



# Santa Cruz Civil Grand Jury

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## Our Water Account Is Overdrawn Beyond Conservation: Achieving Drought Resilience

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### Summary

Santa Cruz County faces a water crisis. Periodic and sustained drought has become a fact of life. If we don't achieve drought resilience—and make meaningful progress toward achieving it soon—the results may prove to be catastrophic. This report examines our current water situation and proposes achievable steps that can be taken toward drought resilience by our County water districts, city water departments, and groundwater basin agencies. With these steps, residents, businesses, and farms can thrive and avoid economic hardship during times of drought.

We will highlight the important work that is currently planned or completed. This work demonstrates that our water agencies have the means to create a water capture, storage, and transfer system that will go far toward solving our current crisis. Solid, innovative drought plans for drought resilience exist, but are nearly invisible to the public. This consistent lack of transparency has made water a very charged topic, especially with regard to population growth. Residents need to know the facts when deciding issues.

The County has the means to achieve drought resilience. What's been missing is urgency and tightly integrated, cross-agency collaboration to accelerate this work. Although considerable interagency collaboration has been demonstrated, it has not resulted in the leadership needed to turn plans into action. The time to act is now.

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## Background

“When the well’s dry, we know the worth of water.” —Benjamin Franklin

Water is the lifeblood of our community; it is essential for residents, businesses, and agriculture. Santa Cruz County relies on several large water suppliers, many smaller water suppliers, and thousands of private wells in rural areas. Agriculture uses about half our water, mostly in South County. For a quick snapshot, see Appendix A.

Santa Cruz County is one of a few counties in California that does not receive any water from outside the County. All of Santa Cruz’s water is locally sourced from rainfall.

Some of our County supply comes from surface water in rivers and creeks; much more comes from groundwater pumped from aquifers. These groundwater basins are replenished by rainwater. Figure 1 shows the primary water supply resources in the County.

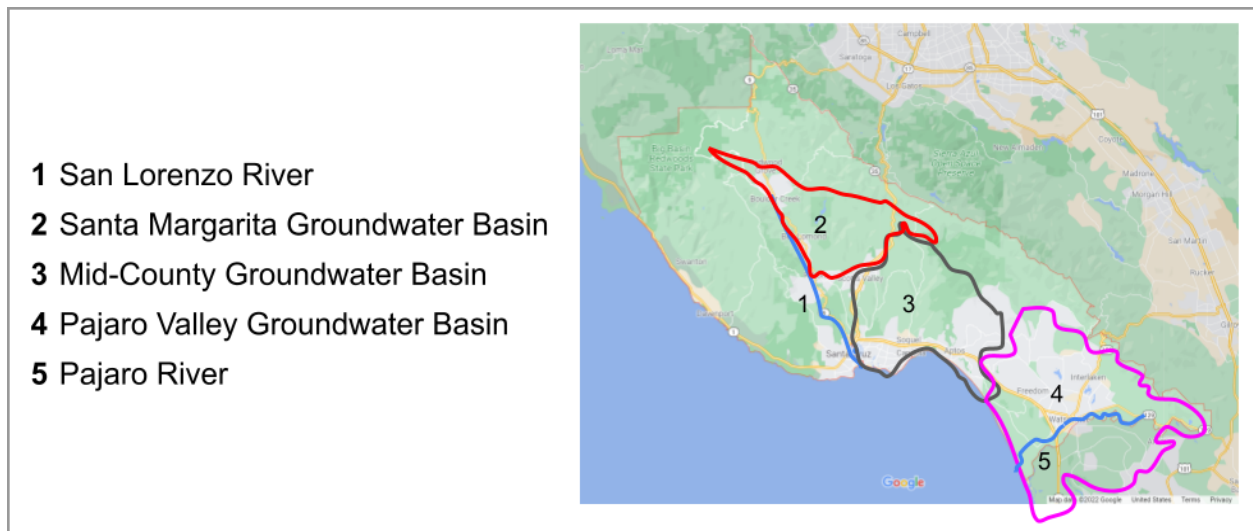


Figure 1. **Major Santa Cruz County Water Sources**  
(Source: Santa Cruz County Grand Jury)

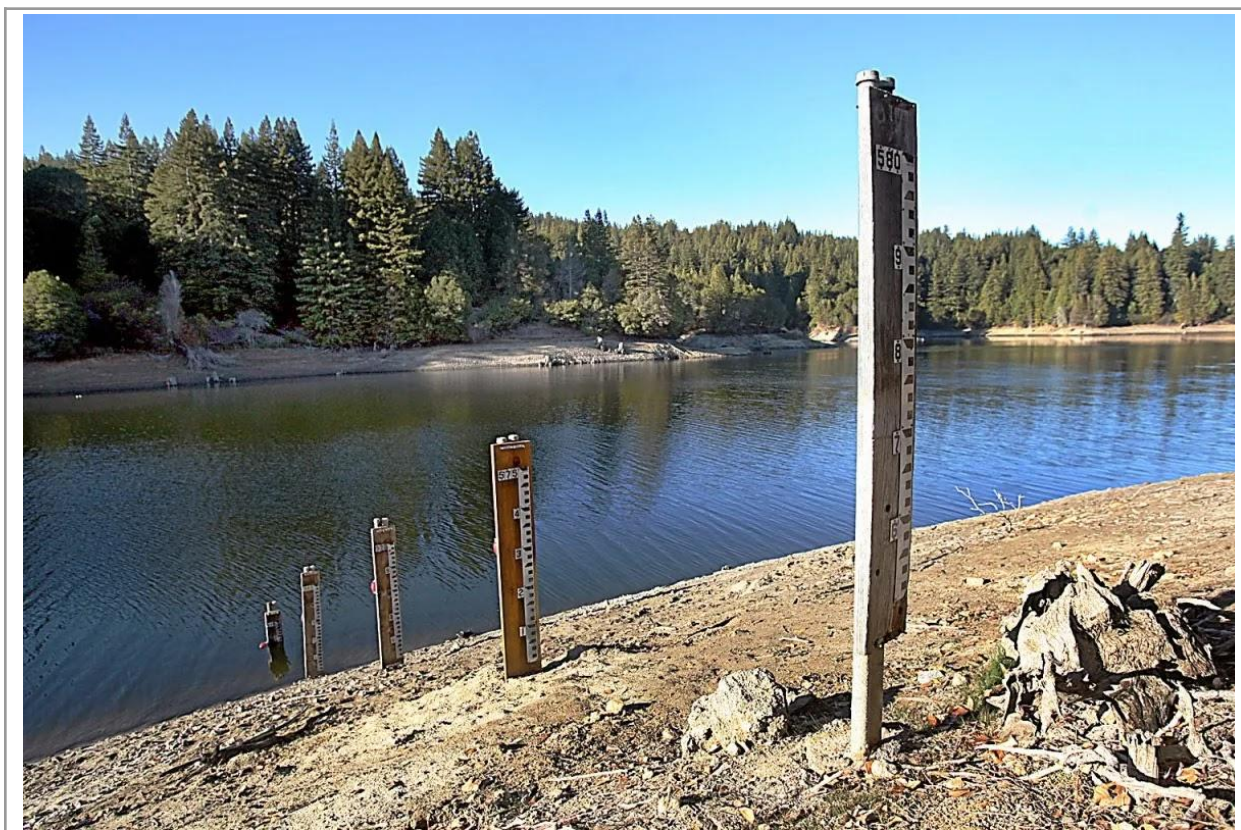
Ensuring a consistent water supply for all residents during multi-year droughts is an ongoing challenge. During the years 2012–2015, California suffered the worst drought in almost 450 years.<sup>[1]</sup> Santa Cruz County combated the drought through various actions, including implementing a first-time, state-mandated 25% reduction of urban water use.<sup>[2]</sup> Since that time, only a small amount of dry season storage has been added.

### ***Climate Change Is Accelerating Water Supply Risks***

Santa Cruz County has a Mediterranean climate, with cool, rainy winters and warm, dry summers. Water usage is much higher in the summer, driven mostly by landscaping and agricultural needs. Santa Cruz County has two main rivers—the San Lorenzo River and the Pajaro River—and numerous creeks. River flow varies highly from year to year. Over the last 100 years, the maximum flow in the San Lorenzo River of 91 billion gallons of

water occurred in 1983, and the least flow of three billion gallons occurred in 1977. The average flow is about 30 billion gallons per year.<sup>[3]</sup>

The City of Santa Cruz and its neighbors within the City's water service area use less than three billion gallons of water a year (see Table 1 in Appendix A), which is no more than a tenth of the San Lorenzo River's average annual flow. Water storage for the City of Santa Cruz and some neighboring communities is provided by Loch Lomond Reservoir, which can hold about a year's worth of water usage by the City and its neighbors.<sup>[4]</sup> Water is diverted from the San Lorenzo River to Loch Lomond Reservoir during the rainy season and this stored water supplements the dry season river flow during the summer months. The water not diverted to Loch Lomond Reservoir or sent to the water treatment plant flows unused to Monterey Bay because we have nowhere to store it. Maintaining high levels at Loch Lomond Reservoir, shown in Figure 2, as a reserve is a critical part of the City's water supply planning.



**Figure 2. Half Empty or Half Full? Loch Lomond Reservoir, 2015**  
(Credit: Photo Courtesy of the *Santa Cruz Sentinel*)

In California, climate change has resulted in higher year-to-year rainfall variability. This means we have both more frequent drought years and more frequent high-rainfall years. We are also experiencing fewer, heavier storms. This results in more runoff, with less rainfall reaching the aquifers. In mid-County, only about 5 percent of the rainfall replenishes our aquifers.<sup>[5]</sup> Population growth and expanded agriculture have increased groundwater pumping. This has caused chronic water shortages and critical



groundwater overdrafts. Unless replenishment of the aquifers improves, this shortage will only worsen with future extended and severe droughts.

Because there is insufficient storage to address periodic droughts, the County's water agencies have responded by stressing conservation. This has been extremely successful but is reaching practical limits. For example, in the City of Santa Cruz gross daily per capita water use declined from about 127 gallons in 2000 to 70 gallons—almost half—in 2015.<sup>[6]</sup> Conservation measures continue to reduce water usage to less than 50 gallons per person in 2020, one of the lowest levels in California.<sup>[7]</sup>

During normal rainfall years, the water supply mostly meets County water needs. During droughts, however, demand exceeds supply in parts of the County, resulting in a deficit, particularly through pumping groundwater basins. In the worst case, the projected deficit can reach 1.2 billion gallons in a year.<sup>[8]</sup> Over many years, this has led to chronic overdrafting of the basins. The lowering of the groundwater level causes saltwater intrusion to occur near the coast.

### ***Drought Costs Everyone—a Lot!***

The entire County lacks an economic impact report on the effects of a sustained drought. However, drought's economic effects are visible to all.<sup>[9]</sup>

The City of Santa Cruz has developed the “2020 Water Shortage Contingency Plan”<sup>[10]</sup> that details drought contingency allocations. A Stage 5 drought reduces allocations to 60 percent of normal (40% cut), while the less severe Stage 4 drought limits allocations to 79 percent of normal (21% cut). Stage 4 is somewhat less severe than the 25 percent cut mandated during the 2012–2015 drought.<sup>[2]</sup> See Appendix B for more detail.

Encouraging the City to avoid Stage 5 cutbacks should be a high priority for all businesses in the City. Water users should keep in mind that drought contingency fees kick in during droughts. Water infrastructure needs to be paid for whether the pipes are full or not.

The County depends heavily on tourism and the Transient Occupancy Taxes generated to support the general fund. The area's tourist and restaurant businesses are highly dependent on workers from across the County. Since a Stage 5 drought would limit tourist-oriented commercial water usage, many of those workers could be put out of work. Stage 5 restrictions will cause revenue drops for both the County and City of Santa Cruz.

Beyond the economic impact, our quality of life matters too. From the last sustained drought we remember watching our gardens wilt, driving cars we could not wash, and flushing toilets only when absolutely necessary. Santa Cruz County is a less desirable place to live when our water use is severely restricted. Water-wise appliances, native plant landscaping, and other conservation measures are now normal for our residents, but further cuts in the water supply will adversely impact daily living for all of us.

## **Forty Years of Single-Agency Efforts Have Shown Limited Results**

Recognition of recurring water shortages in our County goes back decades. Originally, a second reservoir at Zayante was planned to store San Lorenzo River water. Due to cost and environmental concerns, it was never built. At the time, the City of Santa Cruz believed they could provide an adequate water supply through several smaller projects.<sup>[11]</sup>

In the 1980s, seawater intrusion into the Mid-County aquifers that underlie much of Soquel and Capitola was detected. This intrusion was due to overdrafting, meaning more water was being pumped from the groundwater basin than was being replenished by rainfall, which results in lowering the groundwater level. Monitoring wells were drilled to track the extent of the intrusion and conservation measures were promoted.<sup>[12]</sup> Figure 3 illustrates the saltwater intrusion relationship between local aquifers and Monterey Bay.

The focus of conservation was to reduce the demand on the system, and has been very successful. The Mid-County and Santa Margarita groundwater agencies have been chartered to achieve sustainability of the groundwater basin. We have been told that sustainability means, “Don’t make anything worse.” This sentiment refers to critical basin metrics, including groundwater level, groundwater storage reduction, land subsidence, water quality degradation, and seawater intrusion. Sustainability is not the same as resilience, which enlarges supply. For more detail on groundwater sustainability laws, see the section titled, “Laws That Drive Water Agency Actions.”

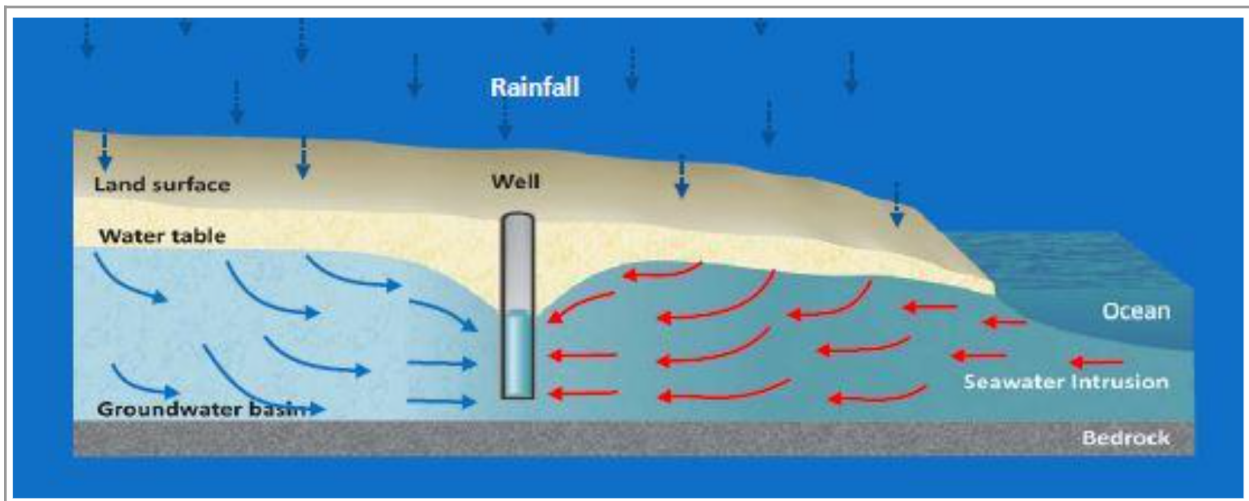


Figure 3. **Saltwater Intrusion Process**<sup>[13]</sup>

In 2010, planning began on a desalination plant that would serve the City of Santa Cruz and neighboring communities. The City of Santa Cruz discontinued the plan in 2016 after significant objections were heard from the local community. These objections included high setup and operational costs, insufficient evaluation of alternatives, the need for a more regional approach, a greater focus on conservation, and the likelihood of drought scenarios needing further analysis.<sup>[14]</sup>

In the early 2000s, investigations began into the possibility of taking water from the San Lorenzo River during the winter, treating it, and storing it in the neighboring groundwater

basins which have lots of “headroom” due to overdrafting. This stored water would both replenish the basins and provide water that could be returned to the City of Santa Cruz during droughts. The concept of integrated management of surface and groundwater to maximize water storage and availability under changing climate conditions is referred to as conjunctive use. This concept has finally reached the demonstration phase, 20 years later.

The State funded a planning grant through the Integrated Regional Water Management Act (see “Laws,” next section) to study the feasibility of conjunctive water use in Santa Cruz County. The grant funding produced a major report in 2015 that indicated that injecting treated water from the San Lorenzo River into the neighboring groundwater basins and recovering it for later use is feasible.<sup>[15]</sup> Integrated Water Resources Management funds were applied to this work because conjunctive use binds local water agencies together to improve the reliability of the regional water supply. Further evaluation, captured in reports from the Santa Cruz Water Supply Advisory Committee, indicate that groundwater storage can equal the three billion gallons stored in Loch Lomond Reservoir.<sup>[4]</sup> When at capacity, this groundwater supply could deliver a maximum of one billion gallons in a single year, which is one third of the total capacity of Loch Lomond Reservoir.<sup>[16]</sup>

However, water rights are a significant barrier to conjunctive use. The City of Santa Cruz is restricted from transferring San Lorenzo River water to neighboring water agencies. Modifying the water rights requires State Water Resources Control Board approval, and obtaining this approval requires an exhaustive Environmental Impact Report (EIR).<sup>[17]</sup> Work on revision of the water rights *alone* began in 2013 and was only completed in late 2021.<sup>[18]</sup> With the EIR complete, the change in water rights can be approved by the State. That will allow vastly more flexible water-sharing options between the districts serving the City of Santa Cruz, Mid-County, and North County. Most important among these options is efficiently capturing rainy season flow from the San Lorenzo River to recharge local aquifers.

As stated earlier, wildlife protection is an important aspect of water management. The EIR discusses the potential impacts of conjunctive use on local fish like coho salmon and steelhead trout, which are a threatened species. These fish need sufficient flow for adults to swim upstream during the spawning season, and for the juvenile fish to hatch and swim downstream to the ocean. The conjunctive use described in the EIR would divert water from the San Lorenzo River only during the winter months when sufficient river flow is not an issue. Conjunctive use may help protect the fish by allowing more flexibility in limiting diversions from the river during periods of low flow. For more detail on fish protection, consult the EIR.<sup>[18]</sup>

## ***Laws That Drive Water Agency Actions***

The State of California has enacted legislation aimed at protecting and preserving its water resources while providing adequate water supply to residents, businesses, and agriculture. The laws guiding our water agencies’ ability to deliver a resilient water supply, and some background on local effects, are listed here:

*California Environmental Quality Act (CEQA) of 1970.* This law requires that state and local agencies disclose and evaluate the significant environmental impacts of proposed projects and adopt all feasible mitigation measures to eliminate those impacts or at least minimize them. Capital improvement projects such as those described in this report require an Environmental Impact Report (EIR). Feedback from local agency leaders indicates that detailed plans may trigger a CEQA requirement which would be expensive and time-consuming. Many of the plans reviewed for this report deliberately lacked any specificity that might require an EIR. Addressing that problem is outside the scope of the grand jury.

*Urban Water Management Planning Act of 1983.* The Act promotes efficient water use and conservation. It requires large water suppliers providing water for municipal purposes to prepare and submit an Urban Water Management Plan to the California Department of Water Resources every five years. In response to the expected effects of climate change, recent amendments to the Act require local water agencies to plan for five consecutive drought years.

*Integrated Water Resources Management (IWRM) Act of 2002.* The Act aims to improve water supply reliability and water quality. It encourages water supply agencies and local governments to work together to more effectively manage water resources regionally.

*Sustainable Groundwater Management Act (SGMA) of 2014.* This legislation aims to prevent further degradation of the State's essential groundwater supply. It directs the California Department of Water Resources to identify groundwater basins where "continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." These identified basins are designated as critically overdrafted, and the Act requires that they be sustainable by 2040. Twenty-one groundwater basins have been designated as critically overdrafted in California. Two of them are in Santa Cruz County. The responsible groundwater management agencies are described in Appendix A.

## **Scope and Methodology**

As residents of Santa Cruz County, we see the impact of drought and share a high level of concern about adequate water supplies. We wanted to understand how water is sourced, stored, and distributed to customers, the limitations inherent in the current water infrastructure, and what can be done to provide a more resilient water supply. We looked at the existing and planned physical infrastructure, the charters of the responsible water agencies, and finally, at the barriers to achieving real drought resilience.

This report focuses on North County where the water storage problem has a solution within reach. South County, the small and minor water suppliers, individual wells, and agriculture areas are not included in this investigation. The limited scope of this report does not diminish the need to address drought resilience in those areas.

This investigation report describes the infrastructure that collects, treats, and distributes water. Our intent is to provide enough information that residents can see the big



picture—that drought resilience is achievable and that population growth need not threaten our access to sufficient water. We also address the systemic barriers to achieving that goal. We had hoped that a succinct drought resilience document already existed, but found only massive documents—some more than 1,000 pages long—sprinkled with disconnected nuggets of useful information.

The investigation included:

- Interviewing local water agencies
- Reviewing reports and plans describing current and future local water infrastructure
- Researching local water agency charters, collaborations, conflicts, and overlaps
- Seeking out best practices from integrated water management
- Considering options for improving county-wide water supply planning and execution
- Examining barriers to achieving county-level drought resiliency

## Definitions

This report relies on many information sources that vary in terminology usage. In some cases, terms have specific legal meanings, but this gets lost in everyday conversation. The following terms will be used consistently in this report:

**Critically overdrafted groundwater basin:** A basin is subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts.<sup>[19]</sup>

**Conjunctive use:** The concept of integrated management of surface water and groundwater to maximize water storage and availability under changing climate conditions is referred to as conjunctive use.<sup>[15]</sup>

**Groundwater sustainability:** The development and use of groundwater resources to meet current and future beneficial uses without causing unacceptable environmental or socioeconomic consequences.<sup>[20]</sup>

**Drought resilience:** Groundwater sustainability supports drought resilience, but is not equivalent. Resilience requires storage, recycling, or other methods that bank water or draw it from other areas so that drastic water service reductions are *not* required when severe droughts occur.

**Water rights:** A water right is a legal entitlement authorizing water to be diverted from a specified source and put to beneficial, non-wasteful use. Current water rights prevent excess water from the San Lorenzo River being sent to the neighboring water agencies, which means that it is discharged into Monterey Bay.

**Water augmentation strategy:** Augmentation is the process of adding water to an existing source water supply (such as a reservoir, lake, river, wetland, or groundwater basin). The added water may be treated or purified in transit as required by water quality regulations. The goal is to capture water to be used later.

**In-lieu recharge:** This recharge method indirectly enables aquifers to refill with water by utilizing surface water “in-lieu” of pumping groundwater. The substitution thereby retains an equal amount of water in the groundwater basin. This approach is also termed passive recharge or resting wells. The limitation of this approach in Santa Cruz County is that surface water is most available during the winter, when pumping is less because water usage is less. Active Storage and Recharge, defined below, recharges aquifers when excess surface water is available. The recharge volumes can far exceed simply avoiding pumping.

**Aquifer storage and recovery:** Aquifer storage and recovery is a water resources management technique for actively storing water underground during wet periods for recovery when needed, usually during dry periods. This approach typically relies on injection wells to push water into the aquifer. The timeframe can range from months to decades.

## Investigation

This section describes the key water sources and delivery system elements. Our goal was to understand and report on the capabilities and limitations of the current system, with a focus on agency silos and opportunities for improving resilience.

### ***The City of Santa Cruz Existing Surface-Water System***

The City of Santa Cruz water system is the largest in the County, serving close to 100,000 people. The system includes capturing water from the San Lorenzo River or from Loch Lomond Reservoir, moving the water to the treatment plant, treating the water, and distributing it to customers. We describe the system in some detail because it is relevant to the conjunctive use described later in this report. We include a brief description of the water treatment plant because it also contributes to conjunctive use. Figure 4 shows the key elements of the system.

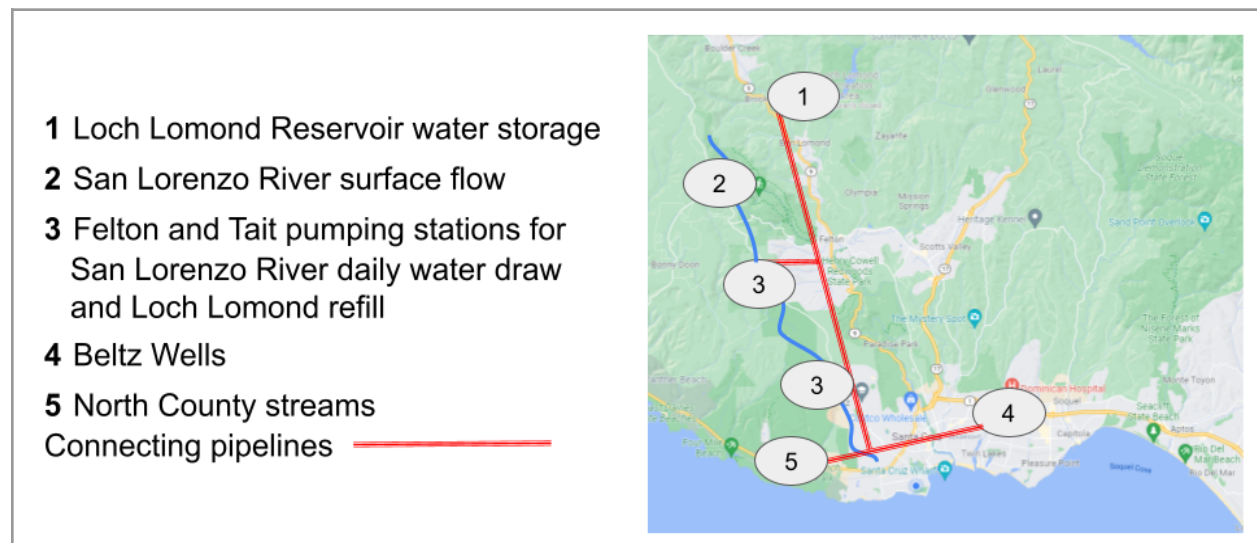


Figure 4. **City of Santa Cruz Water Supply**  
(Source: Santa Cruz County Grand Jury)

The following are the key elements of the City of Santa Cruz water supply:

- *Sourcing water.* The City gets the vast majority of drinking water from the San Lorenzo River. This source is augmented by streams and springs in North County and groundwater wells near Tait Street and 41st Avenue. Newell Creek is an indirect surface water source because it feeds Loch Lomond Reservoir.<sup>[21]</sup>
- *Moving surface water.* The City relies on pumping stations and pipelines.
  - North County stream water travels to the City's Graham Hill Water Treatment Plant by pipeline.
  - San Lorenzo River water is pumped uphill from the Felton Diversion facility to Loch Lomond Reservoir. From there it flows to the Graham Hill plant.
  - River water is also pumped directly to the Graham Hill plant from the Tait Street Diversion.<sup>[22]</sup>
- *Storing water.* Loch Lomond Reservoir is the City's only large water storage reservoir. It has capacity roughly equivalent to the water used by the City in one year.<sup>[23]</sup> During the rainy season, there is excess pump capacity to push water to Loch Lomond Reservoir. Water from Loch Lomond supplies the City during low river flow dry months.
- *Treating water.* The Graham Hill Water Treatment Plant prepares water prior to use by customers. Treatment includes eliminating cloudiness in the surface water sources, which is frequent during high-flow winter months.
- *Sharing water with other districts.* The City water system connects to the Soquel Creek Water District. This connecting pipeline was used to transfer water to the Soquel Creek Water District during the pilot demonstration of Aquifer Storage in 2017.<sup>[24]</sup>
- *Sewage treatment.* The Santa Cruz Wastewater Treatment facility near Neary Lagoon treats water so it can be safely dumped into the ocean. The plant receives untreated sewage from the City of Santa Cruz along with the City of Scotts Valley and communities such as Capitola in the Mid-County region.<sup>[25]</sup> The plant's treated water will be redirected to saltwater intrusion control wells in the Pure Water Soquel project (described in the next section). This requires additional purification.<sup>[26]</sup>

## ***Santa Margarita Groundwater Sources***

The Santa Margarita Groundwater Basin (**SMGB**) is a groundwater basin largely contained between Highways 9 and 17, and bounded by Boulder Creek and Lompico in the north and Mount Hermon communities in the south. The SMGB is overseen by the Santa Margarita Groundwater Agency, described in Appendix A. Because of successful conservation efforts, demand and supply have been in balance in the SMGB for the last ten years.<sup>[27]</sup>

The Scotts Valley Water District and the Mount Hermon Association get their water from the SMGB. This basin also supplies 13 small water systems and more than 1,100 individual well users. The San Lorenzo Valley Water District receives about half its water from the SMGB.

Finally, 40–50 percent of the flow of the San Lorenzo River leaks into the river from aquifers of the SMGB as the river passes through the Santa Cruz Mountains. The City of Santa Cruz, while reporting that it receives 95 percent of water from the surface, benefits greatly from the same aquifers that the Scotts Valley and San Lorenzo Valley Water districts depend on.<sup>[28]</sup>

## ***Santa Cruz Mid-County Groundwater Sources***

The Santa Cruz Mid-County Basin (**MCB**) is a groundwater basin that underlies parts of the cities of Santa Cruz and Capitola, and unincorporated parts of Santa Cruz County, including Soquel, Aptos, and La Selva Beach. The Soquel Creek Water District and the Central Water District obtain all their water from the Santa Cruz Mid-County Basin.<sup>[29]</sup>

The MCB is overseen by the Santa Cruz Mid-County Groundwater Agency (**MGA**), described in Appendix A. The MCB is designated as in “critical overdraft” because of seawater intrusion at several wells located close to the coast, and a lowering of groundwater levels at wells further inland. A well that is contaminated by saltwater may not be recoverable and may need to be abandoned. Saltwater intrusion still occurs in spite of significant conservation efforts led by the MGA and implemented by the residents.<sup>[30]</sup>

The district had been working on achieving a sustainable water supply for several years before the Groundwater Sustainability Plan (**GSP**) was produced. The Pure Water Soquel project, which is intended to prevent further seawater intrusion into the basin, is currently under construction. See the next section, “Agency Collaboration: Pure Water Soquel.”

## ***Agency Collaboration: Pure Water Soquel***

The Soquel Creek Water District does not have sufficient water to meet the demands of residents in this service area. All of the supply comes from groundwater pumping and the water quality is at risk from saltwater intrusion. Simply put, the district needs more water to stay afloat. The joint project between the Soquel Creek Water District and the Santa Cruz Water District<sup>[26]</sup>—Pure Water Soquel—is a groundwater replenishment and seawater intrusion prevention project. It will provide close to 500 million gallons of recycled water annually to push back the saltwater intrusion along the coast using injection wells.<sup>[31]</sup> It is currently under construction with completion expected in 2022 and production starting in 2023.

The Santa Cruz Wastewater Treatment Facility (Neary Lagoon) supplies water for this project. The plant currently treats wastewater in order to discharge it into the ocean. A new pipeline will transfer a portion of this water to the Soquel Creek Water District’s water treatment facility in Capitola for further purification and reuse. The treatment plant ties to existing pipelines that connect to injection wells near the coast which aim to block saltwater intrusion.<sup>[32]</sup>

Completing this project will reduce the degree of overdraft in the Mid-County Basin and protect against further seawater intrusion. Importantly, this project demonstrates successful large-scale collaboration between local agencies. It also accelerates the use of recycled water in the County, similar to the use of recycled water from Watsonville to address saltwater intrusion in South County. This use of recycled water is described in the following section titled, “Agency Spotlight: Pajaro Valley College Park Project.” Figure 5 illustrates the evolution of groundwater pumping practices and their relationship to seawater intrusion, which the Pure Water Soquel project is designed to address.

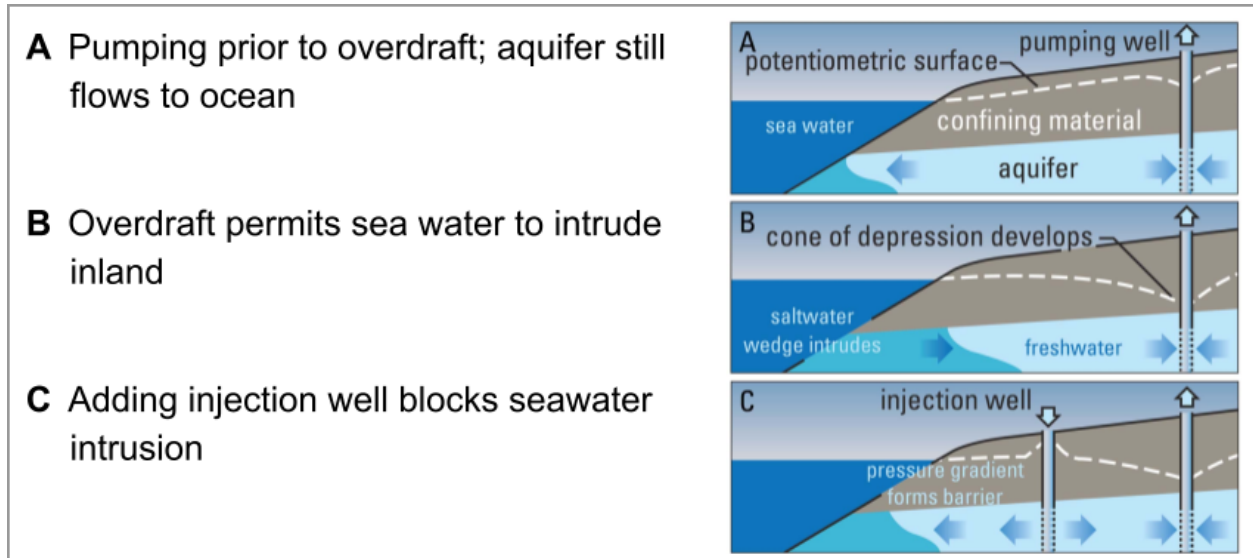


Figure 5. **Stemming the Flow of Seawater Intrusion**<sup>[33]</sup>

The Pure Water Soquel project, while a significant step toward basin sustainability, does not build a reserve within the aquifer. More water from the Santa Cruz Wastewater Treatment Plant is available than is being used by the Pure Water Soquel project. That excess water currently flows to the ocean.

### ***The City of Santa Cruz Water Augmentation Strategy***

“But if we get to three, four, five dry years in a row the system is just simply not designed to accommodate that.”

—Rosemary Menard  
Director, City of Santa Cruz Water Department<sup>[34]</sup>

The City has been exploring conjunctive use for many years. Treated water from the San Lorenzo River could be transferred to the San Lorenzo Valley Water District, the Scotts Valley Water District, and the Soquel Creek Water District, initially to allow them to “rest” their wells. This treated water would allow for passive recharge of those districts’ aquifers,<sup>[35]</sup> and also be available to those districts to actively inject additional water into the overdrafted Mid-County Basin and the Santa Margarita Basin. The injected water would recharge the aquifer, and allow the City to get some of this water back during times of drought.<sup>[36]</sup>



Eventually, the reserve described above would contain roughly one year’s worth of water that could be transferred back to the City. The recharged aquifers would effectively become a second “strategic reserve” of water for the City similar in size to Loch Lomond Reservoir. The water would come from improved rainy season water capture and transport. As mentioned previously, in average and rainy winters, total flow far exceeds the actual usage by the City. Figure 6 illustrates the relative volumes.

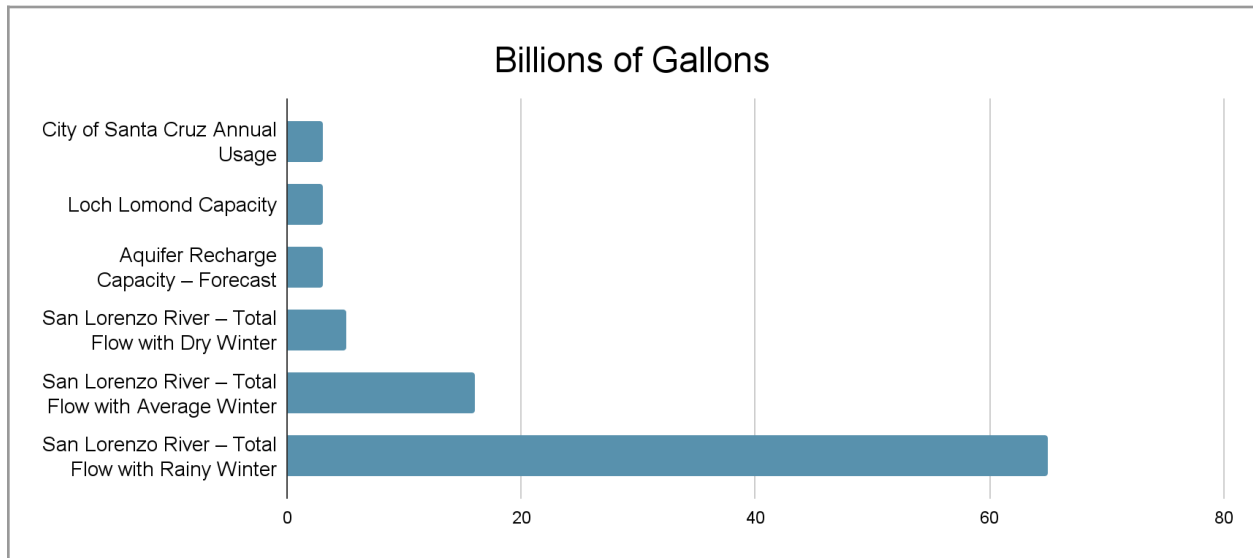


Figure 6. **San Lorenzo River Flow and Local Needs**  
(Source: Santa Cruz County Grand Jury)

Current water rights limit the City’s flexibility in how San Lorenzo River water can be used. For instance, during the rainy season, the City has pumping capacity to push water to nearby districts where it can be stored. However, current rights do not allow this action because it is not an authorized beneficial use.<sup>[37]</sup>

Another water rights issue is that water pumped from the San Lorenzo River, but not directly used by the City, must be sent to Loch Lomond Reservoir. If Loch Lomond is full, then the excess pumping capacity cannot be used. The issue is not the *amount* of water that the City has rights to; it is that the City has very limited flexibility in *how to use* the water. Water flowing to the ocean during the winter rainy season far exceeds amounts that could be redirected to groundwater reserves.<sup>[37]</sup>

Changing the City’s water rights to allow water transfers to the neighboring water districts is a major undertaking which required an Environmental Impact Report under California Environmental Quality Act rules. The report has been completed and was published in November 2021.<sup>[18]</sup> The California Department of Water Resources is expected to approve the EIR in 2022. These are the components of the City of Santa Cruz Water Augmentation Strategy as described in the EIR:

- *Give the City more flexibility to move and store water from existing sources.* This component requires adjusting the City’s water rights so that unused rainy season water that the City has rights to can actually be used to increase water storage.<sup>[38]</sup>

Specific elements of the revised rights include moving water from the Graham Hill Water Treatment Plant to the neighboring water districts and storing this water in groundwater reservoirs.

- *Develop groundwater storage near Capitola and Scotts Valley.* This component includes injection wells, recovery wells, and pre-injection treatment.<sup>[39]</sup> Testing and qualifying the groundwater storage aquifers for quality and capacity has been conducted for both locations.
- *Establish two-way transport to the storage areas.* Pipeline costs have not been published, however laying groundwater pipes is a well-understood engineering and construction project.
- *Obtain water to store from existing pumping stations.* Current upgrade plans for the Felton Diversion, Tait Street Diversion, and the Graham Hill Water Treatment Plant include capacity to push water to the storage sites. They also include upgraded initial treatment so that winter storm water can be redirected to ground storage. This water movement will not interfere with fishery conservation because those issues generally arise during low water periods. This has been documented in the city water rights application materials.<sup>[38]</sup>
- *Set new water-sharing agreements with adjacent agencies.* The Mid-County Groundwater Agency and the Santa Margarita Groundwater Agency are responsible for groundwater management in the locations that the city plans to use. Collaboration amongst the agencies is underway and being worked in parallel with the water rights revision.<sup>[40]</sup>

**Bottom line for the City:** Completing this project will provide City residents with a much more drought-resilient water supply—in essence, a *strategic reserve*. Coupled with the conservation measures already embraced by City residents, the City of Santa Cruz will be much better prepared for recurring droughts.

**Contribution to drought resilience at the County level:** While not called out by local agencies, the Grand Jury believes the following appear to be opportunities to broaden the value of the augmentation project.

- The project could extend access to the previously described strategic reserve for Santa Cruz Mountains residents. Early discussions have been held to connect the City of Santa Cruz and the Scotts Valley water distribution systems. With this connection, water could be supplied to the San Lorenzo Valley Water District through the existing emergency connecting pipeline. The reserve approach appears to be extendable over time; this would further leverage the value of aquifer recharge infrastructure investments.
- The documented contention for groundwater aquifer space between the City of Santa Cruz and the Soquel Creek Water District demonstrates the importance of the Mid-County aquifers. While short term, there is rework to address this contention on both Pure Water Soquel and the City of Santa Cruz aquifer recharge projects. In the long term this effort benefits both districts.<sup>[41]</sup>

- The Mid-County Groundwater Agency and the City of Santa Cruz share pipeline capacity that could be used to recharge the Mid-County aquifers beyond the Capitola area. The extra capacity could be used to recharge the aquifers so Mid-County residents gain a reserve beyond the legal requirements for sustainability. Such additional work would maximize recharge and resilience for the Mid-County aquifers.

### ***Agency Spotlight: Pajaro Valley College Lake Project***

Aquifers along the coast in the Pajaro Valley region are heavily overdrafted. Resting wells used by local agriculture helps to slow the rate of saltwater intrusion but does not reverse the intrusion.<sup>[42]</sup> The Pajaro Valley College Lake Project shows local expertise and serves as an example of approaches that can be applied in North County and Mid-County.

#### **Project**

The project extends the use of College Lake, a seasonal lake in the Pajaro Valley near Watsonville. By raising the maximum lake level with a small adjustable dam, commonly known as a weir, additional water can be stored. Besides storage, a pipeline has been built to transport water from the lake to the Pajaro Valley Coastal Distribution System, which already receives recycled wastewater from the City of Watsonville. The project adds to the surface water resource available for farming. Wells in the area can be rested, which aids in countering saltwater intrusion.

#### ***Annual water transfer capability***

College Lake can store up to 600 million gallons, approximately 20 percent of Loch Lomond Reservoir. It can deliver between 600 to 750 million gallons in typical years, with a maximum of one billion gallons. Monthly usage of water varies from five million gallons to 150 million gallons.

#### ***History of College Lake***

Historically, College Lake formed naturally during the wet season. Since 1920, draining has been authorized to free up the land for farming. Making the water available to the Coastal Distribution System has been discussed for many years and was documented in 2014.<sup>[43]</sup> However, the project is still not complete. This delay reflects the slow pace of water project development when only a single agency with limited resources is responsible for its execution.

#### ***Contribution to drought resilience at the County level***

As with the Pure Water Soquel project, this project's end goal is to gain supplemental water in order to rest the wells that are at risk for saltwater intrusion. In the same way as the Pure Water Soquel project, the College Lake project does not optimize water use to reflect water availability.

Wet weather surplus simply overflows into Monterey Bay. There are opportunities to:

- Use wet weather surplus for active injection in threatened agricultural areas
- Apply surplus in areas that are not directly threatened to improve groundwater levels
- Transfer water to adjacent districts if additional surplus exists or a water emergency arises.

### ***The Role of Wastewater Recycling***

As previously mentioned, wastewater recycling is practiced in both South County and Mid-County. In both cases, the water is used to counter saltwater intrusion. Direct potable reuse is another emerging option. Less than half of the wastewater from the City of Santa Cruz Wastewater Treatment Facility (Neary Lagoon) will be used by the Pure Water Soquel project. The remainder of the wastewater will still be available to improve drought resilience, for instance, in countering saltwater intrusion.

There are other examples of wastewater recycling in California. Orange County Water District's Groundwater Replenishment System (GWRS) became operational in 2008. It has since produced more than 365 billion gallons of drinking water from wastewater.<sup>[44]</sup>

Additionally, Santa Clara Valley Water District expects to produce eight billion gallons of potable water from wastewater per year beginning in 2025, with a target of increasing production to 15 billion gallons per year.<sup>[45]</sup>

### ***Limitations on Resilience Posed by District and Agency Charters***

As mentioned previously, Santa Cruz County lacks external water resources. Multiple independent agencies, as well as individual well owners, share groundwater and surface resources. While there is meaningful cooperation and collaboration among agencies, periodically district-centric objectives and strategies come into conflict. During interviews on district priorities, phrases such as "protect our districts" surfaced. However, water in Santa Cruz County need not be viewed as a zero-sum game.

This report points to many opportunities for collaborations that share water and improve water security for all residents. Unfortunately, there is no oversight agency or organizational structure in place to resolve conflicts and ensure that outcomes serve the greater good of the entire County. The end result is delay. Decades are spent on seemingly straightforward and beneficial projects, such as:

- Projects addressing saltwater intrusion have been a multi-district issue since the 1980s.
- The Santa Cruz City Water Department, along with the San Lorenzo Valley Water District and the Scotts Valley Water District, has been evaluating San Lorenzo River water-sharing since the early 2000s.

Collaboration is not the same as leadership. Our interviewees made it clear that an agency taking a leadership position would imply they had the funding to implement projects. Individual water districts are not tasked with a county-wide focus and they lack

both the funds and authority to address this void in leadership. The groundwater agencies are chartered only for aquifer sustainability. As discussed previously, sustainability is only one component of drought resilience. With no consistently funded leadership, the districts cannot align for the greater good.

### ***Achieving a Resilient Future***

While Santa Cruz County's water resources are vulnerable to unpredictable climatic conditions, there is a clear path forward to drought resilience. The key to creating a resilient water future for Santa Cruz County residents is storing more of the surface water that falls as rain during the winter. The overdrawn condition of the Mid-County and Santa Cruz Mountains aquifers has created ample headroom for stashing surface water during the rainy season. Only a small percentage of the San Lorenzo River's rainy season flow is captured. The vast majority flows into Monterey Bay.

If Santa Cruz County is to attain water security in the presence of climate change and droughts, developing a strategy to capture, move, and store our rainy season surplus is essential. We found there are well-documented proposals for capturing and storing excess rainy season surplus water to provide water security for the future. The problem is execution. Management of the County's water is controlled by numerous independent agencies. While these agencies share a common goal of providing their own customers with abundant clean water, they are not resourced or chartered to plan, fund, and build a cohesive water capture and supply infrastructure to deliver regional drought resiliency. Examples of district-centric execution are well-documented in the previous sections. Notably:

- Pure Water Soquel: Saltwater intrusion and well resting
- College Lake: Wet season water capture and distribution

Specific benefits of adopting a more integrated and regional agency structure include:

- Improving credibility when requesting grant funds for large infrastructure projects such as pipelines. These projects all improve flexibility and resiliency but are expensive to build.
- Improving flexibility and reaction time when moving water across district boundaries. This change can provide better service to residents as well as protection against saltwater intrusion.
- Simplifying the planning and project execution: this is necessary to make full use of recycled water, such as could be sourced from Watsonville and Santa Cruz.

In short, it is time to recognize that the medley of collaboration and cooperation at the interdistrict level has not delivered resiliency. Figure 7 shows the current set of connecting pipelines between districts.





Figure 7. **Interdistrict Water Supply Connecting Pipelines**  
 (Source: Santa Cruz County Grand Jury)

It is time to move toward a more integrated set of agencies that can achieve the following:

- Create a wet-weather runoff capture system, strategic aquifer-based water reserve, and a robust connecting pipeline fabric between districts to optimize water use.
- Demonstrate broad consensus to strengthen the case for major infrastructure funding from state and federal sources.
- Embrace innovative approaches to improving resilience. For example, establishing a continuous chain of saltwater intrusion protection wells along the existing railway right of way. This change could leverage recycled wastewater from Santa Cruz and Watsonville.
- Deliver County residents water security that will support economic prosperity despite expected droughts.

Figure 8 shows the key elements required to achieve drought resilience. It is based on proposals that have existed for years but have not yet been addressed as a unit. The approval of the EIR opens the door for this work to be done.

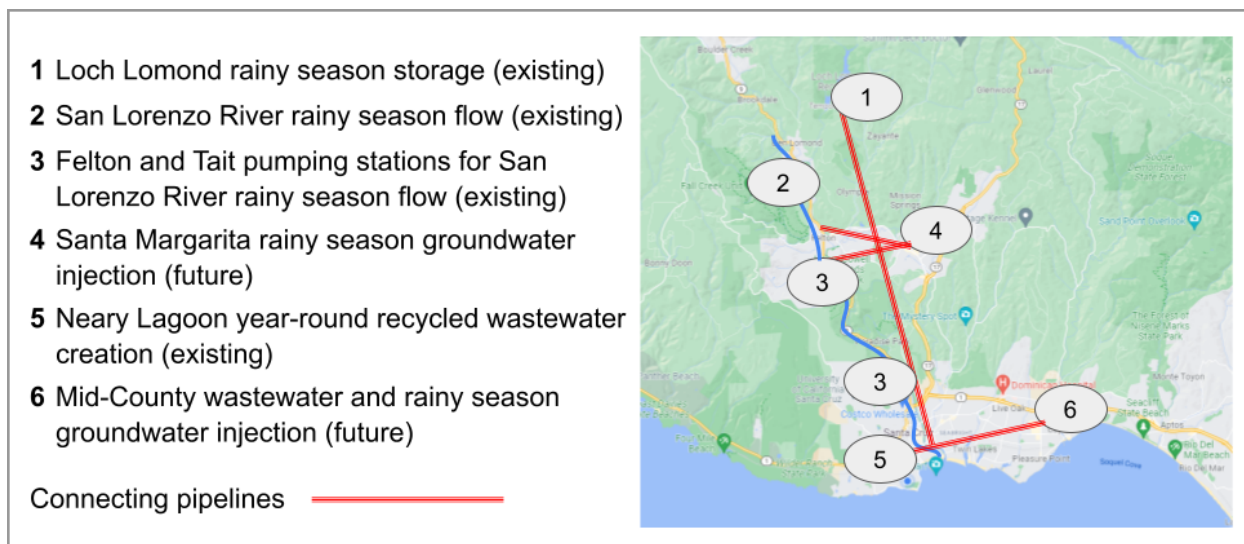


Figure 8. **Drought Resilience Components**  
 (Source: Santa Cruz County Grand Jury)

The Mid-County and North County regions both have groundwater management agencies. The City of Santa Cruz is a member of each agency. Each agency is a Joint Powers Authority (**JPA**) and both are currently chartered to only address aquifer sustainability. As such, any activity to support drought resilience is currently out of scope.

The agreements forming these JPAs can be amended by the member agencies that formed them. A new amendment could be added to support drought resilience. Such a move could upgrade drought-resilience proposals (such as the City of Santa Cruz Water Augmentation Strategy) to the regional level. This revision is not a complex process requiring state-level approval.<sup>[46]</sup> The Amendment form appears as Appendix D.

## Conclusion

Severe, multi-year droughts are part of our future. Conservation is not sufficient because the reduced water supply during Stage 5 droughts will cause severe economic hardship across residences, businesses, and farms. The existing patchwork of agencies has not shown vision and initiative to knit their individual plans together. Some of the most ambitious plans are barely known to the public.

The most critical next step is delivering major new water storage by reclaiming unused aquifer space in Mid-County and North County. This step creates the strategic groundwater reserve described in the City of Santa Cruz Water Rights Project and Augmentation Strategy. Beyond storage, a fabric of pipelines should be created to enable water sharing between districts. Figure 9 identifies the elements of an integrated approach.

<b>A Unified Approach to Achieving Drought Resilience</b> <ul style="list-style-type: none"> <li>• Single point of leadership</li> <li>• Integrated planning and collaboration</li> <li>• Coordinated development</li> <li>• Published goals and governance</li> <li>• Straightforward public communications</li> </ul>			
<b>Multiple Water Sources</b> <ul style="list-style-type: none"> <li>• Rainwater to aquifer</li> <li>• Rainwater to surface flow</li> <li>• Surface flow to reservoir and aquifer recharge</li> <li>• Recycled wastewater</li> </ul>	<b>Multiple Water Uses</b> <ul style="list-style-type: none"> <li>• Customers</li> <li>• Reservoir refill</li> <li>• Active and passive aquifer recharge</li> <li>• Recycled wastewater</li> <li>• Counter saltwater intrusion</li> </ul>	<b>Diversified Storage</b> <ul style="list-style-type: none"> <li>• Surface reservoirs</li> <li>• Sustainable aquifers</li> <li>• Aquifer recovery beyond sustainability</li> </ul>	<b>Transport and Redirection</b> <ul style="list-style-type: none"> <li>• Interdistrict water sharing</li> <li>• Passive and active aquifer storage and recovery</li> <li>• Recycled wastewater transport</li> </ul>

Figure 9. **A Unified Approach to Achieving Drought Resilience**  
 (Source: Santa Cruz County Grand Jury)

Consistent access to water through drought resilience supports County residents and the economy. The combination of surface and groundwater storage, wastewater recycling, and pipelines will deliver the drought resilience that the County requires to thrive and prosper. Now is the time for agencies to work together to deliver drought resilience to residents.

**Findings**

Findings describe the “so what” of the facts evaluated by the Grand Jury. They provide support for the Recommendations.

**Current Situation**

- F1.** If extended drought conditions lead the City of Santa Cruz to execute Stage 5 of its Water Shortage Contingency Plan, it will have extreme economic impacts on all residents throughout the County.
- F2.** There is an urgent need to create a county-wide drought-resilient water storage and delivery infrastructure.
- F3.** Interdistrict water-sharing plans spanning North County and Mid-County that could benefit all residents have existed since 2015 and deserve to be accelerated.

**Elements of a Solution**

- F4.** Establishing a strategic groundwater reserve, as described in documents from the City of Santa Cruz, is a well-understood and achievable first step.
- F5.** The City of Santa Cruz’s completion of the water rights revision project is a critical element of enabling district collaboration in support of county-level drought resilience.

- F6.** Limited interdistrict water transfers have been achieved and serve as proof of concept.
- F7.** Existing City of Watsonville and City of Santa Cruz wastewater resources are only partially utilized to address passive well resting and saltwater intrusion issues.

### ***Agency Capabilities***

- F8.** Each agency described in this report communicates well with neighboring agencies, but collaboration is limited and narrow in scope.
- F9.** Agency communications to the public emphasize conservation and sustainability while downplaying agency planning to achieve drought resilience.
- F10.** The individual water supply districts lack funding, resources, and charters to develop county-centric drought-resilience infrastructure.
- F11.** The Groundwater Sustainability Management agencies lack the charters, staff, and resources to plan or execute a county-wide drought-resilience strategy.
- F12.** There is no county-level agency chartered to plan, propose, or build regional district-spanning drought-resilience infrastructure.

### **Recommendations**

Recommendations reflect the “now what?” conclusions drawn by the Grand Jury, and are based on the Findings. They frame expectations for how the agencies can improve their service to County residents.

- R1.** By December 31, 2022, the Boards of the Santa Margarita Groundwater Management Agency and the Mid-County Groundwater Management Agency should extend their charters to include and proactively deliver drought-resilience project planning and execution. (F1–F6, F8–F12)
- R2.** By December 31, 2022, local water districts should jointly publish an integrated drought-resilience action plan that includes essential infrastructure improvements, estimated costs and schedule to complete improvements that will deliver drought resilience to the Mid-County Groundwater Basin, the City of Santa Cruz, and the Santa Margarita Basin by December 31, 2029. Agencies to respond are the San Lorenzo Water District, the Scotts Valley Water District, the City of Santa Cruz Water Department, the Soquel Creek Water District, the Santa Margarita Groundwater Management Agency, and the Mid-County Groundwater Management Agency. (F1–F6, F8–F10, F12)

**R3.** By December 31, 2022, local water districts should jointly publish an integrated recycled wastewater action plan that specifies the infrastructure improvements, expected costs, and construction schedule that will fully utilize existing wastewater sources by December 31, 2026. Responding agencies are the Scotts Valley Water District, the City of Santa Cruz Water Department, the Soquel Creek Water District, the Central Water District, the Mid-County Groundwater Management Agency, the Pajaro Valley Water Management Agency, and the City of Watsonville Water Division. (F1, F6–F9, F12)

## Commendations

- C1.** The City of Santa Cruz Water Department, the Santa Margarita Groundwater Agency, and the Mid-County Groundwater Agency have shown strong collaboration and innovation toward partially defining the water reserve plan.
- C2.** The Soquel Creek Water District and the City of Santa Cruz Water Department have shown strong collaboration to deliver the Pure Water Soquel project.

## Required Responses

Responses are the opportunity for agency boards and leaders to advise County residents on how or whether they will address the Findings and Recommendations. Those responses can guide residents to better understand the priorities and values of those boards and their leaders. The Grand Jury will publish those responses later this year and may do a followup report in three years.

<i>Required Respondent</i>	<i>Findings</i>	<i>Recommendations</i>	<i>Respond Within/ Respond By</i>
City Council, City of Santa Cruz	F1, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12	R1, R2, R3	90 Days August 22, 2022
Board of Directors, Mid-County Groundwater Management Agency	F6, F8, F9, F10, F11, F12	R1, R2, R3	90 Days August 22, 2022
Board of Directors, Santa Margarita Groundwater Management Agency	F8, F9, F10, F11, F12	R1, R2	90 Days August 22, 2022
Board of Directors, Scotts Valley Water District	F2, F3, F4, F6, F8, F9, F10, F11, F12	R1, R2, R3	90 Days August 22, 2022
Board of Directors, San Lorenzo Valley Water District	F2, F3, F4, F6, F8, F9, F10, F11, F12	R1, R2	90 Days August 22, 2022



Board of Directors, Soquel Creek Water District	F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12	R1, R2, R3	90 Days August 22, 2022
Board of Directors, Pajaro Valley Water Management Agency	F6, F9	R3	90 Days August 22, 2022
City Council, City of Watsonville	F6, F9	R3	90 Days August 22, 2022

## Invited Responses

<i>Invited Respondent</i>	<i>Findings</i>	<i>Recommendations</i>	<i>Respond Within/ Respond By</i>
Director, City of Santa Cruz Water Department	F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12	R1, R2, R3	90 Days August 22, 2022
Point of Contact, Mid-County Groundwater Management Agency	F2, F4, F6, F7, F8, F9, F10, F11, F12	R1, R2, R3	90 Days August 22, 2022
Point of Contact, Santa Margarita Groundwater Management Agency	F2, F3, F4, F8, F9, F10, F12	R1, R2	90 Days August 22, 2022
General Manager, Scotts Valley Water District	F1, F2, F4, F7, F8, F9, F10, F11, F12	R1, R2, R3	90 Days August 22, 2022
District Manager, San Lorenzo Valley Water District	F1, F2, F3, F4, F8, F9, F10, F11, F12	R1, R2	90 Days August 22, 2022
General Manager, Soquel Creek Water District	F1, F2, F3, F4, F6, F7, F8, F9, F10, F11, F12	R1, R2, R3	90 Days August 22, 2022
Executive Officer, Santa Cruz County Local Area Formation Commission	F10, F11, F12,	R1	90 Days August 22, 2022
General Manager, Pajaro Valley Water Management Agency	F6, F9, F12	R3	90 Days August 22, 2022
Operations Supervisor, City of Watsonville Water Department	F6, F9, F12	R3	90 Days August 22, 2022

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## Disclaimer

This report was issued by the Grand Jury with the exception of one juror who disclosed a perceived conflict of interest. This juror was excluded from every aspect of the investigation, including interviews, deliberations, and the writing and approval of this report.

## **Appendix A—Who Is Involved with Water in Santa Cruz County?**

Residents of Santa Cruz County obtain water from a variety of sources—from city water departments to private wells. The geography and rural nature of the County has generated fragmented water delivery and management agencies. This report considers only the larger agencies that are within the oversight granted to the jury.

### ***Water Delivery Agencies***

Water is provided to the residents of Santa Cruz County by five large (greater than 1,000 connections), four small (200–1,000 connections), and 115 minor water suppliers. Additionally, there are some 8,000 private wells. Each of these suppliers effectively operates independently, although there is significant communication and cooperation among the agencies. As described in the Background section, water is sourced from rivers and creeks (surface flow), and groundwater basins underlying much of the County. Table 1 catalogs the major water suppliers and the sources of their water. This table is based on a more comprehensive version found in the *Santa Cruz County Water Resources Management Status Report for 2020* (page 24)<sup>[47]</sup> and repeated in Appendix B.

It is immediately apparent from the table that most of the County’s water comes from groundwater. The City of Santa Cruz Water Department is the exception, obtaining nearly all of its water from surface flow, specifically the San Lorenzo River and creeks in the northern part of the County. In contrast, the City of Watsonville and the Soquel Creek Water District get their water from groundwater. Overall, the County receives about 75 percent of its water from groundwater and 25 percent from surface water.

### ***Groundwater Management Agencies***

Under the Groundwater Sustainability Act, groundwater management agencies are charged with achieving groundwater sustainability. Capital projects are generally undertaken by the individual water agencies to support the objectives of the groundwater management agency.

*Santa Margarita Groundwater Agency (SMGWA).* The SMGWA operates through a Joint Powers Authority (JPA), with members from the San Lorenzo Water District, the Scotts Valley Water District, and Santa Cruz County. Under the SGMA, the Groundwater Sustainability Plan for the Santa Margarita Groundwater Basin was completed ahead of the statutory requirement in November 2021.<sup>[48]</sup>

*Mid-County Groundwater Agency.* The MGA operates through a Joint Powers Authority, with members from Santa Cruz County, the City of Santa Cruz, the Soquel Creek Water District, and the Central Water District.<sup>[49]</sup> The State designated the Mid-County Basin as being critically overdrafted in 2015. Under the SGMA, this designation required production of the *Santa Cruz Mid-County Groundwater Sustainability Plan* by January 2020.<sup>[49]</sup> This plan was produced by the MGA and is intended to achieve and maintain groundwater stability over a 50-year planning and implementation horizon.

**Table 1. Water Sources and Water Agencies**

Entity	Population	Annual Usage (Billion Gallons)	Water Source (percentage)	
			Ground	Surface / (Other)
Santa Cruz City Water Department	97,417	2.7	5	95
Watsonville City Water Service	65,966	2.3	100	0
Soquel Creek Water District	40,632	1.1	97	3
San Lorenzo Valley Water District	23,700	0.6	53	47
Scotts Valley Water District	10,709	0.4	87	13 (recycled)
Other Residential Water Districts	16,017	0.8	80	20
Private Wells	21,000	0.8	100	0
Total Residential / Commercial	275,441	8.8 Billion Gallons	6.2 Billion Gallons	2.6 Billion Gallons
Pajaro Agriculture		7.2	92	17 (recycled)
Mid- and North County Agriculture		0.8	90	10
Total Agricultural Billion Gallons		8.0	7.5	0.5
Total Annual Surface and Groundwater Usage Billion Gallons		16.8	13.7	3.1

**Source:** Pajaro Valley Water Management Agency (PVWMA). The PVWMA operates independently and is responsible for agricultural water delivery in its service region. The Pajaro Valley Basin is rated as “critically overdrafted.” Under the SGMA, this designation required production of a Groundwater Sustainability Plan by January 2020. This plan was produced by the PVWMA and is intended to achieve and maintain groundwater stability over a 50-year planning and implementation horizon.<sup>[50]</sup>

### **The Other Players**

The following are several local and state agencies that shape local projects and agencies and could contribute to developing county-wide drought resilience.

**Resource Conservation District (RCD).** In the area of drought resilience, the RCD has programs in South County that help farmers develop percolation systems. Percolation systems assist with groundwater recharge. These programs appear to be available

when requested by farmers. The agency does not seem to be participating with water districts directly on drought resilience.

*Local Agency Formation Commission (LAFCO)*. LAFCO provides guidance when new special-purpose districts are formed. They also review district performance on a five-year cycle. All of the water supply districts and groundwater management agencies were formed under LAFCO guidance.

*California Department of Water Resources (DWR)*. The DWR oversees execution of state laws that affect water delivery. This oversight includes approving the Water Supply Contingency plans and Groundwater Sustainability Management plans created by local agencies. The DWR is authorized to step in and manage groundwater basins if the local agencies do not meet state requirements.

## Appendix B—Water By the Numbers

**Table 2. Water Use in Santa Cruz County, 2020**  
(data for smaller systems is from 2019)

Water Supplier	Connections	Population	Water Use (acre-feet /year)	Ground Water	Surface Water	Recycled Water	Imported from Outside County
Santa Cruz City Water Department	24,561	97,417	8,375	5.0%	95.0%		
Watsonville City Water Service	14,855	65,966	7,201	100.0%	0.0%		
Soquel Creek Water District	14,479	40,632	3,312	96.7%	3.3%		
San Lorenzo Valley Water District	7,900	23,700	1,953	53.0%	47.0%		
Scotts Valley Water District	3,807	10,709	1,339	87.0%		13.0%	
Central Water District	823	2,706	411	100.0%			
Big Basin Water Company	605	1,694	205	37.0%	63.0%		
Mount Hermon Association	494	2,850	155	100.0%			
Forest Lakes Mutual Water Company (Felton)	326	1,076	40	100.0%			
Smaller Water Systems (5–199 connections.)	2,616	7,691	1,552	91.0%	6.0%		3.0%
Individual Users*	8,000	21,000	2,400	95.0%	5.0%		
Pajaro Agriculture (Santa Cruz County-only)**†			22,250	92.0%	1.0%	7.2%	
Mid- and North-County Agriculture*			2,400	90.0%	10.0%		
<b>Totals</b>	<b>78,466</b>	<b>275,441</b>	<b>51,593</b>	<b>78%</b>	<b>19%</b>	<b>3%</b>	<b>0.1%</b>
<b>Summary by Water Source (acre-feet/year)</b>				<b>40,027</b>	<b>9,788</b>	<b>1,776</b>	<b>47</b>
<b>Summary of Non-Agricultural Use (acre-feet/year)</b>			<b>26,943</b>	<b>17,397</b>	<b>9,326</b>	<b>174</b>	<b>47</b>

\* Values are estimates. \*\* Includes a small number of water systems.

† Recycled water source is the City of Watsonville.

Source: Santa Cruz County Water Resources Management Status Report for 2020 (page 24)<sup>[47]</sup>

## ***Drought Stages and Water Consumption Reduction for the City of Santa Cruz***

The following chart shows how business use of water is cut back as drought severity increases.

### ***Sample Business Allocation Example***

Customer Class	Normal Demand (Million Gallons) Jun-Nov	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
		Delivery (%)	Delivery (%)	Delivery (%)	Delivery (%)	Delivery (%)
		Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)	Volume (MG)
Business	297	95%	90%	85%	79%	60%
Total Business Use		282	267	252	234	178

Source: *Updated Interim Water Shortage Contingency Plan* (Table 12, page 23), City of Santa Cruz Water Department, February 5, 2021.<sup>[10]</sup>



## Appendix C—Supporting Reports

### ***Key Documents***

The Grand Jury reviewed the major published documents from numerous water agencies to determine how they plan to improve drought resilience. Most available plans are written to support the application for grants from state and other agencies. These agencies specify the content and the format of the documents. Typically, these plans intentionally lack the specificity that would require preparing an Environmental Impact Report. These documents are updated, usually on a five-year schedule. Progress from the previous plan is often required in each update.

*Local Hazard Mitigation Plan.* This class of document is not a plan to mitigate local hazards such as drought. Rather, it is a catalog of local hazards, with commentary on how they could be addressed. It is in place so agencies can apply for grants to address issues as they arise, or to receive state or federal funds after a disaster.

*Water Shortage Contingency Plan.* This documents how water restrictions are applied during drought conditions. It reflects local priorities for residential and commercial use and agriculture.

*Groundwater Sustainability Plan.* This plan is a requirement of the Sustainable Groundwater Management Act (SGMA, 2014), and it documents current groundwater supplies, usage patterns, and approaches to maintain the current aquifer levels. Recovery beyond the current depleted state is not addressed. Both the Santa Cruz Mid-County Groundwater Agency and the Santa Margarita Groundwater Agency have Groundwater Sustainability plans.


*Urban Water Management Plan.* This is a requirement under the Urban Water Management Act. The Scotts Valley Water District and the San Lorenzo Valley Water District prepared a joint Urban Water Management Plan. The cities of Santa Cruz and Watsonville and the Soquel Creek Water District have these plans.

*Santa Cruz Water Rights Project Environmental Impact Report 2021.* The EIR is required to address the necessary changes to the historical water rights on the San Lorenzo River. The current rights do not allow sending surplus water to neighboring water districts.

*Final Report, Conjunctive Use and Water Transfers Phase II—(Task 6), 2015.* This report documents the results of studies conducted to demonstrate the feasibility of storing excess San Lorenzo River water in the Santa Margarita and Mid-County groundwater basins.

# Appendix D—Amendment of a Joint Powers Agreement

Amending the charter for a JPA requires the following application form.

 **State of California**  
**Secretary of State**

FILE NO. \_\_\_\_\_

**AMENDMENT OF A JOINT POWERS AGREEMENT**  
(Government Code section 6503.5)

Instructions:

1. Complete and mail to: Secretary of State, P.O. Box 942870, Sacramento, CA 94277-2870.
2. Include filing fee of \$1.00.
3. Do not include attachments.
4. A copy of the full text of the joint powers agreement and amendments, if any, must be submitted to the State Controller's office. For address information, contact the State Controller's office at [www.sco.ca.gov](http://www.sco.ca.gov).

(Office Use Only)

Date of filing initial notice with the Secretary of State: \_\_\_\_\_

File number of initial notice: \_\_\_\_\_

Name of the agency or entity created under the agreement and responsible for the administration of the agreement: \_\_\_\_\_

Agency's or Entity's Mailing Address: \_\_\_\_\_

Title of the agreement: \_\_\_\_\_

Complete one or more boxes below. The agreement has been amended to:

Change the parties to the agreement as follows: \_\_\_\_\_

Change the name of the administering agency or entity as follows: \_\_\_\_\_

Change the purpose of the agreement or the powers to be exercised as follows: \_\_\_\_\_

Change the short title of the agreement as follows: \_\_\_\_\_

Make other changes to the agreement as follows: \_\_\_\_\_

RETURN ACKNOWLEDGMENT TO: (Type or Print)

NAME [ \_\_\_\_\_ ] Date \_\_\_\_\_

ADDRESS [ \_\_\_\_\_ ] Signature \_\_\_\_\_

CITY/STATE/ZIP [ \_\_\_\_\_ ] Typed Name and Title \_\_\_\_\_

SEC/STATE NPSF 404B Rev 04/2015

Figure 10. Amendment of a Joint Powers Agreement<sup>[51]</sup>