**Water Issues in the Santa Ynez Valley**

This information is intended to help educate WE Watch members and other Valley residents on issues related primarily to water supplies in the Valley and to a more limited extent on wastewater and water quality issues. Topics are organized as follows:

- Surface Water
- Santa Ynez River Flow and Underflow
- Ground Water
- Imported Water from the State Water Project
- Wastewater and Stormwater Management
- Water Conservation, Water Quality, and Desalination

This document begins with a list of contents and acronyms. Throughout the document there are links to more detailed information on various water agencies’ websites.

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Abbreviations Used

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- Cachuma Reservoir; Jameson Reservoir
- Gibraltar Reservoir

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- Delta Conveyance Project (Delta Tunnel Project)
- Assignment of State Water Project Contract
- Suspended Table A Reacquisition
- SWP Contract Extension

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- Solvang’s Wastewater Treatment Options
- Santa Ynez Community Services District
- Los Olivos CSD

Water Conservation, Water Quality, and Desalination
- Water Conservation
- Water Quality
- Desalination
ABBREVIATIONS USED IN THIS DOCUMENT

AF       Acre-feet
BDCP     Bay Delta Conservation Plan
BOS      Santa Barbara County Board of Supervisors
CAG      Community Advisory Group
CCWA     Central Coast Water Authority
COMB     Cachuma Operations and Maintenance Board
CWA      Clean Water Act
ID No 1  Santa Ynez River Water Conservation District, Improvement District No 1
DCP      Delta Conveyance Project
DWR      Department of Water Resources, State of California
EPA      U.S. Environmental Protection Agency
FCWCD    Flood Control and Water Conservation District, Santa Barbara County
gpd     Gallons per day
GSP      Groundwater Sustainability Plan
mgd     Million gallons per day
NMFS     National Marine Fisheries Service
RWQCB    Regional Water Quality Control Board
SGMA     Sustainable Groundwater Management Act
SWP      State Water Project
SYR      Santa Ynez River
SYRWCD   Santa Ynez River Water Conservation District
TMDL     Total Maximum Daily Load
USBR     U. S. Bureau of Reclamation
WEW      WE Watch
WWTP     Waste Water Treatment Plant
The U. S. Bureau of Reclamation (USBR) owns and operates the Cachuma Reservoir and Bradbury Dam, along the Santa Ynez River, as parts of the federal government’s Cachuma Project. USBR has a contract with the Santa Barbara County Water Agency which in turn has subcontracts with Santa Ynez River Water Conservation District, Improvement District #1 (ID#1) and four water providers on the south coast: the City of Santa Barbara, Goleta Water District, Montecito Water District, and the Carpinteria Valley Water District. ID#1 is the only SYV water provider that has an allocation (10.31%) of Cachuma water. The five subcontractors are the “member units” of the Cachuma Project. They formed a “joint powers authority”, the Cachuma Operations and Maintenance Board (COMB), to manage and track delivery of the project’s water and to maintain the pipes that carry water through the Tecolote Tunnel to the south coast and then through the south coast conduit which goes all the way to Carpinteria.

USBR remains the owner of the reservoir and dam. It controls downstream water releases, controls flows to the south coast, issues monthly reports on inflows and outflows, oversees COMB, and requires management plans from COMB members.
USBR’s contract expires in 2021, so it is drafting a new contract. USBR has not yet shared a draft, nor set forth a process for public involvement, or determined whether an Environmental Impact Report will be prepared. WE Watch expects the new contract will address several key issues including: ensuring ID#1’s allocation; steelhead management; clarifying the County Water Agency’s role; and ensuring adequate releases for downstream water rights holders.

For more information on the Cachuma Operations and Maintenance Board, visit its website at: https://www.cachuma-board.org/

**Jameson Lake**

The Montecito Water District completed construction of Juncal Dam and Jameson Lake on the upper reach of the Santa Ynez River in 1930. Water is diverted to the Montecito area through the Doulton Tunnel, which is a 2.2-mile long tunnel that conveys surface water from Jameson Lake through the Santa Ynez Mountains to the District's Bella Vista treatment plant through the tunnel.
Gibraltar Dam and Reservoir are located on the Santa Ynez River in Santa Barbara County, about 9 miles north of the City of Santa Barbara upstream from Lake Cachuma. The City owns and operates the dam and reservoir. Stored water is diverted through Mission Tunnel to the Cater Water Treatment Plant in Santa Barbara. The dam is a concrete arch dam constructed in 1920 with an original capacity of 14,500 AF.

Diversions from the Santa Ynez River are limited by the 1930 Gin Chow legal judgment and the 1989 Upper Santa Ynez River Operations Agreement (USYROA, also known as the "Pass Through Agreement"). The USYROA was developed to resolve concerns that the City’s planned raising of Gibraltar Dam would impact the feasibility of a potential Cachuma enlargement project. The City agreed to defer the planned raising of Gibraltar Dam in exchange for the right to “pass through” some of its Gibraltar water to Lake Cachuma for delivery to the City through Tecolote Tunnel. The amount of Pass Through water is based on the difference in Gibraltar spills under actual conditions as compared to a hypothetical “Base Reservoir.” The Base Reservoir is equal in size to the 1988 reservoir and “operated” (by computer model) according to a compromise interpretation of the Gin Chow judgment agreed to as a part of the USYROA. A basic goal of the agreement is to allow the City to stabilize the yield from Gibraltar at approximately 1988 levels while minimizing impacts on the Cachuma Project and other downstream interests.
Santa Ynez River Flow and Underflow

The SY River flows are visible when there’s enough rainfall to generate surface runoff and when there are releases from Lake Cachuma. Even when there is no visible surface flow, there is water underflow within the riverbed. ID#1, Solvang and Buellton have water rights allowing them to tap into this underflow with wells that provide a portion of their water needs.

A key issue for the City of Solvang is whether it will drill new wells into the SYR underflow. The city has run into concerns raised by various parties, including: ID#1, a private land owner, State and federal agencies, and CalTrout. Another key issue for all water providers is what relationship, if any, exists between SYR underflow and nearby groundwater basins.

Both the SYR’s surface flow and its underflow are enhanced when USBR releases Cachuma water downstream. These releases can occur for various reasons, such as: (1) when the reservoir level is nearing capacity and/or a storm is predicted; (2) to provide water for steelhead habitat; and (3) when downstream water rights holders (Lompoc) acting through the SYRWCD request releases consistent with their entitlement to Cachuma water for groundwater replenishment. The Santa Ynez River Water Conservation District (SYRWCD), which is not a water provider, represents water rights holders along the SY River from Cachuma to the Lompoc Plain. SYRWCD can ask USBR to release water from Cachuma Reservoir based on several factors, including: groundwater levels downstream, the rate of SY River flow at the Alisal Bridge in Solvang, and the level of water in Cachuma.

Cachuma water releases to help improve steelhead fish habitat are based on the US National Marine Fisheries Service’s biological opinions. An opinion was issued in 2000 under which water is pumped into Hilton Creek very close to Bradbury Dam. This creek then flows into the Santa Ynez River. An updated opinion by NMFS is still awaited.

SYRWCD’s role in requesting releases, and the basis for those requests, might be specifically addressed in USBR’s new Cachuma contract. Likewise, the requirements of NMFS biological opinions should be incorporated into the contract.

For information on COMB’s role in water releases for fish, see: https://www.cachuma-board.org/fisheries
All water providers in the SYV rely on groundwater for part or all of their water supply. Buellton, Solvang and ID#1 have groundwater wells in upland basins separate from their riverbed underflow wells. Groundwater aquifers are recharged through infiltration from rainfall, creek and river flow, agricultural runoff, urban stormwater runoff, and wastewater discharge into ponds or creeks.

Unlike other water sources in California, groundwater was not regulated until 2014 when the CA legislature passed the Sustainable Groundwater Management Act (SGMA). Prior to the SGMA, California was one of two major states that did not monitor or control ground water. SGMA requires local agencies to develop a Groundwater Sustainability Plan (GSP) and then manage their basins according to the plan. It applies to groundwater basins defined as over drafted or critically over drafted and set deadlines for the development of a Groundwater Sustainability Plan (GSP) and for the achievement of groundwater sustainability by 2040. For the Santa Ynez Valley, divided into three Groundwater Management Areas and three corresponding Groundwater Sustainability Agencies, it set January 2022 as the deadline for the Groundwater Sustainability Plans. Department of Water Resources (DWR) determined that the Santa Ynez River watershed groundwater basin is a medium priority for regulation under SGMA. In Santa Barbara County, only the Cuyama Valley Basin is a high priority.

The entire SY Valley has been divided into 3 sub-areas for purpose of planning and analysis. The Western Management Area is centered on Lompoc; the Central Management Area on Buellton; and the Eastern Management Area encompasses Solvang, Santa Ynez, the County of Santa Barbara, and the Santa Ynez Band of Chumash Indians. Each area is required to develop and submit a Groundwater Sustainability Plan (GSP) by January 2022. The planning effort is being led by SYRWCD in coordination with water providers, local cities, the SB County Water Agency, private well owners, the Chumash Tribe, and others. The tools for managing groundwater sustainability include: Required registration of wells; measurement of groundwater extraction, annual extraction reports, placing limits on individual wells, and assessing fees to implement the local Groundwater Sustainability Agencies.

The GSP must include technical information regarding hydrogeological conditions of the aquifer; historical and projected water demand; potential areas of recharge; measureable objectives and milestones toward sustainability; and monitoring and management plans. Although groundwater sustainability may be difficult to achieve in some areas, the intent of the GSMA is certainly necessary and commendable.
WE Watch is monitoring this SGMA planning effort which is getting underway in the SY Valley. WE Watch members are participating in each of the three Community Advisory Groups (CAG) working with the lead agency in each of the three management areas in the SY Valley. At this early stage we are alert for issues such as: transparency of the planning effort; whether a thorough and data-driven analysis will be conducted; how data will be shared with the public; ensuring citizen involvement; and how decisions will be made for managing groundwater.

Aside from groundwater planning and management under SGMA, another groundwater issue facing the eastern portion of the SY Valley is a water quality issue pertaining to the level of Chromium 6. The State of California set a standard for Chromium 6 in drinking water that was more stringent than the Federal standard, and which would have required SYRWCD-ID#1 to treat some of its groundwater to avoid violating the CA standard. However, CA later suspended its stricter standard and is re-examining the issue.

The Santa Barbara County Public Works Department has a website on Groundwater in SB County at:https://www.countyofsbc.org/pwd/SBCoGroundwater.sbc

For more information on the SYRWCD and its role as a Groundwater Sustainability Agency, visit its SGMA-related website at:https://www.santaynezwater.org/

For information on SYRWCD’s role in protecting members’ water rights, see https://www.syrwcd.com/

**Imported Water from the State Water Project (SWP)**

**State Water Project and CCWA**
The State Water Project (SWP) has transported water via aqueduct and pipeline from northern California to Central Valley farmers and to Southern California for many years. In Santa Barbara County most major water providers also began to import this water in 1997 after forming the Central Coast Water Authority (CCWA) to manage pipeline construction and water delivery. Lompoc residents voted to not buy into the SWP. The residents of Buellton, Solvang and areas served by ID#1 voted to participate in the SWP thereby giving them an additional water
The SWP water pipeline enters Santa Barbara County north of Santa Maria, and the water is then pumped to the City and to Guadalupe. The pipeline passes south to Vandenberg AFB where water is again pumped from the pipeline. Although the pipeline passes by Lompoc, no water is taken by the City of Lompoc. Instead the pipeline heads east to Buellton and on to Solvang and to Santa Ynez, so that each of those three water providers can take SWP water. Finally the pipeline goes east to Cachuma Reservoir where SWP water is pumped into the lake where it mixes with Cachuma water. Eventually some of the molecules of SWP water will make their way, along with Cachuma water, to the south coast water providers who have entitlements to SWP water.

When the SWP pipeline was constructed in SB County in the 1990’s, construction costs were kept lower by not building a new pipeline section from Santa Ynez to Cachuma, but rather by using an existing pipe that had been carrying water in the opposite direction from Cachuma to ID#1. ID#1 agreed to take more water from the SWP pipeline in “exchange” for not taking an equal volume of Cachuma Project water. The water that ID#1 would have taken from Cachuma is thus available to south coast water providers as part of their SWP entitlement.
CCWA’s Board of Directors is composed of 8 member agencies which have an annual “contractual right” to the acre-feet of SWP water shown in parentheses: Santa Maria (16,200), Guadalupe (550), Buellton (578), SYRWCD-ID#1 (2,000), Goleta WD (4,500), City of Santa Barbara (3,000), Montecito WD (3,000), and Carpinteria Valley WD (2,000). Five other entities also have rights to SWP water, but these entities aren’t CCWA Board members. These entities and their SWP water entitlements are: Vandenberg AFB (5,500), Golden State Water in Orcutt (500), Raytheon Systems in Goleta (50), Morehart Land Company in Gaviota (200), and La Cumbre Mutual Water in Hope Ranch (1,000).

**SWP “Contractual Rights”: Table A Amounts**

<table>
<thead>
<tr>
<th>Agency</th>
<th>Amount (acre-feet per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buellton</td>
<td>578</td>
</tr>
<tr>
<td>Carpinteria VWD</td>
<td>2,000</td>
</tr>
<tr>
<td>Golden State WC</td>
<td>500</td>
</tr>
<tr>
<td>Goleta WD</td>
<td>4,500</td>
</tr>
<tr>
<td>Guadalupe</td>
<td>550</td>
</tr>
<tr>
<td>La Cumbre MWC</td>
<td>1,000</td>
</tr>
<tr>
<td>Montecito WD</td>
<td>3,000</td>
</tr>
<tr>
<td>Morehart Land Co</td>
<td>200</td>
</tr>
<tr>
<td>Raytheon Systems</td>
<td>50</td>
</tr>
<tr>
<td>Santa Barbara</td>
<td>3,000</td>
</tr>
<tr>
<td><strong>Santa Maria</strong></td>
<td><strong>16,200</strong></td>
</tr>
<tr>
<td>Sta Ynez RWCD-ID#1</td>
<td>2,000</td>
</tr>
<tr>
<td>Vandenberg AFB</td>
<td><strong>5,500</strong></td>
</tr>
<tr>
<td></td>
<td><strong>39,078</strong></td>
</tr>
</tbody>
</table>

Plus 3,908 AF/yr “drought buffer” & 2,500 AF/yr add’l entitlement.

Decision-making by CCWA’s Board is weighted, with the voting strength of each member determined by its SWP water entitlement. Thus, the City of Santa Maria receives over 43% of the SWP water allocated to the 8 Board members, so Santa Maria has 43.19% of the votes on any issue. Buellton has 2.2% voting strength, and ID#1 holds 7.64% of the Board’s votes. Solvang is not a CCWA Board member, but rather gets its supply of SWP water through ID#1.

The importing of SWP water has always been controversial in SB County. One reason is the high cost relative to Cachuma Project water or groundwater. Another concern has been the highly variable nature of SWP water availability. Since 2010, the percentage of SWP water allocations to CCWA members has varied from only 5% (in 2014) to 100%, averaging about 50% of total
entitlement. During recent extreme drought years when SWP water was most needed in SB County, the allocation was very low.

Current key issues facing CCWA members are addressed in some detail in the next sections. For more information on CCWA, visit its website at:
http://www.ccwa.com/

**Delta Conveyance Project (DCP – theDeltaTunnelProject, A Part of the SWP)**

For many years, California water purveyors and agencies have been trying to develop methods to export more water out of the Bay Delta for southern California water users. It started with a Peripheral Canal Plan which was defeated by a public vote in 1982. It restarted in the 1990’s with CALFED (a canal or tunnels), then BDCP (Bay Delta Conservation Plan), then the California Water Fix (twin tunnels under the Delta). The latter was cancelled by Governor Newsom in January 2019; now the Governor has ordered that a single tunnel called the Delta Conveyance Project (DCP) be analyzed.

WE Watch sent letters to local agencies involved in providing water to Valley residents, urging each agency to opt-out of participation in the newly proposed DCP. As recently proposed by Governor Newsom, the DCP would move State Water Project (SWP) water from northern California rivers through a new tunnel under the California Delta to connect to the California aqueduct. Local water agencies that currently manage or receive SWP water would continue to receive their current allocation of SWP water while opting-out of participation in, and payment for, the costly new DCP.

The WE Watch letter, dated 9/17/19, was sent to: Buellton, Solvang, Santa Ynez River Water Conservation District ID-1, and the Central Coast Water Agency (CCWA). Over the coming months each of those water agencies and the County, as the SWP’s contract holder in Santa Barbara County, will be asked to decide whether to opt-in or opt-out of participation in the DCP.

WE Watch’s objections to the DCP are based on several concerns, including some cited by Governor Newsom when he cancelled the State’s previously proposed project for **two** tunnels under the Delta. These concerns are:
• The DCP would be very expensive, with CCWA’s up-front cost estimated by CCWA to be in the $152 million range. Those costs would directly pass through to those agencies which receive state water in Santa Barbara County. Solvang and Buellton’s share of the costs would each be in the $3 to $4 million range, while ID#1 would be approximately $11 to $12 million. WE Watch believes less expensive alternatives exist for providing water, as well as mitigating for water quality, earthquake damage, and sea level rise.

• The DCP won’t necessarily improve the reliability of SWP water delivery. As evident during the past decade, the reliability of SWP water allocations is inherently highly variable and unpredictable from year to year, mainly due to annual variations in precipitation. How can you possibly expect water reliability when statewide water allocation quantities are five times greater than is available in a typical California water year? These allocations equate to paper water.

• The DCP will continue, rather than mitigate, adverse environmental impacts in the Delta. By reducing ground-level water flow, the DCP will undoubtedly harm endangered species and further degrade habitats, water quality, and the healthy farming and recreational economies of the Delta.

• The State’s estimates of the DCP’s costs and water supplies are questionable. In the past, the State has tended to over-estimate water supplies from State projects, while under-estimating actual costs and project implementation schedules.

In December 2019, CCWA (which includes Solvang, Santa Ynez, Buellton, City of Santa Barbara, Santa Maria, Guadalupe, Montecito, Goleta, and Carpinteria) decided to opt out of the Delta Conveyance Project, and the Department of Water Resources was notified of those plans by Central Coast water agencies. Opting out of this project will save rate payers in these cities significant dollars as well as place emphasis on local solutions for future water supply.

See links to WE Watch position statement and letters to water agencies on previous WEW webpage.

Assignment of State Water Project Contract in Santa Barbara County

Since CA’s DWR began to provide State Water Project water in Santa Barbara County in the 1990’s, the County’s Flood Control and Water Conservation District has been DWR’s SWP contract holder. The County’s role is primarily as a guarantor that DWR will be paid if a Central Coast Water Authority member fails to meet its fiduciary responsibilities for the SWP. CCWA handles all other aspects of SWP water provision within the County. CCWA members have now proposed that DWR assign the SWP contract to CCWA rather than to SB County. WE Watch believes the contract should remain with SB County for the following reasons, which are explained in more detail in the WE Watch position statement on this issue:

• To Ensure Oversight by Elected Officials Representing All County Residents;
• To Provide a Broader Perspective on Water Management than CCWA Can Provide;
• To Promote Transparency and Accountability in Decision-Making;
• To Retain Fiduciary Responsibility; and
• To Maintain Effective Inter-Governmental Relationships.

See links to WE Watch position statement and letters to County BOS on previous WEWatchwebpage. WE Watch has detailed its opposition to assigning the SWP contract to CCWA in a letter to each County Supervisor. We are waiting for the County Supervisors’ decision on this issue.

**Suspended Table A Reacquisition**

In 1988 CCWA signed an agreement with DWR to “suspend” 12,214 AF of allocated water since it was not needed. The agreement included the ability to reacquire the allocation if needed in future, at some cost. CCWA has now recommended that the 12,214 AF allocation be reacquired at the cost of $42 million. It is being considered a “drought buffer” by some water providers. Solvang’s estimated share for an additional 300 AF allocation would be .025%, which equals $1,050,000, or $52,000 per year, amortized over a 20 year period. Although the overall “reacquisition cost” of $42 million seems high, Solvang has already agreed to participate in the reacquisition since the price of delivered water over the 20 year period is to be much lower than ordinary state water, probably less than $800 per AF of delivered water.

Solvang’s water supply is adequate for future growth, considering that an additional well has recently been added and the future potential to produce potable water with a Waste Water Treatment Plant upgrade. Solvang did well through the past multiple year drought with a moderate conservation program in place and that could be stepped up in future if needed. Solvang used 1,235 AF in 2018 (a drought year) and 1,570 in 2019. Solvang came close to the statewide water reduction goal of 20% reduction.

CCWA has already made a request for the 12,214 acre-feet of suspended water. WE Watch will be recommending to Solvang and ID-1 they do not vote to reacquire additional suspended Table A water. Buellton has decided not to request any of the suspended water allocation.

**SWP Contract Extension**

DWR is preparing modifications to the master contract that will be used in the future for state water project members. It includes the additional capital and operating costs for the Delta Conveyance Project, makes significant changes to facilitate payment for the DCP, changes water transfer rules, and extends the contracts for another 50 year period. The proposed changes are currently being negotiated with SWP members and include some controversial changes, such as changes to water transfers that could endanger groundwater sustainability for Northern California water districts and rules for surplus water storage in San Luis Reservoir.
WE Watch will be recommending to Solvang, ID-1 and Buellton, as well as CCWA, that they do not vote to approve the current proposed contract extensions.
Wastewater & Stormwater Management

Solvang’s Wastewater Treatment Options

The City of Solvang currently operates a Sequencing Batch Reactor (SBR) type Wastewater Treatment Plant (WWTP) with an original design capacity of 1.5 million gallons per day (MGD). The WWTP operates under a Waste Discharge Permit issued by the Regional Water Quality Control Board. The WWTP currently receives and treats wastewater from the City of Solvang and the Santa Ynez Community Services District (SYCSD) which serves the town of Santa Ynez. The SYCSD owns 0.30 MGD of capacity in the Solvang WWTP. The Plant provides full secondary treatment of the wastewater received. The WWTP discharges the treated wastewater to percolation ponds located adjacent to the Plant along the Santa Ynez River.

The original 1.5 MGD capacity can no longer be maintained and currently operates at a capacity of 0.7 to 0.9 MGD due to changes in the composition of incoming wastewater and the aging equipment. In order to achieve the goal of 1.5 MGD and to replace parts of the current system, the city is examining potential upgrades to the system. Two options that make only incremental improvements and do not go beyond the current secondary treatment have been rejected by both City Council and staff (Alternatives 1 and 2) as too limiting in capability in view of anticipated future regulatory mandates. A third option that uses modernized technology, referred to as membrane bioreactor (MBR), has been selected as the favored overall direction. It is scalable for projected growth and potential future regulations; it provides tertiary treatment; and it allows the option of recycling in future at an additional cost. It is referred to as Alternative 3. Variations for phasing the installation and financing of Alternative 3 are now being analyzed and are referred to as Alternatives 4 and 5. Alternative 5 has been rejected by the City Council since it does not provide a timely upgrade. Alternatives 3 and 4 are the main options now being examined and costs are summarized in the table below. The main differences between the two favored alternatives are that Alternative 4 delays the installation of improved equipment for approximately 10 years (it could be shorter) and delays the start of the additional bond debt service for the same period.

Each of the alternatives has also been cost analyzed showing 30 year bond repayments as well as ramped instead of level bond repayments. Each of these other alternatives produce higher total costs with minimal effect on the monthly rate to Solvang rate payers. Revenue bonds seem to be the favored method of financing for the upgrades.

<table>
<thead>
<tr>
<th>COST COMPARISONS ALTERNATIVES 3 AND 4</th>
<th>ALTERNATIVE 3</th>
<th>ALTERNATIVE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt Service-20 Year Bonds-Level</td>
<td>$13.6 M</td>
<td>$16.9 M</td>
</tr>
<tr>
<td>Ave. Annual Debt Service</td>
<td>$.680 M</td>
<td>$.456 M to $.676 M</td>
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<tr>
<td>Borrowing Rate</td>
<td>3.61%</td>
<td>4.10%</td>
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<tr>
<td>Monthly Rate Increase-Sewer Charge</td>
<td>$20.62</td>
<td>$13.79 to $22.12</td>
</tr>
<tr>
<td>Total Projected Rate-Sewer Charge</td>
<td>$55.27</td>
<td>$48.44 to $56.77</td>
</tr>
<tr>
<td><em>Current Sewer Rate</em></td>
<td>$34.65</td>
<td>---</td>
</tr>
<tr>
<td>Sewer Revenue</td>
<td>$.854 M</td>
<td>$.572 to $.843 M</td>
</tr>
</tbody>
</table>

Suggested Recommendations to WEWatch Board & Solvang City Council

- Alternatives 3 or 4 are both acceptable.
- Alternative 3 appears more favorable since it can probably handle future state water quality mandates that are expected, can install recycling sooner than Alternative 4, is slightly less in total costs than Alternative 4, and is comparable to Alternative 4 in the monthly sewer rate increase.
- Note: Projected sewer rate for Alternative 3 starts higher, but averages about the same over the 30 year repayment period for Alternative 4.
- WE Watch will be recommending to Solvang that either Alternative is acceptable.

Santa Ynez Community Services District

The Santa Ynez Community Services District was formed in 1971 by citizens in the area for the purpose of obtaining and providing community sewage disposal services in the Santa Ynez area (approximately one square mile). In January 1974 State and County health departments determined a health hazard existed due to septic systems, and a building moratorium was put on the area. The original system was built to address this problem and was completed in 1981. Subsequent to this there have been extensions to the mainline to make public sewer available to residents who have come to the District requesting service.
The Santa Ynez Community Services District is an independent special district created under the Community Services District Law of the State of California. The District is governed by a Board of Directors consisting of five elected members serving four year terms. Board members must reside in the District.

The Chumash Tribe owns 0.088 gpd of the SYCSD’s capacity. The Chumash Tribe has constructed a wastewater treatment plant with a capacity of 200,000 gallons per day (gpd), which was brought on-line in May 2004. This plant serves the Casino, Hotel, administration buildings, and approximately 350 residents on the reservation. Treatment includes head works, extended aeration, filtration, and the disinfection is by UV prior to discharge to Zanja de Cota Creek. Some of this tertiary water is being utilized in the irrigation throughout the reservation and for water to flush the toilets. The SYCSD is under contract to maintain the Chumash wastewater plant and collection system.

**Los Olivos Community Services District**

The Los Olivos Community Services District was recently formed by local voters to provide a funding mechanism for the building and operation of facilities necessary to collect, treat, and dispose of sewage, wastewater, recycled water, and storm water in the unincorporated area known as Los Olivos.

The purpose of the Los Olivos Wastewater Reclamation Program Project Description is to define a strategy to provide economically viable wastewater treatment and reclamation solutions to the residents and property owners within the District that meets public health needs and the regulatory requirements of the Regional Water Quality Board (RWQCB). The Los Olivos Wastewater Reclamation Program is comprised of four distinct components, each being interdependent and implemented concurrently: 1. Development of Residential Onsite Wastewater Treatment System Requirements 2. Financial Outreach and Assistance for Program Development, Construction and Operation 3. Implementation of a Local Groundwater Monitoring Program; and 4. Phased Collection and Treatment

Currently, residential Onsite Wastewater Treatment System in Los Olivos are governed by the Santa Barbara County Public Health Department’s (County EHS) Local Area Management Plan. The proposed Treatment Facility will be consistent with the polices and development standards
of the Santa Barbara County Comprehensive Plan, including the Santa Ynez Valley Community Plan and the Santa Barbara County Land Use and Development Code.

Because the project will generate in excess of 10,000 gallons per day, exceeding the 10,000 gallons per day County EHS limit, it will be under the jurisdiction of the Central Coast Regional Wastewater Quality Control Board, who would be the lead regulator agency, review the system and issue all appropriate permits.

The treatment facility will be comprised of a high-efficiency, low odor, expandable Membrane Bioreactor package plant sized to serve Phase I needs and sited to accommodate modular expansion should further study warrant a facility expansion. The facility will be operated by a California licensed and properly trained wastewater treatment plant operator, who will be responsible for ensuring proper operation and maintenance of plant equipment as well as required reporting.

The District anticipates a minimum of three years to design, review, permit, finance and construct the complete Phase I project

**Water Conservation**

There is currently no issue more critical to the future welfare of our world than the questions related to how we use our water resources. California has long had a healthy abundance of water supplies for our domestic population, for our industry, and for our agricultural interests. However, the availability of adequate water supplies to satisfy all segments of our population and industry is close to a tipping point. Unless significant measures are taken to develop and apportion future water supplies more equitably, the competition for water will become untenable and will become a major resource battleground.

In the United States, water management is generally left to the individual states to determine. California manages on a combination of natural rainfall, imported water from other states or other parts of our own state, and the ingenuity of local water management districts to allocate local supplies. None the less, an examination of the use and distribution of our water supplies shows glaring inequities which must be modified if our economy is to survive and prosper. The fundamental criteria for ensuring the health of our population, industry, and agricultural economy requires the following types of actions:

- Statewide water availability analyses to align local water needs with availability, down to the local water district level.
- Statewide benefit/cost analyses to determine the economic desirability of any major water
A policy to ensure that water imports and exports are consistent with full implementation of the Public Trust Doctrine and Clean Water Act, as well as the protection of sociological and ecological values.

Emphasis should be placed on the following local actions: urban water conservation, agricultural water conservation, water recycling and reuse, groundwater storage, desalination, and similar economically feasible water usage actions.

There are overarching issues that must influence all the above efforts to develop sustainable, effective, and equitable water policies. They include: periodic drought, climate change, and environmental justice, the preservation of Native American cultural traditions, the precautionary principle, and population pressures.

Solvang’s record of water conservation actions merits a C grade, due largely to local actions of the Public Works Department. However, the record could be improved by more aggressive actions in lawn replacement, residential and commercial hardware replacements, and water recycling. These actions should also be applied to the communities of Buellton, Santa Ynez, Los Olivos, Ballard, and Lompoc.

Information on water conservation can be found at: http://www.waterwisesb.org/
Water is critical to human life and to our natural world, our environment. The quality of water is affected by many variables, and it affects the many uses that can be made of a body of water. Water quality describes the condition of the water, including chemical, physical, and biological characteristics, usually with respect to its suitability for a particular purpose such as drinking or swimming. Water quality standards are developed by various agencies in the US, starting with the federal Environmental Protection Agency (EPA) and tiering down from the EPA through various state and local agencies at the city and county level. The standard measure of water quality is Parts per Million (PPM), which stands for the amount of pollutants in a body of water.

In the setting of standards, agencies make political and technical/scientific decisions about how the water will be used. In the case of natural water bodies, they also make some reasonable estimate of pristine conditions. Environmental lawyers and policymakers work to define legislation with the intention that water is maintained at an appropriate quality for its identified use.

The vast majority of surface water on the Earth is neither potable nor toxic. A general perception of water quality is that of a simple property that tells whether water is polluted or not. In fact, water quality is a complex subject, in part because water is a complex medium intrinsically tied to the ecology of the Earth. Industrial and commercial activities such as manufacturing, mining, construction, and transportation are the major causes of water pollution as are runoff from agricultural areas, urban runoff, and discharge of treated and untreated sewage.

Contaminants that may be in untreated water include microorganisms such as viruses, protozoa and bacteria; inorganic contaminants such as salts and metals; organic chemical contaminants from industrial processes and petroleum use; pesticides and herbicides; and radio-active contaminants. Water quality depends on the local geology and ecosystems, as well as human uses such as sewage dispersion or industrial pollution.

The United States Environmental Protection Agency (EPA) limits the amounts of certain contaminants in tap water provided by US public water systems. The Safe Drinking Water Act authorizes EPA to issue two types of standards:

- Primary standards regulate substances that potentially affect human health
- Secondary standards prescribe aesthetic qualities, those that affect taste, odor, or appearance.

The U.S. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some
contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

In urbanized areas around the world, water purification technology is used in municipal water systems to remove contaminants from the source water (surface water or groundwater) before it is distributed to homes, businesses, schools and other recipients. Water drawn directly from a stream, lake, or aquifer and that has no treatment will be of uncertain quality.

In the United States, Water Quality Standards are defined by state agencies for various water bodies, guided by the desired uses for the water body (e.g., fish habitat, drinking water supply, recreational use). The Clean Water Act (CWA) requires each governing jurisdiction (states, territories, and covered tribal entities) to submit a set of biennial reports on the quality of water in their area. These reports are known as the 303(d) and 305(b) reports, named for their respective CWA provisions, and are submitted to, and approved by the EPA. The CWA requires states to adopt standards for each of the possible designated uses that they assign to their waters. Should evidence suggest or document that a stream, river or lake has failed to meet the water quality criteria for one or more of its designated uses, it is placed on a list of impaired waters. Once a state has placed a water body on this list, it must develop a management plan establishing Total Maximum Daily Loads (TMDLs) for the pollutant(s) impairing the use of the water. These TMDLs establish the reductions needed to fully support the designated uses.

In California, The State and Regional Water Boards adopt plans and policies to carry out federal and State water quality protection laws. The plans and policies contain water quality standards and regulations, which form the basis of the Water Boards' regulatory actions for protecting the quality of the State's waters. The Water Boards monitor and assess the condition of the waters to determine if they are supporting their uses, detect long-term trends, and focus and evaluate regulatory efforts.

The Santa Ynez River watershed falls within Region 3, Central Coast Region. It contains numerous rivers and creeks that are shown in the Listing of Impaired Water Bodies, the main one being the Santa Ynez River, from its origin in the Santa Ynez River Basin to below Lompoc (43 miles), including Cachuma, Gibraltar and Jamison Lakes. The pollutants shown in the current List of Impaired Water Bodies (303d) include: excessive pH; excessive Sodium; excessive Temperatures; Total Dissolved Solids; and Sedimentation/Siltation. From below Lompoc to the Ocean (3.9 miles), the same pollutants are shown, plus: Chloride; Escherichia coli (E. coli); Fecal Coliform; low dissolved Oxygen; and Nitrate. Basin Plans, which are an EPA requirement for all impairments, have been developed and all are in various stages of being mitigated by local agencies.

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**Desalination**

1 Much of the information on Desalination is taken from various issues of WIRED magazine.
Desalination is the process of converting oceanic saltwater into drinkable (potable) water, or alternatively converting brackish water into useable water. Desal, as it is usually called, has been growing as shown in the following chart:

![Growth of Desalination Globally, 1960-2020](image)

Source: JONES ET AL/ SCIENCE OF THE TOTAL ENVIRONMENT, 2019

The cost of desalinated water has been coming down as the technology evolves. In the last three decades, the cost of desalination has dropped by more than half.

A boom in desal, though, doesn’t mean that all coastal locations with access to the sea have found a new source of fresh water. Circumstances play a large role. “As populations increase and existing surface water supplies are being tapped out or groundwater is depleted or polluted, then the problems are acute and there are choices to be made” about desal, said Michael Kiparsky of the Wheeler Water Institute at the UC Berkeley School of Law. “There are places around the world where desal makes economic sense, where there is high pressure on the water resources plus a lot of available energy resources,” such as the Middle East. Globally, more than 300 million people now get their water from desalination plants, according to the International Desalination Association.

But despite the need, desal plants will not be built on every coastline. Foremost among the barriers is the cost of constructing a plant and the cost of processing the water. The San Diego County Water Authority pays about $1,200 for an acre-foot of water sourced from the Colorado River and the Sacramento San Joaquin River Delta and pumped hundreds of miles to Southern California. The same amount from the new (2015) Carlsbad desal plant – enough to supply a family of five for a year – costs about $2,200. As Lake Mead – the reservoir of Colorado River water on the Nevada-Arizona border that supplies San Diego – drops
precipitously, it may someday, perhaps in the next several years, no longer be able to supply
San Diego.

Desal, however, is plagued by some serious environmental problems. There are two types of
desalination: thermal, which heats up water and then captures the condensation; and reverse
osmosis, which forces sea water through the pores of a membrane that are many times smaller
than the diameter of a human hair. This traps salt molecules, but allows the smaller water
molecules to go through. Both require a great deal of energy, and greenhouse gas emissions
created by the power needed – especially in the Middle East, where fossil fuels generate
electricity – are a significant contributor to global warming.

There are ecological impacts as well. It takes two gallons of sea water to make a gallon of fresh
water, which means the gallon left behind is briny. It is disposed of by returning it to the ocean
and—if not done properly by diffusing it over large areas—can deplete the ocean of oxygen
and have negative impacts on sea life. Because this stuff is denser than typical seawater, it
sinks to the seafloor and disrupts vibrant communities of life, which find themselves wanting
far less salt and far more oxygen. Facilities can mitigate the environmental impact by, for
example, mixing the brine with seawater before pumping it out, to dilute it. They might also
take care to expel the byproduct where currents are strongest, thus dissipating the brine quicker.
Inland, a plant might evaporate the water in pools and cart away the remaining salt.

But brine is more than just hypersaline water—it can be loaded with heavy metals and
chemicals that keep the feedwater from gunking up the complicated and expensive facility.
“The antifoulants used in the process, particularly in the pretreatment process of the source

water, accumulate and discharge to the environment in concentrations that can potentially have damaging effects on the ecosystems,” says Jones. Dilution may help with the hypersalinity problem, but it doesn't get rid of the chemical toxins.

Desal, for all its faults, isn’t going anywhere. As it gets cheaper, adoption will continue to grow. Middle Eastern countries full-tilt rely on it, while other regions, like Southern California, use it to supplement traditional – and increasingly unpredictable – sources of water. The plant run by Poseidon Water, for instance, produces 10 percent of San Diego County’s water supply.

“That is enough water to serve 400,000 residents,” says Jessica Jones, spokesperson for Poseidon. “This is the only new water supply in the county that is not dependent on snowpack in the Sierras or local rainfall – truly climate-resilient.”

Except, that is, for the fact that sea levels are rising due to climate change, which threatens seaside desalination plants the world over. And ironically enough, these facilities are sucking up massive amounts of energy, thus contributing to the emissions problem. "From an impact perspective, the energy intensity is huge," says Michael Kiparsky, director of the Wheeler Water Institute at UC Berkeley. "Even if powered by renewable energy sources such as solar or wind, you're still using a tremendous amount of energy, which in principle could go elsewhere to displace fossil fuel consumption."

"Desalination is not a panacea," Kiparsky adds. In a place like California, it can be a complement to more traditional sources of water like snowpack. And while the efficiency of these plants will improve, this is still a fundamentally energy-ravenous technology. "There are theoretical limits to the energy intensity reductions that are possible for seawater desalination," says Kiparsky. "It will never be cheap."

Another problem comes from the sucking in of sea water for processing. When a fish or other large organism gets stuck on the intake screen, it dies or is injured; in addition, fish larvae, eggs and plankton get sucked into the system and are killed. According to Heather Cooley, research director at the Pacific Institute, “There are a lot of unknowns around the impact on sea life. There hasn’t been a lot of monitoring at the facilities.” A strategy increasingly being used to obviate, or reduce, that problem is to bury the sea water intakes beneath the sea floor and use the sandy ocean bottom as a natural filter. In 2016, California passed the Desalination Amendment, which tightened regulations for intake and brine disposal. Proponents of desalination contend the changes have been onerous and are slowing the march toward a desal future.

Because of the cost of seawater processing and the impacts on the ocean, much of the recent desalination growth has involved the use of brackish water. The solids in brackish water are one-tenth the amount in ocean water, and that makes the process much cheaper. The Pacific Institute’s Cooley argues that before building desal plants, municipalities should fully implement conservation programs, promote potable re-use – the re-use of wastewater, also known as toilet-to-tap recycling – or treat storm water runoff. “It makes sense to do the cheaper options first and leave the more expensive options down the road to be developed when you need them,” she said.