EXECUTIVE OFFICER'S REPORT • March 2019

Covers January 16, 2018 – February 15, 2019

Contents

State and Regional

1. Personnel Report – *Eric Shay*

New Hires – None

Vacancies – We are currently recruiting for the following positions:

- Office Technician, Victorville. This position supports our technical staff by finalizing staff correspondence and board agenda packets.
- Scientific Aid, North Basin Regulatory Unit, South Lake Tahoe. This position assists staff with administering storm water and water quality certification permitting actions, conducting inspections, reviewing reports, and maintaining databases.

- Scientific Aid, Land Disposal Unit, Victorville. This position assists staff with administering land disposal, storm water, and water quality certification permitting actions, conducting inspections, reviewing reports, and maintaining databases.
- Scientific Aid, Cleanup/Site Investigation & Enforcement Unit, South Lake Tahoe. This position assists staff with administering the site cleanup, underground storage tank, land disposal, and enforcement programs; reviewing reports, and maintaining databases; reviews self-monitoring reports for cases, permits and enforcement actions; reviews project files and water quality data to prepare for field inspections and permit updates; assists with field inspections; and reviews California Environmental Quality Act documents.
- Graduate Student Assistant, South Regulatory Division, Victorville. This position uses computer programming languages, key datasets, and an interactive mapping tool to assist staff in visualizing water quality data.

Departures

- Will Chen, Scientific Aid, Cleanup/Site Investigation & Enforcement Unit, South Lake Tahoe. Mr. Chen has accepted a position in Region 5 as a Water Resource Control Engineer.

North Lahontan Region

2. Tioga Lodge at Mono Lake – Post Office Creek Restoration Update
– Lisa Scoralle

This is an update to the March 2018 Executive Officer's (EO) Report article regarding unpermitted alteration of Post Office Creek and grading of riparian and wetland habitat immediately above Mono Lake on property across Highway 395 from Tioga Lodge at Mono Lake.

Map 1 - 2016 Marina Lake

Following the 2016 Marina Fire at Mono Lake, Dr. Gloria Ma (responsible party), owner of Tioga Lodge at Mono Lake (see location map provided as Map 1), engaged a contractor to clear and stockpile charred wood and other fire-related debris and to divert Post Office Creek into an old, historically-constructed channel and pond on the Lodge property above Mono Lake. No permits were obtained from the Water Board or any other permitting agency prior to conducting the work that also cleared recovering wetland and riparian habitat and filled portions of Post Office Creek's braided channel system.

On October 21, 2016, Water Board Executive Officer issued a Cleanup and Abatement Order requiring immediate restoration of Post Office Creek to its pre-disturbance condition, and stabilization of the disturbed soils on the site. Mono County and the California Department of Fish and Wildlife also issued Notices of Violation to Dr. Ma for the unpermitted project. The matter was subsequently referred to the California Attorney General's Office for further enforcement on behalf of the Water Board, California Department of Fish and Wildlife, California Department of Parks and Recreation, and Mono County. The Attorney General's Office took action against Dr. Ma, et al, who responded, in part, by submitting the *Habitat Restoration Plan and Restoration Monitoring and Reporting Program* (Restoration Plan), prepared by Jim Paulus, Ph.D. in June 2018. The Attorney General's Office in coordination with the agencies accepted the Restoration Plan.

Restoration efforts began in July 2018 under the oversight of Dr. Paulus. Restoration activities completed in 2018 included: (1) re-establishing the Post Office Creek's main stem and distributary channels (widths, depths and alignment); (2) incrementally reintroducing surface water flow into the creeks channels (Figure 1) until flow was fully restored; (2) mulching/chipping and distributing the woody debris piles for promotion of microhabitat variation; (2) hand-pulling non-native vegetation in riparian/lowland areas, and masticating a portion of non-native vegetation (above-ground biomass, predominantly white sweet clover) from around the debris piles in upland areas; (5) reseeding upland and lowland habitats; and (6) conducting annual vegetation monitoring and reporting. By fall 2018, 100 percent of surface flow was restored to Post Office Creek and its distributary channel system, and the historically-constructed channel and pond were abandoned by backfilling, recontouring, and covering the area with mulch. Dr. Paulus submitted the *First Annual Monitoring Report* (November 2018) summarizing the completed restoration activities and presenting the results of creek flow restoration and vegetation monitoring. Annual monitoring, maintenance, and adaptive management work are planned to continue through 2022, or longer if needed to achieve final success criteria for the project.

Figure 1 –Post Office Creek in August 2018, showing approximately 40 percent of surface flows returned to the restored channel system.

Non-native/invasive vegetation control will be an important restoration component in 2019 and following years. Dr. Paulus submitted a supplemental W*eed Control Plan* (October 2018) that emphasizes manual removal (hoeing and hand-pulling) for non-native species, but also includes herbicide (glyphosate) use for spot treatment in upland areas only. The plan identifies targeted tree and high-risk perennial species including Siberian elm, white sweet clover, and woolly mullein for control or eradication. The limited herbicide use, as proposed, will not require a Basin Plan prohibition exemption, as it does not involve surface water application.

Planned restoration activities for 2019 include planting willow cuttings along the restored creek channels in the spring, hand removal of non-native vegetative species along the creek channels and lowlands before the weeds set seed, herbicide spot treatment of non-native vegetative species in upland areas, and annual vegetation monitoring and reporting in the fall.

3. Tahoe Keys Lagoons Restoration Project – *Russell Norman*

To control aquatic invasive plant (AIP) infestations in the Tahoe Keys Lagoons, the Tahoe Keys Property Owners Association (TKPOA) submitted an individual National Pollutant Discharge Elimination System (NPDES) permit and Lahontan Basin Plan pesticide discharge prohibition exemption application for the Tahoe Keys Lagoons Restoration Project in July 2018. The Tahoe Keys Lagoons Restoration Project is designed to control aquatic invasive weeds using aquatic herbicides/pesticides (herbicides) to reduce AIP populations. The use of herbicides is proposed to be followed by non-chemical treatments and the intermittent use of chemical controls to mitigate AIP populations in the Tahoe Keys Lagoons. TKPOA proposes a twelve-year AIP control project using four aquatic herbicide active ingredients (endothall, triclopyr, penoxsulam and, if registered for California use, florpyrauxifen-benzyl) to control Eurasian Watermilfoil, Curlyleaf Pondweed and Coontail in the Tahoe Keys Lagoons in Lake Tahoe. A proposed one-time herbicide application in Year 1 (18.17-acre application area) is proposed to be followed in Years 1 and 2 by several non-chemical AIP control methods and approaches, such as selective hand-removal and bottom barriers. This treatment plan will be used to evaluate the efficacy of herbicide-use in combination with non-chemical AIP control methods. TKPOA proposes to apply one or more of the aquatic herbicides noted above to the Tahoe Keys Lagoons in Year 3 (72-acre application area) and Year 4 (64-acre application area) and, as needed, in Years 5-12 (up to 35-acres application area per year).

We currently regulate the TKPOA with Waste Discharge Requirements (WDR) which require control of non-point sources of pollution to the lagoons, and control of plant fragments from aquatic weed harvesting operations. Per conditions of the WDR and prior permits issued to TKPOA, only mechanical methods have been allowed for implementation of AIP control. TKPOA has implemented seasonal harvesting and other mechanical controls since the mid-1980s with limited effect controlling AIP infestations. Recent aquatic plant surveys (2014, 2015, 2016, and 2017) show that non-native aquatic plant populations in the Tahoe Keys have been growing rapidly with 85-90% of the available wetted surface in the Tahoe Keys Lagoons infested with AIP. The 2015 Lake Tahoe Aquatic Invasive Species Implementation Plan, prepared by the University of Nevada Reno and the Lake Tahoe Aquatic Invasive Species Coordination Committee, listed the Tahoe Keys as one of the highest priority areas for control of AIP in Lake Tahoe. The Tahoe Keys Lagoons are estimated to be the source of more than 25% of all commercial, governmental, and private boating on Lake Tahoe. Additionally, the scale of the Tahoe Keys in comparison to other marinas, Tahoe Keys has 170 acres of waterways, the approximately 30 other enclosed marinas cover up to 30 acres. As a result, the Tahoe Keys Lagoons AIP infestation is likely a significant source of AIP spread to other Lake Tahoe nearshore areas.

TKPOA previously submitted an application for an individual NPDES permit and Lahontan Basin Plan pesticide discharge prohibition exemption for the Tahoe Keys Lagoon Integrated Control Methods Test project in July 2017. The Tahoe Keys West Lagoon Integrated Control Methods Test project was designed to test the efficacy of three herbicides followed by several non-herbicide control methods to explore an integrated-methods approach to bring AIP under control within the test area of the West Lagoon of the Tahoe Keys in Lake Tahoe. An initial study under the California Environmental Quality Act (CEQA) was performed in 2017, and a determination to conduct a full CEQA/Environmental Impact Report (EIR) analysis was made.

An Environmental Impact Statement (EIS), was required by the Tahoe Resource Planning Agency (TRPA), and an EIR, was required under CEQA. The Lahontan Water Board will serve as the lead agency for the CEQA EIR.

A facilitation services company, Zephyr Collaboration, was selected by TKPOA, TRPA, Tahoe Water Suppliers Association and The League to Save Lake Tahoe with recommendations by Lahontan Water Board staff. The collaborative process for environmental review and permitting proposes an aggressive schedule for stakeholder and public collaboration to meet the project goals of having the EIS/EIR environmental analysis completed. The timeline of the aforementioned is still under review and subject to change.

As part of the collaborative process, staff are participating in a Stakeholder Committee (SC) as an informational resource for water quality guidelines, regulations, and monitoring practices. Other SC members include TRPA, TKPOA, Tahoe Water Suppliers Association and League to Save Lake Tahoe staff. Water Board staff will not participate in the development of SC recommendations, but instead will advise on regulatory and environmental analysis requirements.

Water Board staff have provided tribal notification under AB 52 of the Tahoe Keys Lagoons Restoration Project proposal to United Auburn Indian Community and Wilton Rancheria. Additionally, Water Board staff have provided non-AB 52 notification to the Pyramid Lake Paiute Tribe, and Washoe Tribe of Nevada and California. The tribal consultation processes will be conducted by Water Board staff in accordance with the CalEPA Tribal Consultation Policy, and accompanying protocols.

The first public meeting for the Tahoe Keys Lagoons Restoration Project is anticipated to be conducted in 2019, to communicate the purpose/need for the project and solicit public comments on the project. Follow-up public meetings are anticipated later in 2019 to present the results of the EIS/EIR environmental review process, and solicit public comments. Anticipated events in Fall of 2019-Spring of 2020 include additional public meetings, noticing of the environmental analysis, and draft permit documents.

4. Lake Tahoe Visitors Association Hosts Seminar on Major Environmental Issues at Annual Meteorologists' Conference – *Ed Hancock*

On January 30, 2019, the Lake Tahoe Visitors Association (LTVA) hosted national experts on two major environmental issues, global climate change and the intensifying of wildland fire in the Western United States, as part of the Twenty-Third Annual Operation Sierra Storm (OSS). OSS is a leading national weather conference, a cutting-edge meteorological sciences forum, and seminar for network television meteorologists, which is held in South Lake Tahoe.

Dr. Kristie Ebi began the seminar by providing a synthesis of the Fifth Assessment Report from the Intergovernmental Panel on Climate Change (IPCC). The report is the most recent climate change impacts assessment and was specifically charged with assessing the probable differences in global impacts between 1.5°C and 2.0°C of anthropogenically-driven atmospheric warming. Dr. Ebi is an expert in public health from the University of Washington and was one of the lead authors of Chapter 3 of the assessment, which considers the impacts of global warming to natural and human systems. The report details high confidence in anthropogenically-induced climate impacts, and the approximately 100 attendees were told to expect shifts to extreme weather patterns in the coming decades. The report discusses how human actions have caused approximately 1°C of global warming since pre-industrial times, and the IPCC expects global temperatures to break 1.5°C of atmospheric warming sometime between 2030 and 2052, if greenhouse gas emissions continue at current rates.

Dr. Ebi warned the audience to expect a future climate "entirely different to today in just a few decades", with temperatures at the Earths' poles projected to increase by as much as 9°C from today's daily maximums, if emissions continue at current rates. Past mid-century, the IPCC reports, there will be parts of the world where the lowest temperatures are higher than the highest temperatures of today. Humans should expect shifting precipitation patterns and an increase in severe weather. Some areas of the globe will experience an increase in large,

damaging floods while other areas will experience severe drought and greater risks from devastating wildfires. The presentation highlighted the social impacts from these climatic changes, such as impacts to mental health from extreme weather events, loss of reliable access to clean drinking water and food, and large-scale human displacement as a result of climate extremes.

A changing climate will impact water quality and water volume in the Lahontan Region. Warmer, drier winters will reduce Sierra Nevada snowpack, changing the natural hydrograph of all the regions' creeks and rivers, manifested in part by earlier spring runoff which will impact both environmental and human beneficial uses of water, and lead to many waterbodies running dry earlier in the summer. Warming winters will cause precipitation in the Lahontan Region to fall as rain rather than snow, increasing wintertime flood risk, reducing the amount of water stored as snow in the Sierra, while also disrupting spring melt flow volumes. Disruptions to spring melt will impact the growing season, which will affect the natural cycles of plants, animals and insects in the region. Agricultural operations which rely on a steady supply of water flowing from the High Sierra may have to find innovative solutions to water supply, such as off channel water storage, to mitigate the earlier and less voluminous spring runoff. Municipal supply will also be impacted as streams and rivers dry up, and municipalities, such as the city of Los Angeles, who rely on water from the Eastern Sierra, must begin to plan for reductions in the available water for their customers.

While the projected future for Earths' climate is alarming, the IPCC reports that there is still time to limit the severity of anthropogenic climate warming if the global community takes immediate action to reduce greenhouse gas emissions. The Fifth Assessment concludes there is still time to reduce emissions and keep the rise in global average temperatures to below the 1.5°C threshold if unilateral action on greenhouse gas emissions is taken now. By reducing emissions and limiting average atmospheric warming closer to an approximately 1.5°C increase than a 2°C increase, there will be fewer adverse impacts to biodiversity, fewer impacts to fisheries, and improved chances of access to clean water. Taxing emissions at the source has been shown to be a successful economic tool to encourage a shift away from fossil fuel burning. This strategy has been deployed in British Columbia where the government uses collected funds to address social inequities. Dr. Ebi implored the audience to think about climate warming as an opportunity for innovation rather than as a cost to society, and that even small changes can add up to make a big difference to greenhouse gas emissions.

The Water Board has already begun to develop a climate change mitigation and adaptation strategy. Recommendations could include plans to promote groundwater recharge, expedite and simplify alpine meadow restoration activities, and expand floodplain building prohibitions.

The second part of the seminar included a panel discussion from three wildland fire experts, Chris Anthony from CalFIRE, Alex Hoon from the National Weather Service (NWS) Reno office, and Matt Mehle from the NWS San Francisco office. The discussion was moderated by Brandon Miller, a supervising weather producer for CNN. Eight of the twenty most deadly wildfires in California have occurred in the last two years, although the conditions which have enabled these catastrophic fires have developed over the past several decades. Chris Anthony warned the audience that wildfire occurrence in

Figure 1: Wildfire Panelists (from left) Brandon Miller (CNN), Matt Mehle (NWS), Chris Anthony (CalFIRE), and Alex Hoon (NWS)

the state will unfortunately likely get worse before it gets better. Contributing factors include dead and dying trees that add more fuels to the forest floor, disrupted precipitation patterns and record high temperatures as a direct result of climate warming, a dwindling Sierra Nevada snowpack, and snowmelt which occurs earlier in the season. The combination of climate warming, changes to traditional precipitation patterns, legacy forestry management and legacy fire suppression practices have enabled wildfire to exhibit new behaviors previously unseen in the Western States. During the 2018 Carr Fire, which destroyed Whiskeytown National Recreation Area and many neighborhoods in and around the city of Redding, CalFIRE documented a fire tornado which developed as a result of the extreme atmospheric instability created by the fire. The fire tornado, which was comparable to a severe "traditional" tornado with wind speeds of more than 156 miles per hour, measured half a mile wide and left a trail of destruction two miles long. CalFIRE found properties in and around the fire perimeter with no apparent fire damage, but instead suffered tornadic damage from the winds created by the fire. Alex Hoon warned that the occurrences of fire tornados could likely be a new reality for fire in the West, as favorable fuel conditions and a warming climate work symbiotically to create fires capable of creating their own weather systems.

Despite ominous signs of the destructive future of wildfire in the West, climate warming has already exacerbated the behavior and effects of wildfire in California. Traditionally, cooler nighttime temperatures have aided fire suppression efforts and have helped to naturally slow down the advancing fire line. CalFIRE has historically been able to make important strides battling wildfire during nighttime hours due to cooler and more favorable climatic conditions. Warming nighttime temperatures, coupled with warmer daytime temperatures, are creating exceptionally dry vegetation conditions, which in turn enable easier ignitions and increase fire intensities. Warmer nighttime temperatures are also affecting how firefighters tackle wildfire suppression. As nighttime temperatures increase and humidity decreases, fires burn hotter and more rampantly during the night than they have done in the past. Warmer nighttime temperatures also increase the risk of nighttime flare-ups and put firefighting personnel in greater danger. As fires burn hotter and with less nighttime respite, they advance faster and are more destructive. Rapidly advancing fire poses one of the greatest threats to urban development and has far reaching implications to water quality. Once wildfire enters urbanized areas it becomes urban fire, which brings a new set of dangers and issues that emergency services must deal with during the initial fire attack. Often wildland fire crews do not have the specialized equipment that is required to tackle urban blazes. Post-fire, a multitude of harmful chemicals and materials found in urban areas can be rapidly transported to nearby surface waters and may percolate to groundwaters, causing long-term environmental damage and posing potentially severe human health risks. The Water Board can prepare to take steps to minimize post-fire impacts to water quality, whether through expedited post-fire emergency permitting processes or by completing pre-fire planning exercises to identify potential water quality impacts in the event of a wildfire in certain watersheds. Water Board staff recognize that climate warming increases the ease of wildfire ignitions, intensifies how the fire burns, and impedes how emergency services can tackle blazes, and staff should prepare now for these effects. To that end, staff participates in the Water Board's Emergency Response Technical Work Group to develop disaster response protocols and anticipates participating in a forthcoming SWAMP work group focused on post-fire water quality monitoring.

Faced with the grim realities of the future of fire in California, agencies such as CalFIRE and NWS are working together to better delineate the risks from, and responses to, wildfire. The latest addition to the Geostationary Operational Environmental Satellite Program, a joint NASA and NOAA mission to observe and predict weather events, can now detect hotspots at a resolution of 10 acres and is increasingly becoming an important tool to aid the early detection of fire. Advances in remote sensing techniques, better understanding of fire behavior, better understanding of weather patterns, and advances in the power of computers are allowing authorities to model weather patterns and wildfire together, the output of which can be highly valuable to identify where to deploy resources and which communities are most at risk. The

NWS is developing an early warning system based on the coupled fire and weather models which, it is hoped, will eventually be able to identify likely wildfire ignitions before they have begun, thus allowing CalFIRE to deploy suppression resources before major destruction or loss of life occurs. Using remote sensing techniques such as satellite imagery and cameras installed at strategic locations (such as the AlertTahoe fire cameras installed by the Tahoe Prosperity Center), coupled with advanced modeling techniques, authorities are working to identify fire and tackle the blazes before extensive damage can be wrought. Despite these promising technologies, California agencies must work proactively to implement tried-and-true management practices such as prescribed fire and forest fuels reductions programs if catastrophic wildfire is to be kept at bay, and it will take all levels of government to adapt to the risks brought by wildfire and by anthropogenic climate warming.

5. Tribal and Subsistence Fishing Beneficial Uses of Water: Conference, Beneficial Use Forum, and Designation of Tribal Liaison – *Cindy Wise*

Water Board staff is embarking on the process of designating water bodies in the Lahontan Region with the three new beneficial uses of Tribal Tradition and Culture (CUL), Tribal Subsistence Fishing (T-SUB), and Subsistence Fishing (SUB). The recently adopted 2018 Triennial Review of the Lahontan Basin Plan identified this process as Priority Project 8. These three new beneficial uses of CUL, T-SUB, and SUB were included in Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California – Tribal and Substance Fishing Beneficial Uses and Mercury Provisions, adopted by the State Water Board in May 2017. The State Board defined the three new beneficial uses but did not designate the uses for any water bodies, instead referring that task to the Regional Water Boards. To designate CUL or T-SUB in a Basin Plan, a California Native American Tribe must confirm the designation is appropriate. No confirmation is required to designate the SUB beneficial use.

Three recent staff activities related to this designation process are described below.

Conference on Tribal Water Quality in California: To learn more about Tribal water resources issues, staff recently attended the January 28 and 29, 2019 conference titled, "Tribal Water in California - A comprehensive update on current critical issues and tips for effective Tribal water strategies". The conference focused on ways in which Tribes, governments (local, state and federal), and water agencies can work cooperatively to ensure sustainable water resources for mutually beneficial uses into the future. The conference started with an overview and update on the Federal Administration's policy toward tribal water rights and settlements. The conference also showcased other recently concluded and ongoing Tribal water rights settlement issues using the Pechanga Tribe (California), Coeur d'Alene Tribe (Idaho), and Navajo Nation (Utah), as examples. The conference included an overview and status of protection of water quality through the designation of cultural beneficial uses in California Regional Water Quality Control Board Basin Plans. Water Board staff learned that the Central Valley Regional Board (RB 5) also identified designation of CUL, T-SUB, and SUB as a Triennial Review Basin Plan priority. Water Board staff will look for collaboration opportunities with RB 5 as both regions move forward with this task. Staff will use this and other information from the conference as it embarks on the process to designate water bodies in the Lahontan Region with CUL, T-SUB, and SUB beneficial uses.

Designation of Regional Water Board Tribal Coordinator: To coordinate with the State Water Board's Tribal Liaison, each Regional Water Board has designated its own Regional Tribal Coordinator. Under the direction of the Region's Assistant Executive Officer and the State Board's Tribal Liaison, the role of the Tribal Coordinator includes providing expertise and acting as an advocate for their Region's efforts concerning government-to-government relationships with California Native American tribes. Water Board staff Cindy Wise was recently assigned to serve as the Tribal Coordinator for the Region. She will serve as the Region's point of contact for Tribal engagement and consultations. The State Board will soon be providing

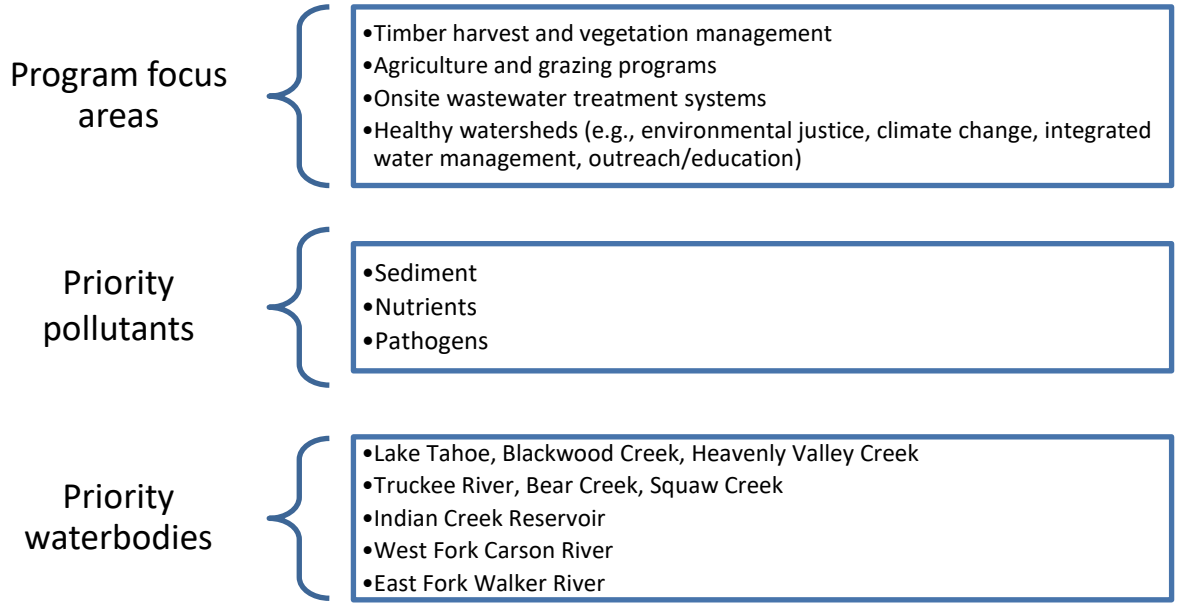
training for all Regional Water Board Tribal Coordinators to learn about California Native American Tribes, Tribal governments in California, and protocols for engaging Tribes.

6. **Updating California's 5-year Nonpoint Source Program Implementation Plan –** *Anne Holden*

Every five years, California is required to update its plan for implementing a statewide program to control the impacts of nonpoint sources (NPS) of pollution on surface and groundwaters. The U.S. EPA provides funding to states with approved NPS plans to implement their NPS programs (in 2018, California received $8.5 million in federal funding for its NPS program). The State Board leads the 5-year NPS implementation plan update effort, working jointly with Regional Boards, the California Coastal Commission and external stakeholders to outline the program's goals, priorities, success metrics and key partnerships for the 2020 to 2025 period.

The significance of the 5-year NPS implementation plan is that it sets out the priorities of the State Board and the Regional Boards—providing a focused, coherent approach to addressing the most important NPS needs. It also makes some priority waterbodies eligible for project-specific grant funding through annual Clean Water Act section 319(h) grants and provides funding for Total Maximum Daily Load implementation. The priorities outlined in the 5-year NPS implementation plan drive the tasks contained in each Regional Board's NPS program annual workplans. Updating the Water Board's section of the NPS implementation plan gives us the chance to re-align NPS priorities to be consistent with our concerns related to existing and emerging NPS pollution issues. It also provides a venue to communicate our NPS vision and commitments to stakeholders.

The current (2014-2020) NPS implementation plan identifies the following focus areas and priorities for the Lahontan Region:



In the coming months, Water Board NPS unit staff will determine what priorities should be included in the upcoming 5-year plan, which is due to the U.S. EPA in June 2020.

Potential new priorities could include:

- Wildfire response/disaster recovery

- Control of legacy pollution sources (native surface roads, abandoned mines, sources of PFAS, etc.)
- Protecting high quality waters
- Focused climate change response actions and associated policy development
- Cannabis regulation efforts, with an emphasis on illegal cultivation sites on federal lands
- Harmful algae bloom training and response
- Assessing nutrient and bacteria loading from grazing activities in select waterbodies (e.g., Eagle Lake, Bishop Creek)

A stakeholder outreach plan is being developed by the State Board to identify key internal and external stakeholder groups and outline how to gain their input for plan development. A first draft of the NPS Implementation plan is anticipated for April 2019, with a public review draft scheduled for release in September 2019. Water Board staff will continue to inform the Water Board on NPS 5-year priorities development and progress through future Executive Officer Report articles.

7. Update on West Fork Carson River and Bishop Creek as Clean Water Act "Vision" Watersheds – *Cindy Wise*

Water Board staff has identified the West Fork Carson River and Bishop Creek as Vision Watersheds based on U.S. EPA's 2013 vision of its Clean Water Act 303(d) program (Vision). For Vision Watersheds, Water Board staff has more flexibility in addressing water quality impairments than developing a Total Maximum Daily Load (TMDL). Impairments in the West Fork Carson River involve chloride, nitrates, nitrogen, phosphorus, sulfates, total dissolved solids, turbidity, and fecal coliform. The designated beneficial uses being adversely affected by such impairments include Cold Freshwater Habitat (COLD), Water Contact Recreation (REC-1), and Municipal Supply (MUN). Reaches of Bishop Creek are exceeding fecal coliform bacteria objectives and affecting the designated beneficial use of Water Contact Recreation (REC-1). Water Board staff selected the West Fork Carson River and Bishop Creek as viable candidates for Vision Watersheds because of the opportunities to integrate CWA 303(d) program requirements with planning, monitoring, stakeholder efforts, restoration, and other implementation efforts already in place or in progress, and a robust data set characterizing the watersheds.

Over the past year, Water Board staff developed public participation plans for both Vision Watersheds and drafted conceptual watershed models to illustrate potential impairments. Water board staff explored potential funding opportunities for focused sampling and for implementation measures. Water Board staff also engaged with local agencies, tribes and land owners, and participated in key outreach events, such as the Bishop Paiute Tribe Water Quality Plan Triennial Review public meeting (April 2018), Carson River Forum (April 2018), and the "Get on the Bus" Carson River Watershed Tour (October 2018).

For Bishop Creek, Water Board staff's sanitary sewer survey was an opportunity to investigate potential sources of bacterial contamination from sewers (none were identified as part of the survey). Water Board staff also developed a project website, established a Lyris email subscription list, and began data analysis. Link to website and Lyris list subscription form: https://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/bishopcreek.html

For the West Fork Carson River, Water Board staff is partnering with the State Board's Non-Point Source Program staff for assistance. State Board staff drafted several land use GIS maps of the watershed that will aid in identifying potential pollutant sources. In coordination with SWAMP, Water Board staff established a headwaters bioassessment site. To address impairments, Water Board staff began identifying potential implementation measures.

Next tasks in both Vision Watersheds include further data analysis, formal outreach to key partners and stakeholders, as well as evaluating opportunities for implementation. For the West Fork Carson River watershed, Water Board staff will develop a project website and establish a Lyris email subscription list

South Lahontan Region

8. **Antelope Valley Integrated Regional Water Management Group Meets in Palmdale to Discuss Acceptance of Amendment to 2018 Memorandum of Understanding and Projects List** – *Tiffany Steinert*

The Antelope Valley Integrated Regional Water Management (IRWM) group held a meeting in Palmdale on January 23, 2019, to discuss the acceptance of the Amendment to the 2018 Memorandum of Understanding (MOU) between member stakeholder agencies. The new MOU incorporated new compliance requirements, which include updating region objectives to include determining the impacts from climate change, preparing a Storm Water Resources Plan, and preparing a Sediment Management Plan. The MOU is in the process of being accepted by each of the member stakeholder agencies. Currently, only two agencies are pending approval of the MOU.

The Antelope Valley IRWM group also discussed the current Projects on the list for Proposition 1 funding. Brian Dietrick of Woodard & Curran explained the items that would make each Project on the list more competitive, such as having California Environmental Quality Act documents complete and having all permits in place in addition to Projects that provide multiple benefits. Mr. Dietrick stated that reviewing agencies hope to see more Projects with longer life expectancies this round of funding, preferably 15 years or more.

The meeting concluded with public comments. Water Board staff invited the Antelope Valley IRWM group to present progress to date regarding the implementation of their Salt and Nutrient Management Plan during a future Water Board meeting. However, as the IRWM group is still compiling water quality data, they responded that a presentation would be premature at this time but could be considered for the future. The next Antelope Valley IRWM meeting will be held on March 6, 2019.

9. **Standing Item - City of Barstow Wastewater Treatment Plant Compliance with Enforcement Orders** – *Ghasem Pour-ghasemi*

This standing item describes the compliance status for the City of Barstow (City) with compliance of waste discharge requirements (WDR) and various compliance orders issued by the Water Board regarding historical disposal practices from its wastewater treatment plant.

Wastewater Treatment Plant Upgrades Completed

The Water Board issued a Cease and Desist Order (CDO) in 2007 to the City requiring the wastewater treatment plant to be upgraded and effluent disposal practices improved. The deadline for the City to complete wastewater treatment plant improvements was July 30, 2009. The City completed upgrades to its wastewater treatment plant as required. Additionally, the City made additional improvements to its wastewater treatment plant that reduced effluent total nitrogen from 30 milligrams per liter (mg/L), prior to CDO issuance, to less than 8 milligrams per liter (mg/L) in 2018. Rehabilitation of Percolation Ponds 1-3 is completed but minor erosion areas require repairs. Percolation Ponds 4 and 5 are next in line to be cleaned and reconstructed.

Currently, the City uses one primary clarifier, one aeration basin, two digesters, two secondary clarifiers, two screw presses, and all sludge drying beds. The remainder of the wastewater treatment plant is idle due to lack of inflow. The City rotates primary clarifiers, aeration basins,

and secondary clarifiers annually for maintenance and cleanup. The average effluent nitrate concentration for 2018 (Jan-Dec) is 5.20 mg/L and the average total nitrogen concentration is 7.43 mg/L. The treated effluent is discharged to Percolation Ponds 1, 2, 3, and 6, as well as to the South Irrigation Field where recycled water is used for fodder crop irrigation.

The last remaining requirement of the CDO is quarterly sampling of monitoring wells. Water Board staff are currently contemplating revising the WDR to conduct quarterly monitoring well sampling contained in the CDO to be incorporated into the revised Monitoring and Reporting Program (MRP) associated with the WDR. The revised MRP is anticipated to include groundwater monitoring requirements associated with the nitrate pollution groundwater cleanup requirements described below.

Nitrate Pollution Groundwater Cleanup

The CAO required the City to design and construct a system to capture and treat nitrate polluted groundwater downgradient of the North Irrigation Field in the Soapmine Road neighborhood. Since issuance, four amendments to this CAO provided the City additional time to comply with CAO requirements because a perchlorate plume was discovered near the City's nitrate groundwater plume. The perchlorate plume is migrating from a contaminated property about three miles upgradient of the City's nitrate source area (formerly used North Irrigation Field). The City is not responsible for the perchlorate pollution, but the two plumes of perchlorate and nitrate are now co-mingled in the Soapmine Road area. Both plumes are moving eastward along the Mojave River. Water Board and City staff agreed that the perchlorate and nitrate groundwater pollution should be addressed simultaneously.

BKT consultants, in cooperation with the City, applied for and received a $1.7 million grant from the California Energy Commission to conduct a small technology pilot test that will extract groundwater (0.216 to 0.50 million gallons per day) to treat and remove both nitrate and perchlorate. The pilot test treatment system is designed to treat perchlorate only after treatment of nitrate present in the extracted water is achieved. BKT has completed the construction of two treatment vessels and related appurtenances and propagated the treatment vessels with required microbes. The BKT pilot project system is equipped with continuous sensors to measure oxidation reduction potential, dissolved oxygen, nitrate as nitrate, and pH. The treatment system is treating approximately 0.216 million gallons per day of extracted groundwater from the Soapmine Road area next to Webster Road. The system treats both nitrate and perchlorate in the extracted groundwater to a non-detect level before discharging to a leach field located about 200 feet upgradient of the extraction well.

Since November 2016, Water Board staff met with the City on several occasions to discuss details of the construction and disposal site for the treated water. Water Board staff last met with the City and BKT on July 11, 2018. City staff will continue to work together cooperatively with Water Board staff towards cleanup solutions.

Residential Well Sampling in the Soapmine Road Area

The City continues to conduct quarterly sampling of residential drinking water wells in the Soapmine Road area, as required by the CAO. During fourth quarter 2018, the City sampled 36 residential wells. Analytical results show that only one residential well measured nitrate as nitrogen concentrations (11 mg/L) that exceeded the drinking water maximum contaminant level for nitrate as nitrogen (10 mg/L). A total of nine private wells showed nitrate as nitrogen concentrations exceeding 5 mg/L (level at which the CAO requires replacement drinking water delivery). The nitrate concentration trends are decreasing in some residential wells and increasing in others. The City has been providing 10 residents within the required study area with uninterrupted replacement water service (bottled water). Water Board staff are reviewing a City request to reduce the frequency of the sampling for the nine residential wells that have not exceeded 5 mg/L nitrate as nitrogen for the last several years.

Initially, the City and the Water Board staff agreed that the best course of action to help cleanup nitrate in the subsurface would be to apply treated effluent generated from the pilot test system onto the North Irrigation Field to flush nitrate out of the unsaturated soil column. However, due to the co-mingling of the nitrate and perchlorate plumes in groundwater, and out of an abundance of caution, it was decided that the initial treated effluent from the pilot test project would be discharged 200 feet upgradient of the extraction well. Once the pilot test project technology had proven that it could successfully remove both nitrate and perchlorate to below detectable levels, then the treated pilot test system effluent could be applied to the North Irrigation Field. Groundwater with nitrates flushed from the North Irrigation Field would flow towards and be captured by a series of extraction wells, where the water would be pumped to the treatment vessels and nitrate would be removed. Over time, this treatment mechanism would allow for the cleanup of nitrate polluted groundwater from the North Irrigation Field, as required by a CAO.

10. Land Disposal Program – CR&R, Inc. Environmental Services Facilities Tour – *Christina Guerra*

On February 7, 2019, Water Board staff, Christina Guerra and Tom Browne, attended a tour of the CR&R, Inc., Environmental Services facility (Facility) in Perris, California. Those who participated in the tour included staff from multiple Regional Water Boards and the State Board. CR&R, Inc., Environmental Services, provides a variety of services including residential and business municipal solid waste collection, green waste collection, street sweeping, transportation of various waste types, and recycling services for several counties in southern California. The Facility in Perris is a state-of-the-art recycling and organics processing facility that has combined three international technologies to create the nation's largest anaerobic digesters that produce compost and renewable natural gas. The development of the Facility was driven by the implementation of CalRecycle SB 1383, establishing targets to reduce disposed organic waste streams to landfills. The Facility has received multiple state and federal funding grants.

The Facility uses an advanced organics process technology to anaerobically digest waste streams, such as green and food materials, to produce a high-quality digestate (compost-like material) and renewable natural gas. The technology consists of the anaerobic digesters, a water-wash system to remove impurities from the biogas that is generated, and pressure-swing adsorption system to separate methane and carbon dioxide. CR&R's proprietary process is a closed loop system resulting in zero untreated emissions. The natural gas that is produced from the process is of a high quality, and, as a result of this, CR&R has the only natural gas interconnect in California with the Southern California Gas Company.

11. Inyo-Mono Regional Water Management Group – *Tom Browne*

Water Board staff attended the Inyo-Mono Regional Water Management Group (Inyo-Mono RWMG) meeting on January 30, 2019, in Bishop. The meeting was hosted by the U.S. Forest Service and the Bureau of Land Management at their building in Bishop. Holly Alpert, PhD, and Program Director for the Inyo-Mono RWMG, led the meeting.

The Inyo-Mono RWMG receives annual donations from stakeholder members. However, of the 40 water and sanitation districts within the Inyo-Mono IRWM region, only 13 donated in 2018. Dr. Alpert led the discussion regarding how to get more donations from water and wastewater utilities and non-profits. Stakeholders at the meeting agreed to reach out to all water districts and sanitation districts to request that they ask their respective boards to make regular annual donations to the Inyo-Mono RWMG. The Inyo-Mono RWMG is seeking funding this year to hire consultants to develop detailed projects aimed at stormwater capture and reuse, groundwater replenishment, and groundwater pollution prevention.

The Inyo-Mono RWMG has newly been awarded disadvantage community involvement (DACI) grant money from the California Division of Water Resources (DWR). Dr. Alpert showed the Inyo-Mono RWMG a breakdown of how this money is being spent, and the group approved of the expenditures.

Proposition 84 has a second round of grants becoming available in 2020. Projects seeking grant money must be submitted to the State Water Resources Control Board by late summer 2019. The first round of grants awarded $112 million to 27 projects throughout the state. Some members of the Inyo-Mono RWMG presented their proposed projects during this meeting. The Town of Mammoth has an $8.9 million project for new detention basins and slope protection; the Fort Independence Indian Community of Paiute Indians of Fort Independence Reservation has a $0.5 million project for a 27 acre-foot detention basin for flood control and groundwater recharge; the Amargosa Opera House in Death Valley proposes replacement of its antiquated open sewage ponds with a modern septic tank and leach field; and Big Pine Community Services District has a project for additional treated sewage disposal ponds as they need the capacity during heavy rain/snow years.

The group discussed the merits of these four projects but did not decide on which of them would be submitted to DWR to pursue grant money. All four of the above projects are currently under consideration.

The next regular meeting of the Inyo-Mono RWMG will be in April 2019.

12. 2019 Innovators High Desert Water Summit – "How Generation Z Will Save the Future of Water in California" – *Patrice Copeland*

Mojave Water Agency (MWA) held its third annual *Innovators High Desert Water Summit* (Water Summit) on February 8, 2019. Water Board staff Patrice Copeland, Supervising Engineering Geologist, attended the event. The Water Summit was sponsored by MWA and co-sponsored by Golden State Water Company, Liberty Utilities, and the Victor Valley Chamber of Commerce. MWA sent out notices to local schools in search of "MWAvengers" to help solve water problems. Two different contests were held. The first was a student essay contest, with a grand prize of a $3,000 scholarship to the top essay winner, and a $1,000 scholarship for two essay finalists (Photo 1). The second contest was looking for "Curiosity Quest Problem Solvers," wherein teams of students from various local schools competed for a $3,000 check for the winning team's school and gift cards for each team member; two runner-up teams each received $1,000 for their schools. The Water Summit, designed to increase water sustainability awareness among younger generations, including middle and high school STEM students, hosted various speakers, as well as the contest winners.

The Water Summit opened with a presentation by keynote speaker Nicholas Chow, Water Engineering Project Manager for the Luskin Center for Innovation at the University of California, Los Angeles (UCLA). Data were presented showing how the threat of climate change may well affect water in the future, and include more extreme weather events, destructive wildfires, and more polluted water. Mr. Chow has worked with the National Oceanographic and Atmospheric Administration and the National Aeronautics and Space Administration as well as universities across the country. Michelle Reed, Assistant Engineer at the Inland Empire Utilities Agency (IEUA), located in Chino, also spoke at the Water Summit. Ms. Reed presented information on the work she performs at IEUA and the potential jobs that students could seek in water utilities, especially as 40 percent of her workforce may retire in the next five years.

Winner of the student essay contest, Gavin Copeland, is a senior at Serrano High School in Phelan (and grandson of Patrice Copeland). Approximately 40 essays were submitted to MWA for this contest. Mr. Copeland and two other finalists, Ms. Karyn Pham (Apple Valley High School) and Ms. Jesette Western (Sultana High School), were selected to compete for

the $3,000 scholarship. Ms. Pham and Ms. Western were each awarded $1,000 scholarships. Mr. Copeland's essay focused on his love of geology, science, technology, and concern for the environment. Inspired by current issues regarding the drought and our arid climate, Mr. Copeland's presentation at the Water Summit included research on the amount of recycled water available for use in California, and ideas for how we can and should use more recycled water for agriculture and irrigation rather than municipal drinking water supplies.

Photo 1 – Essay contest finalists Jesette Western and Karyn Pham flank contest winner Gavin Copeland. Contestants are holding their giant scholarship checks, awarded to them from the Mojave Water Agency during the 2019 Innovators Water Summit. Photograph by Patrice Copeland, Lahontan Water Board.

During the Water Summit, three breakout sessions were held to introduce students to various aspects of the water industry, including "Water Education Class," with Kyle Snay, Operations Engineer, and Jesse Ramirez, Operations Superintendent, both with Golden State Water Company; "Breaking into the Water Industry," with MWA's General Manager, Tom McCarthy, and Robert Hampson, Hydrogeologist with MWA; and "Shaping California's Water Policies," with Chelsea Haines, Regulatory Advocate with the Association of California Water Agencies.

The final portion of the Water Summit was the announcement of the winning school team for the "Curiosity Quest Problem Solvers" competition, which was to design a water-efficient community that could sustain a minimum of 40,000 people and include a manufacturing plant and a strip mall. This portion was hosted by Joel Greene, creator and host of four television series: *Curiosity Quest, Curiosity Quest Goes Green, Inland Empire Explorer,* and *Our California.*. A total of seven area schools entered the contest, including, Melva Davis Academy, Oak Hills High School, University Preparatory, Victor Valley High School, Silverado High School, Academy for Academic Excellence, and La Contenta Middle School. The winning team, Oak Hills High School, was awarded $3,000 for the school. Runner-up teams

received $1,000 for their respective schools and included the Academy for Academic Excellence and Victor Valley High School.

13. Mojave Water Agency Technical Advisory Committee Meeting – *Patrice Copeland*

Water Board staff attended a meeting of the Mojave Water Agency Technical Advisory Committee (MWA TAC) on February 7, 2019. The MWA TAC is an independent, voluntary group of water purveyors, pumpers, and other interested parties located within MWA's boundaries. The MWA TAC meets in a public forum to discuss common concerns and acts to assist the MWA in pursuit of its legal objectives.

During this meeting, Jeanette Hayhurst was recognized for her leadership of the MWA TAC for the past four years by incoming chairperson Marina West, General Manager of the Bighorn-Desert View Water Agency. Adan Ortega, with the California Association of Mutual Water Systems, Community Water Systems Alliance, made a presentation regarding disadvantages communities and the Safe Drinking Water Fund. Mr. Ortega discussed legislation enacted and proposed that could assist disadvantaged communities, other relevant legislation, and the Human Right to Water law. Additionally, he gave information regarding the California Water Foundation and the Community Water Center and how they can help disadvantaged communities.

A presentation was made by Matt Howard and Lance Eckhart, of MWA, providing information to MWA TAC members regarding Proposition 1 funding rounds and projects proposed for both the Lahontan and Colorado River Water Board's funding areas, respectively. Mr. Howard asked member agencies to update their project submittals, referred them to the draft 2018 Implementation Grant Proposal Solicitation Package guidance, and discussed the need for projects to be "shovel ready," as much as possible to facilitate project approval. Statewide priorities for such projects, project eligibility criteria, and disadvantaged community waivers were discussed. Those entities whose projects are selected to be put forward in applications agreed to form an ad-hoc committee.

TAC Members held a "call for Projects" for those members desiring to submit new projects to be added to the Mojave Integrated Regional Water Management (IRWM) Plan. These included presentations by the City of Twentynine Palms for a feasibility study for the wastewater treatment plant; two projects from the City of Adelanto for automatic smart meter reading using Advanced Meter Infrastructure technology and a manhole replacement project for four failed sewer manholes; a Golden State Water Company project for ion exchange treatment at their Barstow wells, Bradshaw well field; and a Bighorn-Desert View Water Agency project to replace a production well for its Goat Mountain System. MWA TAC members voted to approve the addition of all these projects to the Mojave IRWM Plan.

Kevin Sullivan, Pacific Gas and Electric Company (PG&E), presented information regarding the status of the PG&E chromium plume location, groundwater elevation data collected as part of plume remediation (825 monitoring wells and piezometers with 71 transducers collected water level data continuously), and proposed that the Lenwood Recharge Basin be used to recharge water between flood events to sustain groundwater levels in the Centro Basin, rather than the Hodge Basin, as historical records show the 2,000 acre feet per year of recharge has retarded declining groundwater.

The next TAC meeting is scheduled for April 4, 2019.

14. Update on Barstow Perchlorate, March 2019 – *Alonzo Poach*

Status of SB 445 Grant

In January 2018, the Department of General Services and the State Board selected APTIM Services, Inc., as the consultant to design and construct a pilot-scale remediation system and

to conduct site characterization for the Barstow Perchlorate Project. The contract was awarded in the summer of 2018 after a scope of work and associated costs were developed. A site characterization work plan was finalized in December 2018 to refine the nature and extent of soil and groundwater perchlorate contamination at the site. APTIM and Water Board staff will use initial data collected during site characterization to design a pilot-scale treatability study system for the treatment of perchlorate in the source area for soil and groundwater. Field work is anticipated to begin April 2019.

Water Board Contract for Supplying Bottled Water
After the discovery of perchlorate pollution in the area, Water Board staff applied for grant money through the State Water Board's Division of Financial Assistance, Cleanup and Abatement Account Unit, to provide replacement water to impacted residents. Funding is currently available to provide bottled water through June 30, 2020, for residents that meet the disadvantaged household income eligibility requirements. A total of 17 residential supply wells in the area are impacted by perchlorate at or over the 6 parts per billion (ppb) maximum contaminant level (MCL). The Water Board currently supplies 4 residents in the area with bottled water for consumption (drinking and cooking). Residents that do not qualify for bottled water assistance are notified and provided the results of perchlorate concentrations from their respective wells and advised not to consume water from their well if the perchlorate concentration is higher than the MCL of 6 ppb.

Status of Barstow Perchlorate Plume
Water Board staff continues to collect quarterly groundwater samples to track plume movement and assess data trends. Water Board staff collected first quarter 2019 groundwater samples during January 2019 from 18 private supply wells and 9 groundwater monitoring wells. The groundwater monitoring wells are owned by the City of Barstow. The results of first quarter 2019 sampling round are pending from the laboratory and expected by early March 2019.

15. Complexity of Wastewater Effluent Nutrient Management at the City of Bishop and the Eastern Sierra Community Services District – *Woonhoe Kim*

Since February 2015, Water Board staff have been working with the City of Bishop (City) and Eastern Sierra Community Services District (District) to address intermittent elevated nitrate in groundwater that has been detected in groundwater monitoring wells adjacent to the wastewater effluent disposal areas. Water Board staff believes that intermittent elevated nitrate in groundwater is caused by flushing nitrate from soil beneath the facultative lagoons during rainfall events. Both wastewater treatment and effluent disposal facilities for each entity are adjacent to each other as shown on Figure 1.

Initially, the City and District cooperated to submit a joint Feasibility Study in May 2016, evaluating four alternatives for combining their wastewater influent, treatment, and disposal options. Both entities were concerned that the cost of any alternative was more than their ratepayers would bear. Therefore, Water Board staff agreed to allow the City and District pursue a joint Technical Work Plan to make limited incremental improvements at lower costs.

After completing various projects, in July 2018, the City notified the Water Board that both entities had mutually decided to pursue separate options for long-term wastewater treatment improvements. Conceptually, both the City and the District's options would achieve Water Board objectives to protect groundwater quality.

The approximate size of wastewater treatment and disposal facilities owned by each entity are shown in the table below.

Properties Owned by the City and the District			
Entity	**Treatment Plant Property (acres)**	**Disposal Ponds (acres)**	**Irrigated Land (acres)**
City	10	40	40
District	7	58	0

The District is considering expansion of its wastewater treatment plant to include nutrient reduction. This project will enable the District to treat increased flows and to reduce nitrate concentration in effluent. The District is pursuing grant funding opportunities because of economic impact. The District's consultant, R.O. Anderson Engineering, Inc., will provide the District with 60% design drawings for the project by the end of March.

The City is considering two options for improving efficient agricultural effluent disposal: 1) a small irrigation pivot on the City's property, and 2) a large irrigation pivot on the City and Los Angeles Department of Water and Power (LADWP)'s properties. While pivot irrigation systems will improve irrigation efficiency and switching from native improved grass pasture to alfalfa crop will increase nitrogen removal, the large irrigation pivot will provide more nutrient uptake and removal of nitrogen than the small irrigation pivot.

In January 2019, Water Board staff and the City had a conference call regarding the City's effluent discharge management plan. The City is considering two options for irrigation pivots, as mentioned above. The City wants to implement the large irrigation pivot because it more effectively provides for long-term nutrient management. However, the City faces obstacles regarding obtaining a land lease with the LADWP..

LADWP has leased land to the Tatum family for decades near the City's and the District's facilities. Additionally, the Water Board has issued Water Reclamation Requirements , which remain in effect today, to the Tatum's allowing recycled water from the City and District to be used for crop irrigation. The City's waste discharge requirements allow effluent discharge as recycled water onto 85 acres of LADWP property leased to the Tatum's even though the City has no formal agreement with LADWP.

The City has begun discussion with LADWP about leasing additional LADWP property to expand its recycled water use on irrigated cropland. Neither the City, nor District, have provided definite schedules for their future wastewater treatment and disposal improvement plans. The Water Board expects to receive the plans that will be separately proposed by the City and the District within the next year.

As shown on Figure 1, the City's and the District's wastewater treatment plants are located next to each other. The City owns 80 acres (larger yellow rectangle) for oxidation ponds, percolation ponds, and irrigation fields, while the District owns 58 acres (larger green rectangle) for percolation ponds. Surface irrigation is currently used for pasture land irrigation, but is inefficient because of the uneven land surface. In addition, Figure 1 shows two aspects related to the City and District, as follows.

1. The small and large circles show the City's two options for improving effluent management, proposing a smaller and larger irrigation pivot. The larger irrigation pivot is more efficient for nitrogen removal.

2. Additionally, the current authorized flood irrigation areas are shown in colored hatched marks; the City discharge areas are shown in blue, and the District discharge areas are shown in red. The actual flood-irrigated areas are shown in light green irregular shapes. LADWP owns the land south of the City's and District's owned properties. The City anticipates that modifying lease agreements with the LADWP may take some time.

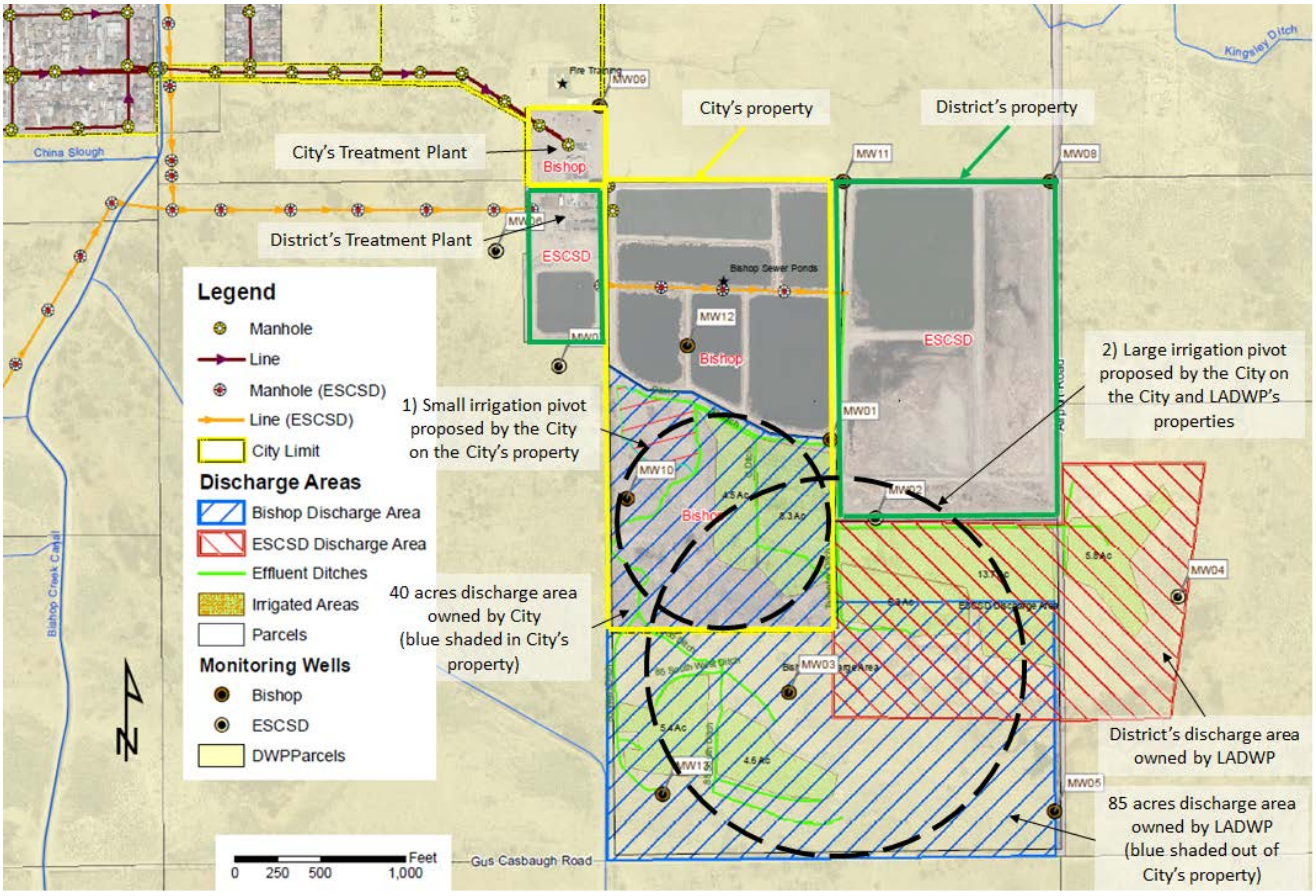


Figure 1. Discharge areas by the City of Bishop and Eastern Sierra Community Services District.

16. Standing Item-Onsite Wastewater Treatment System – Status of Local Agency Management Plans – *John Morales and Trevor Miller*

This standing item describes the Water Board's implementation of the State Board's *Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems* (OWTS), or Policy, originally adopted on November 13, 2012. The Policy became effective on May 13, 2013.

Waiver Renewal

A brief description of the Policy's tiers follows:

- Tier 0 – Existing systems functioning properly.
- Tier 1 – Statewide standards for OWTS siting, design, operation, and maintenance.
- Tier 2 – Local agencies approving OWTS with different than statewide standards may submit a *Local Agency Management Program* (LAMP) to the Water Board for approval.
- Tier 3 – OWTS located within watersheds containing water bodies impaired by pathogens or nutrients.
- Tier 4 – Failing systems.

An important feature of the Policy is the issuance of a conditional waiver (Waiver) for OWTS covered under the Policy. The Policy waived the requirement for OWTS Dischargers to submit a report of waste discharge and waived the need to obtain waste discharge requirements and pay annual fees. Because Waivers are effective for only five years, the State Board renewed the Policy's Conditional Waiver on **April 17, 2018,** for another five years. The State Board also modified the list of water bodies impaired by pathogens or nutrients, although there were no changes for any water body in the Lahontan Region.

LAMP Status

The Policy required statewide standards for siting, designing, and operating OWTS, but allowed local agencies to propose their own standards in a LAMP. Not all local agencies approve OWTS as some cities defer to their respective counties for OWTS approval. Some local cities approving OWTS elected to use the statewide Tier 1 standards for new or replacement systems. LAMPS submitted by local agencies approving OWTS with standards differing from the statewide standards must be approved by the Water Board. The State Board designated one lead Water Board for counties crossing multiple regional board boundaries. The following table describes the local agency tiers and LAMP status for the Lahontan Region and the entities that approve the various LAMPS.

Local Agency LAMP Approval Status			
Local Agency	**Tier**	**Lead Regional Water Board**	**LAMP Approval Status**
Adelanto, City of	1	6	No LAMP submitted
Alpine County	2	6	Pending[1]
Apple Valley, Town of	2	6	Approved
Barstow, City of	2	6	Approved
California City, City of	2	6	Approved
El Dorado County	2	5	Approved
Hesperia, City of	2	6	Approved
Inyo County	2	6	Approved
Kern County	2	5	Approved
Lassen County	2	6	Pending[2]
Los Angeles County	2	4	Approved
Modoc County	2	5	Approved
Mono County	2	6	Approved
Nevada County	2	5	Approved
Placer County	2	5	Approved
San Bernardino County	2	6	Approved
Sierra County	2	5	Approved
Victorville, City of	1	6	No LAMP Submitted

[1] *Alpine County* submitted an initial draft LAMP and responded to staff comments on January 17, 2018, with a revised LAMP. After this submittal, Alpine County lost contractor support. Water Board staff began assisting the County in rewriting the LAMP near the end of 2018 to help facilitate the process. Additional comments were issued to Alpine County on January 18, 2019, and Water Board staff met with Alpine County to review the LAMP on January 30, 2019. The proposed LAMP is tentatively scheduled to be heard at an Alpine County board meeting in April 2019 and considered for approval by the Water Board at its May 2019 board meeting.

[2] *Lassen County* submitted an initial draft LAMP dated December 8, 2016. Water Board staff issued comments on November 15, 2017, including comments from the Central Valley Water Board dated February 15, 2017. During this time, Lassen County lost contractor support to revise and complete the document. Near the end of 2018, Water Board staff began working with Lassen County to produce a finalized LAMP. Lassen County has since employed a LAMP-experienced contractor to begin work on a final LAMP. Water Board staff are committed to finalizing Lassen County's LAMP before the end of fiscal year 2018-2019 and have tentatively scheduled the proposed LAMP for consideration at the June 2019 Water Board meeting.

Annual Reports

The Policy requires local agencies to submit annual reports by February 1 of each year. This year (2019) is the first year we began receiving annual reports covering 2018. Tier 1 local agencies must submit limited data required by the Policy, section 3.3, for the following:

1. Number and location of complaints,
2. Applications and registrations of septage haulers in the jurisdiction, and
3. Number, location, and descriptions of new or replacement permits issued.

Tier 2 agencies must provide the above information, and in addition, provided the information required in the Policy, sections 9.3.1 through 9.3.2, which includes the following:

9.3.1 - Number, location and description of permits issued where a variance is granted; and,

9.3.2 - Information to evaluate the impact of OWTS discharges and assess the extent to which groundwater and local surface water quality may be adversely impacted.

Additionally, Water Board staff requested local agencies provide information on parcel size and design flow to evaluate density loading.

Workshops regarding the OWTS Policy were held in July 2013, September 2016, April 2017, and May 2017. Subsequently, several individual LAMPS for entities in the South Lahontan Basin were approved by the Water Board in public meetings.

The table below includes information from 2018 Annual Reports submitted by the local agencies. The quantities shown in the table below reflect totals for a county or a city as a local agency. In some cases, such as Los Angeles County that encompasses Regions 4 and 6, the results are for the local agency as a whole.

Based on the data from the 2018 Annual Reports, it can be seen that the combined quantity of new permits and/or the OWTS systems that were connected to sewers between the Town of Apple Valley and the City of Hesperia far exceeds the combined summation of all the other local agency jurisdictions.

Additionally, the City of Hesperia connected the local high school (Hesperia High School) to the collection system. Because the high school flow exceeded 20,000 gallons per day, and now discharges to the collection system, the Water Board does not have to issue Waste Discharge Requirements. The Policy requires all OWTS discharges greater than 10,000 gallons per day to be regulated by Waste Discharge Requirements. After connection, the City of Hesperia removed the septic tanks and seepage pits.

Local Agency 2018 OWTS Annual Report Comparison					
Local Agency	**Unauthorized Sewage Discharges**	**Nuisance Odors/Complaints**	**Quantity of New Permits Issued**	**Quantity of OWTS Systems Repaired/Replaced**	**Quantity of OWTS Connected to Sewer**
Adelanto, City of	Tier 1 – Annual Report not received				
Alpine County	LAMP not yet implemented - Pending				
Apple Valley Town of	0	0	63	238	14

Local Agency 2018 OWTS Annual Report Comparison					
Local Agency	**Unauthorized Sewage Discharges**	**Nuisance Odors/Complaints**	**Quantity of New Permits Issued**	**Quantity of OWTS Systems Repaired/Replaced**	**Quantity of OWTS Connected to Sewer**
Barstow, City of	N/R[1]	0	N/R[1]	1	N/R[1]
California, City of	N/R[1]	N/R[1]	N/R[1]	47	N/R[1]
El Dorado County	9	14	0	6	0
Hesperia, City of	N/R[1]	N/R[1]	135	213	15
Inyo County	N/R[1]	3	6	10	N/R[1]
Kern County	0	5	147	144	0
Lassen County	LAMP not yet implemented – Pending				
Los Angeles County	2	3	24	8	N/R[1]
Modoc County	N/R[1]	N/R[1]	2	4	N/R[1]
Mono County	N/R[1]	0	18	12	N/R[1]
Nevada County	N/R[1]	5	N/R[1]	10	N/R[1]
Placer County	7	13	167	38	0
San Bernardino County	8	32	110	0	0
Sierra County	N/R[1]	N/R[1]	10	3	N/R[1]
Victorville, City of	Tier 1 – Annual Report not received				

[1]N/R – Not Reported

Water Board staff continue to improve the management of OWTS-related information, including a plan for a more detailed review of annual reports. Water Board staff is also working diligently with the State Water Board and local agencies to improve and standardize the annual report format. In 2019, we begin working with local agencies with approved LAMPS to develop the required 5-year water quality assessment reports.

For general information, Figure 1, below, shows a typical residential OWTS configuration, with the transport of wastewater from a residence into a septic tank where sludge is settled at the bottom and wastewater continues to flow to the leach field. The sludge is periodically removed from the bottom of the septic tank.

Figure 2, below, shows a modification of the dispersal system. In the high desert, seepage pits are commonly used instead of a leach field. Seepage pits are constructed by an excavation lined with a porous masonry in which household waste discharges from a septic tank and gradual seeps into the ground.

Figure 3, below, is a map from the 2018 Annual Report for Los Angeles County and shows high septic density areas within the red cluster shapes of two Regional Water Board jurisdictions: Los Angeles and Lahontan. The small green circles represent individual OWTS systems. Black and white well symbols identify the locations where nitrate as nitrogen has exceeded the drinking water standard of 10 milligrams per liter (mg/L). Distribution of OWTS in the Los Angeles County portion of the South Lahontan Basin is illustrative of what Water Board staff expect to see in other portions of our region with higher density OWTS installation; higher nitrate concentrations may also be associated with such areas.

Figure 1 – Main components of a residential OWTS showing plumbing from toilets to a septic tank and to a leach field.

Figure 2 – The photo shows a seepage pit commonly used in the high desert. Instead of a leach Field, effluent flows into a sub-surface pit and seeps into the surrounding soil.

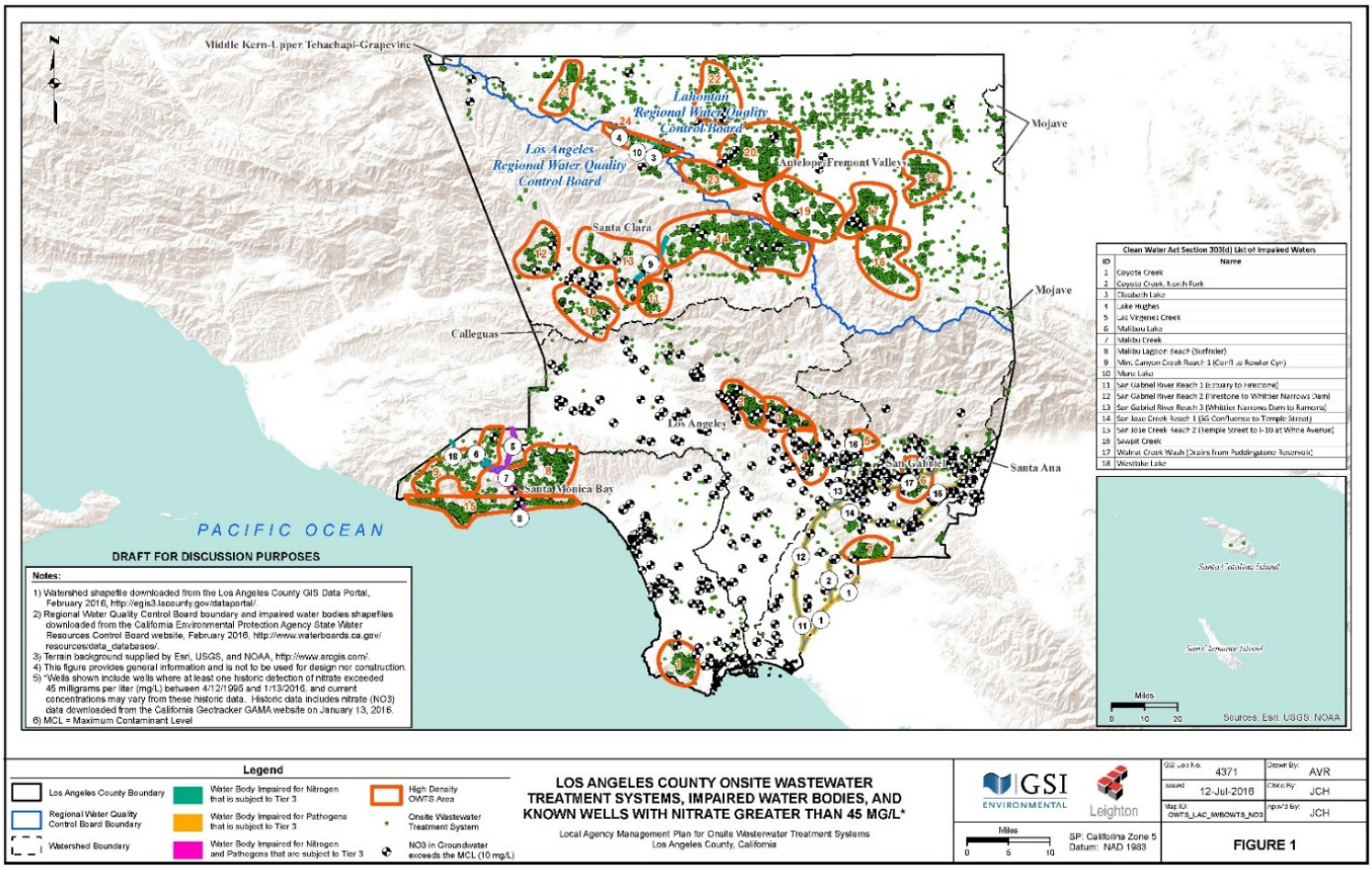


Figure 3 – High OWTS density areas within Los Angeles County, and location of residential wells having nitrate as nitrogen exceedances greater than 10 mg/L.

OWTS information may be found on the Water Board's web site, including draft LAMPs, final proposed LAMPs, approved LAMPs, and Water Board comment letters. The web site address is as follows.

http://www.waterboards.ca.gov/lahontan/water_issues/programs/owts/index.shtml