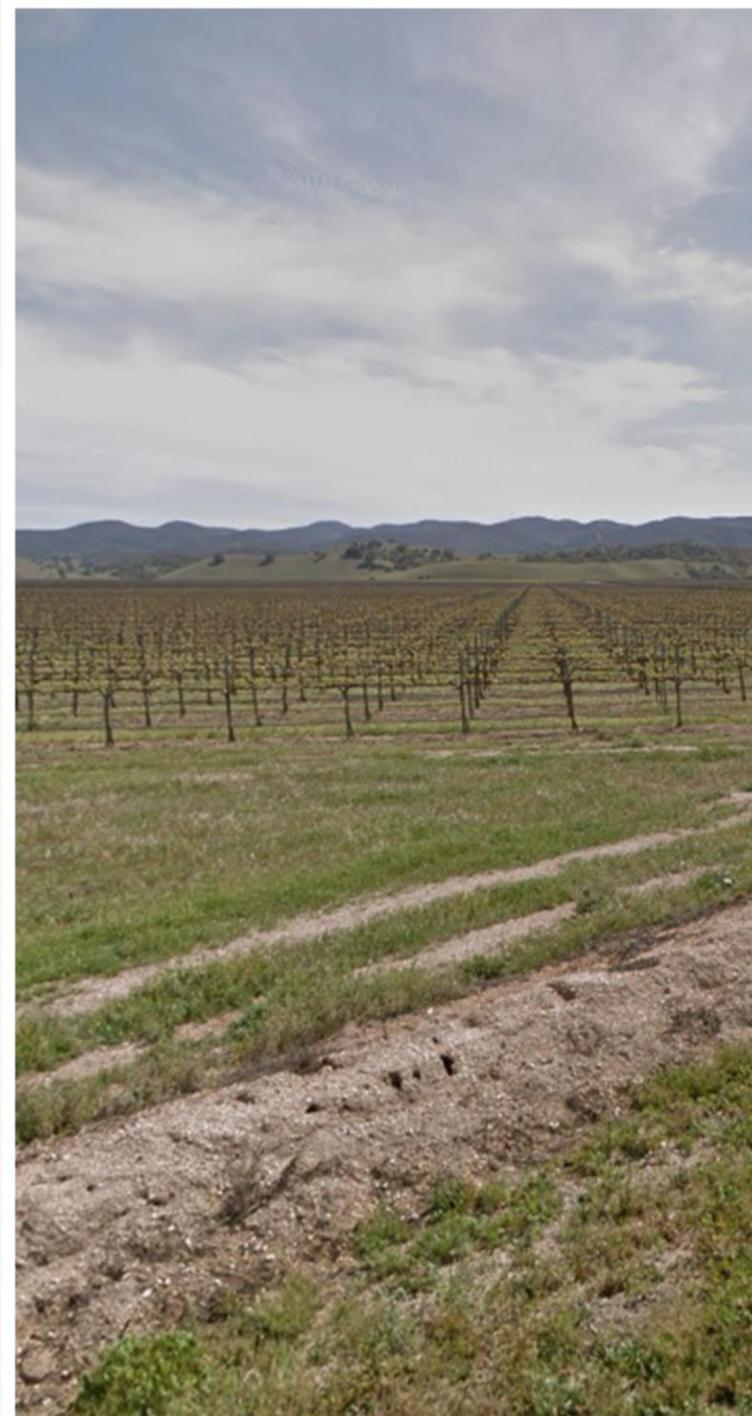


Salinas Valley Basin GSA

Projects & Management Actions

Presented to Upper Valley
Aquifer Subbasin Committee
April 5, 2021



Projects and Management Actions

****GROUPED WITH LIKE PROJECTS,
NOT IN PRIORITY ORDER****

► Recharge Projects

1. Multi-Benefit Stream Channel Improvements
2. Managed aquifer recharge of overland flow

► Valley-Wide Projects, Including Projects that Result in Reoperation of the Reservoirs

3. Winter Releases with Aquifer Storage and Recovery (ASR)
4. Interlake Tunnel and Spillway Modification
5. Drought Reoperation

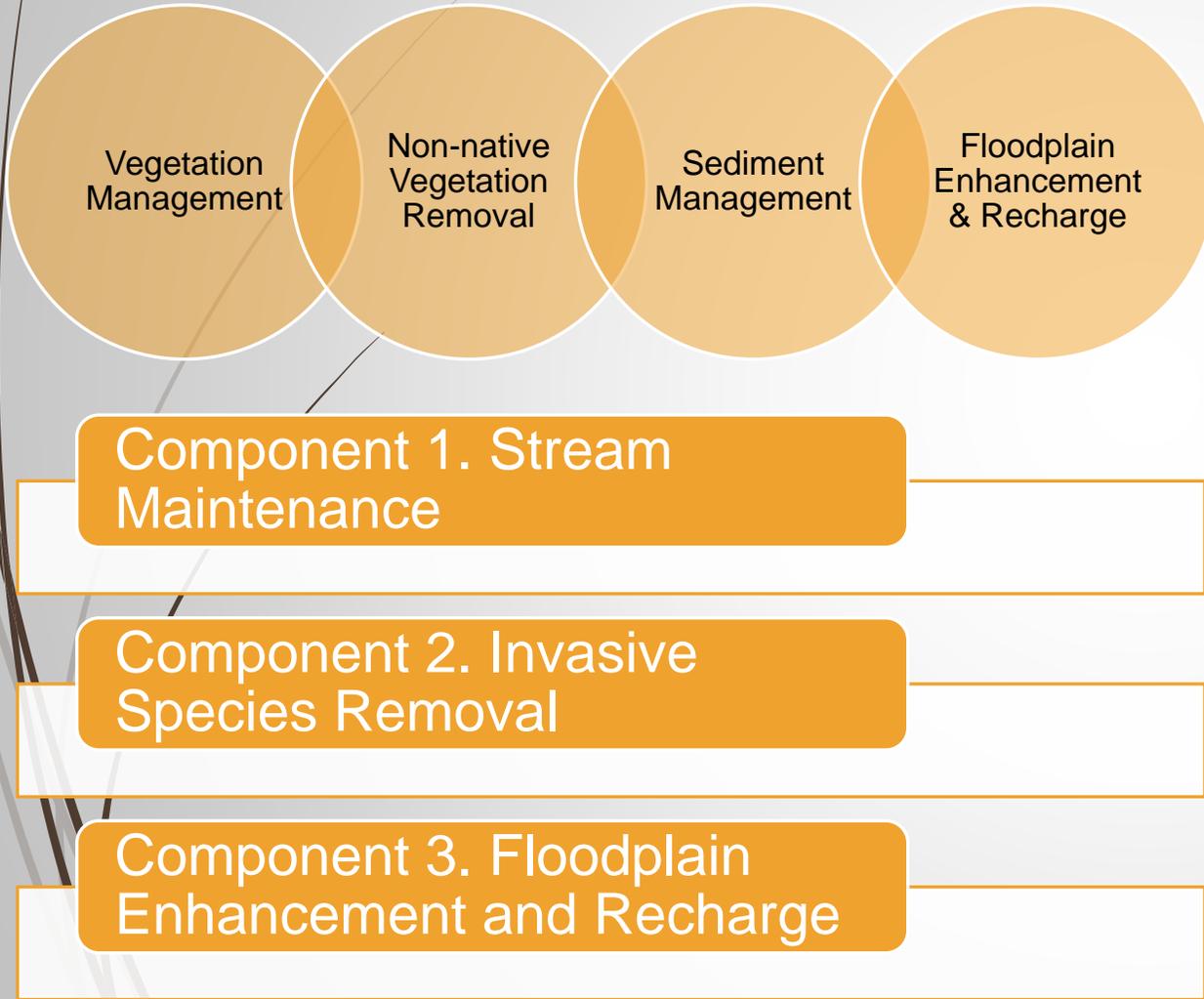
► Management Actions

6. Conservation and agricultural Best Management Practices (BMPs)
7. Fallowing, Fallow Bank, and Agricultural Land Retirement

► Implementation Actions

8. GEMS Expansion
9. Well Registration
10. Domestic Water Partnership
11. Local Groundwater Elevation Trigger

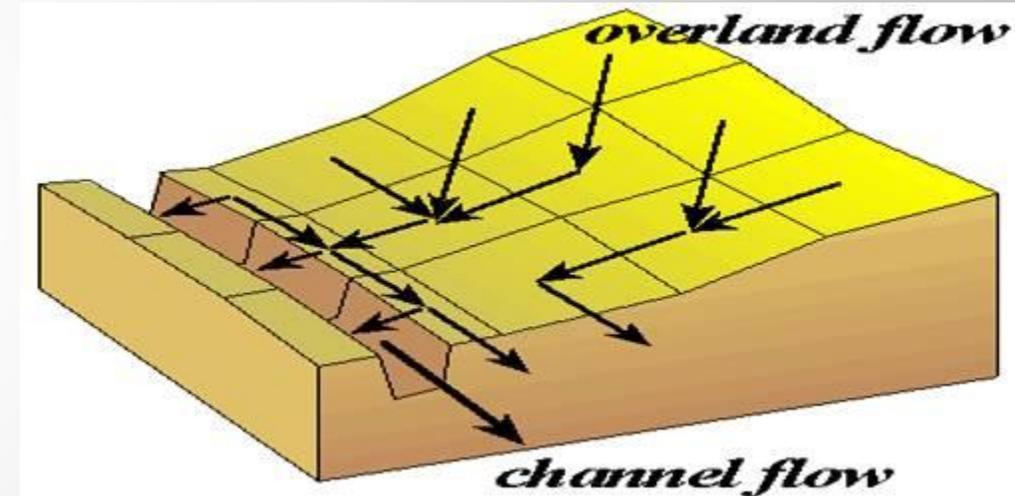
1. Multi-benefit Stream Channel Improvements



- Targeted, geomorphically-informed stream maintenance and floodplain enhancement can improve stream function both morphologically and biologically.
- **Project benefits** include increased groundwater elevations near river channel, increased water availability, flood risk reduction, reduced velocities during high flows to lessen bank and levee erosion, decreased evapotranspiration, improved conditions for wildlife, and enhanced infiltration
- **Cost:** Component 1 - \$150,000 annual administration, \$95,000 certification renewal; does not include maintenance, monitoring, and reporting costs; Component 2 - capital cost estimated at \$35,230,000. Annual O&M costs are anticipated to be approximately \$325,000. The indirect projected yield for the invasive species eradication project is estimated at 20,000 AF per year. The amortized cost of water for this project is estimated at \$160/AF/yr.

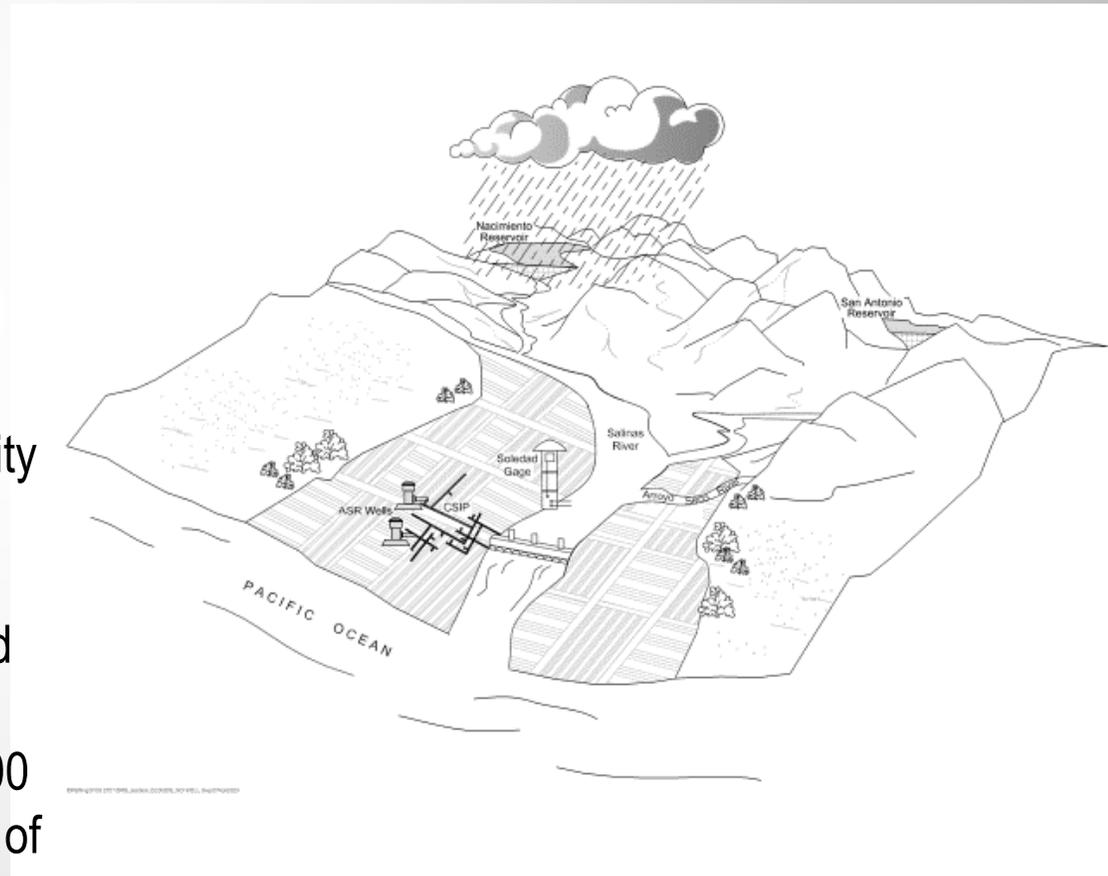
2. Managed aquifer recharge of overland flow

- ▶ **Description:** Program that incentivizes development of recharge basins that collect and recharge local overland flow from upland regions before it reaches streams
- ▶ **Project Benefit:** Enhance sustainable yield and groundwater elevations. Further analysis is needed for quantification of projected project benefits.
- ▶ **Cost:** Not estimated at this time



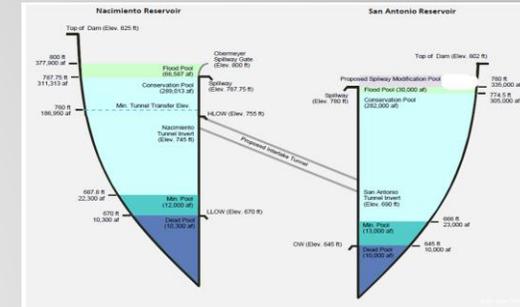
3. Winter Releases from Reservoirs, with Aquifer Storage and Recover in the 180/400-Foot Aquifer Subbasin

- Shift summertime conservation releases to winter reservoir releases
- Diverts 13,000 AF at SRDF in winter months
- 16 ASR injection wells in the 180/400 Subbasin
- Release reservoir releases every winter
- CSIP customers extract injected water in summertime
- **Project Benefit:** greater recharge to aquifers, ability to maximize SRDF diversion, more water for CSIP and beneficial users, reduction in seawater intrusion, more consistent winter releases, reduced evapotranspiration
- **Cost:** Capital costs are assumed to be \$51,191,000 for construction of an injection well field consisting of 16 wells and pipeline. Cost estimate is in process of being updated with needed filtration and chlorination



4. Interlake Tunnel and Spillway Modification

- **Description:** Consists of design, permitting, construction, and maintenance of a tunnel for diversion of water from the Nacimiento Reservoir to the San Antonio Reservoir
- **Project Benefit:**
 - Increase the average total water in storage in the reservoirs by 39,000 AF/yr.
 - Increase the number of operational days for the SRDF and the total volume of groundwater recharge throughout the Valley.
 - Increase average annual conservation releases by 34,300 AF/yr.
 - Increase groundwater recharge by approximately 30,500 AF/yr.
- **Capital cost:** The total estimated cost of the project is \$173,319,000. The total annualized cost for 30 years is estimates at \$12 million per year. Based on a project yield of 30,500 AF/yr. for groundwater recharge benefits, the unit cost of water is \$393/AF/yr.



5. Drought Reoperation

- ▶ **Description:** MCWRA formed a Drought Operations Technical Advisory Committee (D-TAC) to provide, when drought triggers occur, technical input and advice regarding the operations of Nacimiento and San Antonio Reservoirs. The D-TAC developed Standards and Guiding Principles to be used in the development of a proposed reservoir release schedule triggered under specific, seasonally defined conditions. This management action would result in decisions on reservoir operation and flow releases during a drought.
- ▶ **Project Benefit:** The groundwater-related expected benefits are increased groundwater elevations in the vicinity of the river channel due to increased infiltration and percolation to the principal aquifers during times of drought.
- ▶ **Cost:** This management action is already underway. MCWRA is already funding costs associated with facilitation of the D-TAC. SVBGSA costs include staff participation in the Drought TAC.

6. Conservation and Agricultural BMPs

- ▶ Leveraging evapotranspiration (ET) data
 - ▶ Incorporate ET data with soil moisture sensors, soil nutrient data, and flow meter data to help inform more efficient irrigation practices
 - ▶ Secure funding and/or coordinate with existing local agricultural extension specialists who conduct research and provide technical assistance to growers
- ▶ Education and outreach
 - ▶ Support existing local agricultural extension specialists with their education and outreach on BMPs to increase water conservation and decrease pumping
 - ▶ Use technical workshops and partnerships to accomplish outreach effectively and efficiently with growers

7. Fallowing, Fallow Bank, and Agricultural Land Retirement

Focused on retiring land to reduce groundwater extraction, including through:

- **Rotational Fallowing:** Every grower is required to fallow some percentage of land on a rotating basis.
- **Fallow Bank:** All growers could contribute to a bank. Anybody fallowing land could draw against the bank to offset the lost income from fallowing.
- **Ag Land Retirement:** development of a system for voluntary agricultural land retirement or to pay to retire agricultural land, effectively reducing the amount of groundwater used in the Subbasin.

Costs: The cost for voluntary fallowing and land retirement would be relatively low cost in comparison to other projects; however, a more detailed analysis is needed.

8. GEMS Expansion

- SVBGSA will work with MCWRA to expand the existing GEMS Program to cover the entire Upper Valley Subbasin, which would capture all wells that have at least a 3-inch internal diameter discharge pipe.
- Alternatively, SVBGSA could implement a new groundwater extraction reporting program that collects data outside of MCWRA Zones 2, 2A, and 2B.
- Additional improvements to the existing MCWRA groundwater extraction reporting system may include some subset of the following:
 - Develop a comprehensive database of extraction wells
 - Expanding reporting requirements to all areas of the Salinas Valley Groundwater Basin
 - Including all wells with a 2-inch discharge or greater
 - Requiring automatically reporting flow meters
 - Comparing flow meter data to remote sensing data to identify potential errors and irrigation inefficiencies.

9. Well Registration

- ▶ Require all groundwater production wells to register with the GSA to gain better understanding of existing wells and extraction.
- ▶ Meters must be calibrated on a regular schedule in accordance with manufacturer standards and any programs developed by the GSAs, or existing programs of the WRA.
- ▶ Although *de-minimis* pumpers must register their wells, SGMA exempts them from metering requirements.

10. Domestic Water Partnership

- ▶ SVBGSA will play a convening role by developing and coordinating a working group on domestic water.
- ▶ The working group will review data regarding domestic water supplies, identify data gaps, and coordinate agency communication.

11. Local Groundwater Elevation Trigger

- ▶ The GSA could develop or support the development of a program to assist well owners whose wells go dry due to declining groundwater elevations.
- ▶ A mitigation program could include a notification system whereby well owners can notify the GSA or relevant partner agency if their well goes dry and referral to assistance with short-term supply solutions, technical assistance to assess why it went dry, and long-term supply solutions.
- ▶ The GSA could also set up a trigger system whereby it would convene a working group to assess the groundwater situation if the number of wells that go dry in a specific area cross a specified threshold.

Discussion of Projects and Management Actions

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Questions

