STAFF REPORT ON DEVELOPING A SALT AND NUTRIENT MANAGEMENT PLANNING STRATEGY FOR THE LAHONTAN REGION

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REGIONAL WATER QUALITY CONTROL BOARDS

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1 Purpose

The purpose of this report is to provide an overview and update on a region-specific salt and nutrient planning strategy (SNMP Strategy) to achieve compliance with the 2018 Recycled Water Policy Amendment and on the triennial review project to align the groundwater basins/subbasins of our Region with the groundwater basin/subbasin boundaries identified by the Department of Water Resources (DWR) in Bulletin 118, California's Groundwater.

2 Introduction

The use of recycled water in California is part of an integrated water management approach that includes water conservation, capture and use of stormwater, aquifer storage and recovery, and other strategies to achieve a sustainable and reliable long-term water supply. Recycled water is water which, as a result of treatment of waste, is suitable for a direct beneficial reuse or a controlled use that would not otherwise occur and is, therefore, considered a valuable resource (California Water Code [CWC], Section [§] 13050[n]).

Recycled water may contain elevated concentrations of salts and nutrients, which may have a negative effect on groundwater quality. This is of particular concern in areas where salts and nutrient concentrations exceed or threaten to exceed water quality objectives established for a groundwater basin/subbasin. To address this environmental concern, the 2018 Recycled Water Policy Amendment promotes basin-wide or subbasin-wide management of salts and nutrients in groundwater to ensure that water quality objectives are met and beneficial uses are protected as the number of recycled water projects increases.

The 2018 Recycled Water Policy Amendment includes salt and nutrient management planning to help address the potential for recycled water use to impact groundwater quality. Groundwater basins may contain salts and nutrients that exceed or threaten to exceed water quality objectives from a variety of sources including naturally occurring sources of salinity, discharges of agricultural, domestic, industrial, and municipal wastewater; fertilizers; and residual solids (including on-site wastewater treatment systems). In addition, irrigation using imported water, diverted water, surface water, groundwater, or recycled water, and indirect potable reuse for groundwater recharge (groundwater recharge) can contribute to increased salt and nutrient loading. Recognizing that regulation of recycled water projects alone will not address these conditions, it is intended that salts and nutrients from all sources be managed on a basin-wide or watershed-wide basis through development of regional or subregional salt and nutrient management plans (SNMPs).

The 2018 Recycled Water Policy Amendment includes guidance on developing groundwater basin-wide or subbasin-wide SNMPs. Basin/subbasin evaluations are required to sustain the ongoing development of SNMPs in basins where plans are needed and to clarify where salt and nutrient management planning is not needed. Each Regional Water Board was required to evaluate each basin or subbasin in its region before April 8, 2021, and to identify basins through a resolution or executive officer determination where salts and/or nutrients are a threat to water quality and

therefore need salt and nutrient management planning to achieve water quality objectives in the long term. SNMPs adopted as a Basin Plan amendment or accepted by a Regional Water Board prior to April 8, 2019, shall be evaluated by April 8, 2024.

3 Recycled Water Policy and Sustainable Groundwater Management Act

This section provides background information on the Recycled Water Policy and the Sustainable Groundwater Management Act (SGMA).

In 1977, recognizing the potential for reclaimed wastewater to supplement surface and groundwater supplies, the State Water Resources Control Board (State Water Board) adopted Resolution No. 77-1, the Policy with Respect to Water Reclamation in California. The intent of this resolution was to facilitate the beneficial use of reclaimed wastewater by the people of the State, rather than discharging the wastewater to marine/brackish receiving waters or evaporation ponds. Resolution No. 77-1 clarified the need to develop facilities for reclamation of wastewater to meet the increasing water requirements of the State.

In 2009, the State Water Board adopted Resolution No. 2009-0011, Policy for Water Quality Control for Recycled Water (Recycled Water Policy), to promote the use of recycled water in support of sustaining local water supplies. The 2009 Recycled Water Policy sought to provide a uniform interpretation of regulatory requirements and streamline the permitting process for recycled water projects. The stakeholders who collaborated on the Recycled Water Policy included local agencies, public interest groups, and industry associations. The Association of California Water Agencies (ACWA), the California Association of Sanitation Agencies (CASA), and the WateReuse Association provided a December 19, 2008, letter in support of salt and nutrient management planning. The letter recognized the Recycled Water Policy as a key step toward maximizing the reuse of water to sustain local basin supplies and protecting groundwater for beneficial uses. The letter also urged member agencies to commit funding and in-kind resources for development of SNMPs.

Additionally, the 2009 Recycled Water Policy established requirements for the development of regional SNMPs to address concerns regarding increases in salt and nutrient concentrations in groundwater resulting from the use of recycled water. SNMPs would be developed by local stakeholder groups to provide a watershed-based approach to manage salts and nutrients to protect water quality. SNMPs were expected to include a level of detail dependent on site-specific characteristics, provisions for regional monitoring, and an anti-degradation analysis. An August 28, 2009, State Water Board memorandum clarified that the Recycled Water Policy required development of SNMPs for groundwater basins identified by the Department of Water Resources (DWR) in Bulletin 118, the State's official publication on the occurrence and nature of groundwater in California.

Acknowledging that groundwater basins may contain salts and nutrients due to natural conditions from native soils, waste discharges, irrigation actions, or use of recycled water, the State Water Board amended the Recycled Water Policy in 2013, by Resolution No. 2013-0003. The 2013 Recycled Water Policy Amendment intended that

every groundwater basin or subbasin in California have a consistent SNMP that included a monitoring plan designed to assess basin-wide or subbasin-wide water quality. The monitoring plan should address basin- and subbasin-specific water quality concerns which may include constituents other than salts and nutrients. Areas of focus for monitoring would include water quality near supply wells, areas proximate to large water recycling projects, and areas where groundwater has connectivity with adjacent surface water. The monitoring plan would also identify the stakeholders responsible for collecting, compiling, and reporting the monitoring data to the Regional Water Board.

The 2013 Recycled Water Policy Amendment required that SNMPs include the following:

- Water recycling and stormwater recharge/use goals and objectives,
- Salt and nutrient source identification, assimilative capacity and loading estimates for the basin or subbasin,
- Management implementation procedures for salt and nutrient loading, and
- An anti-degradation analysis.

In September 2014, Governor Brown signed SGMA into law. SGMA implements a statewide regulatory framework for locally driven sustainable groundwater management. SGMA directed DWR to categorize groundwater basins as high-, medium-, low-, or very low-priority by January 31, 2015 (CWC §10722.4). SGMA required DWR to prioritize basins based on a consideration of the components specified in CWC § 10933(b):

1. The population overlying the basin or subbasin.
2. The rate of current and projected growth of the population overlying the basin or subbasin.
3. The number of public supply wells that draw from the basin or subbasin.
4. The total number of wells that draw from the basin or subbasin.
5. The irrigated acreage overlying the basin or subbasin.
6. The degree to which persons overlying the basin or subbasin rely on groundwater as their primary source of water.
7. Any documented impacts on the groundwater within the basin or subbasin, including overdraft, subsidence, saline intrusion, and other water quality degradation.
8. Any other information determined to be relevant by the department, including adverse impacts on local habitat and local stream flows.

Under SGMA, local stakeholders in a basin ranked high- or medium-priority were required to establish a Groundwater Sustainability Agency (GSA) and develop a Groundwater Sustainability Plan (GSP) for the basin by January 31, 2022. High- or medium-priority basins identified by DWR as critically overdrafted were required to submit a GSP by January 31, 2020. Basins or subbasins categorized as low- or very low-priority were encouraged to voluntarily form a GSA and develop a GSP.

In 2016, the State Water Board adopted Resolution No. 2016-0061 to initiate an update of the Recycled Water Policy and reaffirm support for the development of a SNMP for every groundwater basin or subbasin in California. State Water Board staff were also directed to consider a time schedule for Regional Water Boards to review recycled water permits to evaluate the nexus between the Recycled Water Policy and SGMA.

In 2018, the State Water Board amended the Recycled Water Policy to support and promote the safe use of recycled wastewater in accordance with federal and state water quality regulations. The 2018 Recycled Water Policy Amendment became effective April 8, 2019. Goals of the 2018 Recycled Water Policy Amendment include increasing the use of recycled water across the State, reusing all dry weather direct discharges of treated wastewater to enclosed bays, estuaries, and coastal lagoons, and ocean waters that can be viably put to a beneficial use, and maximizing the use of recycled water in areas experiencing groundwater overdraft. The 2018 Recycled Water Policy Amendment includes requirements for Regional Water Boards to evaluate the basins/subbasins in their regions and identify groundwater basins/subbasins where SNMPs have not yet been developed but are needed to achieve water quality objectives for salts and nutrients in the long-term and to periodically evaluate data from SNMPs to determine whether updates to the SNMPs are warranted.

4 Groundwater Basins and Subbasins

Under SGMA, California Code of Regulations (CCR), title 23, section 341 (g)(1), the term “basin” shall refer to an area specifically defined as a basin or “groundwater basin” in Bulletin 118 and shall refer generally to an aquifer or stacked series of aquifers with reasonably well-defined boundaries in a lateral direction, based on features that significantly impede groundwater flow, and a definable bottom, as further defined or characterized in Bulletin 118. The term “subbasin” shall refer to an area specifically defined as a subbasin or “groundwater subbasin” in Bulletin 118 and shall refer generally to any subdivision of a basin based on geologic and hydrologic barriers or institutional boundaries, as further described or defined in Bulletin 118, in accordance with CCR, title 23, section 341 (g)(2).

4.1 DWR Basins/Subbasins

DWR is tasked with identifying the State’s groundwater basins on the basis of geological and hydrological conditions and consideration of political boundary lines whenever practical (CWC §12924). The number of groundwater basins/subbasins across the State has evolved over time as additional data and information became available, as shown in Figure 1. The Department of Public Works, predecessor of DWR, compiled the first list of 286 alluvial groundwater basins across the State. The data was published in the 1952 Water Quality Investigations Report Number 3, Ground Water Basins in California. This report also established a uniform naming and numbering system for groundwater basins/subbasins in California.

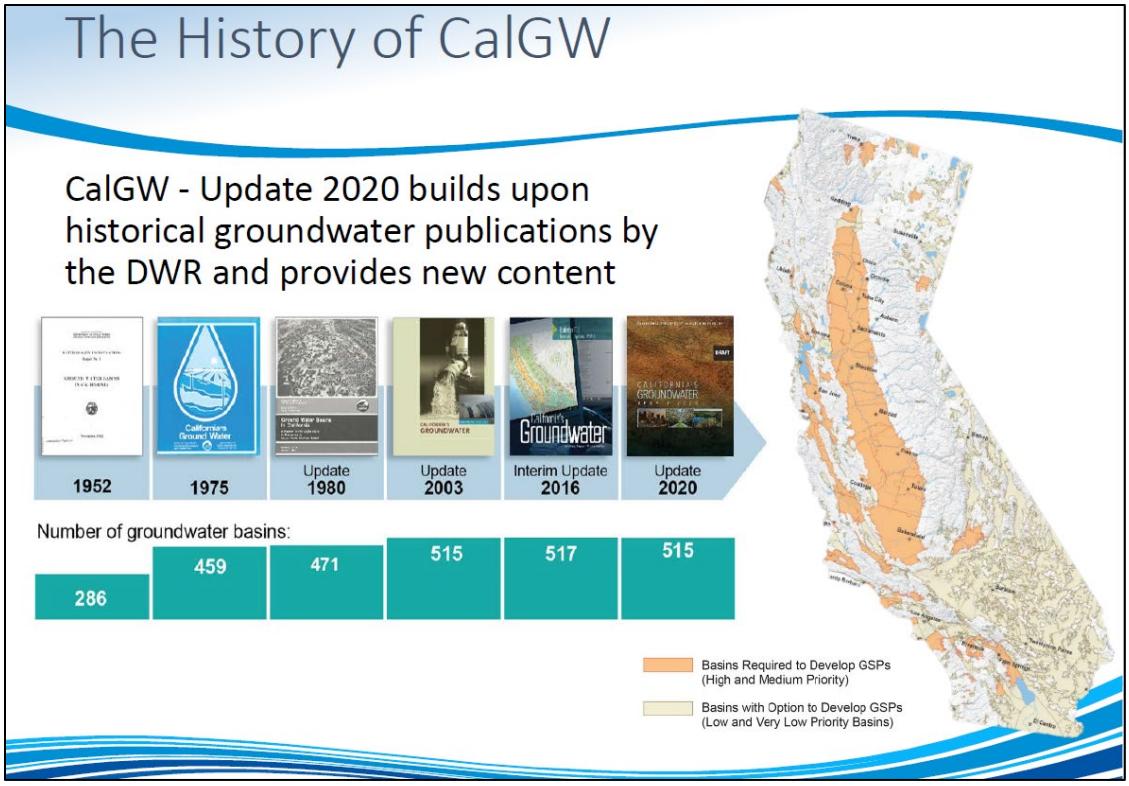

FIGURE 1: HISTORY OF CALIFORNIA'S GROUNDWATER (CALGW) SHOWING THE NUMBER OF GROUNDWATER BASINS DOCUMENTED BY DWR OVER TIME.

In 1975, DWR published California's Ground Water Bulletin 118-75 documenting additional technical information on the occurrence and nature of groundwater in the State. Bulletin 118-75 increased the number of groundwater basins/subbasins to 459. DWR published another update in 1980, Bulletin 118-80 Ground Water Basins in California: A Report to the Legislature in Response to CWC §12924 and this update increased the number of groundwater basins/subbasins to 471. The next update, Bulletin 118 – Update 2003 increased the number of groundwater basins/subbasins across the State to 515, with 104 of these basins/subbasins identified in the Lahontan Region.

SGMA, effected on January 1, 2015, included a mandate that DWR develop and implement regulations for modifying groundwater basin boundaries. DWR initiated two rounds of basin boundary reviews and modifications with stakeholders across the State in 2016 and 2018. These basin/subbasin boundary modifications were incorporated into the 2020 update of Bulletin 118, California's Groundwater, which lists 105 basins/subbasins for the Lahontan Region. The increase from 104 basins/subbasins in Bulletin 118-2003 to 105 basins/subbasins in the 2020 update is due to the addition of the Fish Slough Subbasin Number 6-012.02, in Owens Valley.

Although groundwater basins/subbasins with alluvial aquifers are most common in California, other groundwater development occurs in fractured crystalline rocks, fractured volcanics, and limestones. Bulletin 118, California's Groundwater refers to non-basin areas that provide groundwater as "groundwater source areas." The term is

not intended to imply that groundwater actually originates in these rocks, but that it is withdrawn from rocks underlying a generally definable area. Groundwater is extracted from fractured rock in many of the mountainous areas of the State, such as the Sierra Nevada, the Peninsular Range, and the Coast Ranges. Rocks in these areas often yield only enough supply for individual domestic wells, stock water wells, or small community water systems. Availability of groundwater in such formations can vary widely, even over a distance of a few yards.

Bulletin 118-75 assigned identification numbers to volcanic rocks throughout the State, including the Recent and Pleistocene volcanic areas of the Modoc Plateau, previously numbered 6-102 and 6-103, respectively. The numbers led some to interpret these volcanic areas as being groundwater basins, so in Bulletin 118-2003 DWR retired the numbers corresponding to the volcanic areas to eliminate this confusion.

In Bulletin 118-2003, DWR also made several modifications from the groundwater basins presented in previous versions of Bulletin 118. For example, the Langford Valley Groundwater Basin Number 6-036 was divided into two subbasins; the Furnace Creek Area Groundwater Basin Number 6-083 was incorporated into Death Valley Groundwater Basin Number 6-018; and Butterbread Canyon Valley Groundwater Basin Number 6-087 was incorporated into Lost Lake Valley Groundwater Basin Number 6-071. Troy Valley Groundwater Basin Number 6-039 was split at the Pisgah fault, which is a groundwater barrier, and incorporated into Lower Mojave River Valley Number 6-040 and Lavic Valley Number 7-014 groundwater basins. In addition, the Granite Mountain Area Number 6-059 and Fish Slough Valley Number 6-060 groundwater basins were deleted because no information was found concerning wells or groundwater in these basins or because well completion reports indicate that groundwater production is derived from fractured rocks beneath the basin.

CWC § 12924 requires DWR to investigate the State's groundwater basins and report findings every five years. DWR recently completed the 2020 update to Bulletin 118, California's Groundwater. Future 5-year updates will be completed in years ending in 5 and 0.

4.2 Lahontan Basin Plan Basins/Subbasins

The *Water Quality Control Plan for the Lahontan Region* (Basin Plan), Table 2-2, Beneficial Uses for Ground Waters of the Lahontan Region, aligns well with the basins/subbasins listed in the 1975 version of Bulletin 118, except that Table 2-2 also includes 238 Un-Named Basins, numbers 6-108 through 6-345. The total number of basins/subbasins listed for the Lahontan Region in Basin Plan Table 2-2 is 346. In contrast, DWR in Bulletin 118, California's Groundwater has identified 105 basins/subbasins.

Opportunities to address the differences in groundwater basins/subbasins between Basin Plan Table 2-2 and Bulletin 118, California's Groundwater will be discussed in Section 5.3 of this Staff Report.

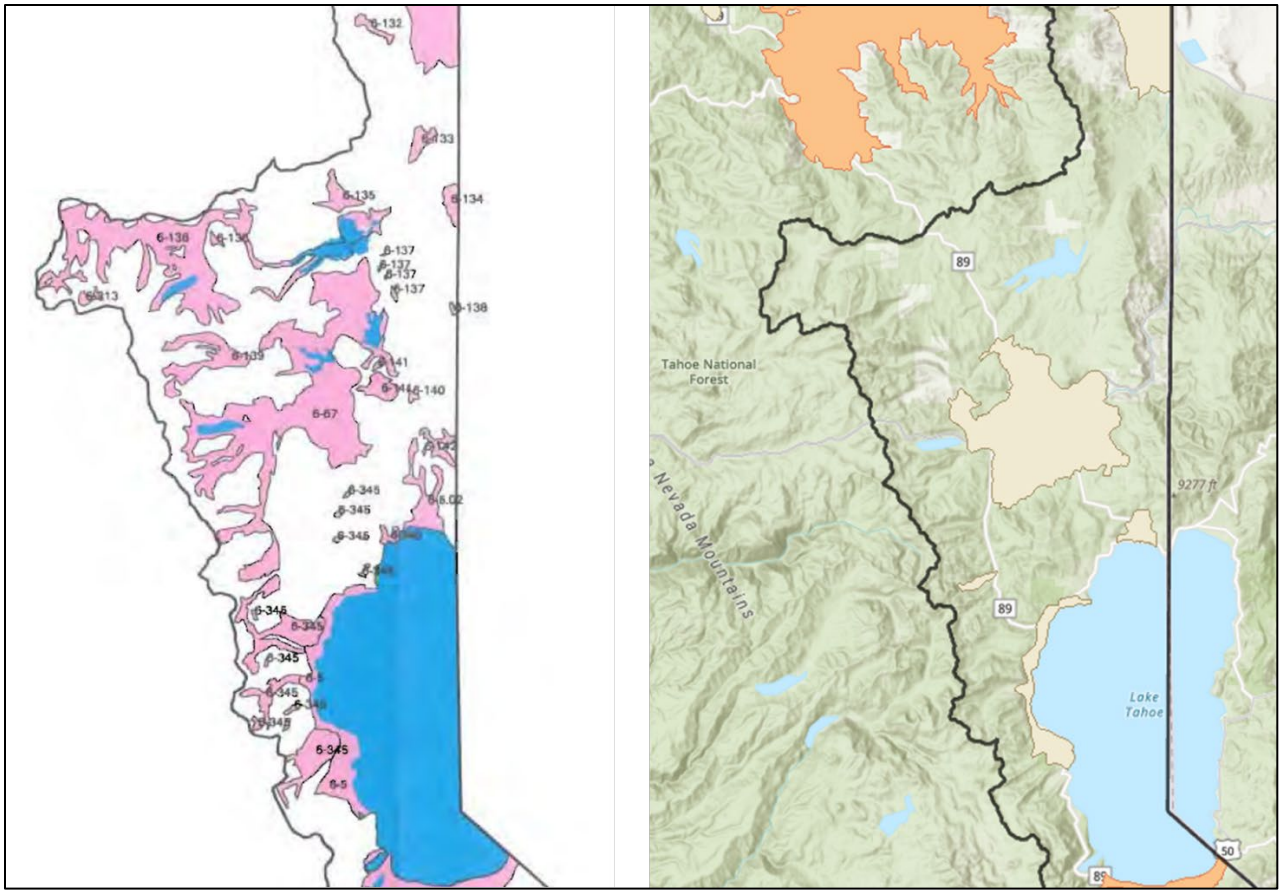

FIGURE 2: COMPARISON OF GROUNDWATER BASINS/SUBBASINS IN A PORTION OF THE NORTH LAHONTAN REGION IN THE VICINITY OF LAKE TAHOE. BASINS/SUBBASIN IDENTIFIED IN THE BASIN PLAN, SHOWN ON LEFT SIDE OF FIGURE, DIFFER FROM DWR BULLETIN 118, CALIFORNIA'S GROUNDWATER BASINS/SUBBASINS, SHOWN ON RIGHT SIDE OF FIGURE.

Table 1: Basin/Subbasin Name and Number differences between the Basin Plan Table 2-2 and DWR Bulletin 118, California's Groundwater basins/subbasins

Bulletin 118 Basin/Subbasin Name	Bulletin 118 Basin/Subbasin Number	Table 2-2 Name	Table 2-2 Number
Tahoe Valley Basin - Tahoe West Subbasin	6-005.02	Missing from Table 2-2	
Tahoe Valley Basin - Tahoe North Subbasin	6-005.03	Tahoe Valley – North	6-5.02
Owens Valley Basin – Owens Valley Subbasin	6-012.01	Owens Valley	6-12
Owens Valley Basin – Fish Slough Subbasin	6-012.02	Missing from Table 2-2	
Langford Valley Basin – Lanford Well Lake Subbasin	6-036.01	Langford Valley	6-36
Langford Valley Basin – Irwin	6-036.02	Missing from Table 2-2	
Cuddeback Valley Basin	6-50	Cuddback Valley	6-50
Marble Canyon Area	6-064	Marble Canyon Way	6-64
Tuledad Canyon Valley Basin	6-098	Tuledad Canyon Area	6-98
Sweetwater Flat Basin	6-107	Antelope Valley	6-107
Olympic Valley Basin	6-108	Un-Named	6-108

5 Salt and Nutrient Management Planning Strategy

The 2018 Recycled Water Policy Amendment directed each Regional Water Board to evaluate the basins/subbasins of their region before April 8, 2021 and through a resolution or executive officer determination, identify basins where salt and nutrient management planning is needed to achieve water quality objectives in the long term. Lahontan staff alerted State Water Board, Division of Water Quality (DWQ) staff in August 2020 that we would likely miss the April 2021 deadline but would continue to work collaboratively with them as we develop a region-specific basin evaluation and

prioritization process for SNMPs. The 2018 Recycled Water Policy Amendment also directs Regional Water Boards to update basin evaluations of SNMPs accepted prior to April 8, 2019.

This SNMP Strategy was developed to provide a region-specific evaluation of basins/subbasins for potential threats to water quality from salt and nutrients and help us achieve compliance with the 2018 Recycled Water Policy Amendment. Evaluating basins/subbasins on a regional basis allows for a more accurate assessment of the drivers for salt and nutrient threats (e.g., quality of imported water, density and type of agricultural land use, depth to groundwater) and can also incorporate important hydrogeologic factors such as regional aquitards, depth to water, natural formations, geothermal areas, closed basins with dry lakebeds, and other region-specific factors.

5.1 Proposed Basin/Subbasin Evaluation and Prioritization Process

The 2018 Recycled Water Policy Amendment indicates that a region-specific evaluation of basins for potential threats to water quality from salt and nutrients is recommended as this will result in a more accurate assessment of water quality threats from salts and nutrients compared to a statewide system. Factors that Regional Water Boards must consider in the basin evaluation process are identified in Section 6.1.3 of the 2018 Recycled Water Policy Amendment as:

- Magnitude of and trends in the concentrations of salts and nutrients in groundwater,
- Contribution of imported water and recycled water to a basin's water supply,
- Reliance on groundwater to supply a basin or subbasin,
- Population,
- Number and density of on-site wastewater treatment systems (OWTS),
- Other sources of salts and nutrients, including irrigated agriculture and confined animal facilities, and
- Hydrogeologic factors such as regional aquitards, depth to water, and other basin- or subbasin-specific factors.

Lahontan staff propose a basin/subbasin evaluation and prioritization process to evaluate the 105 DWR identified basins/subbasins of our region based on population tiers. Tier 1 would consist of basins/subbasins with populations greater than 10,000, Tier 2 would be comprised of basins/subbasins with populations between 1,000 and 10,000, and Tier 3 would contain basins with populations less than 1,000. Based on 2010 population data for the State, the Lahontan Region contains ten Tier 1 basins/subbasins, seven Tier 2 basins/subbasins, and eighty-eight Tier 3 basins/subbasins. Tier 1 and Tier 2 basins/subbasins are listed below in Table 2 and Table 3, respectively. Tier 3 basins/subbasins are included as Attachment 3. Six Tier 1 basins/subbasins, one Tier 2 basin/subbasin, and three Tier 3 basins/subbasins are covered by previously accepted SNMPs.

Table 2: Tier 1 basins/subbasins. Shading indicates basin/subbasin covered by an existing SNMP

Basin ID	Basin Name	Subbasin Name	Basin Area (Sq. Mile)	2010 Population
6-004	Honey Lake Valley		487.06	23560
6-005.01	Tahoe Valley	Tahoe South	23.13	25966
6-012.01	Owens Valley	Owens Valley	1032.26	17648
6-040	Lower Mojave River Valley		446.07	33241
6-042	Upper Mojave River Valley		645.06	355341
6-043	El Mirage Valley		118.59	10691
6-044	Antelope Valley		1578.54	399048
6-046	Fremont Valley		523.80	16796
6-054	Indian Wells Valley		596.42	34837
6-067	Martis Valley		56.81	14743

Table 3: Tier 2 basins/subbasins. Shading indicates basin/subbasin covered by an existing SNMP

Basin ID	Basin Name	Subbasin Name	Basin Area (Sq. Mile)	2010 Population
6-001	Surprise Valley		357.28	1130
6-005.02	Tahoe Valley	Tahoe West	9.64	3110
6-005.03	Tahoe Valley	Tahoe North	3.02	3410
6-047	Harper Valley		639.85	1634
6-052	Searles Valley		307.83	1651

Lahontan staff would then process each basin/subbasin through an evaluation rubric that would consider basin-/subbasin-specific data for the remaining criteria identified in Section 6.1.3 of the 2018 Recycled Water Policy Amendment. The criteria include magnitude of and trends in the concentrations of salts and nutrients in groundwater, number and density of OWTS in the basin/subbasin, and hydrogeologic factors such as regional aquitards, depth to water, natural formations, geothermal areas, closed basins with dry lakebeds, and other region-specific factors. Section 6.1.3 of the 2018 Recycled Water Policy Amendment also contains criteria that overlap with some of the CWC §10933(b) components evaluated by DWR during the 2019 SGMA Basin Prioritization process, listed in Section 3 of this Staff Report. Components considered under the 2019 SGMA Basin Prioritization process, including contribution of imported water and recycled water to a basin's/subbasin's water supply, reliance on groundwater to supply

a basin/subbasin, and other sources of salts and nutrients, such as irrigated agriculture and confined animal facilities would be integrated into our evaluation rubric.

The evaluation rubric is still being refined, and Lahontan staff are incorporating an environmental justice component into the evaluation rubric as described in Section 5.1.1. Lahontan staff are also considering the potential of GSPs developed under SGMA to provide functional equivalence for salt and nutrient management planning as discussed in Section 5.1.2. Completion of the basin/subbasin evaluation and prioritization process is expected by June 30, 2023.

In general, Lahontan staff would next focus our efforts on the remaining four Tier 1 basins/subbasins to assess the need for SNMP development. After salt and nutrient management planning efforts are complete for Tier 1 basins/subbasins, staff would then focus efforts on Tier 2 basins/subbasins. Because so few people reside in Tier 3 basins/subbasins, staff would need to further evaluate these basins for other factors that may affect salts and nutrients, such as existing threats to groundwater from industrial activities. If such threats do not exist, or there is scant existing groundwater data, further evaluation of these less populated basins for SNMP development would not necessarily occur. Environmental justice inputs will need to be considered along with population, as described further in Section 5.1.1.

5.1.1 Environmental Justice

Environmental Justice is the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation and enforcement of environmental laws, regulations, and policies (Government Code, Section 65040.12). California was one of the first states in the nation to codify environmental justice in statute. Environmental justice is important because people who live in low income and minority communities face higher than average pollution and multiple pollution sources that are disproportionally concentrated in low-income communities with high minority populations. The goals of environmental justice are to protect vulnerable communities, minimize exposure to pollution, protect and improve health, and for all concerned people to work together and make this happen.

CalEnviroScreen is the State's environmental health screening tool developed to help identify and address California communities that are disproportionately burdened by multiple sources of pollution. Developed by CalEPA's Office of Environmental Health Hazard Assessment (OEHHA), CalEnviroScreen provides a science-based method for identifying impacted communities by taking into consideration pollution exposure and its effects, as well as health and socioeconomic status. CalEnviroScreen analyzes the cumulative impacts of multiple pollutions sources at the census-tract level. Cumulative impacts refer to the combination of exposures, health effects, and environmental effects from all sources of pollution. CalEnviroScreen also considers the special sensitivity of some groups of people, such as young children, the elderly, and people with asthma or other chronic diseases.

CalEnviroScreen presents a relative, rather than an absolute, evaluation of pollution burdens and vulnerabilities in California communities by providing a relative ranking of communities across the State. It analyzes data from indicators of pollution burden and population characteristics that fall into four broad groups: exposures, environmental

effects, sensitive populations, and socioeconomic factors. CalEnviroScreen scores are calculated for California's 8,000 census tracts to provide a clear picture of cumulative pollution burdens and vulnerabilities in communities throughout the State.

To incorporate racial equity and environmental justice criteria into our region-specific SNMP Strategy, we propose integrating CalEnviroScreen scores into our basin/subbasin evaluation rubric. OEHHA released the most recent update of CalEnviroScreen, Version 4.0, in October 2021. CalEnviroScreen, Version 4.0 incorporates the most recent data produced by CalEPA's boards, departments and offices, the California Health and Human Services Agency and federal entities. The 21 indicators included in CalEnviroScreen, Version 4.0 are shown in Figure 3.

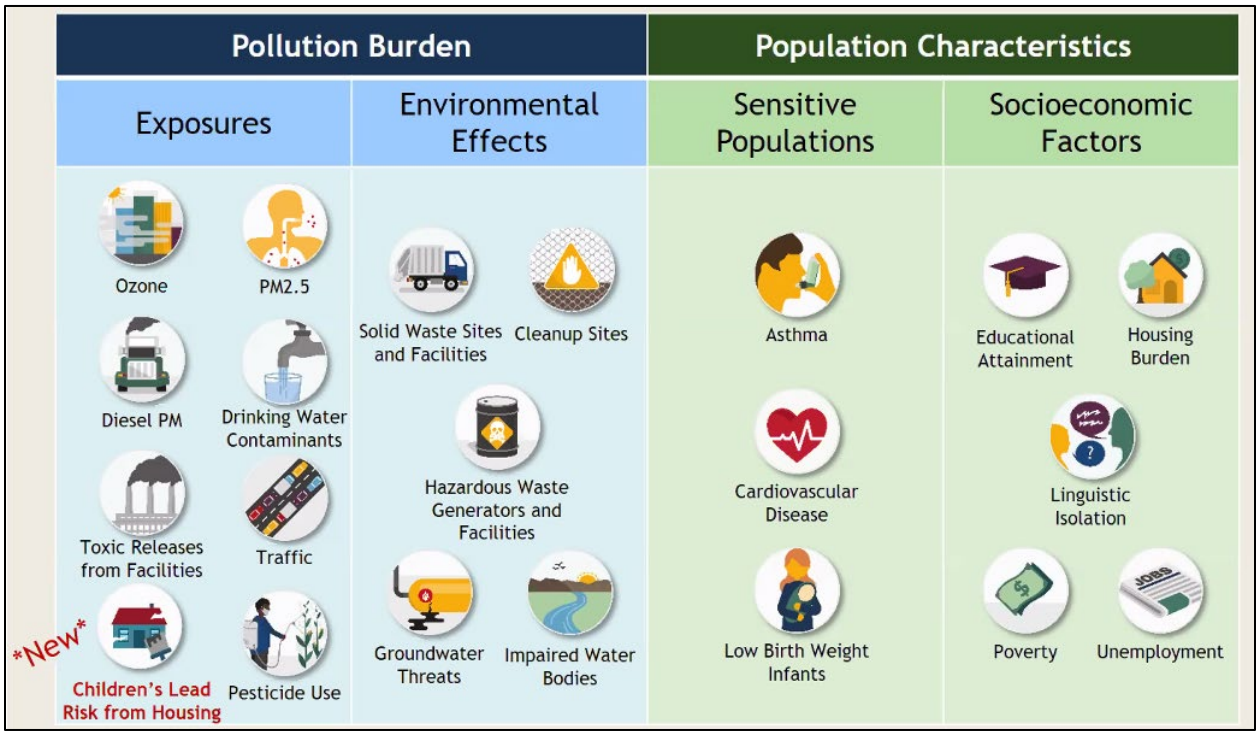

FIGURE 3: THE 21 INDICATORS INCLUDED IN THE MOST RECENT UPDATE OF CALENVIROSCREEN, VERSION 4.0.

5.1.2 SNMPs and GSPs

Salt and nutrient management planning in the 2018 Recycled Water Policy Amendment and SGMA also have certain overlaps in objectives and desired outcomes. Incorporating a SNMP into a GSP through application of the concepts discussed below may eliminate duplicative regulatory requirements and help encourage sustainable groundwater management. However, it is important to note that the objectives of SNMPs and GSPs are not identical and exist within different statutory frameworks.

The technical evaluations involved in preparing GSPs and SNMPs have common elements. For example, both SNMPs and SGMA require a basin-wide monitoring plan. The basin-wide monitoring required through the SNMPs could be incorporated into a basin's GSP. Also, SGMA requires an analysis of the general water quality in all principal aquifers, which would likely include salt and nutrient conditions.

For one of our Tier 1 basins/subbasins, Tahoe Valley - Tahoe South Subbasin Number 6-005.01, the South Tahoe Public Utility District (STPUD) and the El Dorado County Water Agency (ECWA) each formed a GSA in accordance with SGMA to cooperatively manage the Tahoe South Subbasin. In 2016, the GSAs submitted an existing Groundwater Management Plan as an alternative to a GSP to DWR for the Tahoe South Subbasin. In 2017, DWR approved the use of the existing Groundwater Management Plan as an alternative to a GSP. The GSAs recently submitted a 2022 update of the plan to DWR for review. Overall, the efforts of the GSAs may help inform the future development of a SNMP, if needed, for the Tahoe South Subbasin.

Another GSA, the Owens Valley Groundwater Authority (OVGA), formed in 2018 to manage the Owens Valley Groundwater Basin Number 6-012. The OVGA voluntarily developed a GSP that was submitted to DWR in 2022. The GSP is currently under review by DWR and may help inform the future development of a SNMP, if needed, for the Owens Valley Subbasin.

5.2 SNMPs Previously Accepted by the Lahontan Water Board

In the Lahontan Region, stakeholders developed, and the Lahontan Water Board accepted five SNMPs prior to April 8, 2019. This list provides the SNMP name and the date the plans were accepted:

- Antelope Valley SNMP accepted in November 2014,
- Mojave SNMP accepted in February 2016,
- Fort Irwin SNMP accepted in January 2017,
- Indian Wells Valley SNMP accepted in April 2018, and
- Fremont Basin SNMP accepted in January 2019.

These five SNMPs cover 12 groundwater basins/subbasins. The 2010 population for the Lahontan Region's DWR defined basins/subbasins totaled 964,634 and the basins/subbasins covered by the five previously accepted SNMPs have a combined 2010 population total of 867,184. These five SNMPs provide coverage for almost 90% of the population living across all of the DWR defined groundwater basins/subbasins of the Lahontan Region.

The 2018 Recycled Water Policy Amendment requires updated data assessments of these previously accepted SNMPs by April 8, 2024. Section 6.2.6 of the 2018 Recycled Water Policy Amendment requires inclusion of the following items in the updated data assessment:

- Observed trends in water quality data as compared with trends predicted in the SNMP,
- Ability of the monitoring network to adequately characterize groundwater quality in the basin,
- Potential new data gaps,
- Groundwater quality impacts predicted in the SNMP based on most recent trends and any relied-upon models, including an evaluation of the ability of the model to simulate groundwater quality,

- Available assimilative capacity based on observed trends and most recent water quality data, and
- Projects that are not reasonably foreseeable at the time of this data assessment but may not have been when the SNMP was prepared.

Stakeholders are required to provide monitoring data collected from SNMPs annually. Lahontan staff are working with State Water Board DWQ staff and staff from other regions to incorporate SNMP monitoring data into GeoTracker. GeoTracker will centralize data generated from SNMPs and create consistency across Regional Water Boards to allow for further analysis of monitoring data. The Regional Boards will evaluate the data generated from SNMPs every five years and use the results to update basin evaluations. State Water Board DWQ staff plan to assist the Regional Water Boards with this task by providing tools and technical assistance through the GAMA Program.

Lahontan staff will work with local stakeholders to update evaluations of the basins/subbasins covered by the five SNMPs previously accepted by the Lahontan Water Board to ensure that we meet the April 8, 2024 deadline identified in the 2018 Recycled Water Policy Amendment. Lahontan staff plan to reach out to the stakeholders responsible for collecting, compiling, and reporting the monitoring data for each of the previously accepted SNMPs by the end of November 2022 to request updated data assessments be completed and provided to Lahontan staff by April 30, 2023. The updated data assessments will then be reviewed by Lahontan staff with support from State Water Board DWQ. An update on the findings of the data assessment reviews will be presented to the Lahontan Water Board during the first quarter of 2024.

5.3 Proposed Alignment with DWR Groundwater Basins/Subbasins

Lahontan staff have identified a discrepancy between the basins/subbasins identified in the Basin Plan and the basins/subbasins defined by DWR in Bulletin 118, California's Groundwater. Table 2-2 of the Basin Plan lists 346 basins in the Lahontan Region, see Attachment 1. This compilation of 346 basins includes 238 un-named basins, numbers 6-108 through 6-345. The 2020 update of DWR's Bulletin 118, California's Groundwater lists 105 groundwater basins/subbasins for the Lahontan Region.

DWR identifies the boundaries the State's groundwater basins/subbasins, in accordance with CWC §12924. Aligning groundwater basins/subbasins of the Basin Plan with the DWR defined groundwater basins/subbasins of Bulletin 118, California's Groundwater would reduce the number of groundwater basins/subbasins requiring evaluation for salt and nutrient management planning. However, further evaluation is needed to determine consistency with current beneficial use protections and the consequences of the changes in other contexts.

The 2022 Triennial Review List includes Groundwater Basin/Subbasin Alignment and Beneficial Use Designations is a Medium Priority project. A Low Priority project to Update Basin Plan Reference Documents that includes digitizing the plates that display and categorize groundwater basins and watersheds is also included in the 2022 Triennial Review List. These 2022 Triennial Review List projects seemingly integrate

with portions of this proposed SNMP Strategy and can be developed concurrently with elements of the proposed strategy.

6 Staff Recommendation

Basin/subbasin evaluation and prioritization: The Lahontan Water Board did not meet the 2018 Recycled Water Policy Amendment timeline of April 8, 2021 for prioritizing basins for salt and nutrient management planning due to resource limitations. To facilitate current basin/subbasin evaluation for SNMP development, staff will implement a region-specific SNMP Strategy to evaluate and prioritize basins/subbasins of the Lahontan Region for salt and nutrient management planning. Lahontan staff expect to complete the basin/subbasin evaluation and prioritization process by June 30, 2023.

Updated Data Assessments for existing SNMPs: Updated The 2018 Recycled Water Policy Amendment also directs Regional Water Boards to update basin evaluations of SNMPs accepted prior to April 8, 2019. Lahontan staff will reach out to the stakeholders responsible for the five SNMPs previously accepted by the Lahontan Water Board to request updated data assessments be completed and provided to Lahontan staff no later than January 1, 2024. Lahontan staff will work with the local stakeholders and State Water Board DWQ staff to update evaluations of the basins/subbasins to ensure that we meet the April 8, 2024 deadline identified in the 2018 Recycled Water Policy Amendment.

Alignment of groundwater basins/subbasins: In addition, Lahontan staff recommend aligning the groundwater basins/subbasins of our Region with the groundwater basins/subbasins identified by DWR in Bulletin 118, California's Groundwater. Alignment with DWR-identified groundwater basins/subbasins will also facilitate consistency with SGMA implementation and collaboration with DWR.

Attachment 1: Table 2-2 from the Water Quality Control Plan for the Lahontan Region (Basin plan)

BASIN DWR NO.	BASIN NAME	MUN	AGR	IND	FRSH	AQUA	WILD
6-1	Surprise Valley	X	X	X	X		
6-2	Madeline Plains	X	X		X		
6-3	Willow Creek Valley	X	X		X		
6-4	Honey Lake Valley	X	X	X	X		X
6-5.01	Tahoe Valley - South	X	X	X			
6-5.02	Tahoe Valley - North	X	X				
6-6	Carson Valley	X	X	X	X		
6-7	Antelope Valley (Topaz Valley)	X	X		X		
6-8	Bridgeport Valley	X	X	X	X		
6-9	Mono Valley	X	X	X	X		
6-10	Adobe Lake Valley	X	X		X		
6-11	Long Valley	X	X	X	X		
6-12	Owens Valley	X	X	X	X		X
6-13	Black Springs Valley	X	X		X		
6-14	Fish Lake Valley	X	X		X		
6-15	Deep Springs Valley	X	X		X		
6-16	Eureka Valley	X			X		
6-17	Saline Valley	X			X		
6-18	Death Valley	X	X		X		X
6-19	Wingate Valley	X	X		X		
6-20	Middle Amargosa Valley	X	X	X	X		
6-21	Lower Kingston Valley	X	X		X		
6-22	Upper Kingston Valley	X	X		X		
6-23	Riggs Valley	X	X		X		
6-24	Red Pass Valley	X	X		X		
6-25	Bicycle Valley	X		X	X		
6-26	Avawatz Valley	X	X		X		
6-27	Leach Valley	X					
6-28	Pahrump Valley	X	X		X		
6-29	Mesquite Valley	X	X		X		
6-30	Ivanpah Valley	X	X	X	X		
6-31	Kelso Valley	X	X	X	X		
6-32	Broadwell Valley	X	X		X		
6-33	Soda Lake Valley	X	X	X	X		
6-34	Silver Lake Valley	X	X	X	X		
6-35	Cronise Valley	X	X	X	X		

BASIN DWR NO.	BASIN NAME	MUN	AGR	IND	FRSH	AQUA	WILD
6-36	Langford Valley	X	X	X	X		
6-37	Coyote Lake Valley	X	X		X		
6-38	Caves Canyon Valley	X	X	X	X		
6-39	Troy Valley	X	X	X	X		
6-40	Lower Mojave River Valley	X	X	X	X	X	
6-41	Middle Mojave River Valley	X	X	X	X	X	
6-42	Upper Mojave River Valley	X	X	X	X	X	
6-43	El Mirage Valley	X	X	X	X		
6-44	Antelope Valley	X	X	X	X		

BASIN DWR NO.	BASIN NAME	MUN	AGR	IND	FRSH	POND[1]	WILD
6-45	Tehachapi Valley East	X	X	X	X		
6-46	Fremont Valley	X	X	X	X		
6-47	Harper Valley	X	X	X	X		
6-48	Goldstone Valley	X		X	X		
6-49	Superior Valley	X					
6-50	Cuddback Valley	X	X	X	X		
6-51	Pilot Knob Valley	X	X	X	X		
6-52	Searles Valley (see note #1 below)	X		X			
6-53	Salt Wells Valley (see note #2 below)	X		X			
6-54	Indian Wells Valley (see note #2 below)	X	X	X	X		
6-55	Coso Valley	X					
6-56	Rose Valley	X	X	X	X		
6-57	Darwin Valley	X					
6-58	Panamint Valley	X		X			
6-59	Granite Mountain Area	X	X		X		
6-60	Fish Slough Valley	X	X	X	X		
6-61	Cameo Area	X					
6-62	Race Track Valley	X					X
6-63	Hidden Valley	X					
6-64	Marble Canyon Way	X	X		X		

[1] Water Board staff believe this is an error in the column title within the Basin Plan and should be AQUA, consistent with the column title above.

BASIN DWR NO.	BASIN NAME	MUN	AGR	IND	FRSH	POND[1]	WILD
6-65	Cottonwood Spring Area	X	X		X		
6-66	Lee Flat	X					
6-67	Martis Valley	X	X		X		
6-68	Santa Rosa Flat	X					
6-69	Kelso Lander Valley	X	X		X		
6-70	Cactus Flat	X	X	X			
6-71	Lost Lake Valley	X					
6-72	Coles Flat	X					
6-73	Wild Horse Mesa Area	X					
6-74	Harrsiburg Flats	X					
6-75	Wildrose Canyon	X					
6-76	Brown Mountain Valley	X		X			
6-77	Grass Valley	X		X			
6-78	Denning Spring Valley	X	X		X		
6-79	California Valley	X	X	X	X		
6-80	Middle Park Canyon	X		X			
6-81	Butte Valley	X	X		X		
6-82	Spring Canyon Valley	X	X		X		
6-83	Furnace Creek Area	X					X
6-84	Greenwater Valley	X					X
6-85	Gold Valley	X	X		X		
6-86	Rhodes Hill Area	X	X		X		
6-87	Butterbread Canyon Valley	X					
6-88	Owl Lake Valley	X					
6-89	Kane Wash Area	X	X	X	X		
6-90	Cady Fault Area	X	X	X	X		
6-91	Cow Head Lake Valley	X	X		X		
6-92	Pine Creek Valley	X	X		X		
6-93	Harvey Valley	X	X		X		
6-94	Grasshopper Valley	X	X				
6-95	Dry Valley	X	X				
6-96	Eagle Lake Valley	X	X		X		
6-97	Horse Lake Valley	X	X				
6-98	Tuledad Canyon Area	X	X				
6-99	Painters Flat	X	X				
6-100	Secret Valley	X	X				
6-101	Bull Flat	X	X				

BASIN DWR NO.	BASIN NAME	MUN	AGR	IND	FRSH	POND[1]	WILD
6-102	Modoc Plateau Recent Volcanic Areas	X	X				
6-103	Modoc Plateau Pleistocene Volcanic Areas	X	X				
6-104	Long Valley	X	X	X	X		
6-105	Slinkard Valley	X	X		X		
6-106	Little Antelope Valley	X	X		X		
6-107	Antelope Valley	X	X		X		
NOTE: BASIN NUMBERS 6-108 TO 6-345 ARE UN-NAMED, SEE PLATES 2A & 2B FOR LOCATION							
6-108		X					
6-109		X					
6-110		X					
6-111		X					
6-112		X					
6-113		X					
6-114		X					
6-115		X					
6-116		X					
6-117		X					
6-118		X					
6-119		X					
6-120		X					
6-121		X					
6-122		X					
6-123		X					
6-124		X					
6-125		X					
6-126		X					
6-127		X					
6-128		X					
6-129		X					
6-130		X					
6-131		X					
6-132		X					
6-133		X					
6-134		X					
6-135		X					
6-136		X					

BASIN DWR NO.	BASIN NAME	MUN	AGR	IND	FRSH	POND[1]	WILD
6-137		X					
6-138		X					
6-139		X					
6-140		X					
6-141		X					
6-142		X					
6-143		X					
6-144		X					
6-145		X					
6-146		X					
6-147		X					
6-148		X					
6-149		X					
6-150		X					
6-151		X					
6-152		X					
6-153		X					
6-154		X					
6-155		X					
6-156		X					
6-157		X					
6-158		X					
6-159		X					
6-160		X					
6-161		X					
6-162		X					
6-163		X					
6-164		X					
6-165		X					
6-166		X					
6-167		X					
6-168		X					
6-169		X					
6-170		X					
6-171		X					
6-172		X					
6-173		X					
6-174		X					

BASIN DWR NO.	BASIN NAME	MUN	AGR	IND	FRSH	POND[1]	WILD
6-175		X					
6-176		X					
6-177		X					
6-178		X					
6-179		X					
6-180		X					
6-181		X					
6-182		X					
6-183		X					
6-184		X					
6-185		X					
6-186		X					
6-187		X					
6-188		X					
6-189		X					
6-190		X					
6-191		X					
6-192		X					
6-193		X					
6-194		X					
6-195		X					
6-196		X					
6-197		X					
6-198		X					
6-199		X					
6-200		X					
6-201		X					
6-202		X					
6-203		X					
6-204		X					
6-205		X					
6-206		X					
6-207		X					
6-208		X					
6-209		X					
6-210		X					
6-211		X					
6-212		X					

BASIN DWR NO.	BASIN NAME	MUN	AGR	IND	FRSH	POND[1]	WILD
6-213		X					
6-214		X					
6-215		X					
6-216		X					
6-217		X					
6-218		X					
6-219		X					
6-220		X					
6-221		X					
6-222		X					
6-223		X					
6-224		X					
6-225		X					
6-226		X					
6-227		X					
6-228		X					
6-229		X					
6-230		X					
6-231		X					
6-232		X					
6-233		X					
6-234		X					
6-235		X					
6-236		X					
6-237		X					
6-238		X					
6-239		X					
6-240		X					
6-241		X					
6-242		X					
6-243		X					
6-244		X					
6-245		X					
6-246		X					
6-247		X					
6-248		X					
6-249		X					
6-250		X					

BASIN DWR NO.	BASIN NAME	MUN	AGR	IND	FRSH	POND[1]	WILD
6-251		X					
6-252		X					
6-253		X					
6-254		X					
6-255		X					
6-256		X					
6-257		X					
6-258		X					
6-259		X					
6-260		X					
6-261		X					
6-262		X					
6-263		X					
6-264		X					
6-265		X					
6-266		X					
6-267		X					
6-268		X					
6-269		X					
6-270		X					
6-271		X					
6-272		X					
6-273		X					
6-274		X					
6-275		X					
6-276		X					
6-277		X					
6-278		X					
6-279		X					
6-280		X					
6-281		X					
6-282		X					
6-283		X					
6-284		X					
6-285		X					
6-286		X					
6-287		X					
6-288		X					

BASIN DWR NO.	BASIN NAME	MUN	AGR	IND	FRSH	POND[1]	WILD
6-289		X					
6-290		X					
6-291		X					
6-292		X					
6-293		X					
6-294		X					
6-295		X					
6-296		X					
6-297		X					
6-298		X					
6-299		X					
6-300		X					
6-301		X					
6-302		X					
6-303		X					
6-304		X					
6-305		X					
6-306		X					
6-307		X					
6-308		X					
6-309		X					
6-310		X					
6-311		X					
6-312		X					
6-313		X					
6-314		X					
6-315		X					
6-316		X					
6-317		X					
6-318		X					
6-319		X					
6-320		X					
6-321		X					
6-322		X					
6-323		X					
6-324		X					
6-325		X					
6-326		X					

BASIN DWR NO.	BASIN NAME	MUN	AGR	IND	FRSH	POND[1]	WILD
6-327		X					
6-328		X					
6-329		X					
6-330		X					
6-331		X					
6-332		X					
6-333		X					
6-334		X					
6-335		X					
6-336		X					
6-337		X					
6-338		X					
6-339		X					
6-340		X					
6-341		X					
6-342		X					
6-343		X					
6-344		X					
6-345		X					

Attachment 2: DWR Bulletin 118, California's Groundwater Basins/Subbasins for Lahontan Region

Basin ID	Basin Name	Subbasin Name	Basin Area (Sq. Mile)	2010 Population
6-001	Surprise Valley		357.28	1130
6-002	Madeline Plains		243.90	151
6-003	Willow Creek Valley		18.27	62
6-004	Honey Lake Valley		487.06	23560
6-005.01	Tahoe Valley	Tahoe South	23.13	25966
6-005.02	Tahoe Valley	Tahoe West	9.64	3110
6-005.03	Tahoe Valley	Tahoe North	3.02	3410
6-006	Carson Valley		16.75	328
6-007	Antelope Valley		31.37	850
6-008	Bridgeport Valley		50.76	586
6-009	Mono Valley		270.07	385
6-010	Adobe Lake Valley		62.29	0
6-011	Long Valley		112.26	800
6-012.01	Owens Valley	Owens Valley	1032.26	17648
6-012.02	Owens Valley	Fish Slough	5.03	27
6-013	Black Springs Valley		48.07	0
6-014	Fish Lake Valley		75.01	36
6-015	Deep Springs Valley		46.77	0
6-016	Eureka Valley		201.19	0
6-017	Saline Valley		228.41	0
6-018	Death Valley		1438.09	299
6-019	Wingate Valley		111.38	0
6-020	Middle Amargosa Valley		609.01	230
6-021	Lower Kingston Valley		374.59	0
6-022	Upper Kingston Valley		276.17	37
6-023	Riggs Valley		136.74	0
6-024	Red Pass Valley		150.49	0
6-025	Bicycle Valley		139.78	0
6-026	Avawatz Valley		43.14	0
6-027	Leach Valley		95.59	0
6-028	Pahrump Valley		145.20	99
6-029	Mesquite Valley		137.75	64
6-030	Ivanpah Valley		309.58	40
6-031	Kelso Valley		397.95	20
6-032	Broadwell Valley		143.56	10
6-033	Soda Lake Valley		593.84	750

Basin ID	Basin Name	Subbasin Name	Basin Area (Sq. Mile)	2010 Population
6-034	Silver Lake Valley		55.00	0
6-035	Cronise Valley		197.34	2
6-036.01	Langford Valley	Langford Well Lake	30.18	0
6-036.02	Langford Valley	Irwin	16.38	8845
6-037	Coyote Lake Valley		137.66	99
6-038	Caves Canyon Valley		114.00	97
6-040	Lower Mojave River Valley		446.07	33241
6-041	Middle Mojave River Valley		330.19	6654
6-042	Upper Mojave River Valley		645.06	355341
6-043	El Mirage Valley		118.59	10691
6-044	Antelope Valley		1578.54	399048
6-045	Tehachapi Valley East		37.45	500
6-046	Fremont Valley		523.80	16796
6-047	Harper Valley		639.85	1634
6-048	Goldstone Valley		43.89	0
6-049	Superior Valley		188.00	0
6-050	Cuddeback Valley		148.28	96
6-051	Pilot Knob Valley		216.57	0
6-052	Searles Valley		307.83	1651
6-053	Salt Wells Valley		46.05	0
6-054	Indian Wells Valley		596.42	34837
6-055	Coso Valley		39.94	0
6-056	Rose Valley		66.45	10
6-057	Darwin Valley		69.00	39
6-058	Panamint Valley		405.14	0
6-061	Cameo Area		14.54	0
6-062	Race Track Valley		22.05	0
6-063	Hidden Valley		28.04	0
6-064	Marble Canyon Area		16.19	0
6-065	Cottonwood Spring Area		6.09	0
6-066	Lee Flat		31.69	0
6-067	Martis Valley		56.81	14743
6-068	Santa Rosa Flat		26.22	0
6-069	Kelso Lander Valley		17.44	0
6-070	Cactus Flat		10.98	0

Basin ID	Basin Name	Subbasin Name	Basin Area (Sq. Mile)	2010 Population
6-071	Lost Lake Valley		36.33	0
6-072	Coles Flat		4.60	0
6-073	Wild Horse Mesa Area		5.19	0
6-074	Harrisburg Flats		38.95	0
6-075	Wildrose Canyon		8.05	0
6-076	Brown Mountain Valley		33.95	0
6-077	Grass Valley		15.59	0
6-078	Denning Spring Valley		11.30	0
6-079	California Valley		90.80	0
6-080	Middle Park Canyon		2.72	0
6-081	Butte Valley		13.75	0
6-082	Spring Canyon Valley		7.50	0
6-084	Greenwater Valley		93.46	0
6-085	Gold Valley		5.02	0
6-086	Rhodes Hill Area		24.34	0
6-088	Owl Lake Valley		34.75	0
6-089	Kane Wash Area		9.30	0
6-090	Cady Fault Area		12.42	0
6-091	Cow Head Lake Valley		8.78	0
6-092	Pine Creek Valley		14.89	0
6-093	Harvey Valley		7.04	0
6-094	Grasshopper Valley		27.60	0
6-095	Dry Valley		10.15	2
6-096	Eagle Lake Area		19.84	41
6-097	Horse Lake Valley		5.98	0
6-098	Tuledad Canyon Valley		8.05	0
6-099	Painters Flat		9.96	0
6-100	Secret Valley		52.60	26
6-101	Bull Flat		28.31	0
6-104	Long Valley		73.20	141
6-105	Slinkard Valley		7.05	0
6-106	Little Antelope Valley		3.89	31
6-107	Sweetwater Flat		7.37	0
6-108	Olympic Valley		1.10	471

Attachment 3: Tier 3 basins/subbasins. Shading indicates basin/subbasin covered by an existing SNMP

Basin ID	Basin Name	Subbasin Name	Basin Area (Sq. Mile)	2010 Population
6-002	Madeline Plains		243.90	151
6-003	Willow Creek Valley		18.27	62
6-006	Carson Valley		16.75	328
6-007	Antelope Valley		31.37	850
6-008	Bridgeport Valley		50.76	586
6-009	Mono Valley		270.07	385
6-010	Adobe Lake Valley		62.29	0
6-011	Long Valley		112.26	800
6-012.02	Owens Valley	Fish Slough	5.03	27
6-013	Black Springs Valley		48.07	0
6-014	Fish Lake Valley		75.01	36
6-015	Deep Springs Valley		46.77	0
6-016	Eureka Valley		201.19	0
6-017	Saline Valley		228.41	0
6-018	Death Valley		1438.09	299
6-019	Wingate Valley		111.38	0
6-020	Middle Amargosa Valley		609.01	230
6-021	Lower Kingston Valley		374.59	0
6-022	Upper Kingston Valley		276.17	37
6-023	Riggs Valley		136.74	0
6-024	Red Pass Valley		150.49	0
6-025	Bicycle Valley		139.78	0
6-026	Avawatz Valley		43.14	0
6-027	Leach Valley		95.59	0
6-028	Pahrump Valley		145.20	99
6-029	Mesquite Valley		137.75	64
6-030	Ivanpah Valley		309.58	40
6-031	Kelso Valley		397.95	20
6-032	Broadwell Valley		143.56	10
6-033	Soda Lake Valley		593.84	750
6-034	Silver Lake Valley		55.00	0
6-035	Cronise Valley		197.34	2
6-036.01	Langford Valley	Langford Well Lake	30.18	0
6-036.02	Langford Valley	Irwin	16.38	8845
6-037	Coyote Lake Valley		137.66	99

Basin ID	Basin Name	Subbasin Name	Basin Area (Sq. Mile)	2010 Population
6-038	Caves Canyon Valley		114.00	97
6-041	Middle Mojave River Valley		330.19	6654
6-045	Tehachapi Valley East		37.45	500
6-048	Goldstone Valley		43.89	0
6-049	Superior Valley		188.00	0
6-050	Cuddeback Valley		148.28	96
6-051	Pilot Knob Valley		216.57	0
6-053	Salt Wells Valley		46.05	0
6-055	Coso Valley		39.94	0
6-056	Rose Valley		66.45	10
6-057	Darwin Valley		69.00	39
6-058	Panamint Valley		405.14	0
6-061	Cameo Area		14.54	0
6-062	Race Track Valley		22.05	0
6-063	Hidden Valley		28.04	0
6-064	Marble Canyon Area		16.19	0
6-065	Cottonwood Spring Area		6.09	0
6-066	Lee Flat		31.69	0
6-068	Santa Rosa Flat		26.22	0
6-069	Kelso Lander Valley		17.44	0
6-070	Cactus Flat		10.98	0
6-071	Lost Lake Valley		36.33	0
6-072	Coles Flat		4.60	0
6-073	Wild Horse Mesa Area		5.19	0
6-074	Harrisburg Flats		38.95	0
6-075	Wildrose Canyon		8.05	0
6-076	Brown Mountain Valley		33.95	0
6-077	Grass Valley		15.59	0
6-078	Denning Spring Valley		11.30	0
6-079	California Valley		90.80	0
6-080	Middle Park Canyon		2.72	0
6-081	Butte Valley		13.75	0
6-082	Spring Canyon Valley		7.50	0
6-084	Greenwater Valley		93.46	0
6-085	Gold Valley		5.02	0
6-086	Rhodes Hill Area		24.34	0
6-088	Owl Lake Valley		34.75	0

Basin ID	Basin Name	Subbasin Name	Basin Area (Sq. Mile)	2010 Population
6-089	Kane Wash Area		9.30	0
6-090	Cady Fault Area		12.42	0
6-091	Cow Head Lake Valley		8.78	0
6-092	Pine Creek Valley		14.89	0
6-093	Harvey Valley		7.04	0
6-094	Grasshopper Valley		27.60	0
6-095	Dry Valley		10.15	2
6-096	Eagle Lake Area		19.84	41
6-097	Horse Lake Valley		5.98	0
6-098	Tuledad Canyon Valley		8.05	0
6-099	Painters Flat		9.96	0
6-100	Secret Valley		52.60	26
6-101	Bull Flat		28.31	0
6-104	Long Valley		73.20	141
6-105	Slinkard Valley		7.05	0
6-106	Little Antelope Valley		3.89	31
6-107	Sweetwater Flat		7.37	0
6-108	Olympic Valley		1.10	471