

# California Resilience Challenge Spotlight: High Tech Forest Resilience

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Posted In: [Energy and Climate Change](#)

*This is one in a series of profiles of the 12 winners of the [California Resilience Challenge](#), a first-of-its-kind statewide initiative of the Bay Area Council and a diverse array of partners. The Challenge recently awarded \$2 million in planning grants for a variety of innovative projects in communities across the state to address the growing impacts of climate change, including drought, floods, wildfires and sea-level rise.*

California's forests and woodlands store carbon and provide habitat to an extraordinary diversity of plants and wildlife. These landscapes have coevolved with fire. Historical fire suppression and the ongoing climate emergency have placed these forests at risk. So far this year, 4,112 fires have burned over 28,000 acres of California land. The length of fire season is estimated to have increased by 75 days across the Sierras and will likely increase the extent of forest fires across the state.

With a grant from the California Resilience Challenge, the Humboldt County Resource Conservation District (HCRCD) is using advanced LiDAR geospatial technology to create forest carbon inventories to promote forest health and increase wildfire resilience throughout the North Coast. These forest inventories are designed to increase the development of climate and fire resilient structures while accelerating carbon sequestration.

"Forestry restoration work is hard and expensive. Reestablishing fire resilience while maintaining carbon sequestration rates is a significant technical challenge. To achieve these goals, we need better tools. We are proposing scaling the best available forest inventory technology to achieve widely shared natural resource goals on a regional scale," said Tim Bailey, Forest Health Coordinator at HCRCD.

This project represents some of the most ambitious efforts to implement climate adaptation and climate mitigation strategies for forested watersheds in California and will have beneficial effects for decades into the future.

HCRCD will be partnering with several North Coast counties to protect rural communities from economic and natural disaster. There are also several First Nations

communities that will directly benefit from the project. Collectively, HCRDC's geospatial analytic technology will help reduce overall exposure to hazardous smoke, reduce economic disruption from wildfire, reduce risk for emergency fire responders, and improve ecological conditions in forests.

Special thanks to California Resilience Challenge funders PG&E, JPMorgan Chase & Co., Valley Water, Metropolitan Water District, Southern California Edison, Resources Legacy Fund, Alaska Airlines, SFPUC, SD Bechtel Jr. Foundation, and Pillsbury; and special thanks to Advisory Committee members AECOM, Pillsbury, Climate Resolve, Environmental Defense Fund, Ceres, and the Governor's Office of Planning and Research.

To learn more about the California Resilience Challenge, [please contact Policy Associate Anna Sciaruto](#).

# California Resilience Challenge Spotlight: Transforming Schools Into Resilience Centers

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Increased precipitation and associated impacts of runoff related to climate change are anticipated to be serious concerns for communities across San Mateo County in future decades. Widespread implementation of green infrastructure will provide a measurable benefit to address the increased storm intensities and runoff volumes. Historically, schools have been left out of municipal stormwater planning due to their separate governance structures and site review processes.

Recognizing this gap in the overall strategy of managing stormwater, the City/County Association of Governments of San Mateo County (C/CAG) will develop concept plans

to integrate green stormwater infrastructure into nine campuses in the San Carlos School District (SCSD). These plans will reduce and capture runoff for beneficial use on the school sites, minimize downstream flooding concerns, and build resiliency for urban heat island impacts through reduction in asphalt surfaces and incorporation of tree canopy and vegetation.

“Schools provide a significant and largely missed opportunity for integrating green stormwater infrastructure into the urban landscape in San Mateo County due to their large parcels and imperviousness that generate large volumes of stormwater runoff,” said Matt Fabry, Manager of the San Mateo Countywide Water Pollution Prevention Program. “By creating green schoolyard concepts, C/CAG and the SCSD will take an important step forward by constructing more resilient schools that capture, use, infiltrate, and clean stormwater runoff and protect downstream communities in San Francisco Bay.”

In addition to creating a more resilient environment, the project presents an exciting opportunity for environmental education and community engagement. The approach to planning and constructing project features will have students, families and community members involved each step of the way.

“Teachers from all levels and disciplines will be able to find curricular connections, including environmental monitoring and science, horticulture, art/theater, literature, history and social studies. The emphasis will be on how to inspire students to become resilient leaders in their studies and experiences at school and within their communities by connecting to stewardship and caring for their new campus features,” explained Fabry.

These concept plans would demonstrate the potential for other San Mateo County school districts (23 total) to follow suit.

Special thanks to California Resilience Challenge funders PG&E, JPMorgan Chase & Co., Valley Water, Metropolitan Water District, Southern California Edison, Resources Legacy Fund, Alaska Airlines, SFPUC, SD Bechtel Jr. Foundation, and Pillsbury; and special thanks to Advisory Committee members AECOM, Pillsbury, Climate Resolve, Environmental Defense Fund, Ceres, and the Governor’s Office of Planning and Research.

# California Resilience Challenge Spotlight: Santa Ana Regional Transportation Center

July 24, 2020

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The Santa Ana Regional Transportation Center (SARTC) is the focal point of transportation in Orange County – but the facility is at risk of service disruption and damage during severe climate events, including power outages due to flooding and extreme heat events. With support from the California Resilience Challenge, SARTC is conducting a microgrid feasibility study that could enable this critical facility to continue serving the community even during the most extreme climate events.

Microgrids can be valuable resources for community resilience, particularly if they can operate independently, as islands, from the grid during times of grid stress or failure. “A feasibility study focused on a permanently installed, islandable microgrid will help the city achieve critical emergency preparedness goals and maintain important operations and resources in the event of a climate emergency” said John Rossi, Program Manager of Commercial and Institutional Energy at TRC.

In addition to providing train, bus, taxi, and airport transportation services, the SARTC facility also hosts three electric vehicle (EV) chargers for public use. Through this study, the City of Santa Ana and SARTC will assess the feasibility of incorporating additional EV charging infrastructure as well as adding solar photovoltaics on SARTC parking structures and incorporating battery storage. Collectively, these measures could significantly reduce greenhouse gas emissions from the facility and improve overall air quality.

“The SARTC resilient transportation hub microgrid solution will not only enhance energy efficiency and resiliency but will also help the City demonstrate the technical and economic feasibility, and replicability of microgrid projects to other cities across the State of California” explained Rossi. “So far, this integrated approach has not

been adequately supported by competitive or regulated markets.” Within the SARTC resilient transportation hub specifically, the microgrid will demonstrate the feasibility of harnessing solar energy through generation and battery energy storage deployment approaches.

As a tool to build cohesiveness and a common sense of purpose, the SARTC microgrid will also promote education and community engagement. The project will include an education component that will equip the community and employees with knowledge about storm preparation, response planning, and readiness exercises. Creating an educational model for resilience-focused private-public collaboration will ensure widespread acceptance, as well as the efficacy and sustainability of the adaptation program.

## California Resilience Challenge Spotlight: Keeping the Groundwater at Bay

July 31, 2020

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The Bay Area’s response to rising sea levels is critical given its unique location and geography. Emergent groundwater flooding is expected to impact numerous low-lying coastal Bay Area communities, which is home to over 7 million people and contains vital infrastructure. Despite this threat, the region’s current climate adaptation plans neglect this hazard. Emergent groundwater often occurs before coastal floodwaters surpass the shoreline, thus producing flooding without toppling existing flood control structures. This type of flooding poses a host of threats, including damage to buried infrastructure, flooding in underground structures such as BART stations and tunnels, and the release of contaminants that have long been trapped under cement caps.

The Bay Area is not an outlier in its underestimation of the threat of emergent groundwater.

Nationwide, climate adaptation plans fail to prepare for the possibility of flooding from below. Thankfully, the Aquatic Science Center, in partnership with Silvestrum Climate Associates and UC Berkeley, developed a comprehensive project designed to address this critical data gap needed to respond to rising groundwater levels.

With a grant from the California Resilience Challenge, the center is studying the linkages between sea-level rise, groundwater elevation, and precipitation. Specifically, the project aims to develop groundwater maps that consider eight sea-level rise scenarios ranging from 12" to 108" for four Bay Area counties. Collectively, the study will help regional infrastructure managers identify at-risk communities and address potential groundwater vulnerabilities, which would otherwise go ignored.

The data will enhance the climate adaptation strategies of the project's city and county partners, including Marin County, San Mateo County, the City and County of San Francisco, and Alameda County, which contains the City of Alameda, Albany, Berkeley, and Emeryville. The project is crucial for individuals who reside in disadvantaged communities as they are predicted to be among the first to suffer adverse outcomes due to emergent groundwater. Local at-risk communities include East Oakland, Marin City, and Bayview/ Hunters Point, where residents are predominantly low-income people of color.

While this initiative is designed to further protect the San Francisco Bay shoreline from sea level rise, the methodology and analysis provided by this project can be replicated across California. Therefore, this initiative has the potential to facilitate the development of a more comprehensive climate adaptation plan state-wide.

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## California Resilience Spotlight Series: Repairing the Gold Rush's Tarnished Legacy

August 14, 2020

**Posted In:** [Energy and Climate Change](#)

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Europeans' migration to the present-day United States had catastrophic environmental impacts. The Yuba River, one of California's most historic waterways, is no exception. The excessive mining that occurred during the 19th century Gold Rush transformed the river and surrounding landscape. Although miners are long gone, numerous abandoned mines that cause watershed management challenges remain. A host of other land-use practices, including logging, ranching, and residential development have also devastated the Yuba watershed.

Landscape management projects in the Sierra-Nevada must consider the historical context of mine and meadow disturbance in the region to thoroughly assess watershed health. Thankfully, with a grant from the California Resilience challenge, the Yuba Water Agency can examine the impact of California's Gold Rush on the Yuba Watershed.

There are two overarching goals of the project. The first goal is to expand forest resilience bond financing for mine remediation and meadow restorations. The second goal is to develop additional forest health projects that include mines and meadows. Forest resilience bond financing is critical in increasing the pace and scale of mine remediation and meadow restorations.

"This is about improving watershed health as a whole and increasing the amount of work that can take place by developing this financial mechanism to allow the work to go forward," said Carrie Monohan, program director for The Sierra Fund.

Examining and correcting the impact of hydraulic mining sites is essential because they contain sediment and mercury which can taint downstream water supplies and add to the cost of reservoir maintenance. By addressing mines, meadows, and forests concurrently, stakeholders can sustain ground water supplies, reduce fire risks, prevent flooding, address issues associated with both physical and chemical hazards of abandoned mine lands, and increase the overall resilience of the Yuba River watershed and surrounding communities.

It is the objective of the California Resilience Challenge to support projects that can be expanded and applied elsewhere across the state, providing a foundation for sustaining millions of acres of land.

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## California Resilience Spotlight Series: Extreme Flooding in the San Joaquin River Basin

August 21, 2020

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Climate and watershed experts predict a dramatic increase in the frequency and intensity of floods in the lower San Joaquin River and Delta South Basin in the coming years. Analyses from the Department of Water Resources 2017 Central Valley Flood Control Protection Plan show that due to increased temperature and rainfall, the flows coming down the San Joaquin River during both the 100- and 200-year events will nearly triple in the next 50 years. Additionally, sea level rise is predicted to increase the average tidal water surface elevation by 1.25 feet in the same time period. These extreme flooding events jeopardize critical infrastructure including major hospitals, schools, national defense facilities, and freeways. The area at risk is also home to over 400,000 people residing in Lathrop, Manteca, and Stockton as well as numerous rural communities.

With a grant from the California Resilience Challenge, the [San Joaquin Area Flood Control Agency \(SJAFC\)](#) will work to improve coordination and planning amongst stakeholders within the Lower San Joaquin River basin to develop options for basin-wide solutions that address flooding under the predicted climate change scenarios.

The area currently relies heavily on levees and upstream reservoirs for protection from both large flood events that come down the San Joaquin River from the Sierra Nevada mountain range as well as from tidal influences from the ocean through the Delta. Recent flood modelling with climate change considerations show that the current system is not able to withstand the dual flooding risks, and if a large flood event were to occur, it would result in a massive loss of life and have a devastating impact on the entire State's economy.

Through collaboration with local and state stakeholders, SJAFC will develop an initial array of alternatives to the existing levees and reservoirs. The alternatives will address the primary issue of adapting to increased flooding, while also incorporating multi-benefit features such as improved habitat through ecosystem restoration and enhancement of public recreation opportunities. By utilizing the extensive body of existing work and engaging with experts from a wide range of disciplines, the project will formulate up to seven initial alternatives and corresponding implementation strategies.

If subsequent funding is made available, the study will move to the next phase in which the alternatives will be further evaluated and ranked. Through technical evaluations and additional stakeholder engagement, a preferred alternative will be selected for implementation. "This project is a critical component in developing a coordinated, basin-wide solution to address increased flood risk due to climate change in the Lower San Joaquin Basin," says Chris Elias, the Executive Director at SJAFC.

While the study area is unique to the San Joaquin River, the concepts and approaches that will be developed can serve as a model to other geographies throughout the State and beyond. There are many watersheds in California and other parts of the United States that will experience large-scale flooding due to climate change that could greatly benefit from SJAFC's study and planning project.

## CRC Spotlight Series: Fighting Fire with Incentive in San Diego

August 28, 2020

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The record-breaking wildfires currently battering California offer yet more evidence of the growing impacts from climate change. San Diego County, with an estimated half million residents living near high-risk fire areas, is no exception. Indeed, 82 percent of the county is considered to be at moderate to high fire risk. And modeling shows the frequency and severity of wildfires is only going to worsen over the next 25 years.

Creating defensible spaces and hardening properties to make them less flammable can play an important role in reducing homeowners' risk from wildfires. With support from the California Resilience Challenge, the San Diego County Office of Emergency Services is partnering with United Policyholders and local fire agencies and community groups to develop a pilot mitigation certificate program to incentivize homeowners to implement fire-reduction strategies.

The proposed project includes two components to address regional resiliency to wildfires. First, the project will pilot a mitigation certificate program to ensure affordable and accessible property owner's insurance while spurring homeowners to do their part to reduce wildfire risk. Second, the project will work with the California Department of Insurance and insurers to create an incentive system to reward those homeowners whose homes are certified as successfully mitigating wildfire risk.

In a recent state-wide study of California Homeowners, United Policyholders found that

91% of the respondents said their insurance company has not made any suggestions for home improvements that would reduce risk and the cost of their insurance. Over half of the surveyed homeowners had an insurance company drop/non-renew their home insurance policy in the past three years. 60% were dropped due to the location of their home and 18% due to the brush around or near their home. 87% of those who had to find a new insurance company reported a significant increase in their annual home insurance cost. These economic challenges are particularly impacting fixed income households that can't afford to make mitigation improvements or pay higher

premiums, but still need the safety net insurance provides and/or are required by a mortgage to maintain insurance on their homes.

“When insurers reward customers who clear brush and harden their homes instead of dropping them, it’s win win: Homeowners have a strong incentive to be proactive in making their homes resistant to wildfires, insurers’ overall risk declines and there’s greater participation in the community and government supported brush clearing and resiliency work that are already underway in California,” explains Amy Bach, Executive Director at United Policyholders. “Some insurers are already partnering with their customers on mitigation actions and rewarding those who take them. We need all insurers to do the same. A system for California homeowners to get certification that they’ve completed risk reduction home improvements is a critical step toward making that happen,” says Bach.

## CRC Spotlight Series: Greening the City of Watsonville

September 4, 2020

Posted In: [News](#)

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[The City of Watsonville](#), located along the Pajaro River which flows 30 miles before emptying into Monterey Bay, is prone to floods that are exacerbated by climate change. Other extreme weather patterns are have become increasingly common in the region, including extreme heat and drought. The City of Watsonville’s agricultural economy and diverse population make it particularly sensitive to the impacts of climate change.

With a grant from the California Resilience Challenge, Watsonville is developing a Green Infrastructure (GI) implementation plan provide a pathway for the City to achieve a myriad of adaptation goals by using vegetation, soils, and natural process to manage water and create a more resilient environment. GI can range in scale from site

design approaches such as raingardens and green roofs, to regional planning approaches such as land conservation or wide-scale tree planting.

The GI plan will serve as a robust update of the 2006 Urban Greening Program and a supplement to the 2012 Climate Action Plan. While both programs introduced important sustainability practices, their efforts primarily focused on energy conservation and greenhouse gas reduction. Watsonville's GI implementation plan recognizes the need for more direction action and therefore focuses its efforts on increased resiliency and climate adaptation.

Specifically, the plan will develop and deploy a "site selection" methodology that identifies GI priority areas based on prior planning efforts, community input, and supplemental climate modeling techniques. The plan will also identify feasible conceptual designs for priority areas and provide an implementation roadmap with tangible funding opportunities.

"Recognizing the importance of community support and ownership in moving projects forward, the City of Watsonville will seek the engagement of residents and businesses throughout the planning process to ensure the goals and outcomes of the plan are transparent and beneficial, especially to climate sensitive or otherwise disadvantaged groups," explained Jackie McCloud, the Senior Utilities Engineer for the City of Watsonville.

Overall, funds through the California Resilience Challenge will allow the City to identify the types of GI projects that will benefit the community through beautification, carbon sequestration, habitat connectivity, improved air quality, and water quality.

## CRC Spotlight Series: Strengthening Western Riverside County Energy Resilience

September 11, 2020

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*variety of innovative projects in communities across the state to address the growing impacts of climate change, including drought, floods, wildfires, and sea-level rise.*

The ability of cities to locally respond to climate-related disasters and events depends heavily on the availability of 24/7 energy and power. In recent months, over 3 million California power customers were without power due to public safety power shutoff (PSPS) events, massive preemptive power shutoffs due to high winds and dry conditions that make fires more likely to occur and spread. While PSPSs are standard practice, they have become more frequent and impactful, effecting large areas of the state.

With a grant from the California Resilience Challenge, [Western Riverside Council of Governments \(WRCOG\)](#), in collaboration with its 19 member jurisdictions, will develop a comprehensive sub-regional Energy Resiliency Plan aimed at improving Western Riverside County's resilience to PSPSs, power shortages, and emergencies.

The Plan will identify specific projects and strategies to develop independent energy sources in each jurisdiction, including back-up generators, energy storage, and development of local power microgrids. WRCOG's subregion includes large minority and low-income populations, groups that are the most vulnerable to climate impacts. The Plan will place priority on identifying strategies to build energy resilience in these vulnerable populations, who are at higher risk for compounded complications from climate related events.

As part of the technical work undertaken to prepare the WRCOG Climate Action Plan's Adaptation and Resiliency Strategy, increased incidences of extreme heat, wildfire, and flooding were identified as ongoing and future climate change-related hazards in the subregion. Similarly, California's Fourth Climate Change Assessment shows that some of the largest expected energy consumption increases (+30-35%) are predicted to occur in inland portions of the Western Riverside County due to future growth and intensity of high heat events. Therefore, as the need for power to build resiliency to disaster events grows, the pressure on the existing power grid also increases.

"The energy sector is a substantial contributor of greenhouse gas (GHG) emissions that influence climate change," says Casey Dailey, Director of Energy and Environmental programs for WRCOG. "Finding solutions for sustainable, renewable energy options will not only prepare the region for continued critical services during disaster events but will have the overall added benefit of reducing potential

greenhouse gas emissions in Western Riverside County, thus slowing climate-change” Dailey explains.

In developing the Energy Resilience Plan, WRCOG will collaborate with UC Riverside’s Center for Environmental Research & Technology and Western Community Energy, a Community Choice aggregation program.

## CRC Spotlight Series: Gateway Cities Council of Governments

September 18, 2020

Posted In: [News](#)

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Southeast Los Angeles is expected to experience severe extreme heat days and increased temperatures due to climate change. In a densely populated region with many disadvantaged, low-income, and transit-dependent residents, urban heat can be mitigated with relatively inexpensive nature-based solutions. Urban forestry is one strategy to increase cities’ resilience while protecting public health and critical infrastructure.

Trees help reduce urban heat island effect, prevent flooding and runoff, and filter air pollutants which can improve air quality and produce public health benefits. Increasing the urban forest is also associated with socio-economic improvements, such as reduced crime and improved social interactions. Recognizing these benefits, numerous cities have goals to increase tree cover, which often come without implementation plans or considerations of equity. Including community stakeholders in planning and using accurate data to inform decision-making is a way to increase the success of urban forestry programs and thus the resilience of communities.

With a grant from the California Resilience Challenge and in partnership with [TreePeople](#) and [Loyola Marymount University Center for Urban Resilience \(LMU CUR\)](#), [Gateway Cities Council of Governments \(COG\)](#) proposes to develop local Tree

Canopy Assessments and Community Prioritization Reports for four under resourced municipalities in Southeast Los Angeles. These municipalities include Paramount, Lynwood, Vernon, and Montebello.

The project will use urban tree canopy data as the foundation of a community-based tree canopy prioritization process. To do this, the project will leverage a concurrent parcel-level assessment of existing and possible tree canopy based on high-resolution imagery and LiDAR data. The COG will then hold a data-driven, collaborative Tree Summit in which community members will be invited to provide input on canopy prioritization areas. Based on feedback from the community, the COG and its partners will produce final reports, maps, and prioritization data to identify opportunities for increasing urban canopy in each city.

“Collaboration with the community is a key aspect of this project. We have this powerful tree canopy dataset that shows where it’s possible to plant trees, but we look to those who live and work in each city to define priority areas for planting,” explained Dr. Michele Romolini, Managing Director at LMU CUR. “What are types of benefits are most valuable to their community? We believe this joint decision-making contributes to more effective and equitable urban forestry projects, while also cultivating a sense of stewardship among those involved in the process,” said Dr. Romolini.

“The project will also result in co-benefits in disadvantaged communities with transit dependent residents. Benefits include increased resiliency, reduced demand for air conditioning, and improved air quality,” added Edith de Guzman, Director of Research at TreePeople. “The project could significantly lower risk of health impacts on vulnerable residents and potentially save lives due during extreme heat events,” said de Guzman.

The project enjoys strong community support and can be replicated in other cities in the Gateway Cities region facing similar challenges.

## California Resilience Challenge Spotlight Series: Resilient Communities at Clear Lake

August 7, 2020

Posted In: [Energy and Climate Change, Water](#)

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Clear Lake is the largest natural freshwater lake in California, essential to the lifeways, traditions and cultural activities practiced by countless indigenous tribes for millennia. As part of the lake's complicated history, after settlers displaced most of the original inhabitants during the 19th and 20th centuries, Clear Lake became a tourist destination, while also suffering from the after effects of a toxic mercury mine, introduced invasive fish species, and other environmentally unfriendly practices.

Despite its current status as an irreplaceable resource for seven native tribes and the greater Clear Lake community, the lake has experienced a series of toxic algal blooms and increased fish die-offs in recent years. These disruptions to the local ecosystem are primarily due to loss of the tule marshland which allows unfettered flow of nutrient pollution. Drought and low water levels lead to increased water temperatures, which in turn promotes cyanobacteria growth. As cyanobacteria blooms die, this drops the dissolved oxygen levels which can cause fish kills.

With a grant from the California Resilience Challenge, the Big Valley Band of Pomo Indians are greatly amplifying their existing lake monitoring/ system by expanding an open-access data-management portal for Clear Lake's water quality issues. Specifically, the project aims to provide additional aquatic data, promote multi-jurisdictional collaboration by compiling data in a centralized system, and empower local community members by facilitating aquatic ecology training. The grant also allows stakeholders to implement more effective responses before fish die-offs and harmful algae bloom occur as data will be available in real-time.

This project is especially important considering the regional environmental, economic, and cultural significance of Clear Lake. For instance, the lake provides drinking water for nearly 60% of the county, therefore, any water quality issues will adversely impact water security of thousands of people. Culturally, Clear Lake is known as a cultural landmark for indigenous tribes with events such as the Big Valley Rancheria Annual Tule Boat Festival held there since 2001, and numerous important traditional cultural activities. The lake stimulates the regional economy as lake-based activities, including regular fishing tournaments that take place at the Konocti Vista Casino Hotel and Marina, draw tourism.

Increased fish die-offs have threatened the livelihoods of local fishermen, which rely on the lake for subsistence and recreational uses. In addition to harmful health effects on humans, ecological imbalances impact aquatic wildlife and the surrounding above-water ecosystems by disrupting food webs that include many culturally significant species.

Sarah Ryan, the Deputy Tribal Administrator and Environmental Director of the Big Valley Band of Pomo Indians, explains the goal of the initiative. “We want to create a collaborative group including the public, to share information and identify surveillance tools to allow us to develop mitigation efforts. The initiative will improve public health in communities surrounding Clear Lake and helps boost the regional recreational economic activity,” Ryan said.

## CRC Spotlight: Resilient Groundwater in California’s Agricultural Heartland

September 25, 2020

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For decades, Californians have been unsustainably pumping more water from aquifers than is replenished by nature. The pressure on groundwater demand is further exacerbated by long-term climate change impacts on water supply, namely increased variability with longer drought periods and short periods of intense precipitation.

With a grant from the California Resilience Challenge, the South Fork Kings Groundwater Sustainability Agency (SFKGSA) is conducting a feasibility study on an Aquifer Storage and Recovery (ASR) project to improve water-supply resilience in the face of climate change. ASR has been used in many parts of the United States to inject water into underground aquifers when there is available surface water supply and then withdraw the groundwater later when surface water is limited.

“Water management efforts in many areas of California’s San Joaquin Valley focus on surface water capture during wet years to recharge groundwater and offset groundwater demand during drought periods. With the addition of ASR, these actions will help establish a sustainable and resilient water supply for the area,” explained Amer Hussain, Principal Engineer at Geosyntec Consultants, Inc.

The project includes two primary components. First, SFKGSA will conduct a comprehensive landowner survey to document key water use data including information on pumping wells, irrigation, and cropping methods. The survey will also include questions related to attitudes and perceptions of drought, climate change, water management authority, and transactional water markets. The second component will be to implement a pilot test of ASR in Lemoore, California. The pilot test will include extensive monitoring and modeling that will be submitted to the State for consideration and approval to proceed with a programmatic Environmental Impact Analysis under CEQA.

Throughout the project, SFKGSA will focus on presenting the results of the surveys to SFKGSA agricultural landowners, disadvantaged community residents, and the SKFGSA Board. Workshops will take place in Stratford and Lemoore, areas that are best suited for agricultural landowners. The workshops will tie survey results to introduce ASR as a solution to increase resiliency to water supply variability exacerbated by climate change impacts. Survey results related to drought and climate resilience perceptions will be aggregated separately and presented at the workshop.

The project is innovative and replicable for other locations and will help develop critical infrastructure for agricultural communities that are vulnerable to drought and its impacts on groundwater supply. Based on the work completed to date, the project has broad community support and will promote further understanding of how to address the challenges of drought resiliency.

For more information on the California Resilience Challenge, [please contact Policy Associate Anna Sciaruto](#) or [Vice President Adrian Covert](#).

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