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RECLAMATION

## **Environmental Assessment**

# **Groundwater Actions to Offset Surface Water Diversions from the Sacramento River in Response to Drought in 2021**

**CGB-EA-2021-039**

**Central Valley Project, California  
California-Great Basin Region**

## **Mission Statements**

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

**Environmental Assessment**

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**CGB-EA-2021-039**

**Central Valley Project, California  
California-Great Basin Region**

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# Introduction

This Environmental Assessment (EA) was prepared by the U.S. Department of the Interior (DOI), Bureau of Reclamation (Reclamation). This EA satisfies the requirements of the National Environmental Policy Act (NEPA) (42 United States Code [USC] §4231 et seq.), the Council on Environmental Quality (CEQ) implementing regulations (40 Code of Federal Regulations [CFR] §1500-1508), and the Department of the Interior's NEPA regulations (43 CFR Part 46).

This EA evaluates the potential environmental effects of a proposed approach by Sacramento River Settlement Contractors (SRSCs) to pump additional groundwater, in order to reduce surface water diversions from the Sacramento River. By reducing reliance on surface water diversions in this drought year, Reclamation and the SRSCs intend to increase availability of surface water for beneficial purposes in the Sacramento Valley, including listed aquatic species, fish, birds, farms and cities.

## Background

Reclamation proposes to fund participating entities in the pilot project who operate existing groundwater wells to further offset surface water diversions from the Sacramento River, subject to certain conditions and the availability of funding. This pilot program is intended to incentivize further reductions above current commitments in order to make additional surface water supply available in the Sacramento River (Proposed Action).

The 2021 initial Central Valley Project (CVP) water supply allocation was announced in February. Since then, hydrologic conditions have degraded. The 2021 water year for the Sacramento-San Joaquin River Basin is currently the driest since 1977. Between the April 1 and May 1 forecasts, there was a 685,000 acre-feet (AF) reduction in the projected natural flow to the Sacramento, Feather, Yuba, and American rivers. The extremely dry conditions in the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta) watershed pose challenges to the effective management of the CVP and State Water Project (SWP), managed by Reclamation and the California Department of Water Resources (DWR).

The May 1 Bulletin 120 hydrological projections indicate a substantial risk to health and safety, reservoir storage levels, temperature control, minimum instream flow requirements, power generation, and the ability to repel salinity in the Bay-Delta.

The Governor of California's May 10, 2021, Emergency Proclamation declared a state of drought conditions in the Klamath River, Sacramento-San Joaquin Delta, and Tulare Lake Watershed counties. Paragraph 3 of the Proclamation directs DWR and the State Water Resources Control Board to expeditiously consider requests to move water, where appropriate, to areas of need, including requests involving voluntary water transfers, forbearance agreements, water exchanges, or other means, in order to support voluntary approaches where hydrology and other conditions allow.

2021 is a Critical Year as defined under the Sacramento River Settlement Contracts (Settlement Contracts). Article 5 of the Settlement Contracts provides that the monthly quantities of Base Supply and Project Water are reduced by 25 percent during a Critical Year. Reclamation and SRSCs recognize that 2021 is an extraordinarily challenging water supply year, and continue to coordinate and implement approaches that comply with the Settlement Contracts while also addressing the difficult hydrologic conditions in 2021. The SRSCs and Reclamation propose groundwater pumping by participating SRSCs during August through October 2021 under a pilot/demonstration project.

As described in the 2019 Long-Term Operation of the CVP and SWP (LTO) Environmental Impact Assessment (EIS), Reclamation would continue to transfer project and non-project water supplies through CVP and SWP facilities, including north-to-south transfers and Sacramento River north-to-north transfers (Section 3.4.5.4). As adopted in the 2020 Record of Decision (ROD), Reclamation extended the transfer window from July 1 through November 30. The extended transfer window is expected to provide benefits for water supply and flexibility to improve Sacramento River temperatures during dry conditions, such as 2021.

The October 21, 2019 USFWS and NMFS biological opinions for LTO evaluated the extended transfer window. The February 18, 2020 Long-Term Water Transfers (LWT) ROD (and Amended May 7, 2021 ROD) included the extended transfer window from the 2019 biological opinions and the conditions for water transfers.

This EA is evaluating the effects of Reclamation's funding of pumping additional groundwater.

## **Need for the Proposed Action**

The need for the Proposed Action is to address the difficult hydrologic conditions in 2021 by offsetting surface water diversions from the Sacramento River with groundwater pumping thereby resulting in more water for other beneficial purposes in the Sacramento Valley, including cities, farms, fish, and birds.

## **Related Actions and Environmental Documents**

During 2021, due to the dry hydrologic conditions and limited available surface water supplies, there is additional groundwater pumping occurring at other wells across the Sacramento Valley in order to meet water needs. Reclamation anticipates groundwater pumping at those other wells will be relied upon by water users to supplement available surface water supplies, with or without the proposed voluntary pumping program. That consequence of the ongoing critical drought conditions is outside the scope of this action, beyond Reclamation's control, and would be managed by individual well operators or other agencies with groundwater jurisdiction.

There are water transfers occurring within the Sacramento Valley involving groundwater substitution. Those water transfers involving Reclamation were analyzed under separate environmental documents. Specifically, the LWT Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for transfers to San Luis & Delta-Mendota Water Authority (SLDMWA) and others from 2019 to 2024 (Reclamation and SLDMWA 2019) and the EA/Initial Study (IS) for Tehama-Colusa Canal Authority (TCCA) 2021 Water Transfers (Reclamation 2021).

Some of the wells identified in those documents are also included in this EA; however, the voluntary groundwater pumping proposed under this EA would occur at those wells following completion of groundwater substitution for water transfers to SLDMWA and TCCA. Therefore, the proposed action identified in this EA is separate from the groundwater substitution activities for water transfers to SLDMWA and TCCA. Each participating SRSC would inform Reclamation prior to initiation of groundwater pumping for the proposed voluntary approach. The proposed groundwater pumping would be in addition to groundwater pumping at a well that would occur in absence of the voluntary approach (i.e., in addition to groundwater pumping due to limited surface water supplies or in addition to participation in a groundwater substitution water transfer).

CEQ NEPA regulations provide incorporating by reference general discussions from broader EISs and focusing on specific issues to the document being prepared (43 C.F.R. § 1501.12). Reclamation,

in accordance with DOI NEPA regulations 43 CFR § 46.120(d), should “make the best use of existing NEPA documents by supplementing, tiering to, **incorporating by reference**, or adopting previous NEPA environmental analyses to avoid redundancy and unnecessary paperwork”(emphasis added).

The related environmental documents listed below contain analysis and assumptions that are appropriate for the analysis in this EA, and are hereby incorporated by reference (43 CFR § 46.135).

- Long-Term Water Transfers Environmental Impact Statement (EIS)/Environmental Impact Report (2019 LWT EIS/EIR) and Record of Decision (ROD), May 7, 2021  
[https://www.usbr.gov/mp/nepa/nepa\\_project\\_details.php?Project\\_ID=18361](https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=18361)
- 2021 Tehama-Colusa Canal Authority In-Basin Water Transfers IS/EA (2021 TCCA IS/EA) and Finding of No Significant Impact (FONSI), April 15, 2021  
[https://www.usbr.gov/mp/nepa/nepa\\_project\\_details.php?Project\\_ID=49404](https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=49404)
- Long-Term Operation (LTO) of the Central Valley Project (CVP) and State Water Project (SWP) EIS (2019 LTO EIS) and ROD, February 19, 2020  
[https://www.usbr.gov/mp/nepa/nepa\\_project\\_details.php?Project\\_ID=39181](https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=39181)

The 2019 LWT EIS/EIR and 2019 LTO EIS address broader transfer and operational programs. This EA focuses on the issues specific to the Proposed Action and uses these documents for general discussions and relevant information and incorporates by reference to avoid redundancy and unnecessary paperwork. These documents are used to provide reference for information on Affected Environment sections in this EA. The Proposed Action is not tiered from previous projects.



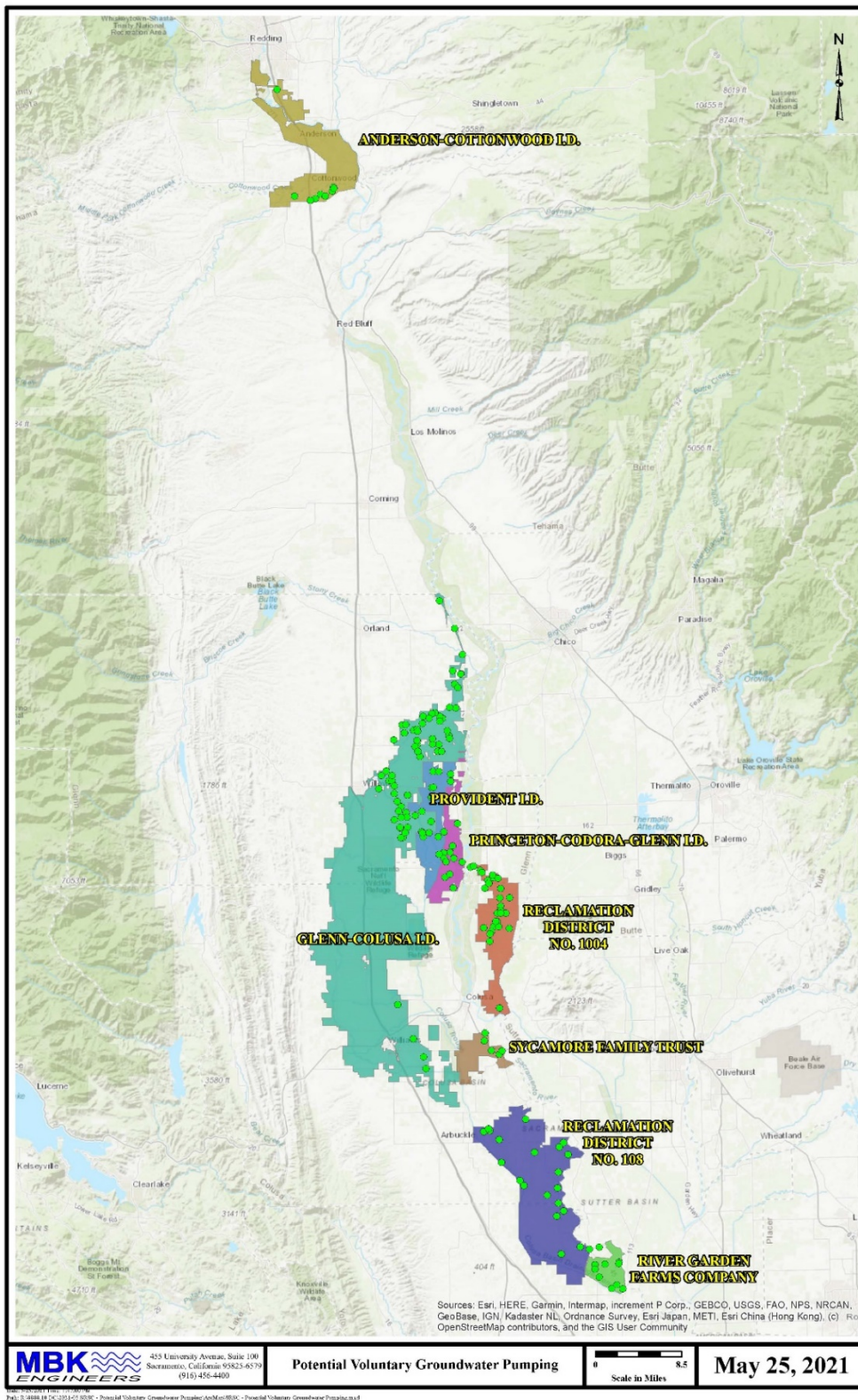


Figure 1 Project Location

# Alternatives Including the Proposed Action

This EA considers two possible actions: No Action Alternative and the Proposed Action. The No Action Alternative reflects future conditions without the Proposed Action and serves as a basis of comparison for determining potential effects to the human environment.

## No Action Alternative

Under the No Action Alternative, Reclamation would not fund the use of groundwater wells to further offset surface water diversion from the Sacramento River. In absence of this proposed voluntary program, there is a potential for greater water shortages to beneficial uses (e.g., adverse environmental impacts to aquatic species, fish, birds, farms, and cities, etc.). SRSCs could move forward with groundwater substitution pumping in accordance with existing environmental documentation, such as the 2019 LWT EIS/EIR and/or the 2021 TCCA IS/EA, without Reclamation funding.

Under the No Action Alternative, Reclamation would continue to operate consistent with the 2019 LWT EIS/EIR, 2021 TCCA IS/EA, 2019 LTO EIS, and associated ESA consultations and decision documents. Under the No Action Alternative, SRSCs could move forward with a smaller amount of groundwater pumping without Reclamation funding and no additional groundwater pumping would occur beyond those fulfillments of transfer commitments from those wells participating in the programs analyzed in the 2019 LWT EIS/EIR and/or the 2021 TCCA IS/EA.

Under the No Action Alternative, surface water available for other beneficial purposes could be reduced by 60,000 AF. Groundwater would not be used to offset surface water diversions from the Sacramento River in response to drought conditions in 2021.

## Proposed Action

Surface water diversions are reduced when groundwater pumping occurs to offset those diversions. Under the Proposed Action, groundwater will be used to offset surface water diversions from the Sacramento River in response to drought conditions in 2021.

Under the Proposed Action, Reclamation will provide funding for the use of existing groundwater wells to further offset surface water diversions from the Sacramento River, which is estimated to result in a reduction of up to approximately 60,000 AF in surface water diversions by SRSCs from the Sacramento River. The quantity of water represents an approximate maximum; the actual total could be less. The voluntary reduction in surface water diversions by participating SRSCs is intended to assist in Reclamation's efforts to manage water for various beneficial purposes in the Sacramento Valley, including listed aquatic species, cities, farms, fish and birds. This groundwater pumping in lieu of surface water diversions would only occur after the fulfillment of transfer commitments from those wells participating in the transfer programs to SLDMWA and TCCA. Those wells that are not participating in the transfer program would not be subject any transfer commitments and could participate in this proposed voluntary program immediately.

Under the proposed voluntary groundwater pumping approach, Reclamation will provide funding to participating SRSCs assisting to reduce the severity of impacts on Reclamation's overall operations resulting from critical dry hydrologic conditions in the Sacramento River watershed. The voluntary groundwater pumping will occur at groundwater wells operated by participating SRSCs or their growers/landowners. Table 1 identifies the SRSCs potentially participating in the effort to

voluntarily pump groundwater, including the estimated up-to quantity of groundwater pumping. In addition, the figure below identifies the locations of approximately 160 groundwater wells (Figure 1; green colored points) proposed to be operated for the purpose of voluntary groundwater pumping analyzed under this EA. The pilot/demonstration wells would follow a regional approach to monitoring wells through the DWR network using telemetry or other methods to avoid over pumping and water quality impacts and ensure a more conservative approach than those included in the LWT Program.

New groundwater wells would not be installed as part of the Proposed Action.

Table 1 List of Entities and Potential Up-to Quantities for each Entity in the Proposed Action

<b>Participating SRSC</b>	<b>Potential Up-To Voluntary Groundwater Pumping Quantity (AF)</b>
Anderson-Cottonwood Irrigation District	3,000
Glenn-Colusa Irrigation District	25,000
Princeton-Codora-Glenn Irrigation District	8,000
Provident Irrigation District	8,000
Reclamation District No. 108	12,500
Reclamation District No. 1004	4,300
River Garden Farms	3,000
Sycamore Mutual Water Company	3,000

<sup>1</sup> The total quantity of voluntary groundwater pumping for all entities would not exceed 60,000 AF.

Regional groundwater levels under the Proposed Action would be, at a minimum, monitored monthly (or weekly as feasible) prior to, during, and following voluntary groundwater pumping. The monitoring would occur at wells monitored by the DWR and participating SRSCs. The wells would be distributed throughout the areas where voluntary groundwater pumping occurs in order to provide a representative depiction of basin-wide groundwater levels. Reclamation and participating SRSCs would cooperate in selecting these wells. Any existing monitoring networks available will be considered for use in this voluntary approach. Where appropriate, the groundwater monitoring networks associated with efforts to comply with the Sustainable Groundwater Management Act (SGMA) or networks associated with groundwater substitution transfers may be relied upon by Reclamation and SRSCs. In the case that groundwater level declines are detected during the period of groundwater pumping for the voluntary program, Reclamation will evaluate the affected area to assess which groundwater wells may need to reduce or cease pumping until groundwater levels recover to restart pumping. While a groundwater well may continue to be operated, it would not be in connection with the voluntary groundwater pumping approach funded by Reclamation. This real-time groundwater management program would allow the maximum use of groundwater, while minimizing effects, in order to conserve surface water supplies to meet Reclamation's other objectives/requirements. In addition, the groundwater level data collected during this drier year with the proposed voluntary approach provides an opportunity to gather additional groundwater level

data that would not be available absent the approach. Those additional data could be relied upon to assist with informing future groundwater management activities, such as voluntary groundwater pumping approaches during drier years, efforts associated with SGMA, and/or water transfers involving groundwater substitution.

Participants under the Proposed Action will comply with all applicable state and Federal laws. Participants will acquire all required and applicable permits or licenses from the appropriate Federal, State, or local authorities necessary for the delivery of water.

On June 30, 2021, Reclamation sent a letter response to SRSCs requests for actions in response to drought in WY 2021. This letter is included as Appendix B. As part of that letter, Reclamation shall provide each SRSC a letter of agreement identifying their participation in the Proposed Action identifying specific methodology. An example letter is included as Appendix B-2.

### **Environmental Commitments**

Environmental commitments are measures or practices adopted to reduce or avoid adverse effects that could result from project operations. These are also known as protective measures and are in accordance with relevant permits.

#### ***Environmental Commitment 1 (EC 1) – Groundwater Monitoring***

- Regional groundwater levels will be monitored. Reclamation will evaluate the affected area to assess which groundwater wells under the Proposed Action may need to reduce or cease pumping until groundwater levels recover. Groundwater levels will be monitored monthly (or weekly as feasible) prior to, during, and following the period of pumping for the voluntary effort, through March 2022. The monitoring would occur at wells monitored by DWR and participating SRSCs.

#### ***Environmental Commitment 2 (EC 2) – Air Quality***

- All water agencies would operate their groundwater pumps in compliance with the local air quality rules and regulations. Under the Proposed Action, participants would provide evidence of registration of diesel energy sources with their local district.

## **Affected Environment and Environmental Consequences**

This section addresses the affected environment and environmental consequences of the Proposed Action when compared to the No Action Alternative, including the effects, or impacts, of the Proposed Action.

### **Resources Eliminated from Further Analysis**

In cases where the impacts of the Proposed Action “... are identified and analyzed in the broader NEPA document, or no effects are anticipated to the resource, no further analysis is necessary...” (43 CFR § 46.140(a)). Reclamation determined that the Proposed Action did not have the potential to cause adverse effects to the resources listed below:



Table 2 Resources Eliminated from Further Consideration

<b>Resource</b>	<b>Reason Eliminated</b>
Aesthetics	The Proposed Action will have no effect on scenic resources or public views.
Geology, Soils, & Mineral Resources	The Proposed Action will occur within existing facilities and there would be no ground disturbing activities.
Land Use	The Proposed Action will occur within existing facilities and there would be no ground disturbing activities or changes in land use.
Population & Housing	The Proposed Action will not result in changes to populations or population growth and will not displace existing people or housing, and therefore will have no effects on population and housing.
Transportation & Traffic	The Proposed Action will occur within existing facilities and there would be no changes in transportation or traffic.
Recreation	The Proposed Action will occur within existing facilities and there would be no changes in recreational resources.
Hazards & Hazardous materials	The Proposed Action will not result in the use or transport of hazardous materials.
Cultural Resources	The Proposed Action will occur within existing facilities and there would be no ground disturbing activities, land alteration, or construction that would affect existing or potential cultural resources.
Public Services & Utilities	The Proposed Action will occur on private property using private utilities and would not result in changes to the use of public services or utilities. The Proposed Action would not create a new demand on services or utilities.

Department of the Interior regulations, Executive Orders, and Reclamation guidelines require a discussion of the following additional items when preparing environmental documentation.

### **Indian Sacred Sites**

Executive Order 13007 (May 24, 1996) requires that federal agencies accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoids adversely affecting the physical integrity of such sacred sites. The Proposed Action is not located on federal land and therefore would not affect or prohibit access to and ceremonial use of Indian sacred sites.

## **Agricultural Resources**

### **Affected Environment**

The 2019 LWT EIS/EIR describes the agricultural land use in Section 3.9.1.

### **Environmental Consequences**

#### **No Action Alternative**

Under the No Action Alternative, Reclamation would not fund additional groundwater pumping. Absent groundwater pumping, surface water available for agricultural use would be provided from natural flows augmented by storage releases from Shasta and Trinity reservoirs. SRSCs may move forward with some groundwater pumping without Reclamation funding at a smaller scale outside of the discretion of Reclamation.

## **Proposed Action**

Under the Proposed Action, surface water diversions from the Sacramento River are estimated to be reduced up to approximately 60,000 AF. The Proposed Action will also provide water for beneficial uses such as agriculture, reducing the need for surface diversions. The Proposed Action will provide water supplies for agricultural use from groundwater that otherwise is available as surface supplies from storage under the No Action Alternative. Under the Proposed Action, there will be an increased use of groundwater to irrigate crops instead of diversion of CVP water supplies from the Sacramento River. The Proposed Action will have temporary beneficial effects to agricultural lands from increased reliability of water supplies in 2021. The Proposed Action would not increase agricultural water supply nor prevent fallowing, but rather change the source to use groundwater in lieu of surface water diversions.

## **Air Quality & Greenhouse Gas Emissions**

### **Affected Environment**

Air quality in California is regulated by the U.S. Environmental Protection Agency (USEPA), the California Air Resources Board (CARB), and locally by Air Pollution Control Districts (APCDs) or Air Quality Management Districts (AQMDs). The following air districts regulate air quality within the project study area: Colusa County APCD, Feather River AQMD, Glenn County APCD, Sacramento Metropolitan AQMD, Shasta County AQMD, Tehama County APCD and Yolo/Solano AQMD.

In the Sacramento Valley Air Basin, ozone (O<sub>3</sub>), inhalable particulate matter (PM<sub>10</sub>), and fine particulate matter (PM<sub>2.5</sub>) are pollutants of concern because ambient concentrations of these pollutants exceed the California Ambient Air Quality Standards (CAAQS). Additionally, ambient O<sub>3</sub> and PM<sub>2.5</sub> concentrations exceed the National Ambient Air Quality Standards (NAAQS), while PM<sub>10</sub> and carbon monoxide (CO) concentrations recently attained the NAAQS and are designated maintenance. Table 3, adapted from Table 2-4 in the TCCA IS/EA (p. 3-3) summarizes the attainment status for the counties located in the Sacramento Valley.

The Sacramento Valley Air Basin is bounded by the North Coast Ranges on the west and the Northern Sierra Nevada Mountains on the east, forming a bowl-shaped valley. The Sacramento Valley has a Mediterranean climate, which is characterized by hot dry summers and mild rainy winters.

Most of the predominant land use in the sellers' service area is agricultural. Farming practices, including land preparation and harvest, contribute to pollutant emissions, primarily particulate matter. Groundwater pumping with diesel and natural gas-fueled engines also emits air pollutants through exhaust. The primary pollutants emitted by diesel pumps are nitrogen oxides (NO<sub>x</sub>), volatile organic compounds (VOC), CO, PM<sub>10</sub>, and PM<sub>2.5</sub>; NO<sub>x</sub> and VOCs are precursors to O<sub>3</sub> formation.

Federal general conformity regulations apply to a federal Proposed Action in a nonattainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutants caused by the Proposed Action equal or exceed certain *de minimis* amounts (40 CFR 93.153). Conformity means that such federal actions must be consistent with a state implementation plan's (SIP's) purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of those standards.

Table 3. State and Federal Attainment Status

County	O <sub>3</sub> CAAQS	PM <sub>2.5</sub> CAAQS	PM <sub>10</sub> CAAQS	O <sub>3</sub> NAAQS	PM <sub>2.5</sub> NAAQS	PM <sub>10</sub> NAAQS	CO NAAQS
Colusa	A	A	N	A	A	A	A
Glenn	A	A	N	A	A	A	A
Shasta	N	A	A	A	A	A	A
Tehama	N	U	N	A <sup>4</sup>	A	A	A
Yolo	N-T	U	N	N <sup>3</sup>	N <sup>5</sup>	A	M

Source: 17 California Code of Regulations §60200-60210; 40 CFR 81; CARB 2019; USEPA 2020a

Notes:

- 1 Nonattainment/transitional areas are defined as those areas that during a single calendar year, the State standards were not exceeded more than three times at any monitoring location within the area.
- 2 The Sacramento Metro nonattainment area for Sutter County is defined as the “portion south of a line connecting the northern border of Yolo County to the southwestern tip of Yuba County and continuing along the southern Yuba County border to Placer County” (40 CFR 81.305).
- 3 8-hour O<sub>3</sub> classification = moderate
- 4 The Tuscan Buttes portion of Tehama County is classified as marginal non-attainment; however, the Project area is located within the attainment region of Tehama County (USEPA 2020a).
- 5 Designated moderate nonattainment under the 2006 PM<sub>2.5</sub> NAAQS.

Key:

- A = attainment (background air quality in the region is less than (has attained) the ambient air quality standards)
- CO = carbon monoxide
- N = nonattainment (background air quality exceeds the ambient air quality standards)
- N-T = nonattainment/transitional (a subcategory of nonattainment where an area is close to attainment, has only two days exceeding standards, and is projected to meet standards within three years)
- O<sub>3</sub> = ozone
- PM<sub>10</sub> = inhalable particulate matter
- PM<sub>2.5</sub> = fine particulate matter
- U = unclassified/attainment (area does not have enough monitors to determine the background concentrations; treated the same as attainment)

## Greenhouse Gas Emissions (GHG)

Section VIII in the TCCA IS/EA (p. 3-25) describes the environmental setting for GHG in the Sacramento Valley. The section focuses on three pollutants: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) that contribute to GHG. Groundwater pumping with diesel and natural gas-fueled engines emit air pollutants through exhaust. CARB uses a threshold of 25,000 metric tons CO<sub>2</sub> per year as a threshold for including facilities in its cap-and-trade regulation (17 CCR 95800-96023).

## Environmental Consequences

### No Action Alternative

Under the No Action Alternative, Reclamation would not fund additional groundwater pumping. There would be no impacts to air quality from pumping funded by Reclamation. SRSCs could move forward with some groundwater pumping without Reclamation funding at a smaller scale outside of the discretion of Reclamation.

## ***Proposed Action***

The Proposed Action will use a combination of electric, diesel, and propane driven groundwater pumps depending on the specific water agency. All diesel-fueled engines are subject to CARB's Airborne Toxic Control Measure (ATCM) for Stationary Ignition Engines (17 California Code of Regulations [CCR] 93115). The ATCM does not expressly prohibit the use of diesel engines for agricultural purposes; therefore, diesel engines may be used for groundwater pumping under the Proposed Action as long as they are replaced when required by the compliance schedule. All pumps proposed to be used by the water agencies would operate in compliance with all rules and regulations at the federal, state, and local levels, including the ATCM.

Diesel engines used for groundwater pumping may generate near-field odors. The local air districts have rules that prohibit emissions that could cause nuisance or annoyance to a considerable number of people. Groundwater pumps are located in rural areas and existing agricultural land and are not located within one-quarter mile of a sensitive receptor. Emissions from individual engines are regulated.

Under the Proposed Action, there may be an increase in the use of diesel engines associated with an increased use of groundwater. Appendix B and B-2 outline a letter of agreement and information about specific methodologies by the participants in the Proposed Action.

## ***Environmental Commitment 2 (EC 2) – Air Quality***

- All water agencies would operate their groundwater pumps in compliance with the local rules and regulations. Under the Proposed Action, participants would provide evidence of registration of diesel energy sources with their local district.

## **Greenhouse Gas Emissions**

EC 2 ensures participants under the Proposed Action comply with local rules and regulations and address impacts from pollutants of concern to air quality and GHG. Groundwater wells without evidence of registration with local AQMD/APCD will not be allowed to participate.

## **Biological Resources**

### **Affected Environment**

Seasonally flooded agriculture in the Sacramento Valley may include grain, rice, and other crops (Reclamation and SLDWMA 2019). Rice fields provide important foraging, resting, nesting, and breeding habitat for a variety of species. Additional information on this habitat can be found in the 2019 LWT EIS/EIR Appendix M (Section M.1.13 Seasonally Flooded Agriculture Habitat).

Agricultural lands that are not seasonally flooded, such as upland cropland areas are found through the Sacramento Valley (Reclamation and SLDWMA 2019). Additional information on this habitat can be found in the 2019 LWT EIS/EIR Appendix M (Section M.1.14 Upland Cropland Habitat). Upland crop fields provide important foraging habitat for a variety of wildlife species. Irrigation ditches associated with upland cropland can contain wetland vegetation such as cattails, which provide cover habitat for rails, egrets, herons, bitterns, marsh wrens, sparrows, and common yellowthroats.



## ***Groundwater Dependent Ecosystems***

Groundwater Dependent Ecosystems (GDE) are those ecosystems that are supported, permanently or intermittently, by groundwater resources. This can include rivers, lakes, and wetlands. Plant communities include deep-rooted vegetation (i.e., areas without oak trees and riparian trees that would have tap roots greater than 10 feet deep) and are of concern within one-half mile of the participating wells or in areas where vegetation is located along waterways or irrigated fields that will continue to have water during the period of transfer. Existing resources such as DWR's groundwater dependent ecosystem maps or any existing biological survey data in the area, and aerial imagery (e.g. Google Maps) could be used to identify deep rooted vegetation near the participating pumping wells. Data and maps on GDEs are provide by DWR here: (<https://gis.water.ca.gov/app/NCDataSetViewer/>)

## ***Migratory Birds***

Managed wetlands and flooded agriculture in the Sacramento Valley provide critical nesting and wintering habitat for millions of migratory birds. These open water habitats and associated vegetation provide food, cover, and resting sites for migrating birds. The Sacramento Valley is considered the most important wintering site for migratory birds on the Pacific Flyway, supporting nearly 50 percent of wintering shorebirds and over 60 percent of wintering waterfowl using the Pacific Flyway. Flooded agriculture within the Sacramento Valley accounts for approximately 57 percent of food resources available to waterfowl (Petrie and Petrick 2010). Although these species are not considered special-status wildlife species, they are protected under the Migratory Bird Treaty Act. Additional details on migratory birds can be found in the 2019 LWT EIS/EIR Appendix N (Section N.2.11).

## ***Special-status Species***

Federally and state listed fish species potentially affected by water transfers are described in the 2019 LWT EIS/EIR ( Section 3.7.1.3.3). CVP operations and the Sacramento River are described in the 2019 LTO EIS. Table N-1 in Appendix N of 2019 LWT EIS/EIR includes a species list for species affected by the LWT Program.

## ***Giant Garter Snake***

Giant garter snake (GGS) historically occupied wetlands throughout the Sacramento Valley. The current known distribution of giant garter snakes is patchy, extending from near Chico, Butte County, south to Mendota Wildlife Area, Fresno County. Additional details on GGS can be found in the 2019 LWT EIS/EIR Appendix N (Section N.2.1).

GGS typically breed in March and April and live young are born from late July to early September (Halstead et. al. 2015). GGS inhabit marshes, sloughs, ponds, small lakes, low gradient streams, agricultural wetlands (including irrigation canals and rice fields), and adjacent uplands. Essential habitat components consist of :1) freshwater aquatic habitat with protective emergent vegetation cover where snakes can forage; 2) upland habitat near the aquatic habitat that can be used for thermoregulation and summer shelter (i.e., burrows), and 3) upland refugia outside flood waters that can serve as winter hibernacula (Service 2015).

Flooded rice fields provide a component of aquatic habitat for GGS for approximately one-third of their active season (Halstead et. al. 2016). In the Sacramento Valley, cultivated rice generally emerges from flooded fields in late May or early June, but sufficient growth that provides cover for snakes

does not occur until approximately late June. Water is then drawn off the fields to allow them to dry in late August or early September.

### **Valley Elderberry Longhorn Beetle**

The valley elderberry longhorn beetle (VELB) was federally listed as a Threatened species by USFWS on August 8, 1980. Critical Habitat (CH) was designated by USFWS on August 8, 1980. Suggested threats to the existence of this species include loss of elderberry shrubs and associated riparian habitat, pesticide use, grazing and other mismanagement of riparian habitat. Current recovery efforts are primarily focused on revegetating riparian habitats. VELB is endemic to the Central Valley of California. They are associated with elderberry (*Sambucus spp.*) shrubs during their entire life cycle. VELB larvae bore into and feed on the pithy core of elderberry stems for up to two years before emerging as adults after chewing an exit hole through the stem and bark. The adult beetles feed on elderberry foliage until they mate in early summer. The female then lays eggs in crevices in the bark of the elderberry plant.

### **Critical Habitat**

Critical habitat is defined in Section 3(5)(a) of ESA as the specific areas within the geographical area occupied by a species on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection (15 USC 1632(a)). Critical habitat also includes specific areas outside the geographic area occupied by the species which are determined to be essential for the conservation of the species.

No critical habitat has been designated for giant garter snake. There is no critical habitat or proposed critical habitat within or adjacent to the action area for valley elderberry longhorn beetle or Least Bell's Vireo. The extent of the critical habitat for the Western Yellow-billed Cuckoo (Unit 2: CA-2) is along the Sacramento River between Red Bluff and Colusa, California. The Sacramento River is included as critical habitat for southern DPS of Green Sturgeon, California Central Valley DPS of steelhead, and Central Valley spring-run Chinook Salmon, and Sacramento River winter-run Chinook Salmon.

## **Environmental Consequences**

### **No Action Alternative**

Under the No Action Alternative, Reclamation would not fund additional groundwater pumping and no associated impact to groundwater levels would occur. Droughts may result in a decline in groundwater levels that may recover during subsequent wet periods. There would be no permanent impacts on biological resources that rely on groundwater under the No Action Alternative.

Absent additional groundwater pumping, surface water would be available for agricultural use. SRSCs could move forward with a smaller amount of groundwater pumping without Reclamation funding and, thus, outside of the discretion of Reclamation.

### **Proposed Action**

Under the Proposed Action, there will be an increased use of groundwater to irrigate crops instead of diversion of water from the Sacramento River. Increased groundwater pumping compared to the No Action will substitute for water usually provided from CVP supplies. This additional use of groundwater will reduce stream flows during and after a pumping as the groundwater aquifer refills. Increased subsurface drawdown will potentially affect fish habitats, such as riverine, riparian,

seasonal wetland, and managed wetland habitats, which are reliant on groundwater for all or part of their water supply. Decreased amounts of surface water in these habitats could affect fish species of management concern.

The Proposed Action will increase groundwater pumping compared to the No Action Alternative, which will result in reduction of groundwater levels in the vicinity of pumps. Subsurface draw down has the potential to affect riverine, riparian, seasonal wetland, and managed wetland habitats. The 2019 LWT EIS/EIR established that groundwater levels more than 15 feet below ground surface would not likely affect overlying terrestrial resources. Oak trees and riparian trees can have tap roots greater than 10 feet deep. Plant communities have the ability to adjust and accommodate the change given the slow rate. The Proposed Action area is largely agricultural land and there are no changes proposed by the participants relative to irrigated lands, or water levels in fields, canals, or drains, as a result of the Proposed Action. On average, groundwater pumping in the region accounts for millions of AF of water. The use of 60,000 AF under this voluntary program is well within the range of historic groundwater use for the region. Commitments associated with the Proposed Action, such as implementing a regional monitoring network, will avoid adverse impacts to vegetation relative to the proposed groundwater pumping.

### ***Groundwater Dependent Ecosystems***

Groundwater pumping has the potential to affect small streams and associated wetlands, rice fields, and associated canals and drainage ditches. Managed wetland and agricultural habitats in the area of analysis that provide giant garter snake habitat do not typically depend on surface and groundwater interaction to maintain suitable habitat conditions (2019 LWT EIS/EIR).

Groundwater Sustainability Plans (GSP) are documents used for the management of groundwater. Although the GSPs for the area of the Proposed Action are currently being prepared, for guidance on this issue, Reclamation examined the GSP for the Yuba Water Agency GSA – South Yuba, which includes the portion of the Feather River and adjacent lands. The GSP separates the NCCAGs between those that are likely to be GDEs, from those NCCAGs with likely access to non-groundwater water supplies (e.g., access to other water source). The majority of those areas likely to be GDEs, if not all, are within the Feather River corridor, adjacent to irrigation canals/drains, and/or adjacent to irrigated fields. For those areas, the GSP concludes that groundwater pumping is “not likely to substantially impact shallow groundwater conditions, which are instead considered more likely to be driven by contributions from nearby irrigated agriculture or surface water bodies.”

The area of Proposed Action is largely agricultural land. Therefore, the same conclusion as the GSP is appropriate. Following a similar approach as that contained in the GSP for the Yuba Water Agency GSA – South Yuba, Reclamation concludes that groundwater pumping for the Proposed Action does not impact shallow groundwater conditions, as those are driven by contributions from the Sacramento River and from nearby irrigated agriculture. There are no changes proposed by the participants relative to irrigated lands, or water levels in fields, canals, or drains, as a result of the Proposed Action. Further, Reclamation maintains flows in the Sacramento River in accordance with Reclamation’s operational and regulatory requirements. Those operations, combined with the other requirements associated with the Proposed Action, such as implementing a regional monitoring network, will avoid adverse impacts to surface water flows relative to the proposed groundwater pumping.

The Proposed Action allows for increased availability of water to remain in the Sacramento River or stored in Shasta Reservoir by reducing reliance on surface water diversions. The Proposed Action will also provide water for beneficial uses.

Where appropriate, the groundwater monitoring networks associated with efforts to comply with SGMA or networks associated with groundwater substitution transfers may be relied upon by Reclamation and SRSCs. Appendix B and B-2 outline a letter of agreement and information about specific methodologies by the participants in the Proposed Action.

### ***Migratory Birds***

Managed wetlands and flooded agriculture in the Sacramento Valley provide critical nesting and wintering habitat for millions of migratory birds. There are no changes proposed by the participants relative to irrigated lands, or water levels in fields, canals, or drains, as a result of the Proposed Action. There are no changes to critical habitat for the Western Yellow-billed Cuckoo in the Proposed Action area.

### ***Giant Garter Snake***

GGS inhabit marshes, sloughs, ponds, small lakes, low gradient streams, agricultural wetlands (including irrigation canals and rice fields), and adjacent uplands. There are no changes proposed by the participants relative to irrigated lands, or water levels in fields, canals, or drains, as a result of the Proposed Action.

### ***Valley Elderberry Longhorn Beetle***

VELB are associated with elderberry (*Sambucus spp.*) shrubs during their entire life cycle. The area of Proposed Action is largely agricultural land. Reclamation concludes that groundwater pumping for the Proposed Action does not impact shallow groundwater conditions, as those are driven by contributions from the Sacramento River and from nearby irrigated agriculture. There are no changes proposed by the participants relative to irrigated lands, or water levels in fields, canals, or drains, as a result of the Proposed Action. Further, Reclamation maintains flows in the Sacramento River in accordance with Reclamation's operational and regulatory requirements. Those operations, combined with the other requirements associated with the Proposed Action, such as implementing a regional monitoring network, will avoid adverse impacts to surface water flows relative to the proposed groundwater pumping.

### ***Environmental Commitment 1 (EC 1) – Groundwater Monitoring***

Under EC1- Groundwater Monitoring, groundwater levels will be monitored and Reclamation may reduce or cease pumping until groundwater levels recover in order to avoid impacts to biological resources.

- Regionally, ground water data provided by a regional groundwater monitoring network maintained by DWR, will be monitored and evaluated for performance and expectations as compared to the historic lows of water years 2014 and 2015. If the regional network is not performing consistent with the patterns of historic lows established in 2014 and 2015, large portions of the production well network will be shut down and not allowed to participate in the voluntary program until the monitoring network recovers and performs consistent with expectations as established during 2014 and 2015.
- On an individual well level, Reclamation will rely on 3rd party complaints of individual performance. If reclamation receives complaints about third party impacts, Reclamation will require individual wells near the complaint to shut down until Reclamation can verify

recovery of the 3rd party well or determine if the production wells in the voluntary program are not the cause to the third party impact.

EC 1 ensures participants under the Proposed Action monitor groundwater actions to reduce and minimize impacts to groundwater resources. Reclamation will use this information to determine if participants' action is acceptable. Most of the monitoring wells in the region were in place during the previous critical drought years of 2014 and 2015 and data exists on the performance of these wells that is used to establish historic lows and anticipated operations and performance expectations on a regional basis. Consistent with the 2019 LTWT EIS/EIR, the drought years of 2014 and 2015 serve as the historic lows for individual wells that participate in the Long-Term transfer program. While new monitoring wells have been added to the DWR network, the broad pattern of performance of all the wells will be measured as compared to the broad performance of the wells during the 2014 and 2015 drought years, and will serve as a reference point on a regional basis.

## **Environmental Justice and Socioeconomics**

### **Affected Environment**

Executive Order 12898 directs federal agencies to address disproportionately high and adverse human health and environmental effects on minority and low-income populations.

Neither the Proposed Action nor the No Action Alternative involve activities that will cause dislocation, or increase flood, drought, or disease, or disproportionately impact economically-disadvantaged or minority populations.

### **Environmental Consequences**

#### ***No Action Alternative***

Under the No Action Alternative, Reclamation would not fund additional groundwater pumping. There would be no impacts to environmental justice or socioeconomics from pumping funded by Reclamation. The No Action Alternative does not involve activities that will cause dislocation, or increase flood, drought, or disease, or disproportionately impact economically-disadvantaged or minority populations. SRSCs could move forward with a smaller amount of groundwater pumping without Reclamation funding at a smaller scale outside of the discretion of Reclamation.

#### ***Proposed Action***

The Proposed Action does not take land out of production and allows some land to remain in production. The Proposed Action would not involve activities that will cause dislocation, or increase flood, drought, or disease, or disproportionately impact economically-disadvantaged or minority populations.

The transfers will potentially support farm workers and other employment opportunities. The Proposed Action will result in potentially beneficial environmental justice and socioeconomic effects.

## **Indian Trust Assets**

### **Affected Environment**

Indian Trust Assets (ITAs) are legal interests in assets that are held in trust by the United States for federally recognized Indian tribes or individuals. ITAs in the Proposed Action area are described in

the 2019 LWT EIS/EIR, Section 3.12.1.3. The following ITAs fall within the boundaries of the Sacramento Valley Groundwater Basin:

- Auburn Rancheria
- Chico Rancheria
- Colusa
- Cortina
- Paskenta
- Rumsey

## **Environmental Consequences**

### ***No Action Alternative***

Under the No Action Alternative, Reclamation would not fund additional groundwater pumping. There would be no impacts to ITAs from pumping funded by Reclamation. SRSCs could move forward with a smaller amount of groundwater pumping without Reclamation funding at a smaller scale outside of the discretion of Reclamation.

### ***Proposed Action***

Groundwater substitution transfers have the potential to adversely affect ITAs by decreasing groundwater levels, which would potentially interfere with the exercise of a federally-reserved water right use, occupancy, and or character.

Of the tribes identified in the Sacramento Valley Groundwater Basin, only the Chico Rancheria is located near a streambed, Butte Creek. Chico Rancheria is along the border of the Sacramento Valley Groundwater Basin, where effects from groundwater substitution will be less than if the ITAs were more centrally located in the basin. Colusa is more centrally located in the Sacramento Valley Groundwater Basin than other ITAs. Under the Proposed Action, groundwater pumping will occur under the LWT Program or through the more conservative pilot/demonstration program.

The 2019 LWT EIS/EIR identifies that groundwater substitution in the Sacramento Valley Groundwater Basin would have a negligible effect to groundwater near ITAs. Therefore, groundwater pumping under the Proposed Action would not decrease water supplies; affect the health of tribal members; or federally-reserved hunting, gathering, or fishing rights.

## **Noise**

### **Affected Environment**

Noise is typically measured in decibels (dB) on a logarithmic scale, meaning each increase in ten dB equals a doubling of loudness. Diesel engines at a distance of 50 feet produce a sound level of 75-85 dB. (Glenn County 1993).

## **Environmental Consequences**

### ***No Action Alternative***

Under the No Action Alternative, Reclamation would not fund additional groundwater pumping. There would be no impacts to noise levels from pumping funded by Reclamation. SRSCs could



move forward with groundwater pumping at a smaller scale without Reclamation funding and, thereby, outside of the discretion of Reclamation.

### ***Proposed Action***

The Proposed Action will result in the temporary operation of existing electric, diesel, and propane driven groundwater pumps which would result in temporary increases in noise levels. The groundwater pumping will occur in rural areas, in a farm setting with typical noise from agricultural operations. The pumping would be done by a willing landowner; therefore, any localized noise levels would be approved by the landowner.

## **Groundwater Resources**

### **Affected Environment**

The affected environment for the Proposed Action includes the Redding Area Groundwater Basin (Section 3.3.1.2.1; 2019 LWT EIS/EIR) and the Sacramento Valley Groundwater Basin (Section 3.3.1.2.2; 2019 LWT EIS/EIR).

Table 3.3-3 of the 2019 LWT EIS/EIR includes the water transfers through groundwater substitution under the LWT Program, including potential seller, number of wells, pumping rate per well, and well depth. Each of the following under the Proposed Action are also included in Table 3.3-3 as potential sellers:

- Anderson-Cottonwood Irrigation District
- Glenn-Colusa Irrigation District
- Princeton-Codora-Glenn Irrigation District
- Provident Irrigation District
- Reclamation District No. 108
- Reclamation District No. 1004
- River Garden Farms
- Sycamore Mutual Water Company

The 2019 LTO EIS includes the Groundwater Technical Appendix I. Section I.1.3.1 of Appendix I to the 2019 LTO EIS describes the groundwater basins in the Sacramento Valley.

Groundwater levels are generally in balance across the Sacramento Valley, with pumping matched by recharge from the various sources annually. Some locales show early signs of persistent drawdown, especially in areas where water demands are met primarily (and in some locales exclusively) by groundwater. These areas include portions of the far west side of the Sacramento Valley in Glenn County, portions of Butte County near Chico, portions of Yolo County, and in the northern Sacramento County area. The persistent areas of drawdown could be early signs that the limits of sustainable groundwater use have been reached in these areas.

Groundwater basins are naturally recharged after drawdown by both rainfall and through surface water and groundwater interactions. Streams that overlie an aquifer can lose water through the streambed to an aquifer (a “losing” stream), decreasing the amount of water available in the stream for other beneficial uses. Additional recharge to the groundwater basin can also intercept groundwater flow that would have entered a stream.

## **Groundwater Management**

The passage of the SGMA by California in 2014 changed State policies for groundwater management. SGMA requires that local agencies develop plans for “management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.” SGMA requires that groundwater basins be operated sustainably by a Groundwater Sustainability Agency (GSA) under a GSP by either January 31, 2020 (for medium- and high-priority basins with overdraft conditions) or January 31, 2022 (for medium- and high-priority basins without overdraft conditions). Basins designated as low or very low-priority are not subject to SGMA. Adjudicated basins are not required to develop a GSP.

## **Land Subsidence**

Land subsidence is a process where the grains of the aquifer may rearrange and compact, making the layers of the subsurface thinner and causing the elevation of the ground surface to drop. Compaction requires the material be susceptible to compaction (typically clays). In these materials, when the water pressure within the material is reduced beyond the historical low value, the grains of the clay reorient and compact. Therefore, both appropriate material and lower water pressure, typically caused by pumping, need to exist for subsidence to occur. Areas of the Sacramento Valley have shown signs of land subsidence in recent years.

The 2019 LWT EIS/EIR provides that in the Redding Area Groundwater Basin, DWR has measured less than 0.2 feet of subsidence between 2008 and 2017 (DWR 2019).

Historically, greater than one foot of land subsidence has occurred in the eastern portion of Yolo County and the southern portion of Colusa County, owing to groundwater extraction and geology. Due to groundwater withdrawal over several decades, between 0.3 to 1.1 feet of land subsidence has been recorded east of the town of Zamora between 2008 and 2019 (DWR 2019). In Yolo County within Conaway Ranch, DWR observed land subsidence estimated at approximately 0.2 foot from 2012 to 2013 and an additional 0.6 foot from 2013 to 2014 (DWR 2017b). In comparison, slightly less than 0.1 foot of subsidence occurred over the previous 22 years (1991-2012). Ground surface elevations have reverted to pre-2012 trends at this station since 2014 and approximately 0.03 feet of subsidence has been recorded since 2015 (DWR 2017b). The area between Zamora, Knights Landing, and Woodland has been most affected (Yolo County 2012). In Colusa County, the Arbuckle area has measured approximately 2.14 feet of subsidence between 2008 and 2017 (DWR 2019). In Glenn and Sutter counties, between 0.4 to 0.6 feet and 0.2 to 0.4 feet was measured from 2008 through 2017 respectively. Subsidence in these regions are generally related to groundwater pumping and subsequent consolidation of loose aquifer sediments.

## **Environmental Consequences**

### ***No Action Alternative***

Under the No Action Alternative, Reclamation would not fund the use of groundwater wells to further offset surface water diversion from the Sacramento River. SRSCs could move forward with groundwater pumping at a smaller scale without Reclamation funding and, thereby outside of the discretion of Reclamation. Groundwater that is pumped to be transferred that is not included in the 2019 LWT EIS/EIR would not occur under the No Action Alternative. Under the No Action Alternative, Reclamation would continue to operate consistent with the 2019 LWT EIS/EIR, 2021 TCCA IS/EA, 2019 LTO EIS, and associated ESA consultations and decision documents. Under the No Action Alternative, no additional groundwater pumping within Reclamation’s discretion



would occur beyond those fulfillments of transfer commitments from those wells participating in the programs analyzed in the 2019 LWT EIS/EIR and/or the 2021 TCCA IS/EA.

### ***Proposed Action***

Under the Proposed Action, groundwater pumping is estimated up to approximately 60,000 AF. Extraction of groundwater used in lieu of diverting surface water to make surface water available could decrease groundwater levels, increasing the potential for subsidence. However, the volume of groundwater pumping under the Proposed Action is insignificant relative to the total groundwater pumping within the Redding Area and Sacramento Valley groundwater basins where the voluntary groundwater pumping is proposed. On average, groundwater pumping in the region accounts for 2.25 million AF and can be as high as 4.5 million AF in dry years. The use of 60,000 AF under this voluntary program is well within the range of historic groundwater use for the region. Therefore, a regional approach for groundwater monitoring to assess the overall impacts regionally as well as an individual program monitoring program based on 3rd party complaints of well performance is appropriate for the Proposed Action.

Reclamation currently implements a monitoring program described in the 2019 LWT EIS/EIR to characterize fluctuations in groundwater levels in the pumping area (Mitigation Measure GW-1; Section 3.3.4) and reduce impacts related to groundwater levels and land subsidence.

Wells that are part of the pilot/demonstration project would follow a regional approach to monitoring wells through the DWR network, which would be more conservative than those included in the LWT Program. Use of telemetry or other methods of monitoring to determine if action is needed would ensure a more conservative approach.

### **Groundwater Management**

Under the Proposed Action, there will be an increased use of groundwater. Where appropriate, the groundwater monitoring networks associated with efforts to comply with SGMA or networks associated with groundwater substitution transfers may be relied upon by Reclamation and SRSCs. Appendix B and B-2 outline a letter of agreement and information about specific methodologies by the participants in the Proposed Action.

### **Land Subsidence**

To prevent adverse impacts to groundwater levels, the monitoring approach will include reducing or ceasing pumping at wells under the pilot/demonstration project until groundwater levels recover to restart pumping. While a groundwater well may continue to be operated, it would not be in connection with the voluntary groundwater pumping approach funded by Reclamation. This real-time groundwater management program would allow the maximum use of groundwater in order to conserve surface water supplies to meet Reclamation's other objectives/requirements.

### ***Environmental Commitment 1 (EC 1) – Groundwater Monitoring***

- Regionally, ground water data provided by a regional groundwater monitoring network maintained by DWR, will be monitored and evaluated for performance and expectations as compared to the historic lows of water years 2014 and 2015. If the regional network is not performing consistent with the patterns of historic lows established in 2014 and 2015, large portions of the production well network will be shut down and not allowed to participate in the voluntary program until the monitoring network recovers and performs consistent with expectations as established during 2014 and 2015.

- On an individual well level, Reclamation will rely on 3rd party complaints of individual performance. If reclamation receives complaints about third party impacts, Reclamation will require individual wells near the complaint to shut down until Reclamation can verify recovery of the 3rd party well or determine if the production wells in the voluntary program are not the cause to the third party impact.

EC 1 ensures participants under the Proposed Action monitor groundwater actions to reduce and minimize impacts to groundwater resources. Reclamation will use this information to determine if participants' action is acceptable. Most of the monitoring wells in the region were in place during the previous critical drought years of 2014 and 2015 and data exists on the performance of these wells that is used to establish historic lows and anticipated operations and performance expectations on a regional basis. In keeping with the 2019 LWT EIS/R the drought years of 2014 and 2015 serve as the historic lows for individual wells that participate in the Long-Term transfer program. While new monitoring wells have been added to the DWR network, the broad pattern of performance of all the wells will be measured as compared to the broad performance of the wells during the 2014 and 2015 drought years, and will serve as a reference point on a regional basis.

## **Hydrology and Water Quality**

### **Affected Environment**

The affected environment for the Proposed Action includes the Sacramento Valley (Section 3.1 Water Supply, Section 3.2 Water Quality; 2019 LWT EIS/EIR). Section 3.1.1.3.1 in the 2019 LWT EIS/EIR describes the Sacramento River area and SRSCs that divert water from the Sacramento River.

The 2021 water year for the Sacramento-San Joaquin River Basin is currently the driest since 1977. The 2019 LTO EIS, describes the transfer of project and nonproject water supplies through CVP and SWP facilities, including north-to-south transfers and Sacramento River north-to-north transfers (Section 3.4.5.4). The 2019 LTO EIS includes an extended transfer window from July 1 through November 30. The extended transfer window is expected to provide benefits for water supply and flexibility to improve Sacramento River temperatures during dry conditions, such as 2021.

### **Environmental Consequences**

#### **No Action Alternative**

Under the No Action Alternative, Reclamation would not fund the use of groundwater wells to further offset surface water diversion from the Sacramento River. In absence of this proposed voluntary program, there is a potential for greater water shortages to these and other beneficial uses (e.g., crop losses, adverse environmental impacts, water quality standards).

Under the No Action Alternative, surface water diversions would continue and groundwater would not be used to offset surface water diversions from the Sacramento River in response to drought conditions in 2021.

SRSCs could move forward groundwater pumping in accordance with existing environmental documentation, such as the 2019 LWT EIS/EIR and/or the 2021 TCCA IS/EA, without Reclamation funding. SRSCs groundwater pumping would be outside of the discretion of Reclamation.

## **Proposed Action**

Under the Proposed Action, Reclamation will provide funding for the use of groundwater wells to further offset surface water diversions from the Sacramento River, following the fulfillment of transfer commitments from those wells participating in the transfer program. Under the Proposed Action, groundwater sources would be used in lieu of surface water diversions from the Sacramento River. The Proposed Action would not increase agricultural water supply nor prevent fallowing, but rather change the source to use groundwater in lieu of surface water diversions. The in lieu surface supplies may either remain in Shasta Reservoir as carryover storage or provide for water quality and/or health and safety uses downstream.

Surface water diversions from the Sacramento River up to 60,000 AF would be offset by additional groundwater pumping. The Proposed Action will provide water supplies from groundwater that otherwise is available as surface supplies from storage under the No Action Alternative. Under the Proposed Action, there will be an increased use of groundwater to irrigate crops instead of diversion of CVP water supplies from the Sacramento River. The Proposed Action will have temporary beneficial effects to surface water supplies in 2021.

Under the Proposed Action, there will be an increased use of groundwater. Appendix B and B-2 outline a letter of agreement and information about specific methodologies by the participants in the Proposed Action.

By reducing reliance on surface water diversions in this very dry year, Reclamation and the SRSCs intend to increase availability of water for beneficial purposes in the Sacramento Valley, including listed aquatic species, fish, birds, farms and cities.

## **Cumulative Effects**

On July 16, 2020, CEQ published a final rule to update its regulations for Federal agencies to implement NEPA. The definition of effects or impacts was revised to mean “changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives” (40 CFR § 1508.1(g)). Cumulative impact, defined in 40 CFR 1508.7 (1978), was repealed (40 CFR § 1508.1(g)(3)).

On April 16, 2021, DOI released Secretarial Order (SO) 3399. SO 3399 directed departments to “not apply the 2020 Rule in a manner that would change the application or level of NEPA that would have been applied to a proposed action before the 2020 Rule went into effect on September 14, 2020.”

In consideration of recent updates to federal regulations and orders and guidance, cumulative effects of implementation of reasonably foreseeable projects are analyzed. Cumulative effects are those environmental effects that, on their own, may not be considered significant but when combined with similar effects over time have the potential to result in significant effects.

Additional groundwater pumping occurs at other wells across the Sacramento Valley in 2021 to meet water needs. This increased pumping is especially prominent among non-SRSC water users throughout the Sacramento Valley who experience even greater reductions in water supply due to current drought conditions. Reclamation anticipates groundwater pumping by other water users to

supplement available surface water supplies, with or without the Proposed Action. There are water transfers occurring within the Sacramento Valley involving groundwater substitution. Those water transfers involving Reclamation were analyzed under separate environmental documents, described above.

Some of the wells identified in those documents are also included in this EA; however, the voluntary groundwater pumping proposed under this EA would occur at those wells following completion of groundwater substitution for water transfers to SLDMWA and TCCA. Therefore, the proposed action identified in this EA is separate from the groundwater substitution activities for water transfers to SLDMWA and TCCA. Each participating SRSC would inform Reclamation prior to initiation of groundwater pumping for the proposed voluntary approach. The proposed groundwater pumping would be in addition to groundwater pumping at a well that would occur in absence of the voluntary approach (i.e., in addition to groundwater pumping due to limited surface water supplies or in addition to participation in a groundwater substitution water transfer). Under the No Action Alternative or under the Proposed Action, SRSCs and landowners could operate additional pumps for groundwater wells outside the discretion of Reclamation, not in connection with a voluntary groundwater pumping approach funded by Reclamation. The potential for cumulative impacts from additional groundwater pumping would be associated with both the No Action Alternative or the Proposed Action.

SGMA requires that local agencies develop plans for “management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.” SGMA requires that groundwater basins be operated sustainably by a Groundwater Sustainability Agency (GSA) under a GSP by either January 31, 2020 (for medium- and high-priority basins with overdraft conditions) or January 31, 2022 (for medium- and high-priority basins without overdraft conditions). Basins designated as low or very low-priority are not subject to SGMA. Adjudicated basins are not required to develop a GSP.

Other legal users of groundwater include urban gardens, municipal canopies, and agricultural crops. Reclamation anticipates groundwater pumping by water users to supplement available surface water supplies in the Sacramento Valley, with or without the Proposed Action for WY 2021.

The Proposed Action would have no impacts to resources in Table 2 and, thus, no cumulative effects to those resources to consider.

## **Consultation and Coordination**

### **Agencies and Persons Consulted**

At this time, and subject to further review by Reclamation in coordination with participating SRSCs, additional refinement to this proposed pilot project to demonstrate the voluntary groundwater pumping approach is possible. Changes to the proposed approach will be reviewed by Reclamation for significant departures from the description and consequences analyzed in this EA to determine whether further environmental analysis is appropriate and/or necessary.

### ***Section 7 of the Endangered Species Act***

Reclamation will coordinate with the USFWS and NMFS as appropriate under Section 7 of ESA. Reclamation has previously consulted with the agencies under Section 7 of ESA for operation of the CVP.

- NMFS LTO Endangered Species Act (ESA) Section 7 Biological Opinion, October 21, 2019
- USFWS LTO Biological Opinion, October 21, 2019

Reclamation's operation of the CVP relies on these consultations to satisfy ESA compliance for anadromous fish and delta smelt, including for water transfers. Additionally, Reclamation consulted with the USFWS on the effects of approving water transfers involving crop idling and crop substitutions on GGS.

- USFWS Long-Term Water Transfers Project Biological Opinion, May 17, 2019

### ***Section 106 of the National Historic Preservation Act (NHPA)***

The Proposed Action will occur within existing facilities and there will be no ground disturbing activities, changes in land use, or construction proposed that could disturb existing or potential cultural resources or historic properties.

This is the type of undertaking that does not have the potential to cause effects to historic properties, should such properties be present, pursuant to the Title 54 U.S.C. § 306108, commonly known as Section 106 of the National Historic Preservation Act (NHPA) regulations codified at 36 CFR § 800.3(a)(1). Reclamation has no further obligations under NHPA Section 106, pursuant to 36 CFR § 800.3(a)(1). This action would not have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by Reclamation (LND 02-01) (43 CFR 46.215 (g)).

### ***Other Federal, State, Tribal, or local laws***

Participants under the Proposed Action will comply with all applicable water and air pollution laws and regulations, obtain all required and applicable permits or licenses from the appropriate Federal, State, or local authorities necessary for the delivery of water; and will be responsible for compliance with all Federal, State, and local water quality standards applicable to surface and subsurface drainage and/or discharges generated through the use of CVP facilities or facilities or water provided within its water service area.

### **Public Involvement**

Reclamation provided the public with an opportunity to comment on the EA during the public review period. The document is available on Reclamation's website:

<https://www.usbr.gov/mp/nepa/>.

Reclamation posted the EA on July 7, 2021. Comments were requested by July 14, 2021. A notification was delivered through Reclamation's California-Great Basin Region NEPA Notification email: [sha-mpr-nepanotice@usbr.gov](mailto:sha-mpr-nepanotice@usbr.gov).

- Reclamation received comments on the EA from the following: Thad Bettner
- Darrin Williams
- Michael Billiou
- Dante John Nomellini Sr submitted comments on behalf of Central Delta Water Agency (CDWA)
- Barbara Vlamis submitted comments on behalf of AquAlliance, California Water Impact Network, and California Sportfishing Protection Alliance (collectively "AquAlliance")

Reclamation updated the EA to reflect substantial and informative comments. Agencies may revise the EA based on comments received without the need to initiate another comment period (43 CFR §46.305(b)). Comments and responses are included in Appendix A.

Comments were submitted suggesting alternatives to be considered in the EA. The California Sportfishing Protection Alliance, Save California Salmon, and the California Water Impact Network submitted comments to the State Water Resources Control Board in May 2021.

The comments describe alternatives that do not meet the need for the Proposed Action. These alternative actions and the response to CSPA were raised at the Thursday June 17, 2021 Sacramento River Temperature Task Group for coordination and input from agencies. Reclamation responded to the State Water Resources Control Board on June 21, 2021. This letter is attached as Appendix C.

## References

DWR. 2017. Conaway Ranch Extensometer 09N03E08C004M Ground Surface Displacement Plot. [http://wdl.water.ca.gov/waterdatalibrary/docs/Hydstra/docs/09N03E08C004M/POR/GROUND\\_SURFACE\\_DISPLACEMENT\\_POINT\\_PLOT.PNG](http://wdl.water.ca.gov/waterdatalibrary/docs/Hydstra/docs/09N03E08C004M/POR/GROUND_SURFACE_DISPLACEMENT_POINT_PLOT.PNG).

DWR. 2019. 2017 Sacramento Valley GPS Survey Project Fact Sheet. Available here: [https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Regional-Reports/2017\\_Sacramento\\_Valley\\_Subsidence\\_Survey\\_Project\\_Factsheet.pdf](https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Regional-Reports/2017_Sacramento_Valley_Subsidence_Survey_Project_Factsheet.pdf)

Glenn County. 1993. Glenn County General Plan. Volume III – Setting. Accessed June 15, 2021. Available at: <https://www.countyofglenn.net/sites/default/files/images/3%20Environmental%20Setting%20Technical%20Paper%20Glenn%20County%20GP%20Vol.%20III%20Reduced%20Size.pdf>

U.S. Bureau of Reclamation [Reclamation]. 2019. Long-Term Operation of the Central Valley Project and State Water Project Environmental Impact Statement. December 19, 2019. [https://www.usbr.gov/mp/nepa/nepa\\_project\\_details.php?Project\\_ID=39181](https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=39181)

[Reclamation] and San Luis and Delta-Mendota Water Authority. 2019. Long-Term Water Transfers Environmental Impact Statement/Environmental Impact Report. October 11, 2019. [https://www.usbr.gov/mp/nepa/nepa\\_project\\_details.php?Project\\_ID=18361](https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=18361)

[Reclamation] and Tehama-Colusa Canal Authority. 2021. 2021 Tehama-Colusa Canal Authority In-Basin Water Transfers Initial Study/Environmental Assessment. April 15, 2021. [https://www.usbr.gov/mp/nepa/nepa\\_project\\_details.php?Project\\_ID=49404](https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=49404)

U.S. Fish and Wildlife Service [Service]. 2015. Revised Draft Recovery Plan for Giant Garter Snake. Available at: <https://www.fws.gov/sacramento/outreach/2015/12-22/docs/GGSrevisedDraftRecoveryPlan2015.pdf>

Halstead, B., S.M. Skalos, G.D. Wylie., and M.L. Casazza. 2015. Terrestrial Ecology of Semi-Aquatic Giant Gartersnakes. *Herpetological Conservation and Biology* 10(2):633-644



- Halstead B.J., P. Valcarcel, G.D. Wylie, P.S. Coates, M.L. Casazza, and D.K. Rosenberg. 2016. Active season microhabitat and vegetation selection by giant gartersnakes associated with a restored marsh in California. *Journal of Fish and Wildlife Management* 7(2):397–407; e1944–687X. doi: 10.3996/042016-JFWM-029.
- Petrie, M., and Petrik, K. 2010. Assessing Waterbird Benefits from Water Use in California 26 Ricelands. Report prepared by Ducks Unlimited for the California Rice Commission. 27 Sacramento, CA. Available at: <http://www.calrice.org/pdf/DucksUnlimited.pdf>