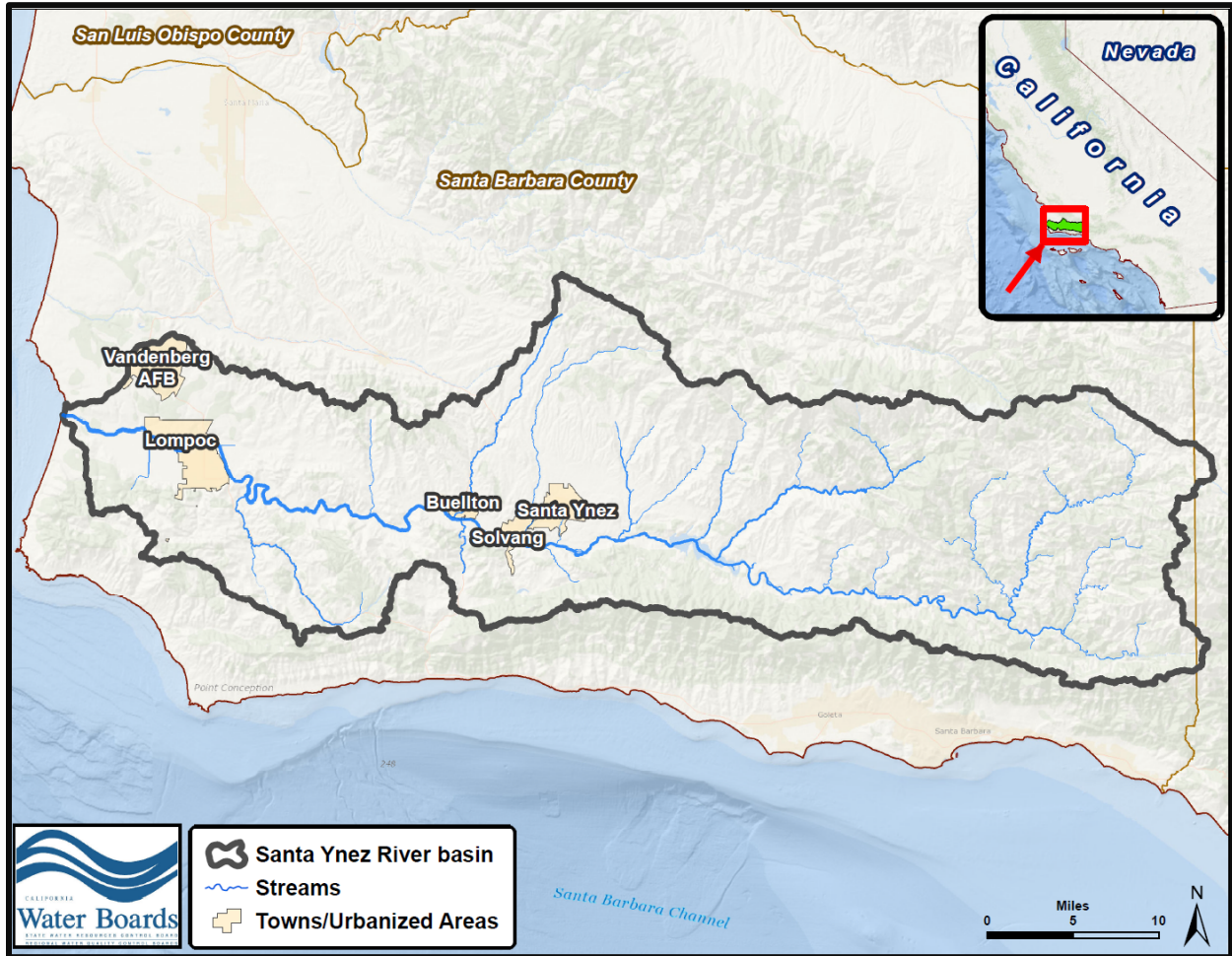
RECOMMENDATION

Adopt Resolution No. R3-2023-0003 as proposed.

¹¹ For purposes of anti-degradation policy, high quality waters are determined on a "pollutant-by-pollutant," or "parameter-by-parameter" basis, by determining whether water quality is better than the criterion for each parameter using chemical or biological data. (see: State Water Resources Control Board, memorandum: Questions and Answers on Resolution 68-16, February 16, 1995).

FIGURES

Figure 1. Map of the Santa Ynez River basin.



ATTACHMENTS

Attachment 1: Proposed Resolution No. R3-2023-0003 and Basin Plan amendment (Attachment A to the Resolution)

Attachment 2: TMDL Project Technical Report

Attachment 3: CEQA Checklist and Analysis

Attachment 4: Notice of Public Hearing-Notice of Opportunity to Comment