

180 / 400 - Foot Aquifer Groundwater Sustainability 2025 Periodic Evaluation



Salinas Valley Basin
Groundwater Sustainability Agency

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Prepared by SV BGSAA and Montgomery & Associates



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ABBREVIATIONS AND ACRONYMS

AFacre-feet
AF/yracre-feet per year
CCRWQCBCentral Coast Regional Water Quality Control Board
COC(s)	.....Constituent(s) of concern
CSIP	.....Castroville Seawater Intrusion Project
DAC	.....Disadvantaged Communities
DDW	.....Division of Drinking Water
D-TAC	.....Drought Operations Technical Advisory Committee
DWR	.....California Department of Water Resources
eWRIMS	.....Electronic Water Rights Information Management System
GDE(s)	.....Groundwater dependent ecosystem(s)
GEMS	.....Groundwater Extraction Management System
GSA	.....Groundwater Sustainability Agency
GSP or Plan	.....Groundwater Sustainability Plan
GSP Amendment 1	..... Amendment to the 180/400-Foot Aquifer Subbasin GSP
GTAC	.....Groundwater Technical Advisory Committee
HCP	.....Habitat Conservation Plan
ILRP	.....Irrigated Lands Regulatory Program
InSAR	.....Interferometric Synthetic-Aperture Radar
ISW	.....interconnected surface water
MCL	.....Maximum Contaminant Level
MCWRA	.....Monterey County Water Resources Agency
mgd	.....million gallons per day
mg/L	.....milligrams per liter
MLRP	.....Multi-benefit Land Repurposing Program
PMA(s)	.....Projects and Management Action(s)
RCA(s)	.....Recommended Corrective Action(s)
RMS	.....Representative Monitoring Site
SGMA	.....Sustainable Groundwater Management Act
SMC	.....Sustainable Management Criteria/Criterion
SMCL	.....Secondary Maximum Contaminant Level
SRDF	.....Salinas River Diversion Facility
Subbasin	.....180/400-Foot Aquifer Subbasin
SVBGSA	.....Salinas Valley Basin Groundwater Sustainability Agency
SVIHM	.....Salinas Valley Integrated Hydrologic Model
SVOM	.....Salinas Valley Operational Model
SVRP	.....Salinas Valley Reclamation Project
SWIG	.....Seawater Intrusion Working Group
SWO	.....Surface Water Operations
SWRCB	.....State Water Resources Control Board

UMHOS/CM.....micromhos/centimeter
USGSU.S. Geological Survey
WYWater Year

EXECUTIVE SUMMARY

ES-1 Introduction

This report documents the Salinas Valley Basin Groundwater Sustainability Agency's (SVBGSA) evaluation of the first 5 years of implementation of the Groundwater Sustainability Plan (GSP) for the 180/400-Foot Aquifer Subbasin (180/400 Subbasin, or Subbasin). The 180/400 Subbasin is designated as a high priority and critically overdrafted basin, due in part to the presence of seawater intrusion. In recent decades, groundwater conditions in the 180/400 Subbasin have deteriorated for the following reasons: seawater intrusion, a decline in groundwater elevations in specific areas, and an overall decline in groundwater storage.

The 180/400 Subbasin is co-managed by the SVBGSA, Marina Coast Water District Groundwater Sustainability Agency (MCWD GSA), and the Monterey County Groundwater Sustainability Agency (MCGSA). The jurisdictional areas of each groundwater sustainability agency (GSA) are shown on Figure ES-1. The GSAs developed a single GSP for the entire 180/400 Subbasin.

In 2020, GSAs submitted the GSP for the 180/400 Subbasin that outlined how it would manage groundwater in accordance with the Sustainable Groundwater Management Act (SGMA). The California Department of Water Resources (DWR) approved the GSP in June 2021. This 2025 GSP Periodic Evaluation (GSP 2025 Evaluation) covers from Water Year (WY) 2019 to WY 2023. It is accompanied by GSP Amendment 1, which is the first amendment to the 180/400 Subbasin GSP. It fulfills the requirements of SGMA.

The 180/400 Subbasin is 1 of 6 subbasins within the Salinas Valley Groundwater Basin that fall partially or entirely within the jurisdiction of the SVBGSA. These 6 subbasins are referred to here as the Salinas Valley.

Following GSP submittal in 2020 and with funding from a DWR Proposition 68 Grant, SVBGSA created a 2-year work plan to prepare the 5 remaining GSPs in the Salinas Valley (Figure ES-1) along with a 2-year update to the 2020 GSP, GSP Amendment 1. SVBGSA formed 6 subbasin planning committees to provide input on the respective 6 subbasin GSPs. In January 2022, SVBGSA submitted the GSPs for the Eastside Aquifer (Eastside), Langley Area (Langley), Monterey (co-managed with Marina Coast Water District GSA), Forebay Aquifer (Forebay, co-managed with Arroyo Seco GSA), and Upper Valley Aquifer (Upper Valley) Subbasins to DWR. DWR reviewed and approved these plans in the spring of 2023.

The overarching groundwater sustainability goal of the 180/400 Subbasin is to manage groundwater resources for long-term community, financial, and environmental benefits of the Salinas Valley's residents and businesses. The goal of the Salinas Valley GSPs is to balance the

needs of all water users and ensure long-term viable water supplies while maintaining the unique cultural, community, and business aspects of each subbasin. This report provides an evaluation of the progress made in implementing the GSP, including projects and management actions (PMAs), and demonstrates that the GSAs are on track to meet the GSP sustainability goal.

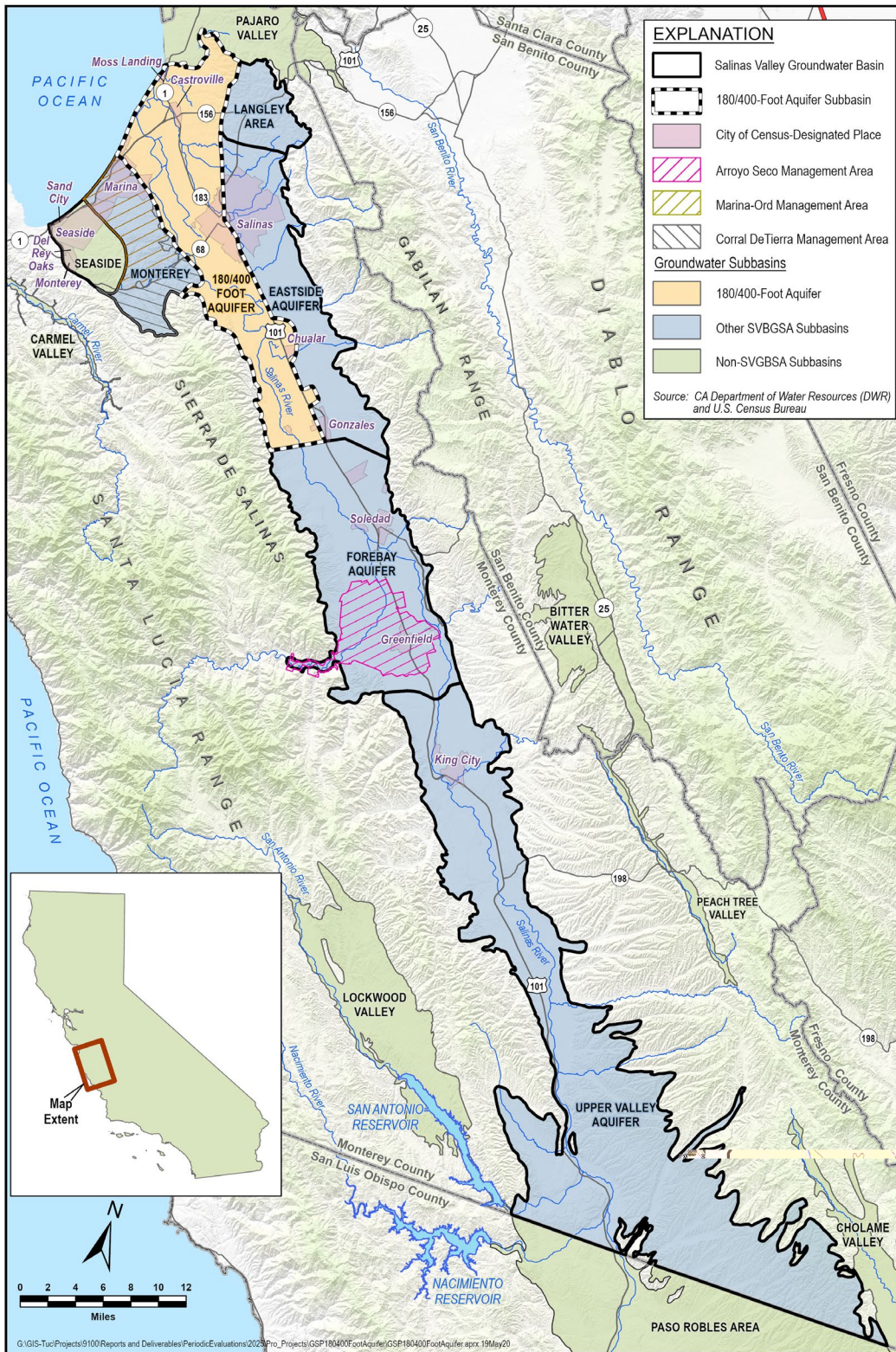


Figure ES-1. 180/400 Subbasin Location

ES-2 2022 GSP Amendment 1

This GSP 2025 Evaluation accompanies GSP Amendment 1 for the 180/400 Subbasin, which was adopted by the SVBGSA Board on September 8, 2022. While at that time it was referred to as the GSP Update, in this evaluation it is referred to as GSP Amendment 1. It describes changes from the 2020 GSP that are included in GSP Amendment 1 and provides additional updates on GSP implementation activities since 2022. Preparation of GSP Amendment 1 was funded by a Proposition 68 Planning Grant from DWR.

GSP Amendment 1 incorporates additional data about current conditions, adds clarifications identified during development of the 2022 Salinas Valley GSPs, addresses recommended actions from DWR's review of the original GSP, and incorporates additional regulatory requirements. SVBGSA submits GSP Amendment 1 to DWR as an amendment according to GSP Regulation § 355.10, and it replaces the original 2020 GSP. It continues to meet all of the GSP regulatory requirements. Appendix ES-A describes how GSP Amendment 1 and this GSP 2025 Evaluation meet GSP Regulations § 356.4.

In April 2022, the 180/400 Subbasin Planning Committee recommended the Board release GSP Amendment 1 for a public comment period. The Board approved this and issued a 90-day notice of a public hearing to adopt the GSP Amendment 1 (referred to at that time as a GSP Update). Comment letters and responses are included in GSP Amendment 1, Appendix 2A. On April 22, 2022, SVBGSA's Advisory Committee reviewed and commented on a draft of Amendment 1, and on June 2, 2022, the 180/400 Subbasin Committee received a final draft Amendment 1 and voted unanimously to forward it to the Board for a public hearing, which was held on September 8, 2022. As documented Resolution No 2022-16 (Appendix ES-B), the Board approved GSP Amendment 1 and authorized and directed its submittal to DWR.

On October 19, 2023, DWR sent a letter that acknowledged SVBGSA's desire to align the schedule for the 6 subbasins managed by SVBGSA and stated that DWR intended to conduct its review by September 30, 2024. This letter also stated that the SVBGSA would need to submit the first periodic evaluation for the 180/400 Subbasin no later than January 23, 2025.

On June 20, 2024, DWR sent subsequent correspondence informing SVBSGA that it could not complete its review of GSP Amendment 1 without a periodic evaluation. The letter stated that DWR believed the most efficient path forward was for the amendment to be withdrawn and resubmitted along with this GSP 2025 Evaluation. On August 8, 2024, the Board authorized the General Manager to withdraw GSP Amendment 1 with an intent to resubmit the amendment with the GSP 2025 evaluation by January 23, 2025.

ES-3 Significant New Information

Since GSP development, SVBGSA and partner agencies have collected new data and information that refine the understanding of the groundwater basin and contribute to efforts regarding how to reach sustainability. Section 1 includes new information that is in GSP Amendment 1, including new information on County policies, description of the shallow sediments, analysis of interconnected surface water (ISW), and a more detailed description of groundwater dependent ecosystems (GDEs).

Since GSP Amendment 1, the GSAs have acquired additional other significant new information including geophysical data, additional water use data, and the Salinas Valley Deep Aquifers Study. SVBGSA undertook further hydrostratigraphic analysis that informed groundwater flow model refinements, and it worked with Central Coast Wetlands Group (CCWG) to map potential GDEs and develop a field verification and monitoring approach, with field verification conducted in northern part of the 180/400 Subbasin. Monterey County Water Resources Agency's (MCWRA) adopted a Groundwater Monitoring Program ordinance that includes well registration. In addition, 6 new monitoring wells were installed: 1 ISW, 3 Deep Aquifers, and 2 seawater intrusion.

Lastly, during the evaluation period, SVBGSA and partner agencies worked to update surface water and groundwater models. SVBGSA developed and refined the Salinas Valley Seawater Intrusion Model (SWI Model), a variable density model to assist with addressing seawater intrusion. The U.S. Geological Survey (USGS) continued to develop the Salinas Valley Integrated Hydrologic Model (SVIHM) and Salinas Valley Operational Model (SVOM)¹ for MCWRA and SVBGSA. SVBGSA also funded updates to a Hydrologic Engineering Center River Analysis System (HEC-RAS) Model for the Salinas River. These models will be used together with the SWI Model to evaluate the effects of GSP PMAs, as well as for refinement of water budgets and other information to be considered for future GSP amendments.

ES-4 Recommended Corrective Actions

DWR approved the 2020 GSP in 2021 with 5 required Recommended Corrective Actions (RCAs). During the first 5 years of GSP implementation, SVBGSA focused on addressing DWR RCAs on the 2020 180/400 Subbasin GSP and collecting new information to fill data gaps. SVBGSA addressed the 5 RCAs in GSP Amendment 1. Section 1 summarizes the status of actions to address each RCA and how they are included in GSP Amendment 1. SVBGSA has

¹ These data (SVIHM and SVOM model and/or model results) are preliminary or provisional and are subject to revision. This model and model results are being provided to meet the need for timely best science. The model has not received final approval by the USGS. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the model and related material nor shall the fact of release constitute any such warranty. The model is provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the model.

also begun addressing the DWR RCAs received on the other 5 SVBGSA GSPs. Those applicable to the 180/400 Subbasin will be included in the next periodic evaluation.

ES-5 Groundwater Conditions and Changes in Water Use

SGMA requires groundwater to be managed according to 6 sustainability indicators. These indicators are used to show progress toward sustainability while adhering to the overarching sustainability goal of the Subbasin. GSP Amendment 1 updates the Sustainable Management Criteria (SMC) set for each sustainability indicator for the 180/400 Subbasin. SVBGSA monitors groundwater conditions for these sustainability indicators and routinely evaluates progress toward meeting SMC metrics.

To operationalize the overarching sustainability goal and comply with SGMA, the Salinas Valley GSPs set SMC for each of the 6 sustainability indicators for the 180/400 Subbasin. SVBGSA and partner agencies will manage the Subbasin to its measurable objectives and will avoid undesirable results by 2040, demonstrating progress along the way. Since quantitative evaluation of undesirable results are based on minimum thresholds, managing to measurable objectives helps provide operational flexibility and prevent groundwater conditions from reaching undesirable results. Subbasin-specific SMC were developed based on public input, historically observed hydrologic conditions, and reasonably anticipated climate change. These SMC may be updated in future amendments to reflect changes in anticipated climate conditions or refined data and groundwater modeling results.

Section 2 includes updated water use and reports on groundwater conditions over the evaluation period. More specifically, Section 2 summarizes progress for each of the sustainability indicators reported in the first 5 annual reports from WY 2019 to WY 2023. It reviews groundwater conditions relative to minimum thresholds, the 2025 interim milestones, and measurable objectives. The evaluation period included 3 consecutive dry years from WY 2020 to WY 2022, and it ended with a very wet year, WY 2023. Given that groundwater levels fluctuate annually, Section 2 also analyzes the 5-year groundwater level trends. As expected, since the initial years of GSP implementation focused on filling data gaps and undertaking feasibility studies, the 180/400 Subbasin had undesirable results for the Groundwater Level, Groundwater in Storage, Seawater Intrusion, and Interconnected Surface Water SMC during the evaluation period. While the wet year improved groundwater levels on average, most wells still had declining groundwater level trends over the evaluation period, and in WY 2023 there were still undesirable results for the Groundwater Levels SMC, based on the Deep Aquifers, and the Seawater Intrusion SMC.

ES-6 Status of Projects and Management Actions

In the last 5 years, SVBGSA has made steady progress on PMAs in the GSP. Section 3 provides a summary of the activities from January 2020 to December 2024. If implemented, a suite of

combined 2020 GSP and GSP Amendment 1 PMAs have the potential for reaching sustainability in the 180/400 Subbasin within 20 years and maintaining sustainability for an additional 30 years.

With help from the Round 1 SGM Implementation Grant, SVBGSA explored the 3 types of PMAs that can potentially mitigate seawater intrusion: an extraction barrier, injection, and extraction reduction. Those will culminate in a project update report in early 2025 and be complemented with considering various combinations of PMAs in the 180/400 Subbasin and other subbasins. These feasibility studies show that at least one project can meet the seawater intrusion minimum threshold: the Brackish Groundwater Restoration Project, which pairs an extraction barrier with desalination for a drought-proof alternative in lieu supply.

In 2025, SVBGSA will explore if other combinations of PMAs could also meet the minimum threshold. Groundwater modeling shows the measurable objective may have been unreasonably ambitious. SVBGSA will consider whether there are other ways to address the needs of beneficial users in the coastal area, such as expansion of the Castroville Seawater Intrusion Project (CSIP), alternative water supplies, and/or management of the Deep Aquifers.

SVBGSA intends to submit the next periodic evaluation for the 180/400 Subbasin in 2027 in line with the other 5 Salinas Valley subbasin periodic evaluations. In the next 2 years leading to those periodic evaluations, SVBGSA will work toward a comprehensive PMA selection process that will meet the sustainability needs of all subbasins individually and in an integrated manner.

ES-7 Changes in Basin Setting Based on New Information

A more refined understanding of the basin setting improves the ability to manage the Subbasin. The GSP 2025 Evaluation summarizes updates to the basin setting included in GSP Amendment 1 and further analyses completed afterward in light of significant new information.

Section 4 summarizes the update to the hydrogeologic conceptual model that integrates new data, such as new geophysical data, the Salinas Valley Deep Aquifers Study, and data on GDEs. Results included updating the bedrock surface and offshore hydrostratigraphy, the lateral and vertical extent of the 400/Deep Aquitard and extent of the Deep Aquifers, and the extents and depths of the coastal aquitards. This incorporated thin spots and gaps in some of the coastal aquitards, and showed that the 400-Foot Aquifer extends deeper than previously thought in the southern part of the Subbasin.

The revised understanding of hydrostratigraphy was used to update the SWI Model and is now being used to update the SVIHM and SVOM. More recent versions of the provisional SVIHM and SVOM were used to develop updated historical, current, and predictive water budgets included in this GSP 2025 Evaluation.

ES-8 Monitoring Networks

Since GSP submittal, SVBGSA has focused on filling data gaps and expanding the monitoring networks. Section 5 of the GSP 2025 Evaluation includes an assessment of the monitoring network for each sustainability indicator. It includes the changes in the monitoring network included in GSP Amendment 1, as well as those recommended for a future GSP revision. Table ES-1 summarizes the number of wells in each monitoring network, which Section 5 further breaks down by aquifer and provides explanations for the revisions. The wells added to the monitoring network in GSP Amendment 1 filled most monitoring network data gaps. This GSP 2025 Evaluation includes further revisions to the monitoring networks completed since 2022, including newly installed wells; these are recommended for inclusion in a future amendment. The Deep Aquifers Study identified additional groundwater level monitoring network data gaps, which SVBGSA and partner agencies plan to fill.

Table ES-1. Changes in SMC Monitoring Networks

Monitoring Network	Original GSP	GSP Amendment 1	Recommended for Future GSP Amendment	Wells Removed from the Representative Monitoring Site (RMS) Network
Groundwater Level	23	91	99	13
Seawater Intrusion	48	138	120	20
ISW	1	2	2	1

ES-9 SVBGSA Administration, Funding, and Authorities

Section 6 provides an overview of SVBGSA’s administration and funding for GSP implementation, including the annual work plan, budget, and fee process. It describes 2 coordination agreements with other GSAs in the 180/400 Subbasin, MCWDGSA, and County of Monterey GSA. It describes other agencies with groundwater management authority and formal actions taken by them, and how SVBGSA has coordinated with these agencies and activities. It includes the only legal case related to the 180/400 Subbasin that occurred during the evaluation period.

ES-10 Outreach and Engagement

Groundwater supports economic activities from small domestic scale to large industrial scale. Groundwater is an important supply for over 400,000 people living within the Salinas Valley. Beneficial users in the Valley are the key interested parties targeted for robust public engagement for GSP development and implementation and are highly diverse. Community engagement and public transparency on SVBGSA decisions is paramount to building a sustainable and productive solution to groundwater sustainability in the Salinas Valley.

The process for development of the 2020 GSP included a combination of gathering feedback during public meetings with the Advisory Committee and Board of Directors. Subsequently, the Board established subbasin planning committees in May 2020 to inform and guide planning for the remaining 5 GSPs submitted in January 2022. Adopted in July 2021, SVBGSA Resolution No. 2021-06 established Subbasin Implementation Committees to be convened upon the submittal of the GSP for the Subbasin, including a new 180/400 Subbasin Implementation Committee (180/400 Committee).

As described in Section 7, the Board, Advisory Committee, and Subbasin Implementation Committees are working together to implement the 6 GSPs required within the SVBGSA jurisdiction. Subbasin Implementation Committee meetings follow the requirements of the Brown Act. Meeting agendas and materials are noticed publicly on the SVBGSA website, and public comments are taken on all posted agenda items. In addition to these formal public participation processes, SVBGSA maintains robust outreach and engagement with interested parties through multiple channels.

ES-11 Next Period Evaluation and Future Plan Amendments

SVBGSA prepared GSP Amendment 1 in 2022 with the intent to bring all 6 SVBGSA GSPs into the same 5-year cycle for periodic evaluations and plan amendments. More specifically, the other GSPs will require evaluations in 2027, 2032, and 2037.

SVBGSA intends to prepare its next periodic evaluation of the 180/400 Subbasin GSP, and potentially Amendment 2, to submit to DWR in 2027. After that, SVBGSA will prepare subsequent periodic evaluations on the same 5-year cycle for all 6 subbasins. This will provide an opportunity to ensure an integrated approach to the implementation of multi-subbasin and subbasin-specific PMAs, and, if needed, to develop future plan amendments for all 6 GSPs concurrently for a cohesive strategy to achieve and maintain sustainability in the Valley.

The GSP 2027 Evaluations will incorporate new data and information across all 6 subbasins, building on this GSP 2025 Evaluation. Modeling for each subbasin will use the same updated groundwater flow models. The SVIHM, SVOM, and the SWI Model will be used to evaluate and compare which PMAs will best achieve sustainability criteria and provide the greatest benefits to address overdraft and other groundwater conditions. A range of PMAs that will improve groundwater conditions in multiple subbasins will continue to be analyzed. Over the next 2 years leading to those GSP 2027 Evaluations, SVBGSA will work toward a comprehensive PMA selection process that will meet the sustainability needs of all subbasins individually and in an integrated manner, as well as review and consider next steps on PMAs across all subbasins concurrently.