



WELL PERMITTING AND THE PUBLIC TRUST

Santa Barbara County's Role in Addressing the Impacts of
Groundwater Extraction in the Santa Ynez River Watershed

May 2026



About California Coastkeeper Alliance

Using law, policy, and science, California Coastkeeper Alliance supports and amplifies the work of ten local Waterkeeper programs to fight for swimmable, fishable, and drinkable waters for California communities and ecosystems. CCKA was founded in 1999 with the belief that a healthy ocean and coast and clean water is vital to California's economy, public health, and way of life.

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EXECUTIVE SUMMARY

The Santa Ynez River watershed in Santa Barbara County historically supported the largest steelhead runs in southern California. However, human activities in the watershed since the 1800s have interfered with the life cycle and habitat needs of steelhead. Significantly, the construction of dams, including Bradbury Dam, has completely blocked steelhead from accessing upper reaches and key tributaries of the Santa Ynez River to spawn and rear. Dam operation also impacts flows and water temperature, both of which are important to steelhead survival.

Compounding the effects of surface water diversions and dams, Santa Barbara County's reliance on groundwater contributes to water stress in the region. Groundwater supplies 94% of the water supply in the Santa Ynez River Valley Groundwater Basin, which underlies the Santa Ynez River. Agricultural use represents the largest share of groundwater pumping in the basin, while urban customers make up most of the remaining demand. Because the Santa Ynez River is hydraulically connected to an underlying alluvial layer in which groundwater is stored, groundwater pumping from this area depletes surface waters.



Juvenile steelhead trout / Adobe Stock.

Current populations of steelhead (the life history form of *O. mykiss* that migrate from their natal streams to the ocean) in southern California are a fraction of what they once were. In the Santa Ynez River watershed, the decline has been extreme. Before Bradbury Dam was constructed, the Santa Ynez River supported estimated steelhead runs of 13,000 to 25,000 adult individuals. For well over a decade, fewer than fifteen adults have been counted each year in the Santa Ynez River. The National Marine Fisheries Service

considers the Santa Ynez River steelhead population to be extremely vulnerable to extinction. The Southern California Evolutionarily Significant Unit of steelhead has been listed as endangered since 1997, and the Santa Ynez River is designated as critical habitat for steelhead.

Steelhead and other species that rely on the Santa Ynez River and its tributaries, including additional Endangered Species Act-listed species like the tidewater goby, are negatively impacted by the current state of water use in the area, including excessive groundwater pumping. Without sufficient groundwater inputs to the river to regulate stream temperatures and sustain baseflows, steelhead and other species are subject to higher water temperatures, impaired water quality, and decreased habitat availability.

The government has a duty under the Public Trust Doctrine to look at impacts to these species, which are considered public trust resources, and to protect public trust uses of waters like the Santa Ynez River whenever feasible. The public trust in California includes environmental, scientific, and aesthetic values, and public trust uses include the preservation of public lands in their natural state.

Santa Barbara County, as a trustee of the public trust and the entity in charge of well permitting and managing groundwater resources in the Santa Ynez River watershed, must therefore consider impacts to the public trust from groundwater extraction, including when issuing well permits, and must also make every effort to avoid harms to public trust resources and uses.

Recommendations:

To fulfill its public trust duties, the County should update its well permitting ordinance to incorporate consideration of the public trust. As detailed in this report, current levels of groundwater extraction are contributing to lowered surface water levels in the Santa Ynez River watershed, and steelhead are highly likely to become extirpated in the watershed without significant action to address flows. Detailed recommendations are grouped into a multi-faceted approach that the County can implement: gathering information needed to comply with public trust duties, developing a well permitting system that incorporates the information gathered, and implementing the system while monitoring progress and adapting as needed.

As a preliminary step, to ensure the County complies with its duties under the Public Trust Doctrine, the County should pause issuance of ministerially-granted groundwater extraction permits until an updated well permitting system adequate to protect public trust resources is developed and implemented. Discretionary well-permitting could be continued as the following actions are completed.

Recommended Action 1: Gather information needed to comply with public trust duties

1a: Identify public trust resources and uses and their flow needs

- ❖ Identify the public trust resources and uses that may be supported by surface waters in the Santa Ynez River watershed.
- ❖ Determine where these uses are or could be supported within the watershed.
- ❖ Using existing information, identify the surface flows needed to support public trust uses, considering seasonal and water year-type variability as needed to support species needs.

1b: Evaluate current and future groundwater extraction

- ❖ Determine where groundwater is connected to surface water within the County's jurisdiction.
- ❖ Identify existing wells that pump from groundwater which is presently or could potentially be interconnected with surface water.
- ❖ Undertake and complete a study evaluating cumulative impacts for likely new wells under various growth and climate change scenarios, as well as ongoing and cumulative impacts of existing wells within the County.
- ❖ Use the information gathered to identify areas within the County where installing additional wells risks impacting public trust resources.

Recommended Action 2: Develop a well permitting system that incorporates the information gathered

- ❖ Develop a methodology to determine whether a proposed well will impact public trust resources that utilizes modeling and integrates the information gathered in Phase 1.
- ❖ This methodology should include a mechanism to account for cumulative impacts identified in Phase 1.
- ❖ Use this methodology in defining permitting criteria that are sufficient to protect public trust resources.
- ❖ Require gauging and metering on all wells as part of the permitting system, including gauging on existing wells and around existing impacted stream reaches.
- ❖ Include a plan for how the County will assess the new ordinance's effectiveness in protecting public trust resources and adapt its approach if needed.

Recommended Action 3: Implement, monitor, and adapt as needed

- ❖ Continue to monitor data collected from installed gauges and meters and evaluate whether and to what extent pumping continues to impact public trust resources.
- ❖ Refer to the instream flow standards developed during Phase 1b in evaluating impacts to public trust resources.
- ❖ Adapt the well permitting system as needed to protect public trust resources and restore instream flows and groundwater use to sustainable levels.

As a member of the Santa Ynez River Valley Groundwater Basin Groundwater Sustainability Agencies, as well as manager of many natural resources in the watershed, the County already has much of the information and processes in place to immediately undertake and complete the recommendations described above.

ROAD MAP OF REPORT & MATERIALS CONSIDERED

This report is organized into four sections. The first section introduces facts relevant to the County's development of an effective well permitting system that is protective of public trust resources, including information on the watershed and groundwater basin, species' needs, and groundwater extractions. The second section describes the legal authority that forms the basis for the County's duties and authority under the Public Trust Doctrine. The third section synthesizes the information in sections two and three to clarify the County's specific role in protecting public trust resources. The report concludes in section four with a summary of the County's role in managing public trust resources in Santa Ynez River watershed (and county-wide) and reiterates the set of recommendations for the County to implement to fulfill its public trust duties.

Scientific study:

To inform this report, CCKA engaged groundwater hydrologists Dr. Hugo Loaiciga and Dr. Mark Kram to prepare a report that analyzes groundwater and surface water interactions in the watershed and summarizes potential impacts of current and future groundwater extractions on surface waters. The report is entitled:

- ❖ Loaiciga & Kram, Groundwater-Surface Water Interactions and Implications of Groundwater Withdrawal and Streamflow Storage for Groundwater-Dependent Ecosystems in the Santa Ynez River Valley Groundwater Basin, Santa Barbara County, California (August 20, 2024)

This report Dr. Loaiciga and Dr. Kram prepared is **attached as an appendix to this report** and cited throughout.

In addition, CCKA reviewed documents prepared by federal, state, and local governmental agencies; additional scientific studies; GIS data; and legal authority. In reviewing documents, CCKA identified current informational and regulatory gaps, which are discussed in the body of this paper where applicable. Key documents referenced in this report are identified below.

Federal agencies:

The Southern California Steelhead Recovery Plan (2012) prepared by the National Marine Fisheries Service outlines actions necessary to prevent the extinction and ensure the long-term recovery of the Southern California Distinct Population Segment of steelhead.

- ❖ National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southern California Steelhead Recovery Plan (January 2012)

The Biological Assessment (1999) and subsequent Biological Opinion (2000) prepared by the United States Bureau of Reclamation and National Marine Fisheries Service, respectively, discuss the impact of Cachuma Project operations on endangered steelhead in the lower Santa Ynez River.

- ❖ United States Bureau of Reclamation, Biological Assessment for Cachuma Project Operations and the Lower Santa Ynez River (April 7, 1999)
- ❖ National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Biological Opinion: U.S. Bureau of Reclamation Operation and Maintenance of the Cachuma Project on the Santa Ynez River in Santa Barbara County, California (2000)

New information that became available since the 2000 Biological Opinion informed the draft Biological Opinion (2016) prepared by the National Marine Fisheries Service. In contrast to past consultation, the 2016 draft “BiOp” considered the effects of the operation of the Tecolote Tunnel and South-Coast Conduit, in addition to the effects of the operation and maintenance of Bradbury Dam and Cachuma Reservoir, which both documents discuss. The draft 2016 BiOp concluded that the Cachuma Project was likely to jeopardize the continued existence of Southern California DPS steelhead and to destroy or degrade critical habitat for the species.

- ❖ National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Draft Biological Opinion: U.S. Bureau of Reclamation Operation and Maintenance of the Cachuma Project on the Santa Ynez River in Santa Barbara County, California (November 28, 2016)

A United States Geological Survey Report entitled “Geology and Water Resources of the Santa Ynez River Basin, Santa Barbara County, California” (1951) describes the geologic and hydrologic conditions of the Santa Ynez River Valley Groundwater Basin and is extensively referenced in the Basin’s Groundwater Sustainability Plans.

- ❖ United States Geological Survey, Geology and Water Resources of the Santa Ynez River Basin, Santa Barbara County, California (1951)

State agencies:

The Final Environmental Impact Report (2011) regarding modification of the Bureau of Reclamation’s water rights permits, prepared by the State Water Resources Control Board, considers environmental impacts and impacts to downstream water rights resulting from potential amendments to Reclamation’s permits for the Cachuma Project. The Board’s Order WR 2019-0148 (2019) realizes the amendments of those water rights permits.

- ❖ State Water Resources Control Board, Final Environmental Impact Report: Consideration of Modifications to the U.S. Bureau of Reclamation’s Water Right Permits 11308 and 11310 (Applications 11331 and 11332) to Protect Public Trust Values and Downstream Water Rights on the Santa Ynez River below Bradbury Dam (Cachuma Reservoir) (December 2011)
- ❖ State Water Resources Control Board, Order WR 2019-0148 (September 12, 2019)

An administrative decision issued by the State Water Resources Control Board in the matter of Application 29664 of Garrapata Water Company (1999) describes the factors the Board uses to determine whether groundwater constitutes a subterranean stream. A letter from the Board to the Department of Water Resources (2023) assesses the jurisdictional status of underflow in the Santa Ynez River Valley Groundwater Basin consistent with the factors described in the above decision.

- ❖ State Water Resources Control Board, Decision 1639, In the Matter of Application 29664 of Garrapata Water Company (June 17, 1999)
- ❖ Letter from State Water Resources Control Board to Department of Water Resources (April 14, 2023)

The Department of Water Resources’s Staff Report (2024) assesses the Groundwater Sustainability Plans for the Santa Ynez River Valley Groundwater Basin, recommending approval of the Plans while including future corrective actions.

- ❖ Department of Water Resources, Sustainable Groundwater Management Program Groundwater Sustainability Plan Assessment Staff Report: Santa Ynez River Valley Basin (No. 3-015) (January 18, 2024)

Local agencies:

The Groundwater Sustainability Plans for the Santa Ynez River Valley Groundwater Basin's three Management Areas (Central, Eastern, and Western) (2022) outline each Groundwater Sustainability Agency's plan for compliance with the Sustainable Groundwater Management Act. A related joint Annual Report (2024) evaluates the agencies' management progress through water year 2024.

- ❖ Central Management Area Groundwater Sustainability Agency, Groundwater Sustainability Plan for the Santa Ynez River Valley Groundwater Basin (January 2022)
- ❖ Eastern Management Area Groundwater Sustainability Agency, Santa Ynez River Valley Groundwater Basin – Eastern Management Area Groundwater Sustainability Plan (January 2022)
- ❖ Western Management Area Groundwater Sustainability Agency, Groundwater Sustainability Plan for the Santa Ynez River Valley Groundwater Basin (January 2022)
- ❖ Annual Report Water Year 2024 for the Santa Ynez River Valley Groundwater Basin Bulletin 118 Basin No. 3-15: Joint Report of the Groundwater Sustainability Agencies (March 14, 2025)

The portion of the County's Comprehensive Plan (2009) entitled "Groundwater Resources" provides background and policy direction related to groundwater resources in Santa Barbara County. The County's Groundwater Basins Summary Report (2023) summarizes groundwater conditions and trends in the County, along with the monitoring programs in place.

- ❖ Santa Barbara County, Planning and Development, Comprehensive Plan: Conservation Element - Groundwater Resources Section (May 2009)
- ❖ Santa Barbara County, Public Works Department, 2023 Groundwater Basins Summary Report (October 2023)

Scientific studies:

A study published in the Southern California Academy of Sciences's Bulletin, entitled "A History of Steelhead and Rainbow Trout (*Oncorhynchus mykiss*) in the Santa Ynez River Watershed, Santa Barbara County, California" (2012), discusses the historical distribution of steelhead in the Santa Ynez River watershed, along with reasons for their decline.

- ❖ Alagona, *et al.*, A History of Steelhead and Rainbow Trout (*Oncorhynchus mykiss*) in the Santa Ynez River Watershed, Santa Barbara County, California (2012)

GIS data:

Online GIS dashboards hosted by the Department of Water Resources provide information on well infrastructure and regulation of groundwater under SGMA.

- ❖ Department of Water Resources, SGMA Basin Prioritization Dashboard, Santa Ynez River Valley, <<https://gis.water.ca.gov/app/bp-dashboard/final/#>>
- ❖ Department of Water Resources, California's Groundwater Live: Well Infrastructure <<https://storymaps.arcgis.com/stories/f2b252d15a0d4e49887ba94ac17cc4bb>>

Legal authority:

A line of California cases including *Marks v. Whitney* (1971), *National Audubon Society v. Superior Court* (1983), *Center for Biological Diversity, Inc. v. FPL Group, Inc.* (2008), and *Environmental Law Foundation v. State Water Resources Control Bd.* (2018) establish and clarify Public Trust Doctrine requirements in California. The California Constitution and Water Code contain numerous provisions relevant to the management of water resources within the state.

FACTUAL BACKGROUND

I. Santa Ynez River Watershed

a. Background

The Santa Ynez River watershed, located in ancestral Chumash territory and falling primarily in central Santa Barbara County, covers an area of about 900 square miles.¹ The Santa Ynez River originates in the San Rafael Mountains in the Los Padres National Forest. Its mainstem flows westward for 90 miles, crossing the Santa Ynez and Lompoc Valleys before it empties into the Pacific Ocean at Surf, north of Point Conception.² The majority of the Santa Ynez River watershed is located in Santa Barbara County, with a small portion in Ventura County.³ The River provides the primary source of water for about two-thirds of Santa Barbara County residents.⁴

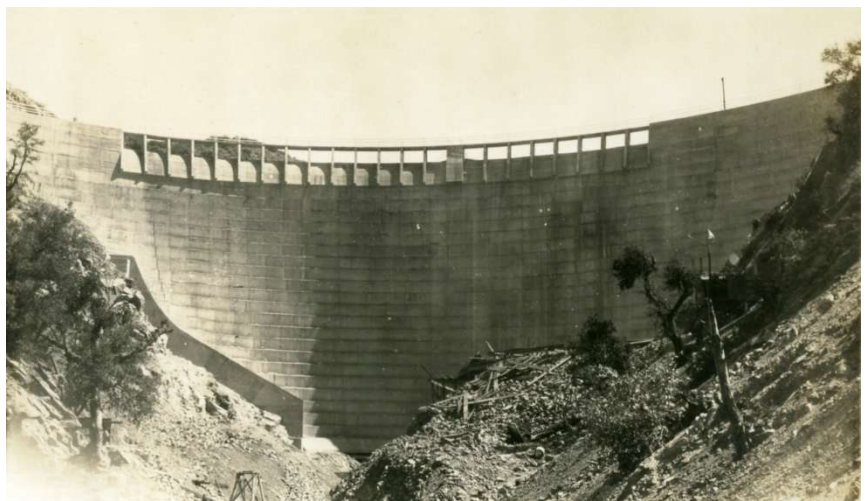
b. Dams on the Santa Ynez River to Supply Urban and Rural Users

Three dams have been constructed on the Santa Ynez River mainstem: Juncal Dam, Gibraltar Dam, and Bradbury Dam.⁵ These dams create Jameson Lake, Gibraltar Reservoir, and Lake Cachuma, respectively.⁶

Gibraltar Dam was the earliest of these projects, with the first diversion from the Dam and Reservoir occurring in 1920.⁷ By the time the Gibraltar project was completed, the City of Santa Barbara had already reached the population level Gibraltar was designed to serve.⁸ Roughly 216 square miles of the Santa Ynez River watershed lies upstream of Gibraltar Dam.⁹

The Montecito Water District constructed Juncal Dam next, between 1924 and 1930. Until the Cachuma Project's completion, this project provided the Montecito Water District's primary water supply.¹⁰

The Bureau of Reclamation ("Reclamation") undertook the Cachuma Project, which includes Bradbury Dam, to provide existing agricultural and municipal users in the South Coast region with a reliable supply of water.¹¹ Completed in 1953, Bradbury Dam forms Lake Cachuma, the "largest and farthest downstream of the three reservoirs on the Santa Ynez River."¹² Lake Cachuma was designed with a storage capacity of 204,874 acre-feet ("AF"), though its operating capacity has been reduced by about 14,000 AF.¹³



Upstream view of Juncal Dam (September 4, 1930). CA-A-0079, WaterArchives.org / Cropped from original.

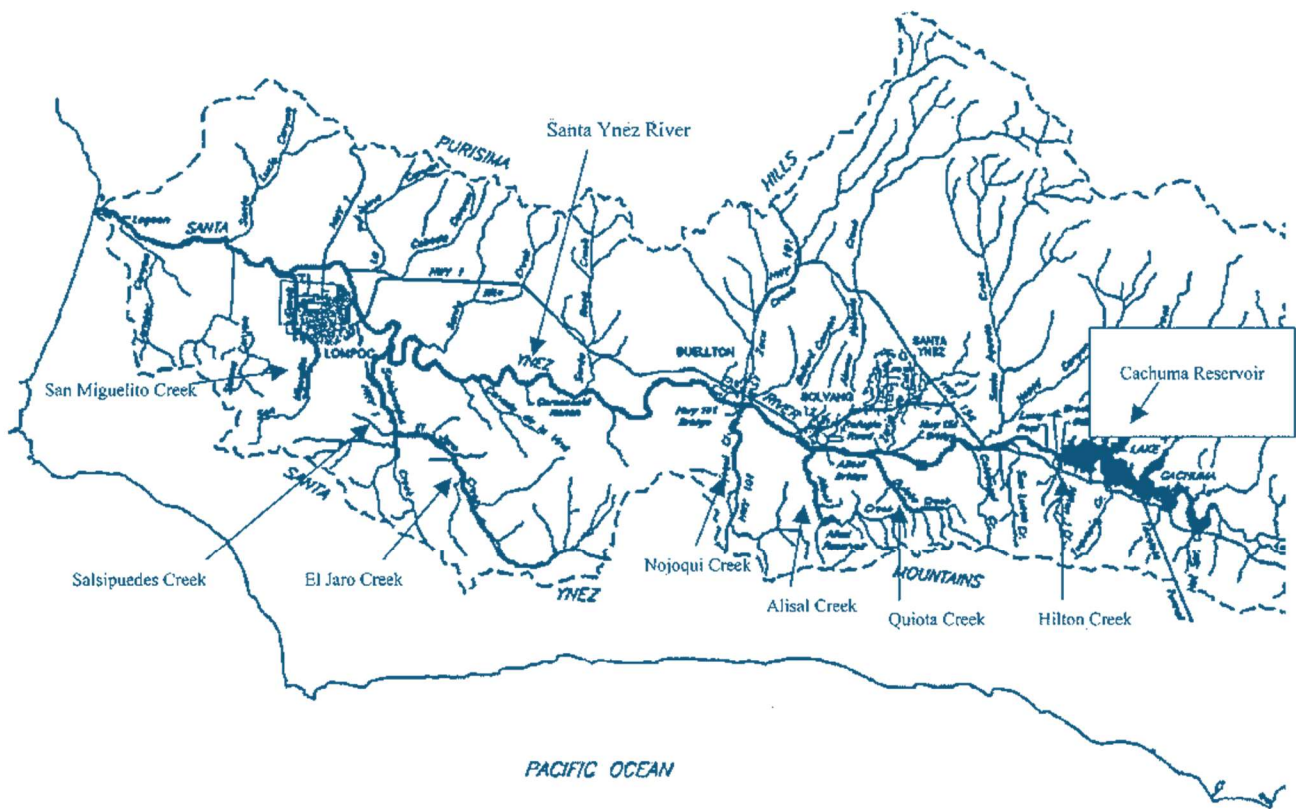
Bradbury Dam provides the primary surface water supply for Santa Barbara County and part of the Santa Ynez Valley. Diversions from Lake Cachuma to the South Coast are conveyed through the Tecolote Tunnel, which serves the “Member Units,” i.e., the City of Santa Barbara, Goleta Water District, Carpinteria Valley Water District, Montecito Water District, and the Santa Ynez River Water Conservation District – Improvement District #1 (SYRWCD, ID#1).¹⁴ From the Tecolote Tunnel, water flows through the South Coast Conduit, a pipeline carrying the water through the water districts.¹⁵ A 1962 report concludes the tunnel dried up a spring in Hot Springs Canyon near the Cachuma Project.¹⁶

The Member Units use Cachuma Project water for irrigation as well as municipal and industrial uses.¹⁷ An average of 20,000 acre-feet per year (“AFY”) is delivered to the Member Units.¹⁸ The main purposes of Bradbury Dam are to supply irrigation water to agricultural lands (primarily growing citrus and other fruits, lettuce, tomatoes, and alfalfa), to supply municipal water to urban areas in Santa Barbara County, and to maintain Lake Cachuma for recreational uses.¹⁹

Bradbury Dam is located approximately 48 miles from the ocean and divides the Santa Ynez River watershed in half, completely blocking steelhead trout (the anadromous life history form of the salmonid species *Oncorhynchus mykiss*) from accessing upstream spawning and rearing habitat.²⁰ Approximately 417 square miles of the watershed lies above Bradbury Dam.²¹ Though the State Water Board and the Bureau of Reclamation have reported that the mainstem Santa Ynez River was historically intermittent (with portions going dry in the summer) and thus could not support steelhead spawning and rearing,²² groundwater supported year-round flows in the river prior to the construction of Gibraltar, Juncal, and Bradbury Dams despite groundwater pumping and surface diversions prior to 1906.²³ Currently, the mainstem below Lake Cachuma goes dry most summers as a result of both Bradbury Dam’s construction and groundwater overdrafting.²⁴

Downstream of the Dam, steelhead and other species face additional barriers to their survival due to modification of flows.²⁵ Water quality conditions below Bradbury Dam, especially temperature and dissolved oxygen concentrations, impact the quality and availability of steelhead habitat.²⁶

The Bureau of Reclamation owns and operates Bradbury Dam.²⁷ In 1958, the State Water Resources Control Board’s (“State Water Board”) predecessor agency issued two permits (Nos. 11308 and 11310) to Reclamation, authorizing it to “divert and store water from the Santa Ynez River using Cachuma Project facilities.”²⁸ The permits require Reclamation to “release enough water to satisfy downstream users with senior rights to surface water and to maintain percolation of water from the stream channel” so as not to reduce groundwater recharge from the Santa Ynez River.²⁹ The State Water Board exercises continuing jurisdiction over the Dam “to determine the amount, timing, and rate of releases necessary to satisfy downstream rights.”³⁰ The Board has also requested operation changes and management actions related to the Dam for the maintenance of fisheries and other public trust resources in the lower Santa Ynez River.



Partial map of the Santa Ynez River watershed showing the location of Cachuma Reservoir, also known as Lake Cachuma. National Marine Fisheries Service, Cachuma Project Biological Opinion (2000) at p. 10.

c. Groundwater Basin Characteristics

The Santa Ynez River Valley Groundwater Basin (“SYRVGB” or “Basin”) spans an area of 317 square miles underlying the cities of Lompoc, Buellton, and Solvang in Santa Barbara County, along with several unincorporated communities.³¹ It is bounded by “the Purisima Hills on the northwest, the San Rafael Mountains on the northeast, the Santa Ynez Mountains on the south, and the Pacific Ocean on the west.”³² Groundwater pumping within the SYRVGB causes depletion of surface flows, with negative impacts on the fish that rely on these flows.³³

i. Sub-Basins

Within the SYRVGB, there are eight sub-basins: Burton Mesa, Lompoc Terrace, Lompoc Plain, Lompoc Upland, Santa Rita Upland, Buellton Upland, Santa Ynez Upland, and Santa Ynez River Alluvium.³⁴ The main sources of groundwater within the SYRVGB are “(1) the Santa Ynez River alluvial deposits; (2) the Santa Ynez Upland groundwater basin; (3) the Buellton Upland groundwater basin; (4) the Santa Rita Upland groundwater basin; and (5) the Lompoc Basin.”³⁵

Downstream of Lake Cachuma, the Santa Ynez River passes over two groundwater sub-basins: the upstream Santa Ynez River Alluvium, and the downstream Lompoc Plain.³⁶ These sub-basins are separated by the Lompoc Narrows, an area of bedrock that constrains the flood plain.³⁷

1. Santa Ynez River Alluvium

A relatively thin layer of alluvium lies beneath the Santa Ynez River and above the Paso Robles Formation.³⁸ The Santa Ynez River Alluvium follows the river's course through each of the Management Areas in the SYRVGB.³⁹ The alluvium is "in direct hydraulic communication with surface flow" of the Santa Ynez River.⁴⁰ Inflow into the alluvium comes from underflow from neighboring sub-basins, percolation of rainwater, and infiltration of flows from the Santa Ynez River.⁴¹ Releases from Cachuma Reservoir affect long-term trends in the alluvium.⁴² Under "full water conditions," the alluvial layer has a storage capacity of about 105,000 AF, but its usable storage is much lower.⁴³ The Santa Ynez River is the primary source of recharge for the alluvium.⁴⁴ Other sources include "precipitation, seepage from other streams, irrigation return flow, and wastewater effluent."⁴⁵

2. Lompoc Plain

The Lompoc Plain sub-basin underlies a floodplain of the Santa Ynez River that stretches across the valley from the Lompoc Narrows to the point at which the River flows into the Pacific Ocean.⁴⁶ Groundwater in the Lompoc Plain occurs in unconsolidated deposits.⁴⁷ The United States Geological Survey has estimated the groundwater storage of this sub-basin to be about 215,000 AF. However, much of this water is unusable due to high salt concentrations.⁴⁸

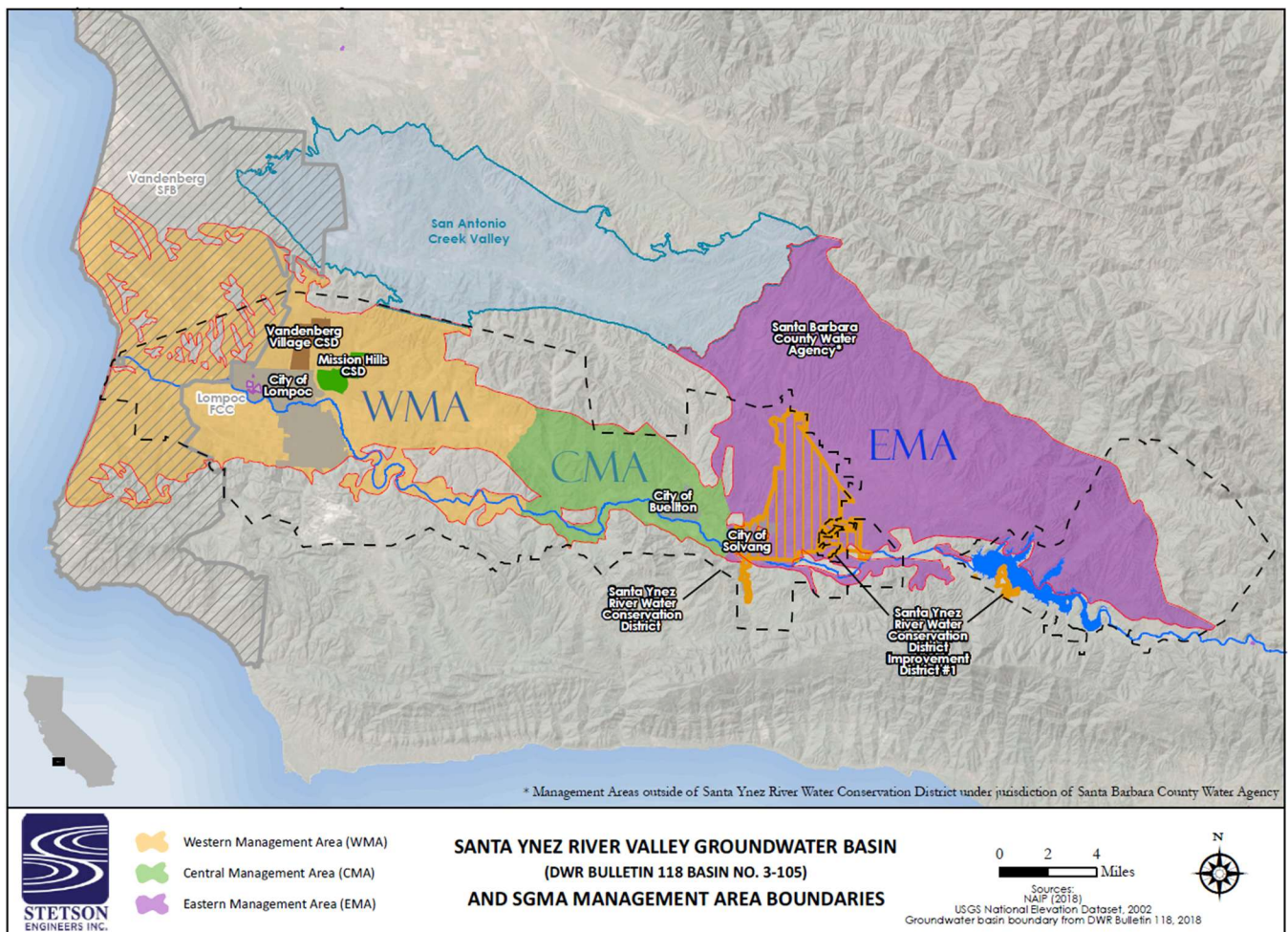
There are two principal aquifers within the Lompoc Plain: the Upper Aquifer, made up of alluvial sediments, and the Lower Aquifer, made up of the Careaga Sand and Paso Robles Formation.⁴⁹ The Upper Aquifer is hydraulically connected to the River on a seasonal basis.⁵⁰

ii. Water-Bearing Deposits

The SYRVGB includes unconsolidated deposits and underlying consolidated rocks.⁵¹ Groundwater within the basin "occurs primarily in younger unconsolidated alluvial deposits or in older unconsolidated deposits."⁵² In particular, the Careaga Sand and Paso Robles Formation, unconsolidated deposits that underlie the alluvium, are "capable of storing large volumes of water and of transmitting it to the overlying formations."⁵³ By contrast, the consolidated rocks within the Basin bear little groundwater except in fractures, some of which feed springs.⁵⁴

iii. Regulatory Landscape

The Department of Water Resources ("DWR") has categorized the SYRVGB as a medium-priority basin that is not in a state of critical overdraft.⁵⁵ The Sustainable Groundwater Management Act ("SGMA") required such basins to form groundwater sustainability agencies ("GSA") and develop groundwater sustainability plans ("GSP") by January 31, 2022.⁵⁶ Consistent with these requirements, local cities, water agencies, and special districts formed three separate GSAs to represent three Management Areas within the Basin, each having its own GSP.⁵⁷ These GSAs have collectively entered into a Coordination Agreement outlining their commitment to coordinate the development and implementation of GSPs for the entire Basin, as required by SGMA.⁵⁸ DWR approved each of the three GSPs developed for the Basin, though it provided recommended corrective actions for the GSAs to implement by the next periodic evaluation.⁵⁹



Map of Santa Ynez River Valley Groundwater Basin and Management Areas / Central Management Area GSP (2022), Figure 1a.1-2.

d. Underflow Beneath the Santa Ynez River and Tributaries

“Underflow occurs in the river-channel deposits and younger alluvium which lie along the Santa Ynez River.”⁶⁰ As described in greater detail below,^{*} in California, percolating groundwater and subterranean streams are subject to different legal management regimes, with subterranean streams regulated in the same manner as surface water. At the margins, whether underflow is a “subterranean stream” becomes a technical question that complicates legal responsibility for groundwater management and associated protection of public trust resources.

Studies by Upson and Thomasson (1951) and Wilson (1959) established that underflow in the SYRVGB “constitutes a subterranean stream” because it possesses the following characteristics: “(1) a subsurface channel is present; (2) the channel has a relatively impermeable bed and banks; (3) the course of the channel is known or capable of being determined by reasonable inference; and (4) groundwater flows in the channel (this is the underflow).”⁶¹

The GSPs for each of the three Management Areas similarly recognize the existence of underflow within the Santa Ynez River Alluvium that constitutes a subterranean stream.⁶² The GSAs have

^{*} See p. 28, Legal Background: Groundwater Classifications in California.

excluded the Santa Ynez River Alluvium from any of the three Management Areas on the basis that it “is considered surface water under the regulatory jurisdiction of the State Water Resources Control Board.”⁶³

However, the State Water Board contests the GSAs’ assertion that the Santa Ynez River Alluvium contains a subterranean stream that is not subject to management under SGMA.⁶⁴ In a comment letter submitted to DWR, the State Water Board noted the presumption that the Santa Ynez River Alluvium constitutes percolating groundwater holds unless and until the Board makes a determination that the four factors from its Garrapata decision are present.⁶⁵ Because the State Water Board has not yet made such a determination, it concluded the Santa Ynez River Alluvium should be treated for the time being as percolating groundwater subject to SGMA.⁶⁶ Based on the Board’s comment letter, DWR stated “it will be necessary to treat [the Santa Ynez River Alluvium] as an unmanaged area under [SGMA].”⁶⁷

e. Tributaries

The Santa Ynez River downstream from Bradbury Dam and its tributaries are designated as critical habitat for the endangered steelhead.⁶⁸ Because Bradbury Dam blocks access to the majority of the best, most suitable steelhead habitat in the Santa Ynez River, the tributaries located below the dam play a critical role in supporting steelhead populations. Major tributaries below Bradbury Dam include Hilton Creek, Quiota Creek, Alisal Creek, Nojoqui Creek, El Jaro Creek, Salsipuedes Creek, and San Miguelito Creek. These tributaries provide essential spawning and rearing habitat, and steelhead have been observed in all of them. Successful spawning and rearing have been documented in Hilton, Salsipuedes, El Jaro, Quiota, and San Miguelito creeks. Notably, steelhead are more frequently observed in tributaries that offer higher-quality habitat.

Protecting and enhancing habitat in these downstream tributaries is vital to improving the availability and quality of steelhead spawning and rearing areas. Salsipuedes Creek and its tributary, El Jaro Creek, contain high-quality habitat, characterized by well-developed canopy cover and a mix of pools and riffles near their confluence. Nojoqui Creek also supports good spawning and rearing conditions in its upper reaches. Similarly, the portion of Quiota Creek located 1.5 to 3 miles upstream from its confluence with the Santa Ynez River features strong canopy cover, complex pool habitats, and numerous undercut banks that offer excellent rearing conditions.

Hilton, Salsipuedes, El Jaro, and Quiota creeks are considered highest-priority tributaries due to their perennial flows in the upper reaches and their demonstrated capacity to support steelhead spawning and rearing.⁶⁹

Zanja de Cota Creek, a tributary to the Santa Ynez River, flows through the Santa Ynez Reservation.⁷⁰ While the creek used to be the site of steelhead fishing derbies, no steelhead currently inhabit the creek because of decreases in surface flows and increases in pesticide runoff.⁷¹ The Santa Ynez Band of Chumash Indians monitors surface water quality in Zanja de Cota Creek and groundwater pumping throughout the Santa Ynez Reservation.⁷²

f. Public Trust Resources of the Santa Ynez River Watershed

i. Steelhead

1. Life Cycle and Habitat Needs

Steelhead and rainbow trout are two life history forms of the salmonid species *Oncorhynchus mykiss*, which occurs in Pacific Coast watersheds from Alaska to Northern Mexico. *O. mykiss* that spend their entire lives in streams and rivers are referred to as rainbow trout. Anadromous *O. mykiss*, i.e., those that migrate from their natal streams to the ocean, are referred to as steelhead. The two forms can interbreed and contribute to the genetic pool of the population. Anadromous parents can produce non-anadromous progeny and vice versa.⁷³



"The Mouth of the Santa Ynez River" by J. Speth, California Department of Fish & Wildlife (1969), [CC BY 2.0](#).

The steelhead life cycle generally ranges from three to five years and involves three stages.⁷⁴ First, steelhead rear in freshwater. This stage typically lasts from one to three years. Steelhead then migrate from freshwater to the ocean, spending one to four years maturing in the marine environment. Finally, after maturing, steelhead return to their natal streams to spawn in freshwater.⁷⁵

Across all watersheds, out-migration to the ocean occurs in the late winter and spring. Returning steelhead may migrate several hundred miles upstream to reach their spawning grounds. Once they reach their spawning grounds, females excavate a nest in streambed gravels where they deposit their eggs. After fertilization by the male, the female covers the nest with a layer of gravel. The eggs typically hatch in three weeks to two months, depending on water temperature. The young fish emerge from the gravel two to six weeks after hatching. After spawning, adult steelhead may return to the ocean, sometimes repeating their spawning migration. Most southern California steelhead spawn one or two times in their life.⁷⁶



Postcard by the Detroit Photographic Company captioned "Fordng the Santa Inez River" (circa 1897-1924).

Steelhead depend on flowing, well-oxygenated, and cool water to support migration and reproduction.⁷⁷ In the Santa Ynez River system, steelhead generally migrate from the ocean to spawn from December through April. In order to migrate upstream, steelhead need sufficient streamflow. Low flows at riffles (critical shallow locations with fast-flowing water) can impede steelhead passage in dry years. Steelhead typically migrate upstream when streamflow rises during a storm event. After spawning, about thirty percent of adult steelhead return to the ocean. Southern California steelhead typically migrate out to the ocean when they are one to two years old. This juvenile outmigration period typically occurs February through May, but its timing is influenced by streamflows.⁷⁸

2. Historical Presence in Southern California and the Santa Ynez River Watershed

Historically, steelhead and rainbow trout were some of the most abundant native fish in the coastal streams of southern California.⁷⁹ The Santa Ynez River supported the largest of the four principal steelhead runs in southern California.⁸⁰ Prior to the installation of Bradbury Dam on the Santa Ynez, the river supported estimated steelhead runs of 13,000 to 25,000 individuals.⁸¹

The first explicit historical records of steelhead and trout in the Santa Ynez River come from the mid to late 1800s. During this period, steelhead and rainbow trout were present upstream from

Bradbury Dam's current location. By the time the first scientific studies of steelhead began around 1880, many steelhead streams throughout California had already been modified by mining, agriculture, logging, and other human activities.⁸² Despite this, the overall steelhead range remained largely unchanged. Several documents from the late 1800s to early 1900s indicate that steelhead occurred throughout the Santa Ynez River watershed, including within the highest reaches of the mainstem and tributaries.⁸³

Despite historically boasting the largest steelhead runs in southern California, the current steelhead population in the Santa Ynez River is very small. Along the West Coast, steelhead populations have plummeted from annual runs totaling between 32,000 and 46,000 adults to fewer than 500 adults across four major watersheds.⁸⁴ Anadromous *O. mykiss* has been extirpated from many streams it historically inhabited, including, for example, all streams in the Santa Monica Mountains except the Topanga Creek watershed.⁸⁵

This decline has occurred largely as a result of human activities that have reduced, degraded, simplified, and fragmented steelhead habitat. Most significant among these human activities has been the construction and operations of dams on the Santa Ynez River, including Bradbury Dam.⁸⁶ As explained in this report, groundwater depletion and associated degradation of streams in the Santa Ynez River watershed have also contributed to the decline.

3. Endangered Species Act Listing Status

In 1997, the National Marine Fisheries Service ("NMFS") listed the Southern California Evolutionarily Significant Unit ("ESU") of anadromous steelhead as endangered.⁸⁷ This ESU includes steelhead in the Santa Ynez River watershed.⁸⁸ In 1996, the year before listing, fewer than 100 adult steelhead returned to the Santa Ynez River.⁸⁹ Populations have continued to plummet since listing, with fewer than fifteen anadromous adult steelhead counted in the River for each of the past eighteen years.⁹⁰

In 2000, NMFS made its final designation of critical habitat for steelhead, including in this designation "all waters and substrates below naturally impassable barriers that have existed for several centuries, and several dams that block steelhead from using historical habitat areas."⁹¹ This definition includes the mainstem of the Santa Ynez River downstream from Bradbury Dam.⁹²

After the initial listing of Southern California steelhead, NMFS transitioned from the ESU designation to a Distinct Population Segment ("DPS") designation for steelhead.⁹³ In 2006, after completing a status review of West Coast steelhead populations, NMFS re-listed the Southern California steelhead DPS as endangered.⁹⁴ This listing encompasses naturally spawned steelhead, i.e., anadromous *O. mykiss* whose freshwater habitat is below impassible barriers, between the Santa Maria River and the U.S.-Mexico border.⁹⁵ Accordingly, steelhead in the Santa Ynez River watershed also fall within the re-listing.

In 2024, the California Fish and Game Commission voted to list Southern California steelhead as endangered under the California Endangered Species Act. In its February 2025 Notice of Findings, the Commission determined that the best scientific information available shows the continued existence of southern California steelhead is in serious danger or threatened.⁹⁶ Based on this

information, Southern California steelhead will be listed as endangered under the California Endangered Species Act.⁹⁷ The California listing will include steelhead in the same range as the federal listing.⁹⁸

ii. Additional Species

In addition to steelhead, twenty-five other species of fish inhabit the Santa Ynez River watershed, including ten other native species.⁹⁹ Among the fish species, the following seven live only within the lagoon: tidewater goby, Pacific herring, topsmelt, shiner perch, starry flounder, staghorn sculpin, and striped mullet.¹⁰⁰ The tidewater goby is a federally listed endangered species.¹⁰¹ The following native species live in the freshwater portion of the river: steelhead/rainbow trout, prickly sculpin, partially armored threespine stickleback, and Pacific lamprey.¹⁰² Like steelhead, the Pacific lamprey is also anadromous.¹⁰³

A variety of fish species have been introduced to the Santa Ynez River watershed, including: arroyo chub, fathead minnow, mosquitofish, smallmouth bass, largemouth bass, bluegill, green sunfish, redear sunfish, black crappie, white crappie, channel catfish, black bullhead, threadfin shad, goldfish, carp, brown trout, brook trout, and walleye.¹⁰⁴ The arroyo chub is a California Species of Special Concern.¹⁰⁵



"Willow Flycatcher" by Sue Cook, Channel City Camera Club, CC BY 2.0.

Streams and pools along the lower Santa Ynez River provide habitat for aquatic and semi-aquatic species.¹⁰⁶ Aquatic reptiles that inhabit the Santa Ynez River include turtles and garter snakes.¹⁰⁷ Additional reptiles commonly found along the lower Santa Ynez River include the ensatina, western fence lizard, common kingsnake, and gopher snake.¹⁰⁸ In addition, several species of amphibians are native to the watershed. The pacific treefrog and the western toad are abundant, while the red-legged frog has become rare, in part due to the introduction of a predatory bullfrog.¹⁰⁹ Many of these species rely on surface water

sustained by groundwater.¹¹⁰ The red-legged frog, a federally listed threatened species, is found exclusively in or near aquatic habitats, rarely leaving the riparian corridor's cover.¹¹¹

There are also dozens of birds that rely on healthy riparian ecosystem in the watershed. Common species of birds that utilize riparian habitat along the Santa Ynez River include the black phoebe, house finch, song sparrow, scrub jay, plain titmouse, yellow warbler, red-tailed hawk, giant horned owl, common yellowthroat, turkey vulture, house sparrow, cliff swallow, California quail, California towhee, spotted towhee, Anna's hummingbird, mourning dove, acorn woodpecker, and bush tit.¹¹²

The lower river additionally supports many species of herons and shorebirds, including the great blue heron, green heron, black-crowned night heron, great egret, snowy egret, spotted sandpiper, killdeer, greater yellowleg, and dowitcher. Waterfowl present along the lower river include the mallard, American wigeon, common merganser, and cinnamon teal.¹¹³

Numerous species of birds listed under the federal or California Endangered Species Acts also are or may be present in the Santa Ynez River watershed, including the American peregrine falcon, bald eagle, Belding’s savannah sparrow, California black rail, California brown pelican, California condor, California least tern, least Bell’s vireo, light-footed clapper rail, southwestern willow flycatcher, western snowy plover, and western yellow-billed cuckoo.¹¹⁴

II. Community Reliance on Groundwater in the Santa Ynez River Watershed

In Santa Barbara County, approximately 85% of total applied water used is groundwater.¹¹⁵ Within the Santa Ynez River Valley Groundwater Basin, groundwater provides 94% of the water supply.¹¹⁶ Groundwater within the Basin is used for “agriculture, domestic, municipal, and industrial purposes.”¹¹⁷ Agricultural uses represent about 75% of water demand within the basin; urban customers make up most of the remaining demand.¹¹⁸ The Santa Ynez Valley is one of the areas within Santa Barbara County with the highest density of private, domestic wells, which are vulnerable to running dry when groundwater levels drop.¹¹⁹

By the 1940s, population growth in the South Coast region had led to underground springs being pumped faster than their natural rate of replenishment.¹²⁰ Projected population growth and climate change are expected to further increase groundwater demand within the Basin in the future, while groundwater supply is projected to remain roughly the same.¹²¹

There are 1,429 registered wells within the SYRVGB.¹²² This includes 308 agricultural wells, 110 public supply wells, and 651 domestic wells.¹²³ As of the publication of the SYRVGB’s three GSPs in 2022, the GSAs reported the existence of wells within each Management Area as follows:

Management Area	Agricultural Wells	Municipal Wells	Domestic Wells	Total
WMA ¹²⁴	261	18	123	402
CMA ¹²⁵	130	4	121	255
EMA ¹²⁶	Unknown; however, well databases referenced in the GSP account for 620 wells, some of which the GSA states may be destroyed, abandoned, or doubly counted.			

Collectively, the GSPs account for 1,277 wells within the SYRVGB, 152 fewer than the total number of registered wells for which DWR has data. Some of these additional wells may be located outside

the GSPs' Management Areas.¹²⁷ The GSP for the EMA additionally notes that “[w]ells in the public databases may have been long since destroyed or abandoned and some well records are located in more than one database.”¹²⁸ The GSPs' categorization of wells also differs from DWR's, and wells within the SYRVGB may be used for more than one purpose.¹²⁹

a. Agricultural Industry

Before the 1970s, agricultural land uses in the Santa Ynez Valley were predominantly mixed vegetables and forage crops. A fast-growing wine production industry began developing in the Valley in the 1970s.¹³⁰ Since the legalization of cannabis in California, CDFW has received multiple applications for cultivation within the Santa Ynez Valley, and the agency has emphasized that groundwater wells play a large role in cannabis cultivation.¹³¹ The vast majority of water used for agricultural irrigation in the SYRVGB comes from groundwater pumping.¹³² An estimated 97% of agricultural water uses are reliant on groundwater (versus surface water).¹³³ Within the SYRVGB, there are 20,485 acres of irrigated land.¹³⁴ DWR estimates that agricultural uses of groundwater within the Basin total 39,944 AFY.¹³⁵



Vineyard in Santa Ynez Valley / Adobe Stock.

i. Western Management Area

Land uses in the WMA are primarily agricultural and open space.¹³⁶ Within the WMA, the Lompoc Plain subarea includes substantial agriculture, and the Santa Rita Upland subarea includes about 500 acres of agricultural land.¹³⁷ Major crops within the Management Area include “grapes,

strawberries, raspberries, dry beans, walnuts, alfalfa, barley, herbs, peaches, cut-flowers, lettuce, and broccoli.”¹³⁸

Groundwater is the number one source of water for crop irrigation in the WMA.¹³⁹ In 2018, the average annual pumping for agricultural irrigation was 19,500 AFY.¹⁴⁰ Future agricultural groundwater demand in the WMA is projected to increase to 20,124 AFY in 2042 and 21,041 AFY in 2072.¹⁴¹

ii. Central Management Area

Aside from the City of Buellton, land use within the CMA includes rural areas with agriculture and some suburban development.¹⁴² Most agricultural lands within the CMA are located within the Santa Ynez River Alluvium subarea.¹⁴³

Within the CMA, groundwater production is primarily used for agriculture.¹⁴⁴ From 2011-2018, agricultural water uses made up 78% of all groundwater pumping in the CMA.¹⁴⁵ As with the WMA, groundwater provides the largest source of water for irrigation in this Management Area.¹⁴⁶ Less water is pumped for agricultural uses in the CMA than the WMA, with average annual pumping for agricultural irrigation in the CMA totaling 2,415 AFY as of 2018.¹⁴⁷ Irrigation demands are projected to increase by 3.8% by 2030 and 8.3% by 2070 due to climate change.¹⁴⁸

iii. Eastern Management Area

“[T]he primary land uses in the EMA are agriculture, urban areas, and undeveloped land.”¹⁴⁹ In 2018, there were 7,329 acres of irrigated agricultural land within the EMA.¹⁵⁰ Within the Santa Ynez Uplands subarea, which falls within the EMA, small farms and “ranchettes” immediately surround the towns of Santa Ynez, Los Olivos, and Ballard, and the City of Solvang, while larger operations exist in more rural areas.¹⁵¹ Agricultural uses in this area are varied, including vineyards (which represent the highest land use), followed by field crops; pasture; truck, nursery, and berry crops; deciduous fruits and nuts; and ornamental crops.¹⁵²

Agricultural water use is the largest water use sector in the EMA, as well as the largest use of groundwater (representing about 79% of total groundwater use during the period from 1982-2018).¹⁵³ As of 2018, irrigation of agricultural land in the EMA represented approximately 14,545 AF of annual water use.¹⁵⁴ Groundwater supplies most of the water demand from agricultural production.¹⁵⁵ However, some users within the EMA rely on diversions of surface water from the Santa Ynez River and imported water from the State Water Project.¹⁵⁶ Since 2011, the annual average demand on groundwater resources in the EMA has exceeded annual groundwater recharge.¹⁵⁷

b. Cities

Like agricultural uses within the Basin, urban uses are also primarily reliant on groundwater, with an estimated 15,035 AFY pumped from groundwater for urban uses (compared to just 2 AFY of local surface water and 2,034 AFY of imported surface water).¹⁵⁸ Stated differently, groundwater provides the supply for about 88% of urban water uses within the Basin.¹⁵⁹

Municipalities that source groundwater from the SYRVGB include the cities of Buellton, Lompoc, and Solvang.¹⁶⁰ In addition, the Santa Ynez Improvement District #1 pumps groundwater from the Basin.¹⁶¹ The Vandenberg Village Community Services District, Mission Hills Community Services District, American Water, and several private mutual water companies (MWCs) also supply water for municipal and industrial uses within the Basin.¹⁶²

The growth of incorporated cities in Santa Barbara County is driving the region's population growth. By 2040, the County's population is projected to increase 23% from 2010 levels, with a forecast population of 519,965.¹⁶³ Along with climate change, future population growth is expected to contribute to increased groundwater demand.¹⁶⁴

i. Western Management Area

Municipal and domestic uses represent about 22% of all groundwater pumped within the WMA.¹⁶⁵ Total municipal groundwater demand is expected to increase from a 2018 baseline of 6,350 AFY to 7,800 AFY in 2042 and to 7,950 AFY in 2072.¹⁶⁶ Within the WMA, the City of Lompoc is entirely reliant on groundwater.¹⁶⁷ In 2020, the City pumped a total of 4,103 AF of water.¹⁶⁸

ii. Central Management Area

While groundwater within the CMA is primarily used for agricultural production, some domestic, municipal, and industrial uses exist.¹⁶⁹ During the period from 2011-2018, municipal and domestic water uses accounted for 15% and 7% of all groundwater pumping, respectively.¹⁷⁰

The City of Buellton, which is the only city within the CMA, relies on groundwater and State Water Project deliveries to supply its customers.¹⁷¹ In 2020, the City supplied 1,124 AF of water to its customers, nearly 72% of which was groundwater.¹⁷² Three of the City's four municipal wells are located in the Santa Ynez River Alluvium subarea.¹⁷³

iii. Eastern Management Area

The EMA includes the City of Solvang, which operates ten wells.¹⁷⁴ Municipal pumping made up the second-highest use of groundwater (following agricultural production) during the period of 1982-2018, accounting for 13% of all pumping during this period.¹⁷⁵ Groundwater is extracted from the Santa Ynez River Alluvium for municipal uses.¹⁷⁶

III. Effects of Groundwater Extractions on Groundwater Levels, Surface Flows, and Public Trust Resources

a. Overdraft Conditions

Water levels in the Basin have generally been declining since around 1945.¹⁷⁷ The adopted GSPs reflect recent "deficits" in groundwater storage that appear likely to continue into the future."¹⁷⁸ Despite this, none of the GSAs identifies its Management Area as being in a state of overdraft.¹⁷⁹

The WMA GSP does not clearly identify whether the WMA is in a state of overdraft or, if applicable, quantify overdraft conditions.¹⁸⁰ Responses to public comments included in an appendix to the GSP acknowledge that the WMA “has exhibited a deficit in groundwater in storage,” though it is “not in a critical state of overdraft.”¹⁸¹

Similarly, the EMA GSP identifies a “storage deficit” of “1,830 AFY over the historical period of 1982 through 2018,” but does not state whether the Management Area is experiencing overdraft.¹⁸² Responses to public comments state the GSA has “chosen to use the word storage deficit rather than the term overdraft in order to avoid legal interpretations of the term overdraft. . . .”¹⁸³

The CMA GSP reports that total groundwater outflow was the same as total groundwater inflow, on average, during the historical period of 1982 through 2018.¹⁸⁴ Based on this, the CMA GSP states that “most likely a state of overdraft does not currently exist in the CMA.”¹⁸⁵



Santa Ynez River near Red Rock / Adobe Stock.

The Santa Ynez River Water Conservation District is responsible for registering wells and recording and reporting groundwater production in the Basin.¹⁸⁶ The District encompasses “most of the Santa Ynez River watershed” downstream of Bradbury Dam, and smaller areas to the northeast and south of Lake Cachuma.¹⁸⁷ The District estimates annual overdraft for the 2024-25 water year to be 5,300 AF, and average annual overdraft for the preceding ten years to be 1,650 AF.¹⁸⁸

b. Lowering of Surface Water Levels

Since the mid-1900s, groundwater withdrawal in the Basin has increased.¹⁸⁹ This intensification of pumping has lowered groundwater levels in the Basin and reduced baseflow to the Santa Ynez River and its tributaries.¹⁹⁰ As a result, flows in the Santa Ynez River and its tributaries have been reduced.¹⁹¹

The Santa Ynez River is hydraulically connected to the underlying alluvial layer.¹⁹² Wells in the River's riparian corridors draw from the underflow present in the Santa Ynez River Alluvium.¹⁹³ When the groundwater level in the alluvium falls beneath the stream bed, the hydraulic connection between surface flows and underflow is broken.¹⁹⁴

DWR staff have identified shortcomings in the GSAs' consideration of connections between groundwater and surface flows in the Santa Ynez River and its tributaries. For example, DWR stated the GSP for the EMA "fails to account for the process of groundwater discharge to the river in its evaluation of [ISWs]."¹⁹⁵ In its review of the three GSPs for the Basin, DWR acknowledged "many data gaps related to interconnected surface water" exist.¹⁹⁶ DWR stated the GSAs "should continue filling data gaps, collecting additional monitoring data, and coordinating with resources agencies and interested parties to understand beneficial uses and users that may be impacted by depletions of interconnected surface water caused by groundwater pumping."¹⁹⁷

DWR additionally identified two Recommended Corrective Actions for the GSAs to implement in forthcoming GSP periodic evaluations.¹⁹⁸ Recommended Corrective Action #2 included requests for the GSAs to more clearly describe and analyze "the physical relationship of the Santa Ynez River Alluvium with . . . principal aquifers."¹⁹⁹ DWR stated that the requested analysis should inform the GSAs' "approach to manage depletions of interconnected surface water due to pumping."²⁰⁰

Recommended Corrective Action #7 emphasized that ascertaining the nature of surface water depletion due to groundwater pumping in the Basin "is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management."²⁰¹ It included a recommendation that the GSAs provide more detail on how "proposed minimum thresholds and measurable objectives for interconnected surface water will avoid an unreasonable depletion of surface water, supported by an analysis of the potential impacts to beneficial uses and users."²⁰²

c. Harm to Public Trust Resources

Groundwater pumping represents a significant and ongoing threat to steelhead survival and recovery in the Santa Ynez River Watershed. Groundwater inputs help buffer stream temperatures and sustain baseflows, both of which are essential to the survival of steelhead.²⁰³ Excessive pumping reduces or eliminates these inputs, resulting in decreased habitat availability, higher water temperatures, and impaired water quality. These conditions can diminish feeding opportunities for steelhead, eliminate spawning and rearing habitat, reduce successful emigration to the estuary and ocean, and ultimately affect overall survival rates.²⁰⁴

The National Marine Fisheries Service, in its Southern California Steelhead Recovery Plan, identified groundwater pumping and surface flow diversions as “very high” threats to the long-term survival of Santa Ynez River steelhead.²⁰⁵ Ensuring adequate instream flows and preserving the hydraulic connectivity between groundwater and surface water is therefore critical for recovery efforts. Recognizing this, the National Marine Fisheries Service recommended in 2023 that Santa Barbara County “implement a discretionary permitting process for well construction and groundwater extraction that appropriately considers and minimizes streamflow depletion impacts to public trust resources, including endangered steelhead.”²⁰⁶

Steelhead have a number of habitat needs that are directly related to surface flows, including water temperature, physical space, and passage opportunities.²⁰⁷ Streamflow depletion and lowered groundwater levels in the SYRVGB have adversely impacted steelhead habitat.²⁰⁸ Without the implementation of significant recovery actions, especially those addressing surface flows and fish passage, steelhead are highly likely to become extirpated in the Santa Ynez River watershed.²⁰⁹

LEGAL BACKGROUND

I. Groundwater Classifications in California

In California, groundwater falls within one of two legal categories: percolating groundwater, and subterranean streams flowing through known and definite channels (“subterranean streams”).²¹⁰ The default classification for groundwater is percolating groundwater. That is, unless groundwater is found to be a subterranean stream, it is treated as percolating.²¹¹ Subterranean streams are governed by the same restrictions on use that apply to surface waters.²¹² Percolating groundwater, however, is not subject to these rules.²¹³ Critically, this distinction means that appropriating groundwater flowing in a subterranean stream requires obtaining and complying with the terms of a permit issued by the State Water Board, whereas appropriating percolating groundwater does not.²¹⁴

In a decision regarding waters underlying Garrapata Creek, the State Water Board applied a test for classifying groundwater as a subterranean stream based on the *Los Angeles v. Pomeroy* opinion issued by the California Supreme Court.²¹⁵ The four factors that must be present under the test are as follows:

- “1. A *subsurface channel* must be present;
2. The channel must have *relatively impermeable bed and banks*;
3. The *course* of the channel must be *known or capable of being determined* by reasonable inference; and
4. Groundwater must be *flowing* in the channel.”²¹⁶

Thus, if the Board determines these four factors are present, the groundwater (in the form of a subterranean stream) will be subject to its jurisdiction.

Based on the above factors, a subterranean stream is not necessarily interconnected with a surface stream.²¹⁷ However, where a subterranean stream *is* connected to a surface stream, is flowing in the same general direction as that surface stream, and is flowing within a watercourse, it may be referred to as “underflow.”²¹⁸ Underflow, as such, is a subset of subterranean stream.²¹⁹

Underflow occurs “immediately below the bed of the open stream” and “supports the surface stream in its natural state or feeds it directly.”²²⁰ Though this term attempts to describe physical characteristics of groundwater, as with the distinction between percolating groundwater and subterranean streams, it is a legal designation that does not necessarily reflect a scientific understanding of the way water moves underground.²²¹

II. Government Obligations under the Public Trust Doctrine

a. General Principles under the Public Trust Doctrine

The Public Trust Doctrine is a longstanding common law principle that has roots in ancient Roman law.²²² The core of the doctrine is that certain resources belong to the people, and the government

holds them in trust for the public's benefit. To protect the people's interests in public resources, the government has specific trust responsibilities it must adhere to when making management decisions affecting them. Over time, courts have defined the contours of public trust resources, public trust uses, and what duties governmental agencies have when managing those resources.

Public trust resources traditionally have included tidelands and lakeshores, and the California Supreme Court has clearly found that "the navigable waters of the state and the lands underlying those waters" are also public trust resources.²²³ These resources additionally include wildlife, such as steelhead trout.²²⁴



Southwestern pond turtle / Dreamstime.

Public trust uses are the uses of those public trust resources. As the doctrine has developed, the scope of uses subject to the public trust has also changed. Early decisions focused on protecting activities related to navigation, commerce, and fishing. Over time, courts in some jurisdictions (such as California) have additionally recognized that the public trust includes environmental, scientific, and aesthetic values.²²⁵ This includes the preservation of public lands "in their natural state, so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitats for birds and marine life, all of which favorably affect the scenery and climate of the area."²²⁶ In California, the public trust is flexible so as to "encompass changing public needs."²²⁷

b. Government Duties under the Public Trust Doctrine

The government has a duty (1) “to take the public trust into account” when planning and allocating water resources and (2) “to protect public trust uses whenever feasible.”²²⁸ While there is no set “procedural matrix”²²⁹ for how the government takes the public trust into consideration—meaning that no single decision tree will be appropriate in all circumstances—this duty is a concrete obligation the County is legally required to satisfy anytime it makes decisions that impact the public trust. This consideration must also be holistic and carried out in a public forum.²³⁰

Moreover, the Public Trust Doctrine requires the state to protect public trust uses whenever feasible. This means that the government cannot satisfy its obligations through mere procedural consideration. Some substantive action must follow to protect public trust uses whenever feasible. For example, while compliance with other environmental obligations, such as CEQA, can lead to compliance with the Public Trust Doctrine, compliance with CEQA does not automatically satisfy the Public Trust Doctrine.²³¹ In other words, mere environmental review is not enough. Rather, there must be specific consideration of public trust resources and mitigation where feasible.

Additionally, the government’s public trust responsibilities extend even if the action at issue does not occur in or relate directly to a navigable water. In *National Audubon*, the California Supreme Court found that the state had an obligation to consider the effects that diversions of water from non-navigable tributaries to Mono Lake had on the Lake itself (a navigable water subject to the public trust).²³² Similarly, in *ELF*, the Court found that the state and counties had an obligation to consider the effects that groundwater diversions had on the public trust resources of the Scott River.²³³

SANTA BARBARA COUNTY'S ROLE IN PROTECTING PUBLIC TRUST RESOURCES

I. Santa Barbara County's Responsibilities over Groundwater Connected to Surface Water in the Santa Ynez River Watershed

The County of Santa Barbara has the authority and duty to manage groundwater extractions that impact public trust resources consistent with the Public Trust Doctrine. Santa Barbara County Environmental Health Services regularly issues well permits for the extraction of water from the Santa Ynez River watershed. Scientific inquiry has clearly demonstrated that extractions from these wells influence the Santa Ynez River and its tributaries, which are navigable waters and public trust resources. These impacts affect other public trust resources, like steelhead, as well as public trust uses, like fishing and the preservation of public lands in their natural habitat. These facts, combined with the Public Trust Doctrine's legal framework, create a legal obligation for the County to consider the public trust when issuing water well permits, and to mitigate impacts caused by those wells on public trust resources whenever feasible.



"Photograph of Santa Ynez River in California" by Gordon F. Smith, CC BY-SA 3.0.

Further, the County has an essential and unique role in managing groundwater extractions in the Santa Ynez River watershed. California case law makes clear that, when issuing permits for groundwater extraction, the County has important legal duties under the Public Trust Doctrine to consider impacts to the public trust and mitigate those impacts where feasible. In addition, the County's local, on-the-ground focus creates a clear policy benefit to manage and mitigate the acute and cumulative impacts caused by County-authorized extractions.

Managing groundwater extraction within the County offers benefits not only to species that rely on groundwater-supported flows, but also to landowners, existing water right holders, and existing well owners. Ensuring that newly permitted wells mitigate impacts to existing water uses will improve water security throughout the region, preventing the need to drill deeper wells and better preparing the County for long-term sustainability in a changing climate.

a. Source and Scope of Authority

As described above, the Public Trust Doctrine places a duty on the government to protect public trust resources.²³⁴ With respect to water management in California, "the state has an affirmative duty to take the public trust into account" and "to protect public trust uses whenever feasible."²³⁵ As a subdivision of the state, the County "shares responsibility for protecting" public trust resources.²³⁶ This means that the County must consider public trust resources before approving water extractions to avoid "needless destruction" of public trust values.²³⁷ Further, the County's public trust duty is ongoing and requires appropriate action be taken when available information indicates unaddressed impacts are occurring.²³⁸

State law empowers the County to take action to protect public trust resources. The California Constitution provides that a county "may make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general laws."²³⁹ Courts have recognized that "[t]he concept of a public trust over natural resources unquestionably supports exercise of the police power by public agencies."²⁴⁰

As the governmental entity issuing local well permits, the County is both legally obligated and best suited to consider and mitigate impacts to the public trust stemming from extractions of groundwater. Because every application to extract groundwater goes through the County, the County can best safeguard the Santa Ynez River and its tributaries, and by extension, the species that rely on these waterways, from the significant cumulative impacts of unmitigated groundwater pumping. Consistent with this, California's Third District Court of Appeal has concluded that "problems of groundwater management should be addressed on the local level."²⁴¹

b. Limitations on Authority

That other governmental entities may possess the authority or share in the responsibility to regulate extractions of groundwater does not mean the County is excused from fulfilling its public trust obligations. Not only must the County fulfill its duty to consider and, where feasible, mitigate impacts to the public trust, but it has a unique perspective to offer that can fill some of the gaps in regulation by other governmental entities.

As described below, the State Water Resources Control Board's permitting authority is limited to surface water rights and groundwater rights in subterranean streams flowing through known and definite channels. And, though the Board's public trust duties extend to rights not covered by its permit and license system,²⁴² the Board rarely reconsiders rights once they are issued. Additionally, when it does, it usually focuses on impacts from individual, larger rights rather than the cumulative impacts to waterways caused by many extractors and diverters drawing water over time.

Likewise, the Bureau of Reclamation lacks the tools available to the County to effectively deal with this issue. To the extent that Reclamation's water rights permits contemplate the protection of public trust resources, this protection is limited to harms resulting from the operation of Bradbury Dam. The Biological Opinion, too, only limits impacts from operation of the Dam. In summary, Reclamation does not have the direct authority to address harms caused by downstream cumulative groundwater extraction.

Finally, Groundwater Sustainability Agencies are not equipped to deal with public trust impacts because they are primarily concerned with the implementation of the Sustainable Groundwater Management Act. GSAs are responsible for developing GSPs that avoid statutorily defined "undesirable results," including the depletion of interconnected surface waters. The avoidance of these undesirable results is distinct from the fulfillment of public trust responsibilities. Critically, as discussed below, SGMA does not require GSPs to address undesirable results that occurred prior to 2015.²⁴³ This limited window of consideration alone precludes a holistic approach to management of public trust resources and uses that may be impacted by the extraction of groundwater.

For these reasons, the County is not only legally obligated to fulfill its public trust duties, but as a policy matter is best equipped to respond to public trust issues related to groundwater extraction in the Santa Ynez River watershed.

II. Discussion of Other Entities with Authority and Responsibility

In addition to Santa Barbara County, there are several entities with overlapping jurisdiction, responsibility, and authority in the Santa Ynez River watershed. Each entity has a specific and unique role in managing the water resources of the region and it is important to recognize that the presence of overlapping authority does not excuse any individual entity's responsibility.

a. State Water Resources Control Board

i. Source and Scope of Authority

The State Water Resources Control Board is the state agency responsible for the orderly and efficient administration of water resources of the state.²⁴⁴ The Board is responsible for regulating and adjudicating issues of water rights, water quality, and safe and reliable drinking water.²⁴⁵ Its permitting authority extends to surface waters within the state of California, as well as to subterranean streams flowing through known and definite channels (discussed above).²⁴⁶ In order

to appropriate those waters, a would-be diverter or extractor must (generally) obtain a permit from the Board and comply with permit conditions.

The State Water Board must consider several factors when issuing a surface water right, including whether the appropriation “will best develop, conserve, and utilize in the public interest the water sought to be appropriated.”²⁴⁷ Likewise, the Board is statutorily required to reject an application to appropriate surface water if the proposed appropriation does not best conserve the public interest.²⁴⁸ Because the Santa Ynez River underflow is a subterranean stream, which is subject to the provisions of the Water Code applicable to surface water, the Board has permitting authority over groundwater wells that draw from the underflow and must consider these factors when issuing any such permits.

In addition to this statutory authority, the Supreme Court of California has found that the State Water Board has trustee responsibilities to protect public trust resources and, in approving applications to appropriate water, mitigate impacts to such resources where feasible.²⁴⁹ Case law analyzing this authority has found that this duty extends to extractions of groundwater that impact navigable surface waters subject to the public trust, and is not extinguished by SGMA.²⁵⁰

Overarching all of this is the Board’s constitutional obligation to prevent the waste or unreasonable use of waters of the state.²⁵¹ This constitutional provision vests the Board with the authority to make determinations as to what is wasteful or unreasonable, recognizing that what “is a reasonable use or method of use of water is a question of fact to be determined according to the circumstances in each particular case.”²⁵² The State Water Board may similarly restrict extractions of groundwater in order to prevent waste.²⁵³

ii. Limitations on Authority

While California has granted the Board important authority to manage the state’s water system, there are important legal and practical limitations that make the County’s oversight essential to the proper management of water in this watershed.

First, the State Water Board’s permitting authority does not extend to all groundwater extractions in the Santa Ynez River Watershed. As described above, the Board’s permitting authority does not extend to extractions of percolating groundwater. Nor does it extend to extractions of groundwater flowing in known and definite channels for overlying uses.²⁵⁴ In addition, the Board’s permitting authority only extends to post-1914 water rights, not pre-1914 or riparian water rights. This means that there were no public trust considerations or other oversight conducted when these early rights were claimed. While the Board can still use its waste and unreasonable use authority to intervene should riparian or overlying groundwater right holders use an unreasonable amount of water, the lack of initial oversight means that the baseline conditions for the watershed are skewed.

Second, the State Water Board’s statewide perspective constrains its ability to carefully manage any individual watershed. While the Board can focus its public trust duties on an individual watershed, it rarely reexamines water right permits unprompted. Moreover, when the Board does exercise this authority, it tends to limit its review to the largest and most impactful water rights. This means that

the Board often overlooks the significant cumulative harms that result from numerous smaller diverters. The Board's statewide perspective presents challenges for re-examining every individual groundwater extraction in the Santa Ynez River watershed.

Third, not all diverters obtain appropriate water rights permits, and it is unclear whether the State Water Board is currently exercising any regulatory authority over the Santa Ynez River underflow. The Board's online database of water rights notes that there are 210 water rights in the entire Santa Ynez River watershed, including both above Bradbury Dam and in tributaries. This includes several claims by the Los Padres National Forest.²⁵⁵ This is far fewer than the total groundwater permits in the Santa Ynez River watershed just downstream of Bradbury Dam. Further evaluation is necessary to determine whether the 210 water rights permits account for all groundwater appropriations from the underflow. Further, there is no indication that the State Board has exercised any authority over extractions from the underflow by overlying users. Because every application for well permits goes through the County, the County has greater opportunity and ability to protect the public trust from the significant cumulative impacts of unmitigated groundwater extraction.

b. Bureau of Reclamation

i. Source and Scope of Authority

The United States Bureau of Reclamation ("Reclamation") is the owner and operator of Bradbury Dam. Operation of the dam is governed by the terms and conditions of its water rights permits,²⁵⁶ a Biological Objective completed pursuant to the Endangered Species Act,²⁵⁷ and Reclamation's own typical reservoir operations and protocols and criteria for water supply management. Unlike the State Water Board, which can make determinations about whether water management is within the public interest, Reclamation is limited to following the strict procedural tenets of its management documents.

Because of the influence water releases from the dam have on the region, these procedural requirements heavily influence the public trust resources of the Santa Ynez River watershed. Specifically, Reclamation's water rights require releases for two relevant reasons: (1) to protect downstream environmental needs, and (2) to protect downstream senior water users, including users that draw from the underflow of the Santa Ynez River.

ii. Limitations on Authority

While Reclamation's control of water releases from Bradbury Dam undeniably impacts the Santa Ynez River watershed, there are significant legal and practical limitations to relying solely on these releases to protect public trust resources.

First, Reclamation's obligation to follow the terms of its water rights permits in no way relieves the County of its legal obligation to consider the public trust and mitigate impacts to public trust resources where feasible. While the water rights permits do claim to provide protections for public trust resources, they are limited to mitigating harms caused by the operation of Bradbury Dam, not harms caused by downstream cumulative groundwater extraction. Similarly, the federal Biological Opinion is limited to mitigating the impacts from the operation of Bradbury Dam, not impacts

caused by any other water user in the system.²⁵⁸ This is not the same standard the County would necessarily need to apply to satisfy its public trust obligations. And, while the water right permits require the release of water to protect public trust resources and keep fish in good condition, the State Water Board acknowledges that “additional measures are also needed to prevent extirpation of the steelhead fishery in the Santa Ynez River,”²⁵⁹ above and beyond the flow improvements that will be implemented through its order.

Second, practically, the process of amending water rights is long, expensive, and contentious. While the State Water Board recently amended Reclamation’s water rights permits to reflect the fact that previous flows were insufficient to keep fish in good condition below the dam, the process of amending Reclamation’s permits lasted from 1989 to 2019, and was initiated largely because the California Sport Fishing Protection Alliance filed a complaint in response to the adoption of the 1989 permit.²⁶⁰ This practical gap makes on-the-ground analysis, especially on-the-ground analysis of localized cumulative impacts, imperative to protecting public trust resources in the Santa Ynez River watershed.



“Aerial view of Bradbury Dam looking toward the north” by John Wiley, CC BY 3.0.

Finally, while Reclamation is legally required to release water to protect public trust resources and downstream water rights, it is not obligated to consider or mitigate impacts from new well permits. In other words, should the County approve numerous new well permits that cumulatively harm the watershed's public trust resources, Reclamation's obligations would not change. This gap demonstrates the need for intervention on the County level.

These three limitations demonstrate that while water releases from Bradbury Dam have significant influence over the Santa Ynez River watershed, Reclamation is not obligated to consider all factors the County must consider to satisfy its public trust obligations, the State Water Board cannot quickly modify Reclamation's flow releases, and Reclamation has no authority or obligation to consider the impacts of unmitigated well permitting, including localized effects.

c. Groundwater Sustainability Agencies

i. Source and Scope of Authority

The Sustainable Groundwater Management Act (SGMA)²⁶¹ emphasizes local management and control, with local agencies forming Groundwater Sustainability Agencies (GSAs) to carry out the Act's principal requirements, including the adoption and implementation of Groundwater Sustainability Plans (GSPs).²⁶² The Legislature has granted GSAs broad powers to attain sustainable groundwater management, defined in the Act as "the management and use of groundwater in a manner that can be maintained . . . without causing undesirable results."²⁶³ SGMA sets out six such undesirable results, one of which is "[d]epletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water."²⁶⁴

Due to SGMA, the three GSAs within the Santa Ynez River watershed have both the authority and responsibility to take actions necessary to achieve sustainable groundwater management.

ii. Limitations on Authority

While GSAs have an important role in bringing sustainability to the Santa Ynez River watershed, this is by no means an exclusive role for several reasons.

First, SGMA has a statutory cap on sustainability. Groundwater Sustainability Plans are not required to "address undesirable results that occurred before, and have not been corrected by, January 1, 2015."²⁶⁵ In other words, sustainability under SGMA fossilizes the undesirable results in place prior to 2015. While GSAs may address negative impacts to groundwater resources that occurred prior to 2015, they have no obligation to do so, and the SYRVGB GSAs have not elected to address pre-2015 impacts. The County's public trust obligations have no such limit.

Second, California's Third District Court of Appeal has explicitly found that the Public Trust Doctrine and SGMA create two independent duties, and the adoption of SGMA in statute did not dissolve a county's obligations under the Public Trust Doctrine.²⁶⁶ As indicated by the holding in *ELF*, the prevention of undesirable results is not the same duty as the protection of public trust resources and the requirement to mitigate impacts where feasible.²⁶⁷

Third, while GSAs may establish pumping allocations to limit use and achieve groundwater sustainability goals, nothing in SGMA “determines or alters surface water rights or groundwater rights under common law or any provision of law[.]”²⁶⁸ In practice, this means that allocations are vulnerable to legal challenges from dissatisfied pumpers. If an adjudication is initiated, a court has the power to overturn any allocation scheme set by a GSA.²⁶⁹

Additionally, while the GSAs have a legal responsibility to prevent depletions of interconnected surface water, the Department of Water Resources has determined that the GSPs have failed to satisfactorily put conditions in place necessary to protect interconnected surface waters. Specifically, DWR found that the GSPs failed to “discuss or reference the flow requirements needed for the southern California steelhead during its life stages.”²⁷⁰ Moreover, the GSPs for the SYRVGB established a minimum threshold, below which there would be unsustainable impacts, as below the deepest points of the Santa Ynez River and its tributaries.²⁷¹ This type of management scheme would result in conditions where surface water is lost to the groundwater system, yet DWR approved the GSPs on the condition that the GSAs address and improve upon these issues over time. NMFS has highlighted the GSPs’ “lack of key provisions for ensuring groundwater pumping is compatible with the life history and ecology of endangered steelhead.”²⁷²

Finally, neither the GSAs nor the State Water Board currently regulate groundwater extraction from the underflow in the Santa Ynez River Alluvium. The GSAs have excluded this area from any of the three Management Areas on the basis that it constitutes surface water under the jurisdiction of the State Water Board. Meanwhile, the State Water Board asserts that because it has not issued a determination that the Alluvium contains a subterranean stream, the area should be treated as groundwater subject to SGMA regulation. As such, there is a regulatory gap: no agency is currently managing extractions in this important area that impacts surface flows in the Santa Ynez River.

Accordingly, while the GSAs play an important role in ensuring sustainable management of groundwater in the Santa Ynez River Valley Groundwater Basin, achieving “sustainability” under SGMA is not a substitute for consideration of the public trust and mitigation of impacts to public trust resources. Moreover, the GSAs’ failure to develop a plan that protects interconnected surface waters demonstrates that the County’s on-the-ground expertise and discretion is needed to fill management gaps.

d. Santa Ynez Band of Chumash Indians

The Santa Ynez Band of Chumash Indians is a sovereign nation in Santa Barbara County.²⁷³ The Santa Ynez Reservation, located within the Santa Ynez River watershed, includes Zanja de Cota Creek, a tributary to the Santa Ynez River.²⁷⁴ The Santa Ynez Chumash Environmental Office monitors groundwater wells on the Reservation.²⁷⁵

The Santa Ynez Reservation is within the boundaries of the Eastern Management Area of the SYRVGB.²⁷⁶ However, the Santa Ynez Reservation is not subject to SGMA, and the Tribe is not a member agency of the EMA GSA.²⁷⁷ The Chumash government is nonetheless participating in the SGMA process through a representative on the Citizens Advisory Group.²⁷⁸

SUMMARY AND RECOMMENDATIONS

Steelhead and other public trust resources in the Santa Ynez River watershed are in peril due to groundwater extractions that provide the dominant source of water for local communities. Current levels of groundwater extraction are contributing to lowered surface water levels that negatively impact steelhead, and steelhead are highly likely to become extirpated in the watershed without significant action to address flows. Santa Barbara County has the



Santa Ynez River / Adobe Stock.

responsibility to address impacts to public trust resources from groundwater extraction authorized pursuant to its well permitting program. That there are other governmental agencies that can take action to address impacts on public trust resources does not mean the County can or should rely on them to address the problem. In fact, as the local government with the most direct and meaningful ability to manage groundwater extraction, the County is in the best position to take responsibility for ensuring that groundwater extractions do not exacerbate the decline of steelhead in the Santa Ynez River watershed.

To fulfill its public trust duties, Santa Barbara County should update its well ordinance to incorporate consideration of the public trust. Doing so will not only benefit species that rely on groundwater-supported surface flows; it will also position the County to achieve long-term water security in the region for all users. Detailed recommendations are grouped into a multi-faceted approach that the County can implement. They include: gathering information needed to comply with public trust duties, developing a well permitting system that incorporates the information gathered, and implementing the system while monitoring progress and adapting as needed. We thus recommend the County take the following action:

Recommended Action 0: Ministerial Permitting Moratorium

As a preliminary step, to ensure the County complies with its duties under the Public Trust Doctrine, the County should pause issuance of ministerially-granted groundwater extraction permits (which provide no mechanism for considering or mitigating impacts to public trust resources) until an updated well permitting system adequate to protect public trust resources is developed and implemented. Groundwater well permitting could be continued on a discretionary basis while the County develops a program for ensuring groundwater management in the County meets public trust requirements.

Recommended Action 1: Gather information needed to comply with public trust duties

1a: Identify public trust resources and uses and their flow needs

- ❖ Identify the public trust resources and uses that may be supported by surface waters in the Santa Ynez River watershed.
- ❖ Determine where these uses are or could be supported within the watershed.
- ❖ Using existing information, identify the surface flows needed to support public trust uses, considering seasonal and water year-type variability as needed to support species needs.

1b: Evaluate current and future groundwater extraction

- ❖ Determine where groundwater is connected to surface water within the County's jurisdiction.
- ❖ Identify existing wells that pump from groundwater which is presently or could potentially be interconnected with surface water.
- ❖ Undertake and complete a study evaluating cumulative impacts for likely new wells under various growth and climate change scenarios, as well as ongoing and cumulative impacts of existing wells within the County.
- ❖ Use the information gathered to identify areas within the County where installing additional wells risks impacting public trust resources.

Recommended Action 2: Develop a well permitting system that incorporates the information gathered

- ❖ Develop a methodology to determine whether a proposed well will impact public trust resources that utilizes modeling and integrates the information gathered in Phase 1.
- ❖ This methodology should include a mechanism to account for cumulative impacts identified in Phase 1.
- ❖ Use this methodology in defining permitting criteria that are sufficient to protect public trust resources.
- ❖ Require gauging and metering on all wells as part of the permitting system, including gauging on existing wells and around existing impacted stream reaches.
- ❖ Include a plan for how the County will assess the new ordinance's effectiveness in protecting public trust resources and adapt its approach if needed.

Recommended Action 3: Implement, monitor, and adapt as needed

- ❖ Continue to monitor data collected from installed gauges and meters and evaluate whether and to what extent pumping continues to impact public trust resources.
- ❖ Refer to the instream flow standards developed during Phase 1b in evaluating impacts to public trust resources.
- ❖ Adapt the well permitting system as needed to protect public trust resources and restore instream flows and groundwater use to sustainable levels.

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- ⁹⁶ California Fish and Game Commission, Notice of Findings for Southern California Steelhead (*Oncorhynchus mykiss*) (February 5, 2025), pp. 1, 11.

- ⁹⁷ *Id.* at p. 12.
- ⁹⁸ *Id.* at p. 7.
- ⁹⁹ Cachuma FEIR, Volume II, pp. 4.7-1 – 4.7-2.
- ¹⁰⁰ *Id.* at p. 4.7-1.
- ¹⁰¹ *Id.*
- ¹⁰² *Id.*
- ¹⁰³ Cachuma FEIR, Volume III, Appendix C (Biological Assessment), p. 2-49.
- ¹⁰⁴ *Id.* at Volume II, pp. 4.7-1 - 4.7-2.
- ¹⁰⁵ *Id.* at p. 4.7-1.
- ¹⁰⁶ SWRCB Order WR 2019-0148, p. 42.
- ¹⁰⁷ Cachuma FEIR, Volume III, Appendix C (Biological Assessment), p. 2-50.
- ¹⁰⁸ *Id.* at Volume II, p. 4.9-1.
- ¹⁰⁹ *Id.* at Volume III, Appendix C (Biological Assessment), p. 2-50.
- ¹¹⁰ Letter from California Department of Fish and Wildlife to California Department of Water Resources and Santa Ynez River Water Conservation District, Comments on the Santa Ynez River Valley Central Basin Final Groundwater Sustainability Plan (April 14, 2022), Attachment A, p. 16.
- ¹¹¹ Cachuma FEIR, Volume III, Appendix C (Biological Assessment), p. 2-74; SWRCB Order WR 2019-0148, pp. 41-42.
- ¹¹² Cachuma FEIR, Volume II, p. 4.9-9.
- ¹¹³ *Id.* at pp. 4.9-9 – 4.9-10.
- ¹¹⁴ *Id.* at Volume III, Appendix C (Biological Assessment), pp. 2-51 - 52, 2-75 - 76; see also Cachuma FEIR, Volume II, pp. 4.9-4 – 4.9-9.
- ¹¹⁵ Santa Barbara County, Planning and Development, Comprehensive Plan: Conservation Element - Groundwater Resources Section (May 2009), p. 6; see also Solvang EIR, p. 3.0-4.
- ¹¹⁶ Santa Barbara County, Public Works Department, 2023 Groundwater Basins Summary Report (October 2023), p. 18.
- ¹¹⁷ GSP Assessment Staff Report, p. 13.
- ¹¹⁸ Solvang EIR, p. 3.0-4.
- ¹¹⁹ County of Santa Barbara, Santa Barbara County Drought Resilience Plan (June 2025), pp. 7, 15.
- ¹²⁰ United States Bureau of Reclamation, *Cachuma Project* (1995), p. 5.
- ¹²¹ GSP Assessment Staff Report, p. 28.
- ¹²² Department of Water Resources, SGMA Basin Prioritization Dashboard, Santa Ynez River Valley <<https://gis.water.ca.gov/app/bp-dashboard/final/>> [as of May 2026]; Loaiciga & Kram, Groundwater-Surface Water Interactions, p. 4.
- ¹²³ Department of Water Resources, California's Groundwater Live: Well Infrastructure <<https://storymaps.arcgis.com/stories/f2b252d15a0d4e49887ba94ac17cc4bb>> [as of May 2026].
- ¹²⁴ WMA GSP, p. 1d-31; see also Loaiciga & Kram, Groundwater-Surface Water Interactions, p. 15.
- ¹²⁵ CMA GSP, p. 1d-27; see also Loaiciga & Kram, Groundwater-Surface Water Interactions, p. 15.
- ¹²⁶ EMA GSP, p. 2-19; see also Loaiciga & Kram, Groundwater-Surface Water Interactions, p. 15.
- ¹²⁷ See Loaiciga & Kram, Groundwater-Surface Water Interactions, p. 15.
- ¹²⁸ EMA GSP, p. 2-19.
- ¹²⁹ *Id.*
- ¹³⁰ EMA GSP, Attachment F (Santa Ynez River Basin EMA Hydrologic Model for GSP Development), p. 9.
- ¹³¹ Letter from California Department of Fish and Wildlife to California Department of Water Resources and Santa Ynez River Water Conservation District, Comments on the Santa Ynez River Valley Central Basin Final Groundwater Sustainability Plan (April 14, 2022), Attachment A, pp. 9-10.
- ¹³² Cachuma FEIR, Volume III, Appendix C (Biological Assessment), p. 2-14.
- ¹³³ Department of Water Resources, SGMA Basin Prioritization Dashboard, Santa Ynez River Valley <<https://gis.water.ca.gov/app/bp-dashboard/final/>> [as of May 2026].
- ¹³⁴ *Id.*
- ¹³⁵ *Id.*
- ¹³⁶ WMA GSP, p. 1d-15.
- ¹³⁷ *Id.* at pp. 1d-8, 1d-13.
- ¹³⁸ *Id.* at p. 2a-92.
- ¹³⁹ *Id.* at p. 2c-30.
- ¹⁴⁰ *Id.* at p. 2c-72.
- ¹⁴¹ *Id.*

- ¹⁴² CMA GSP, p. 2a-85.
- ¹⁴³ *Id.* at p. 2a-86.
- ¹⁴⁴ *Id.* at p. 2a-85.
- ¹⁴⁵ *Id.* at p. 2c-61.
- ¹⁴⁶ *Id.* at p. 2c-26.
- ¹⁴⁷ *Id.* at p. 2c-71.
- ¹⁴⁸ *Id.*
- ¹⁴⁹ EMA GSP, p. 2-12.
- ¹⁵⁰ *Id.* at p. 6-52.
- ¹⁵¹ Santa Barbara County, Planning and Development, Comprehensive Plan: Conservation Element - Groundwater Resources Section (May 2009), p. 44.
- ¹⁵² EMA GSP, p. 2-15; see also Santa Barbara County, Planning and Development, Comprehensive Plan: Conservation Element - Groundwater Resources Section (May 2009), p. 44.
- ¹⁵³ EMA GSP, pp. 2-15, 3-139.
- ¹⁵⁴ *Id.* at p. 6-52.
- ¹⁵⁵ *Id.* at Attachment F (Santa Ynez River Basin EMA Hydrologic Model for GSP Development), p. 9.
- ¹⁵⁶ *Id.*
- ¹⁵⁷ *Id.* at p. 10.
- ¹⁵⁸ Department of Water Resources, SGMA Basin Prioritization Dashboard, Santa Ynez River Valley <<https://gis.water.ca.gov/app/bp-dashboard/final/>> [as of May 2026].
- ¹⁵⁹ *Id.*
- ¹⁶⁰ Santa Barbara County, Planning and Development, Comprehensive Plan: Conservation Element - Groundwater Resources Section (May 2009), p. 42; Loaiciga & Kram, Groundwater-Surface Water Interactions, p. 4.
- ¹⁶¹ *Id.* at p. 42.
- ¹⁶² Loaiciga & Kram, Groundwater-Surface Water Interactions, p. 4.
- ¹⁶³ WMA GSP, p. 1d-64.
- ¹⁶⁴ GSP Assessment Staff Report, p. 28.
- ¹⁶⁵ WMA GSP, p. 3a-7.
- ¹⁶⁶ *Id.* at p. 2c-72.
- ¹⁶⁷ *Id.* at pp. 1d-21 – 1d-22.
- ¹⁶⁸ *Id.* at p. 3a-7.
- ¹⁶⁹ CMA GSP, p. 2a-85.
- ¹⁷⁰ *Id.* at p. 2c-61.
- ¹⁷¹ *Id.* at p. 1d-23.
- ¹⁷² *Id.*
- ¹⁷³ *Id.*
- ¹⁷⁴ EMA GSP, pp. 2-6, 2-19.
- ¹⁷⁵ *Id.* at p. 3-139.
- ¹⁷⁶ *Id.* at p. 3-122.
- ¹⁷⁷ Santa Barbara County, Public Works Department, 2023 Groundwater Basins Summary Report (October 2023), p. 17; see also GSP Assessment Staff Report, pp. 29-30.
- ¹⁷⁸ GSP Assessment Staff Report, p. 29.
- ¹⁷⁹ *Id.*
- ¹⁸⁰ See generally WMA GSP; see also Cal. Code Regs. tit. 23, § 354.18, subd. (b)(5), requiring GSPs to quantify overdraft conditions if they occur.
- ¹⁸¹ WMA GSP, Appendix PC-B, p. 15.
- ¹⁸² EMA GSP, p. 3-140.
- ¹⁸³ *Id.*, Appendix J, p. 35.
- ¹⁸⁴ CMA GSP, p. 2c-55.
- ¹⁸⁵ *Id.*
- ¹⁸⁶ Santa Ynez River Water Conservation District, Forty-Seventh Annual Engineering and Survey Report on Water Supply Conditions (2025), p. 3, <https://www.syrwcd.com/files/b8b73ddc6/47th_SYRWCD_AR_2025.pdf> [as of May 2026].
- ¹⁸⁷ *Id.* at p. 5.
- ¹⁸⁸ *Id.* at p. 5.
- ¹⁸⁹ Loaiciga & Kram, Groundwater-Surface Water Interactions, p. 19.

- ¹⁹⁰ *Id.*
- ¹⁹¹ *Id.*
- ¹⁹² Solvang EIR, p. 3.0-4.
- ¹⁹³ Loaiciga & Kram, Groundwater-Surface Water Interactions, p. 16.
- ¹⁹⁴ *Id.*
- ¹⁹⁵ GSP Assessment Staff Report, p. 25.
- ¹⁹⁶ Department of Water Resources, Statement of Findings Regarding the Approval of the Santa Ynez River Valley Basin Groundwater Sustainability Plan (Jan. 18, 2024), p. 5.
- ¹⁹⁷ *Id.*
- ¹⁹⁸ SGMA requires GSAs to prepare Periodic Evaluations every five years, evaluating the implementation of their approved GSPs. See Department of Water Resources, Groundwater Sustainability Plan Implementation: A Guide to Annual Reports, Periodic Evaluations, & Plan Amendments (October 2023), p. 2
<<https://resources.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/GSP-Implementation-Guidance-Report.pdf>> [as of May 2026].
- ¹⁹⁹ GSP Assessment Staff Report, p. 73.
- ²⁰⁰ *Id.* at p. 74.
- ²⁰¹ *Id.* at pp. 75-76.
- ²⁰² *Id.* at p. 76.
- ²⁰³ Letter from National Marine Fisheries Service to Santa Barbara County Board of Supervisors, Streamflow Depletion Arising from Permitted Groundwater Extraction in Santa Barbara County (September 1, 2023).
- ²⁰⁴ Testimony of Dr. William “Bill” Trush, Attachment 3 to Protest of California Trout Based on Environmental and Public Interest Considerations re City of Solvang Petition for Change and Petition for Extension of Time, Permit 15878 (Application 22423), at pp. 4-5; Letter from National Marine Fisheries Service to Santa Ynez River Valley Groundwater Sustainability Agency (July 26, 2017).
- ²⁰⁵ NMFS, Southern California Steelhead Recovery Plan, p. 4-1.
- ²⁰⁶ Letter from National Marine Fisheries Service to Santa Barbara County Board of Supervisors, Streamflow Depletion Arising from Permitted Groundwater Extraction in Santa Barbara County (September 1, 2023).
- ²⁰⁷ Cachuma FEIR, Volume III, Appendix C (Biological Assessment), p. 2-34.
- ²⁰⁸ Loaiciga & Kram, Groundwater-Surface Water Interactions, p. 14.
- ²⁰⁹ *Id.* at p. 19.
- ²¹⁰ Sax, *We Don't Do Groundwater: A Morsel of California Legal History* (2003) 6 U. Denv. Water L. Rev. 269, 272.
- ²¹¹ *Los Angeles v. Pomeroy* (1899) 124 Cal. 597, 598.
- ²¹² *Id.* at p. 600.
- ²¹³ Note, however, that some general principles, such as the requirement to use water for a beneficial purpose and to avoid waste, apply to all extractions and diversions of water in California. Cal. Const., art. X, § 2; see also *Hillside Memorial Park & Mortuary v. Golden State Water Co.* (2011) 205 Cal.App.4th 534, 540.
- ²¹⁴ *North Gualala Water Co. v. State Water Resources Control Bd.* (2006) 139 Cal.App.4th 1577, 1606; see also Wat. Code, § 1252 (requiring prospective appropriators to first file an application with the State Water Board).
- ²¹⁵ State Water Resources Control Board, Decision 1639, In the Matter of Application 29664 of Garrapata Water Company (June 17, 1999) (hereinafter “Garrapata Decision”) <https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1600_d1649/decfromwrdd/wrdec1639.shtml> [as of May 2026].
- ²¹⁶ Garrapata Decision, italics added.
- ²¹⁷ *Id.*
- ²¹⁸ *Id.* (citing *Los Angeles v. Pomeroy*, *supra*, 124 Cal. at p. 624).
- ²¹⁹ *Id.*
- ²²⁰ Sax, *Review of the Laws Establishing the SWRCB's Permitting Authority over Appropriations of Groundwater Classified as Subterranean Streams and the SWRCB's Implementation of Those Laws* (Jan. 19, 2002), FN 4, pp. 2-3 <https://www.waterboards.ca.gov/waterrights/water_issues/programs/hearings/groundwater_classification/docs/substr_eamrpt2002jan20.pdf> [as of May 2026].
- ²²¹ Sax, *We Don't Do Groundwater: A Morsel of California Legal History* (2003) 6 U. Denv. Water L. Rev. 269, 273.
- ²²² See, e.g., Institutes of the Emperor Justinian, 2.1.1 (529).
- ²²³ *National Audubon Society v. Superior Court* (1983) 33 Cal.3d 419, 425 (hereinafter “National Audubon”).

²²⁴ “Wildlife, including birds, is considered to be a public trust resource of all the people of the state.” *Center for Biological Diversity, Inc. v. FPL Group, Inc.* (2008) 166 Cal.App.4th 1349, 1353; see also *id.* at pp. 1359-64.

²²⁵ *Marks v. Whitney* (1971) 6 Cal.3d 251; *National Audubon, supra*, 33 Cal.3d at p. 434; *City of Berkeley v. Superior Court* (1980) 26 Cal.3d 515, 521.

²²⁶ *National Audubon, supra*, 33 Cal.3d at pp. 434-35.

²²⁷ *Marks v. Whitney, supra*, 6 Cal.3d at p. 259.

²²⁸ *National Audubon, supra*, 33 Cal.3d at p. 446.

²²⁹ *Citizens for East Shore Parks v. State Lands Com.* (2011) 202 Cal.App.4th 549, 576.

²³⁰ *Zack’s, Inc. v. City of Sausalito* (2008) 165 Cal.App.4th 1163, 1189.

²³¹ See, e.g., *San Francisco Baykeeper, Inc. v. State Lands Com.* (2015) 242 Cal.App.4th 202, 242, in which the Court disagreed with Defendant’s claim that “[t]he state satisfies the public trust doctrine by complying with CEQA.”

²³² *National Audubon, supra*, 33 Cal.3d at p. 437.

²³³ *Environmental Law Foundation v. State Water Resources Control Bd.* (2018) 26 Cal.App.5th 844.

²³⁴ *Center for Biological Diversity, supra*, 166 Cal.App.4th at p. 1365.

²³⁵ *National Audubon, supra*, 33 Cal.3d at p. 446.

²³⁶ *Center for Biological Diversity, supra*, 166 Cal.App.4th at p. 1370, fn. 19.

²³⁷ *National Audubon, supra*, 33 Cal.3d at p. 426.

²³⁸ *Id.* at pp. 447, 452.

²³⁹ Cal. Const., art. XI, § 7.

²⁴⁰ *Center for Biological Diversity, supra*, 166 Cal.App.4th at p. 1365.

²⁴¹ *Baldwin v. County of Tehama* (1984) 31 Cal.App.4th 166, 182.

²⁴² *Environmental Law Foundation, supra*, 26 Cal.App.5th at p. 862.

²⁴³ Wat. Code, § 10727.4, subd. (b)(4).

²⁴⁴ *Id.*, § 174, subd. (a).

²⁴⁵ *Id.*, § 174, subd. (b).

²⁴⁶ *Id.*, § 1200.

²⁴⁷ *Id.*, § 1253.

²⁴⁸ *Id.*, § 1255.

²⁴⁹ *National Audubon, supra*, 33 Cal.3d at p. 446.

²⁵⁰ *Environmental Law Foundation, supra*, 26 Cal.App.5th at p. 863.

²⁵¹ Cal. Const., art. X, § 2; see also Wat. Code, § 275.

²⁵² *Joslin v. Marin Mun. Water Dist.* (1967) 67 Cal.2d 134, 139.

²⁵³ *City of Barstow v. Mojave Water Agency* (2000) 23 Cal.4th 1224, 1240-42.

²⁵⁴ See *City of Los Angeles v. Pomeroy* (1899) 124 Cal. 597, 621 (rights in subterranean stream treated the same as surface rights); *Hudson v. Dailey* (1909) 156 Cal. 617, 626-627 (overlying use of groundwater in a subterranean stream treated as riparian).

²⁵⁵ State Water Resources Control Board, California Integrated Water Quality System, Water Rights Records Search <<https://ciwqs.waterboards.ca.gov/ciwqs/ewrims/EWMMenuPublic.jsp>> [as of May 2026].

²⁵⁶ Water Rights Permits 11308 and 11310, as amended (Applications 11331 and 11332).

²⁵⁷ National Marine Fisheries Service, Biological Opinion: U.S. Bureau of Reclamation Operation and Maintenance of the Cachuma Project on the Santa Ynez River in Santa Barbara County, California (September 11, 2000) <<https://www.cachuma-board.org/files/73eeead29/2000-09-11+Biological+Opinion.pdf>> [as of May 2026].

²⁵⁸ SWRCB Order WR 2019-0148, p. 90. For example, the State Water Board has found that the 2000 Biological Opinion requirements “were developed to address the risk of extinction of the fishery and to prevent adverse modifications of designated critical habitat rather than to keep fish in good condition.”

²⁵⁹ *Id.* at p. 91.

²⁶⁰ *Id.* at p. 10.

²⁶¹ Wat. Code, §§ 10720-10738.

²⁶² See *id.*, §§ 10720.1, 10723, 10725-10726.9.

²⁶³ *Id.*, § 10721, subd. (v); see also Wat. Code, § 10725.2, sub. (a): “A groundwater sustainability agency may perform any act necessary or proper to carry out the purposes of this part.”

²⁶⁴ Wat. Code, § 10721, subd. (x)(6).

²⁶⁵ Wat. Code, § 10727.4, subd. (b)(4).

²⁶⁶ *Environmental Law Foundation, supra*, 26 Cal.App.5th at p. 869.

²⁶⁷ *National Audubon, supra*, 33 Cal.3d at p. 446.

²⁶⁸ Wat. Code, § 10720.5, subd. (b).

²⁶⁹ Garner et al., *The Sustainable Groundwater Management Act and the Common Law of Groundwater Rights—Finding a Consistent Path Forward for Groundwater Allocation* (2020) 38 UCLA J. Env't L. & Pol'y 163, 168-71.

²⁷⁰ GSP Assessment Staff Report, p. 56.

²⁷¹ *Id.* at p. 58.

²⁷² Letter from National Marine Fisheries Service to Santa Barbara County Board of Supervisors, Streamflow Depletion Arising from Permitted Groundwater Extraction in Santa Barbara County (September 1, 2023).

²⁷³ Santa Ynez Band of Chumash Indians, Our Government <<https://chumash.gov/government>> [as of May 2026]; see also Office of Environmental Health Hazard Assessment, Santa Ynez Band of Chumash Indians, Indicators of Climate Change in California (November 2022), p. VII-140.

²⁷⁴ Office of Environmental Health Hazard Assessment, Santa Ynez Band of Chumash Indians, Indicators of Climate Change in California (November 2022), p. VII-140.

²⁷⁵ Santa Ynez Band of Chumash Indians, Environment: Programs and Initiatives <<https://chumash.gov/environment>> [as of May 2026].

²⁷⁶ EMA GSP, p. 2-11.

²⁷⁷ *Id.* at p. 2-5.

²⁷⁸ *Id.* at p. 2-11.