

Salinas Valley Basin GSA

Discussion on Projects & Management Actions

Presented to Eastside Subbasin
Committee
December 2, 2020

Prepared by





Purpose

- Review stakeholder responses on survey
- Provide descriptions of already-identified potential projects
- Receive direction on where to spend effort analyzing project benefits

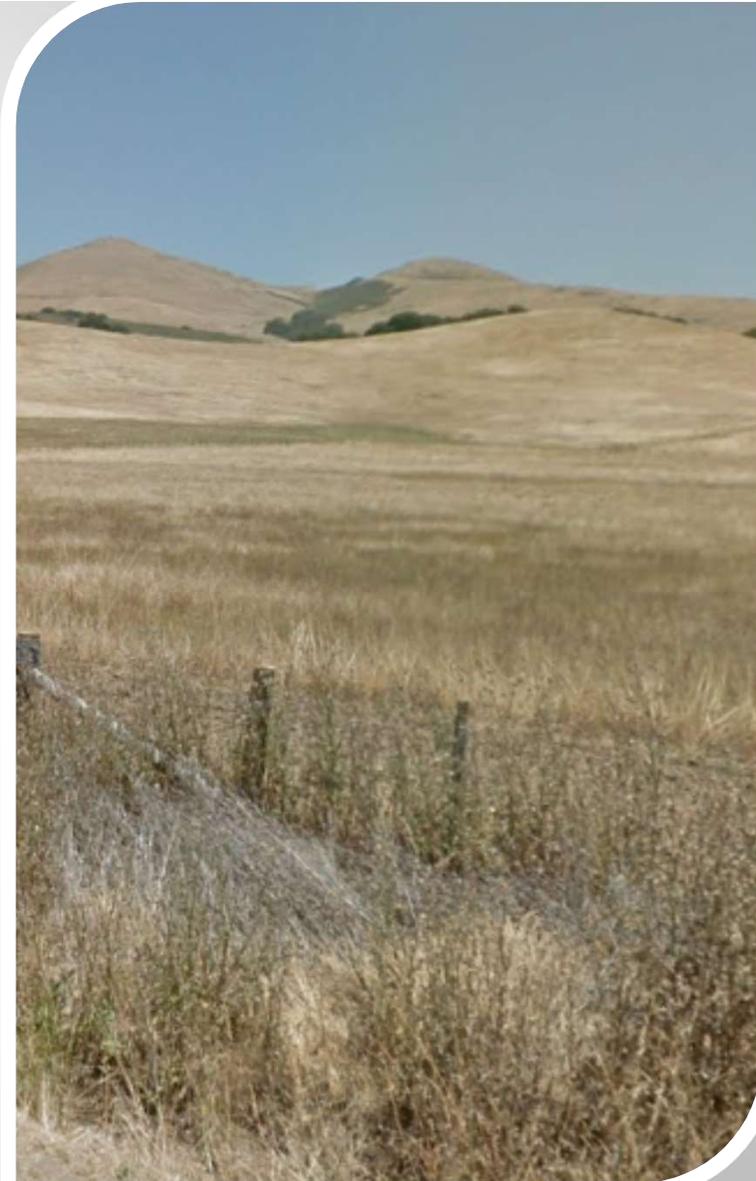
Part 2 of our Two-Meeting Process



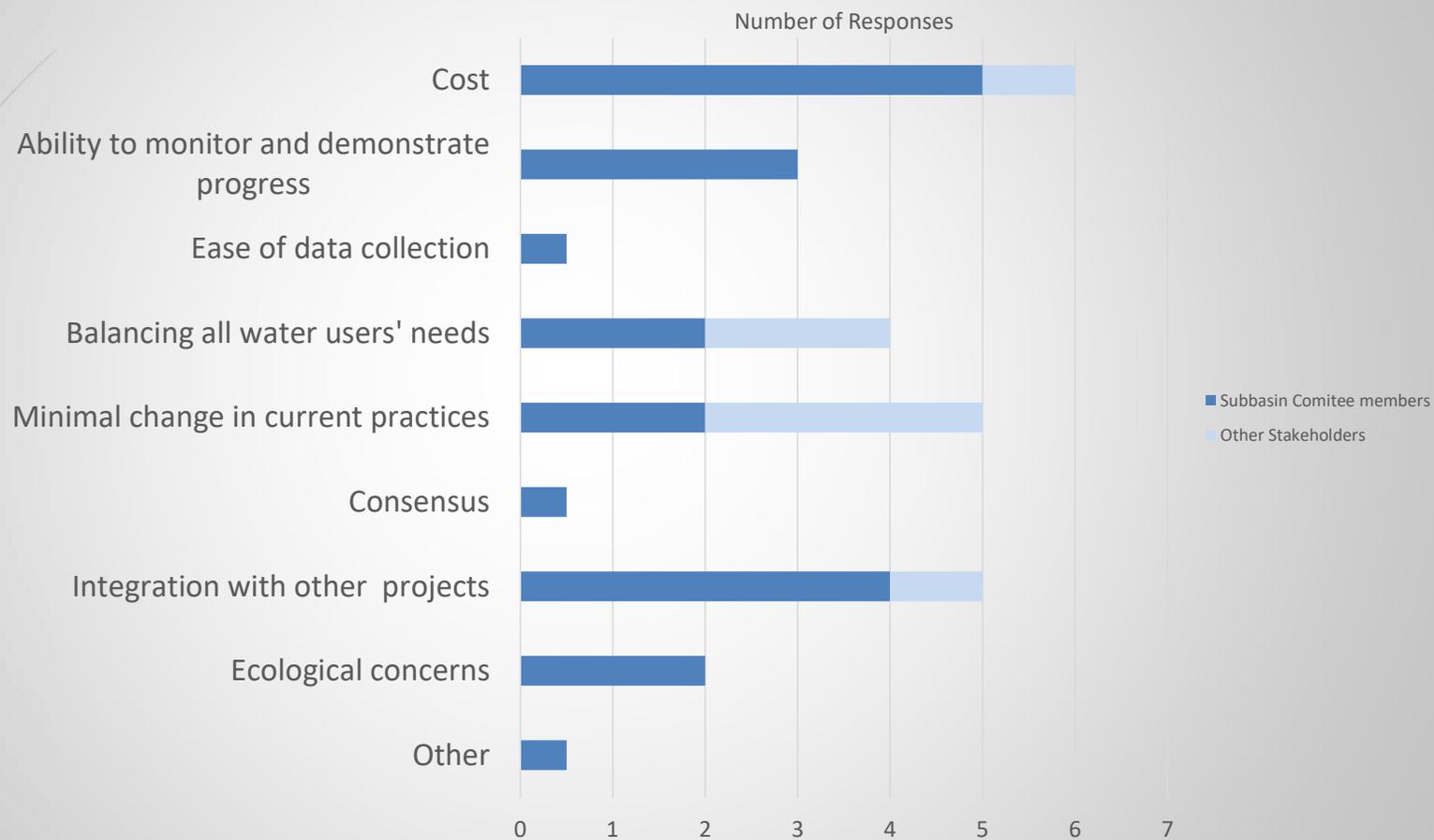
Overview & Purpose of Projects and Management Actions

- Projects and management actions are a critical ***component of GSPs***
- Meant to implement the GSP and enable the basin to ***reach sustainability by 2042*** and then maintain sustainability for 30 years
- Within GSP, they show that reaching sustainability is ***feasible***; however, further work is required to determine which projects to implement and project design
- Must address ***all the SMCs*** relevant to the basin ***and SGMA requirements***, which includes bringing pumping to within the sustainable yield

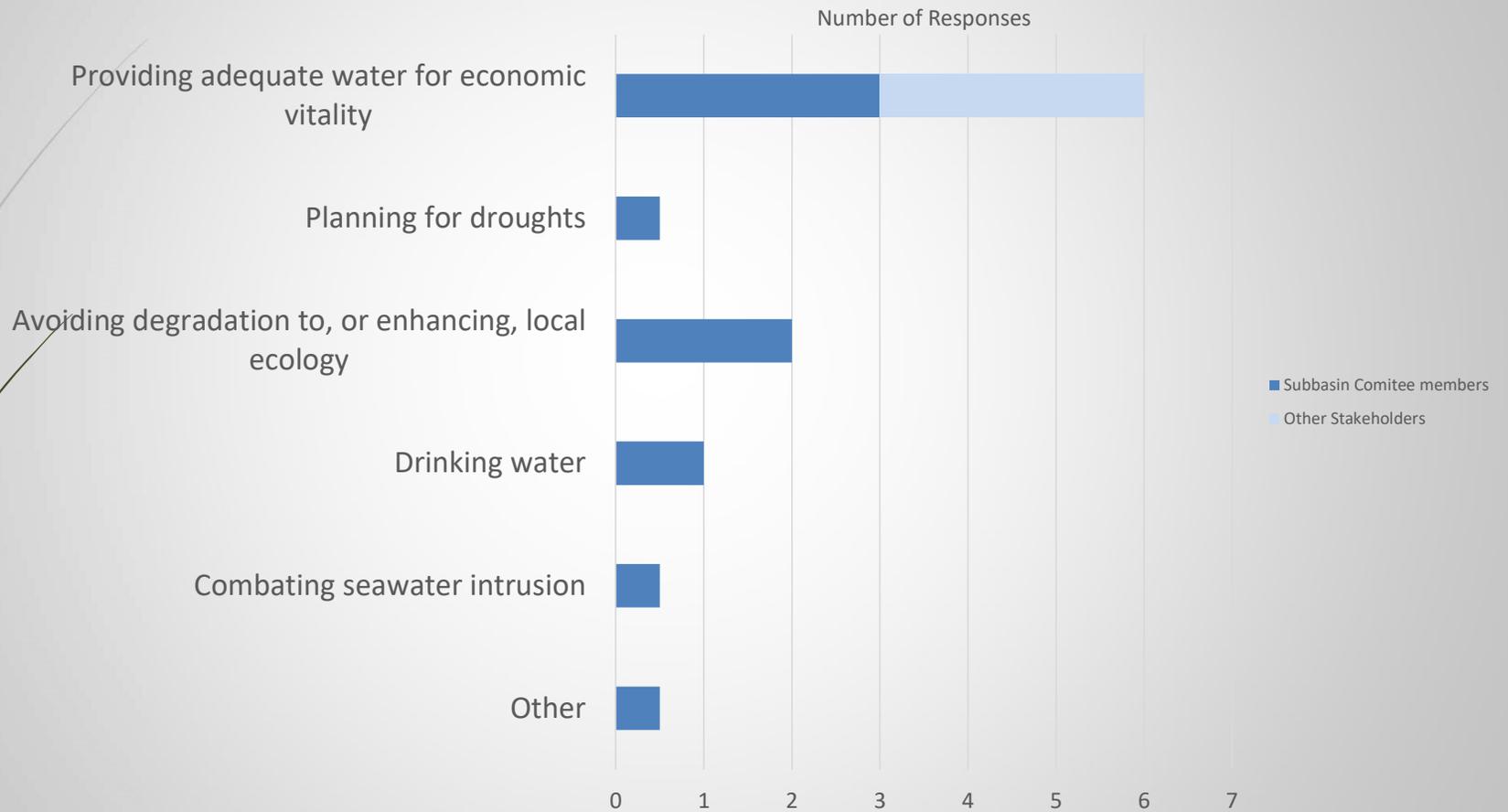
Survey Results



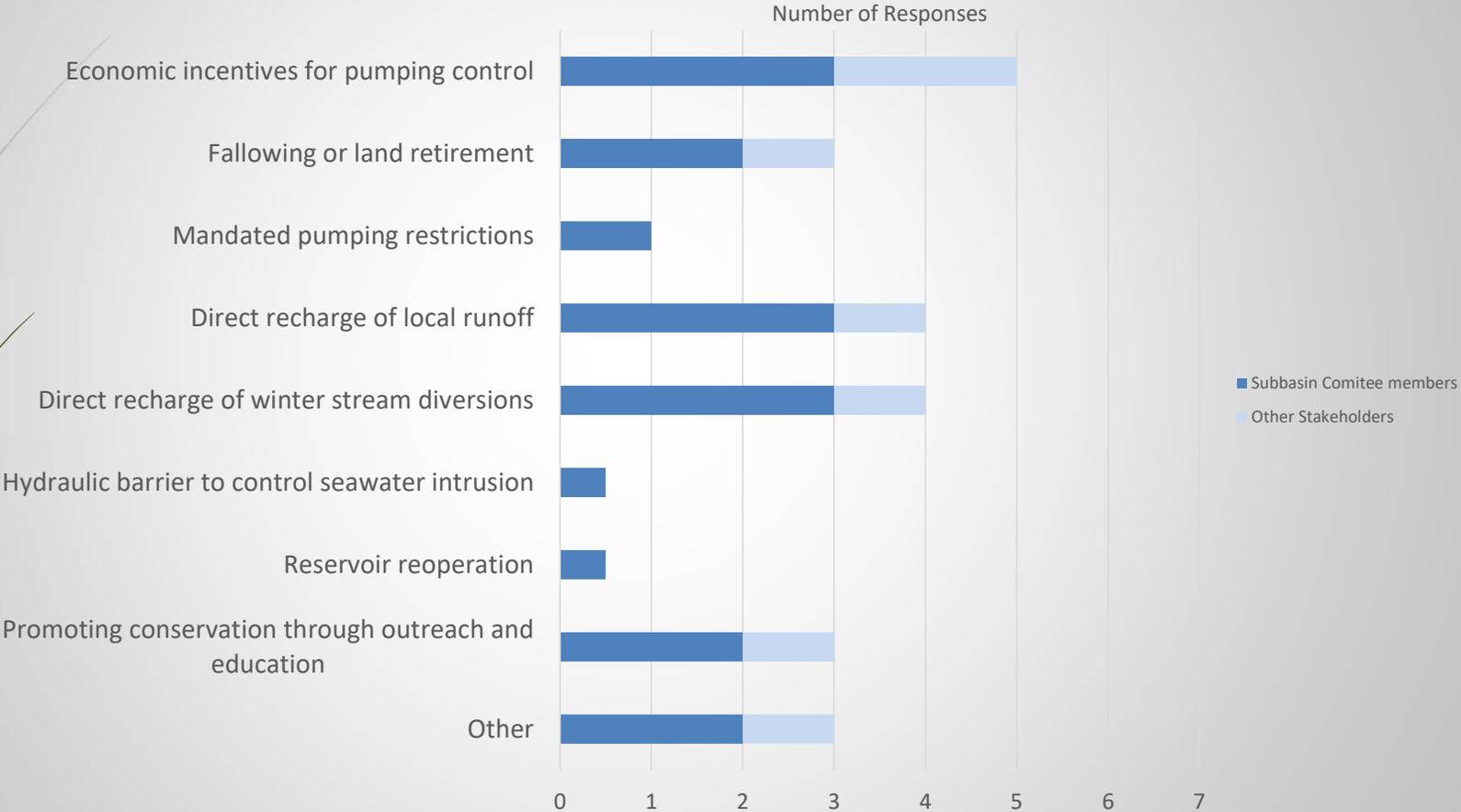
Most important factors in prioritizing projects:



Projects benefits that concern me the most:



Actions that have the greatest impact on groundwater:





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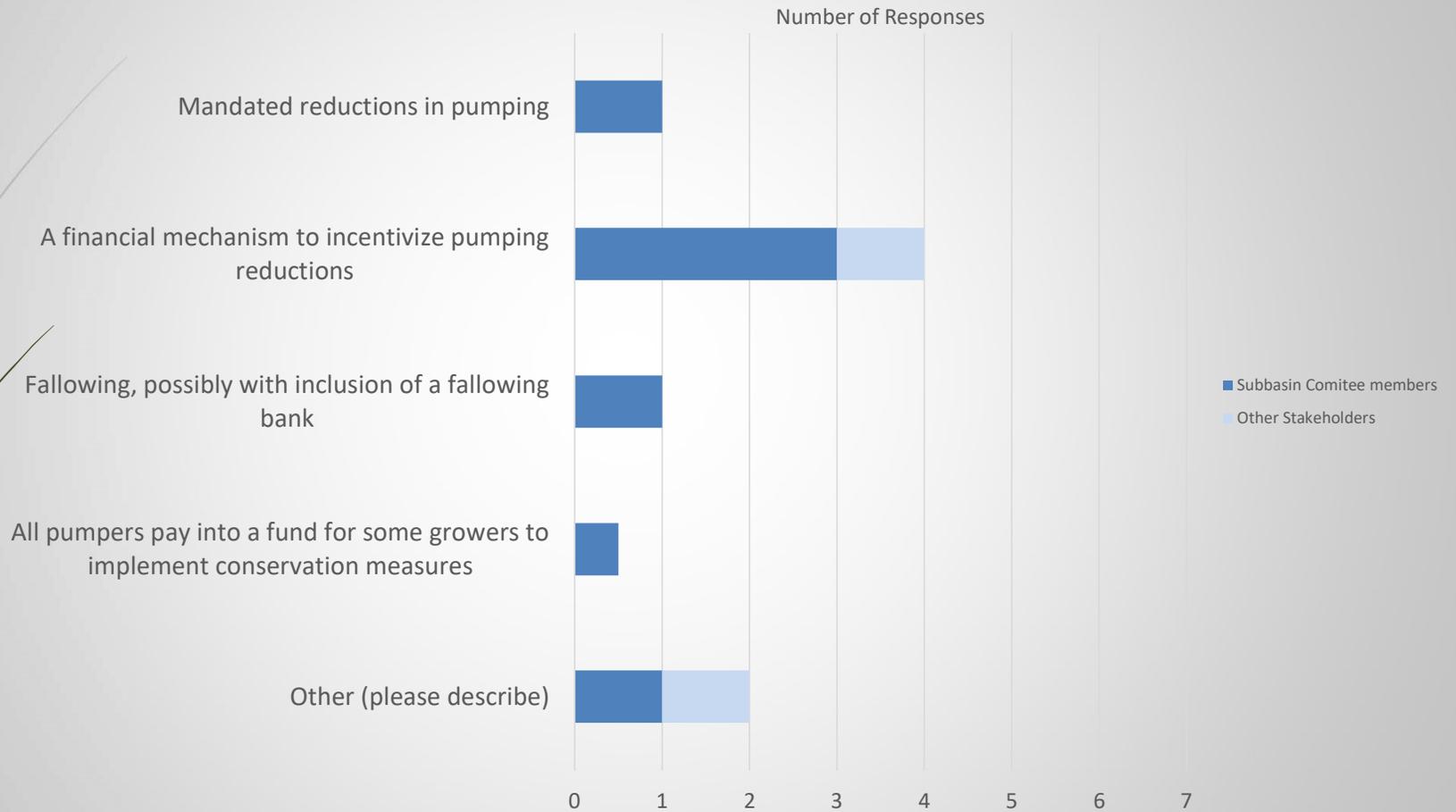
- Well field in Somavia Rd area, combined project with Pressure, pipe water over to both areas (Eastside and CSIP expansion)
- Restoring natural infiltration within the basin and upper watershed
- More storage



Do you have any comments on the above list of projects?

- Don't have enough info on runoff and winter stream recharge projects to say one way or the other. Numbers?
- Focus on multi-benefit projects that partner agencies and stakeholders also value and will support implementation.
- Bring flood plains and sheet flow back into operation for recharge and down stream flood prevention.
- If rainfall is sufficient in the Gabilan Range then a reservoir although costly would be the most effective solution to being able to recharge the east side aquifer.
- This sub basin is by far the most challenged in terms of projects. Can we idle ground scheduled for development?
- We should keep the 11403 permit on the list of projects to include as a wet winter diversion in order not to lose this water right.

Preferred approach to potential pumping limitations:



Preferred approach to potential pumping limitations:

► Other responses:

- Treat fallowing like a project. Assess growers a per/acre-foot charge. Use those \$ to pay growers to fallow. Must reimburse rent and reasonable return on theoretical crop. Or, if GSA can do fallowing leases direct with landlords, the IIs would potentially be satisfied with market rate rents. Note: probably would want to focus fallowing on marginal grounds (lower rents).
- Give growers a choice of one of the above four options and a grower will need to commit to it in any given year



If conservation or agricultural Best Management Practices (BMPs) are selected as a management action, what suggestions do you have for specific BMPs that could be considered?

- I doubt there's much value here. Worth investigating, but most farmers are already using pretty sophisticated BMPs.
- Mandatory pumping restrictions will lead to fallowing of ag land. BMP suggested for years with little results. Over drafting known for year and more irrigated land brought into production. Mandatory reductions needed.
- Drip irrigation must be implemented for every irrigated acre. Growing cover crops in the winter and percolate much of the rain water in the fields.
- BMPs that increase rain infiltration of ag lands within high infiltration areas
- Must demonstrate irrigation matches total crop Evapotranspiration.
- I am in favor of incentivizing growers to close the gap between what the crop actually uses, as measured by evapotranspiration and what the grower pumps out of the ground. There's a lot of waste in the Valley



Do you have project ideas for your subbasin that you would like to share?

- ▶ Hold water in higher elevations if possible and inject directly to the aquifer after it has been filtrated. Water from the creeks can be diverted into the fields and allow the water to percolate.
- ▶ Need to model interaction between Pressure and Eastside, and also City of Salinas pumping. If there's a connection, then some of Eastside's deficit might be answered via Pressure projects. Without this model, we're looking at an equation that's missing a variable.
- ▶ Creek and Floodplain Restoration Program. Work with property owners in these watersheds where recharge potential is greatest to obtain linear easements along this drainage network and complete floodplain enhancement efforts.
- ▶ Riparian restoration within the foothills. In areas with high recharge potential can be identified for floodplain and riparian restoration, fencing and easement acquisition that benefit the landowner and enhance water resources and infiltration rates while reducing flooding.



Do you have project ideas for your subbasin that you would like to share? (cont.)

- Permeable Soils Management Program. Work with land owners to allow flooding within infiltration areas.
- Identify nonproductive lands with high permeability to allow to flood (i.e. increase in floodplain infiltration capacity).
- Identify high recharge soils for conservation.
- Limit further impervious surface development within these priority infiltration areas.
- Farmer incentive programs (water credits) to increase infiltration.
- Integrated programs to manage pumping
- Follow IRWM.
- The eastside needs to turn tailwater into groundwater recharge.

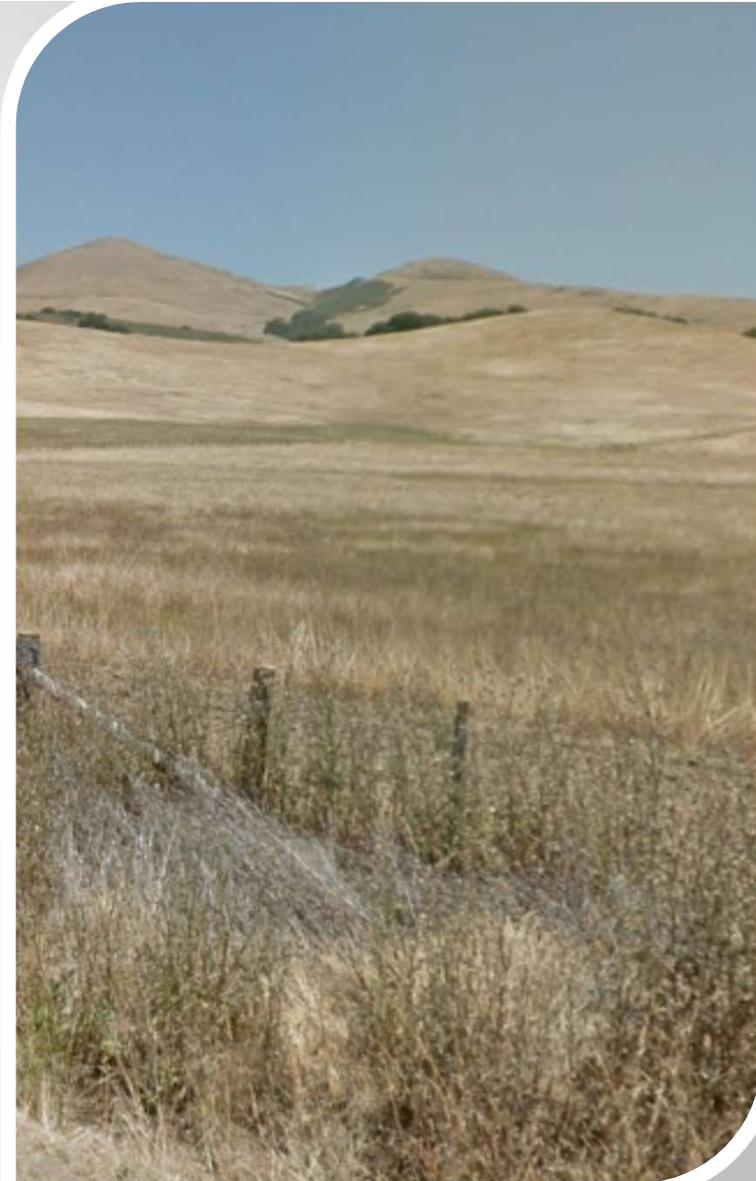


What is the most crucial data to guide projects in your subbasin?

- How much water is being extracted and how much water is being recharged. Moreover, every well needs to be accounted for and the amount of water that is being extracted.
- Surface water discharge/hydrographs within creeks and rec ditch
- Well trends.
- Historical Aquifer water table and Recharge data. Historical pumping data. Historical Rainfall data for Gabilan mountain range.
- Ground water levels and extraction data

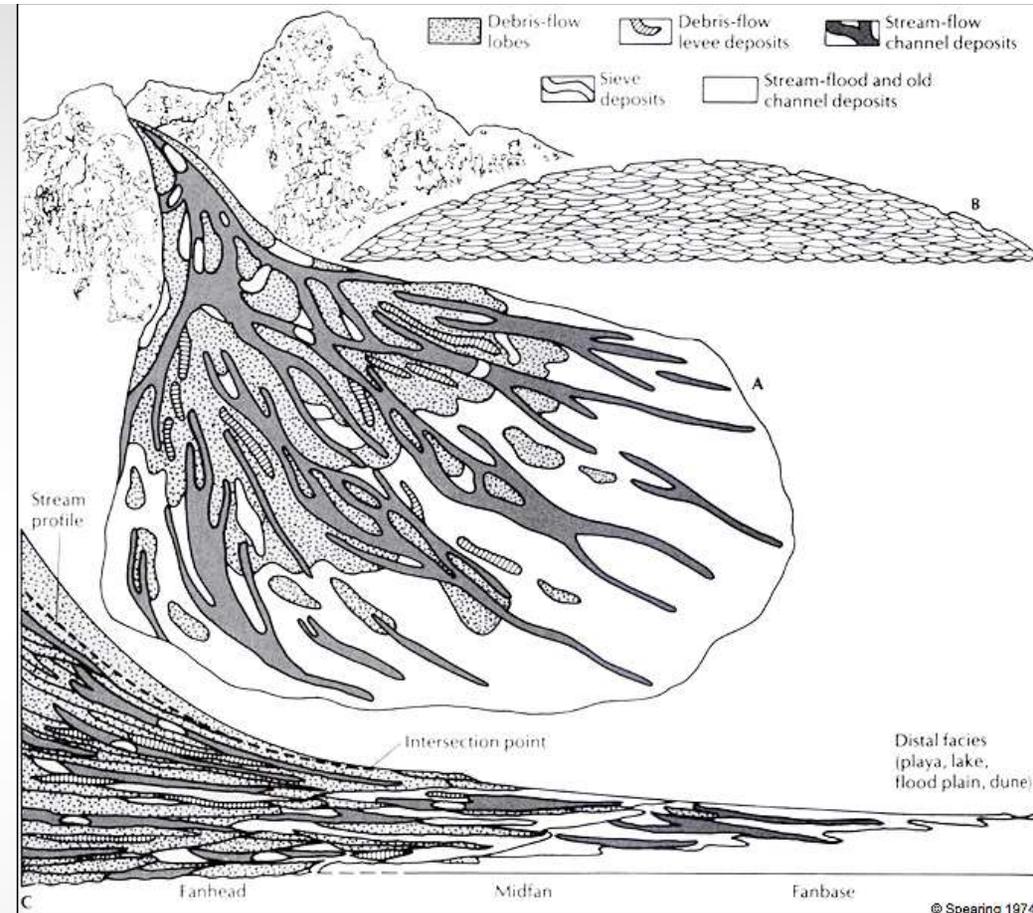


Projects – Background Data



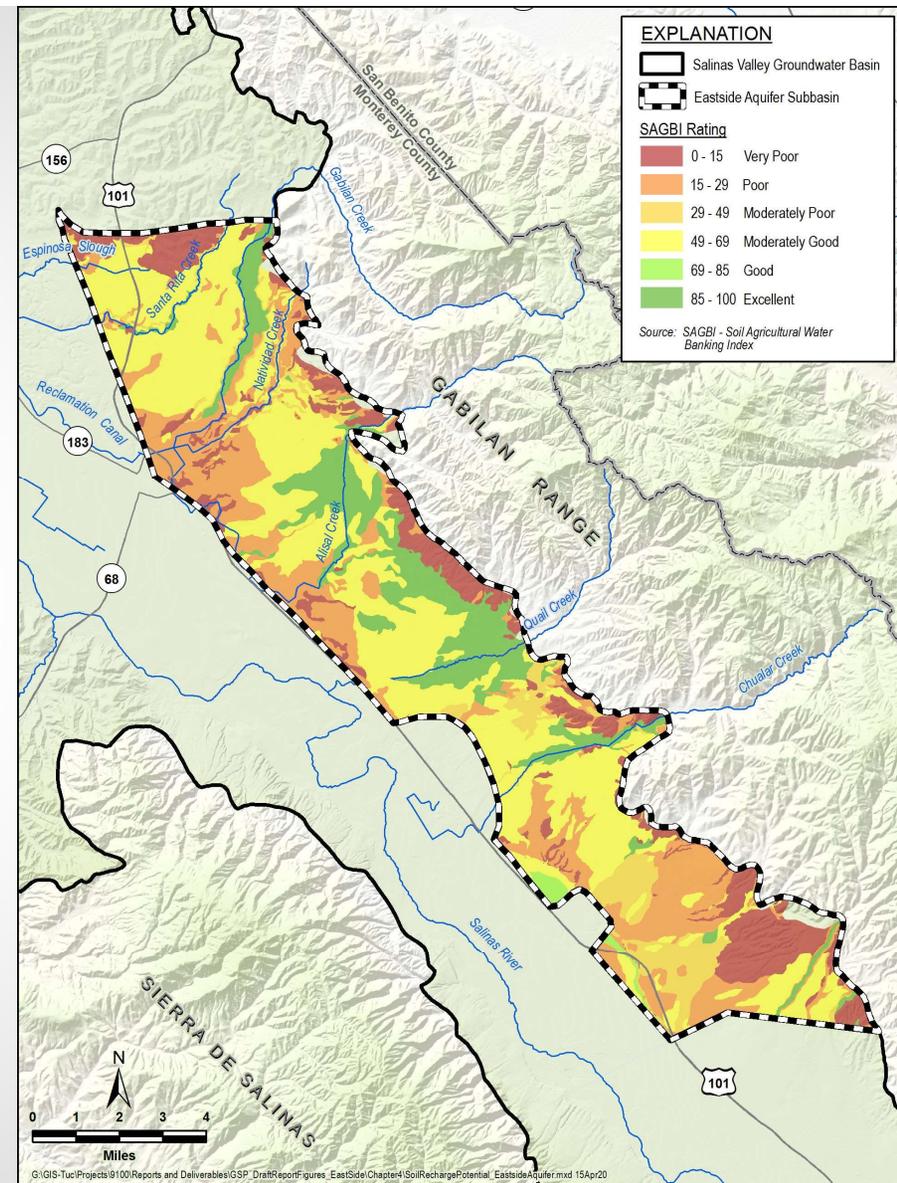
Alluvial Fans:

- Form at the base of mountains, with coarser sediments closer to the stream and finer sediments settling out around the edge of the fan
- Sometimes contain clay lenses that inhibit groundwater recharge



Soil Recharge Potential

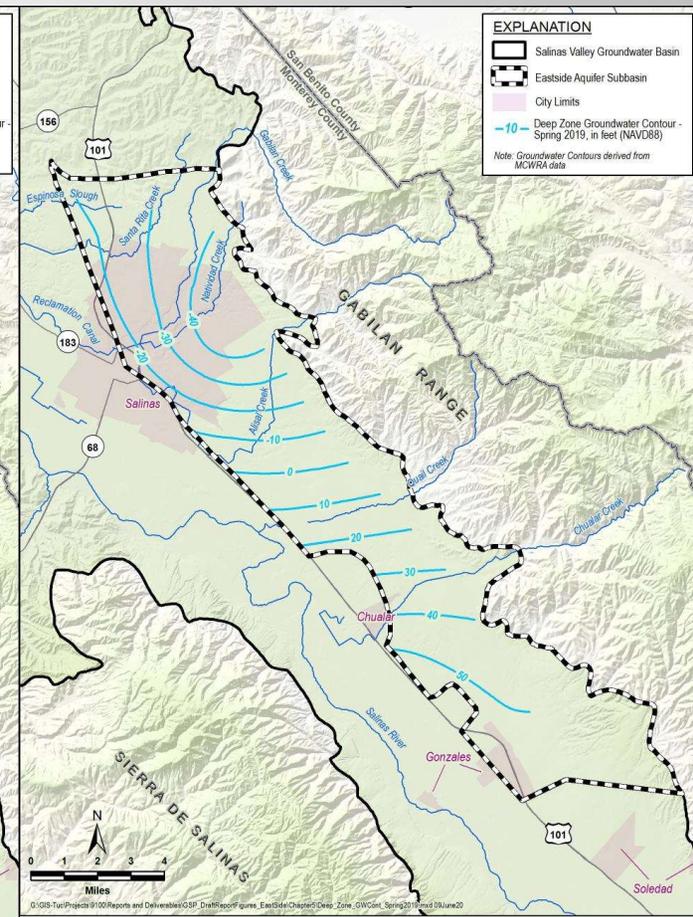
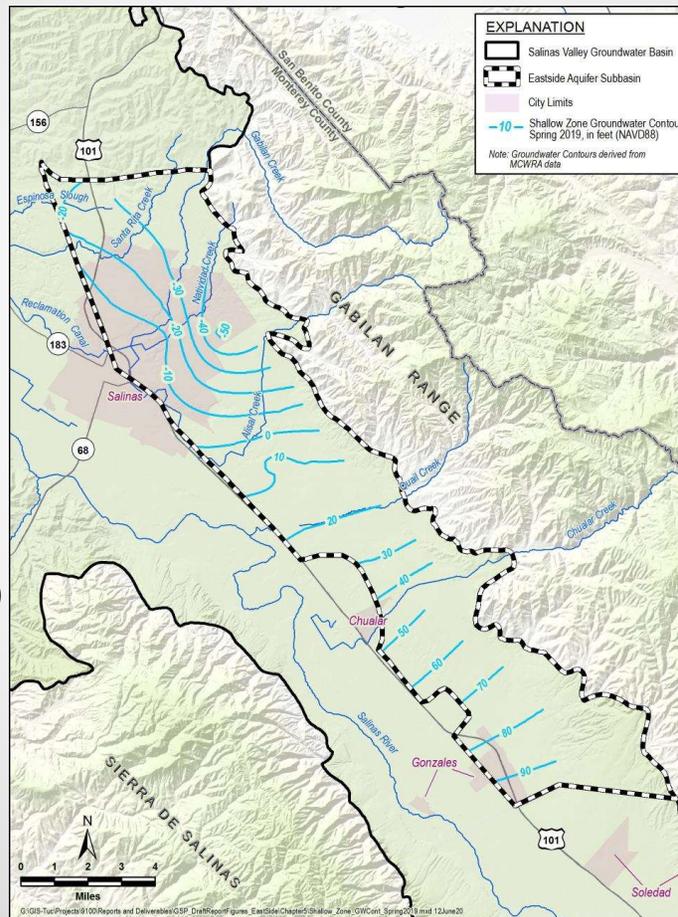
- Soil Agricultural Groundwater Banking Index (SAGBI)
- Based on soils, topography, and crop type
- In Eastside Aquifer Subbasin, the areas of best recharge potential tend to be along creek beds



Groundwater Elevation Contours, Spring 2019

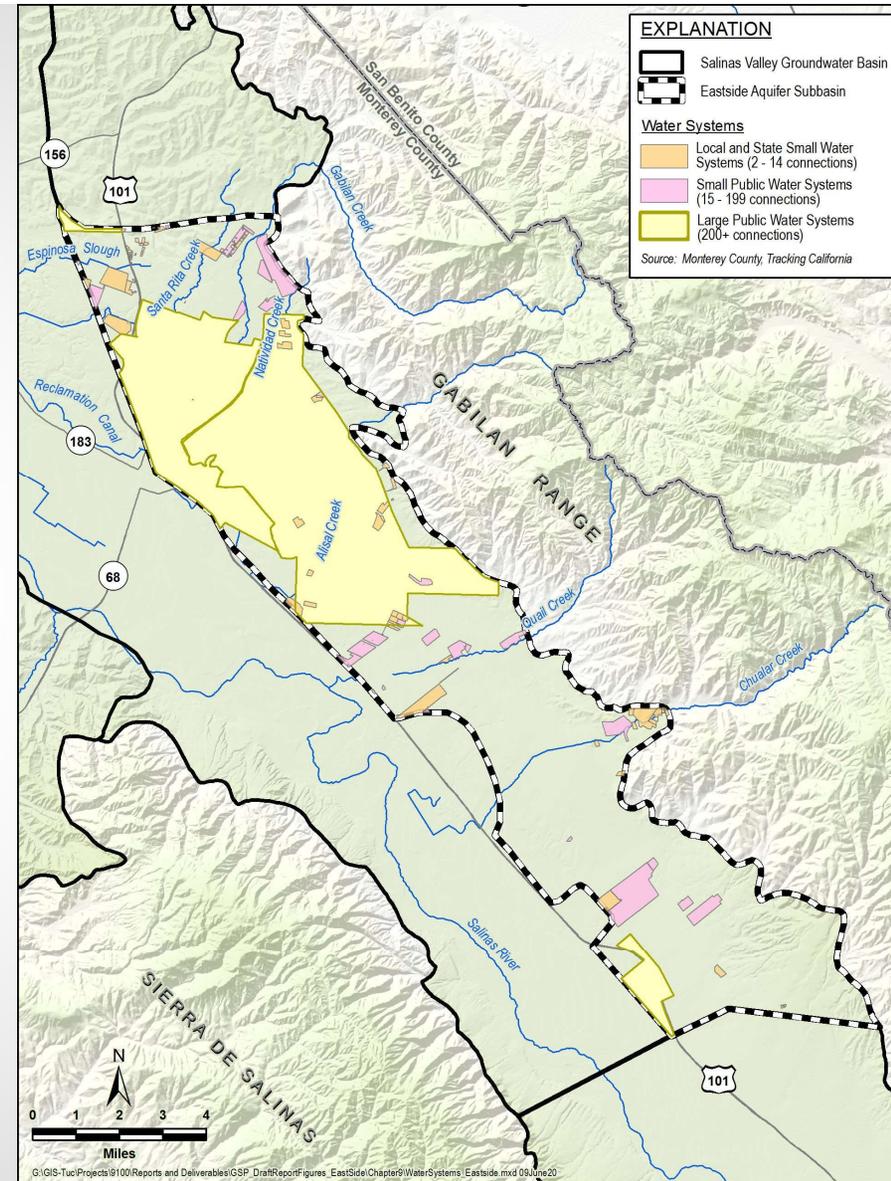
Even following winter rains, groundwater elevations near Salinas are below sea level

- Shallow zone (left)
- Deep zone (right)

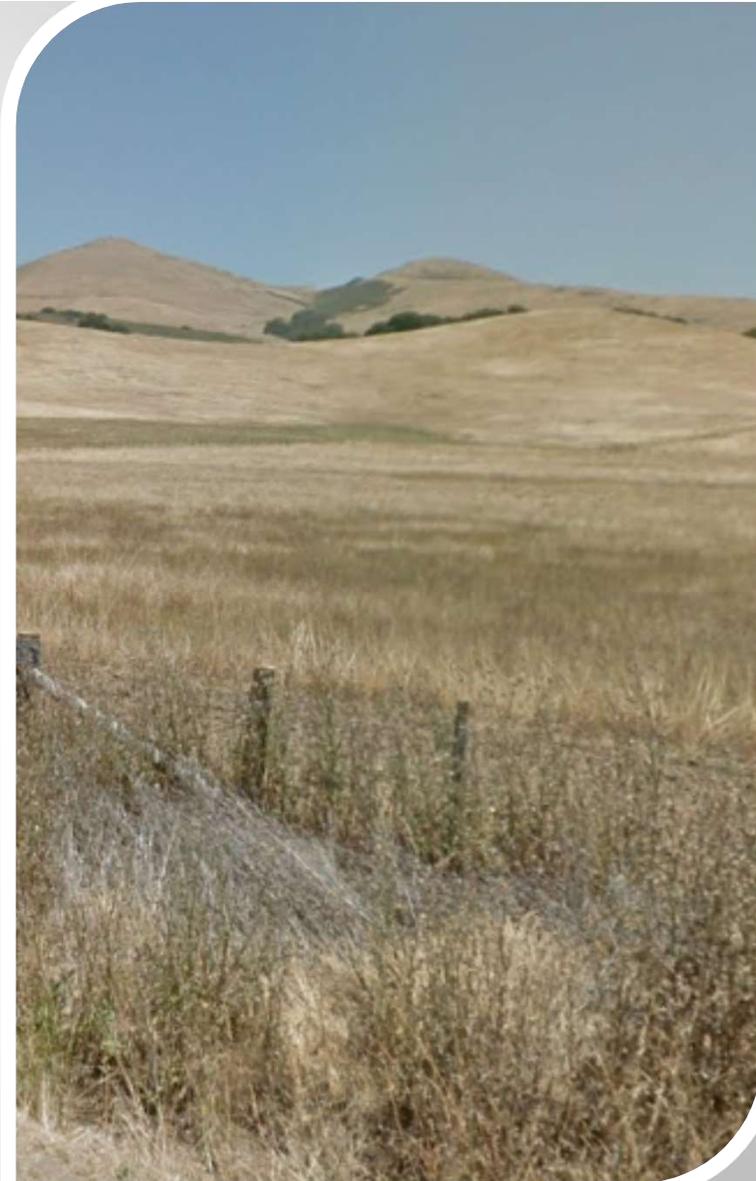


Drinking Water Systems (map) and Well Types (table)

Category	Number of Wells
Domestic	214
Production	468
Public Supply	24
Total	706



Potential Projects & Management Actions



Potential Projects and Management Actions

Increased recharge:

- Managed aquifer recharge of overland flow
- Creek and floodplain restoration program

Decreased demand:

- Conservation and agricultural Best Management Practices (BMPs)
- Pumping controls or reductions

New water supplies:

- Surface water diversion from Gabilan Creek (and other creeks?)
- 11043 diversion at Chualar or Soledad
- Salinas scalping plant
- Extraction of groundwater from 180/400-Foot Aquifer Subbasin to use in the Eastside Aquifer Subbasin
- CSIP expansion

Implementation actions:

- Support protection of areas of high recharge
- Localized groundwater elevation trigger

Managed Aquifer Recharge of Overland Flow



- Incentivize growers to build recharge ponds on their land and reward them based on the volume of water that flows into the ponds for infiltration
- Might be difficult to measure quantity of water recharged, and most effective in areas with the most permeable geology

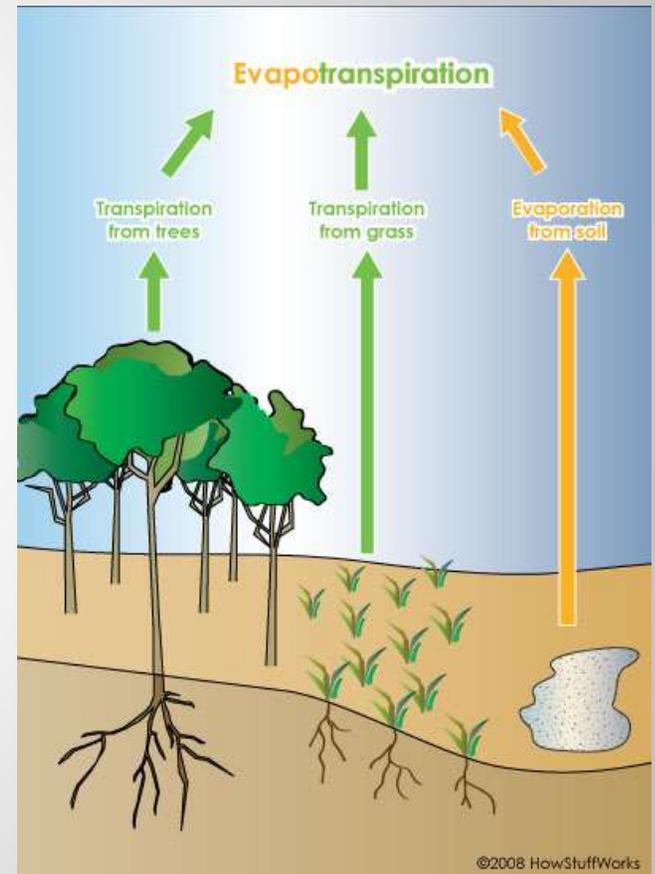
Creek and Floodplain Restoration



Conservation and Agricultural Best Management Practices (BMPs)

More efficient irrigation through use of:

- Evapotranspiration (ET) Data
- Education and Outreach
- Others?
 - Non-farm - Xeriscaping?



Pumping Controls or Reductions

Types of pumping controls include:

- Financial incentives (**ranked highest on survey)
- Water markets
- Mandated reductions
- Voluntary program for *de minimus* pumpers

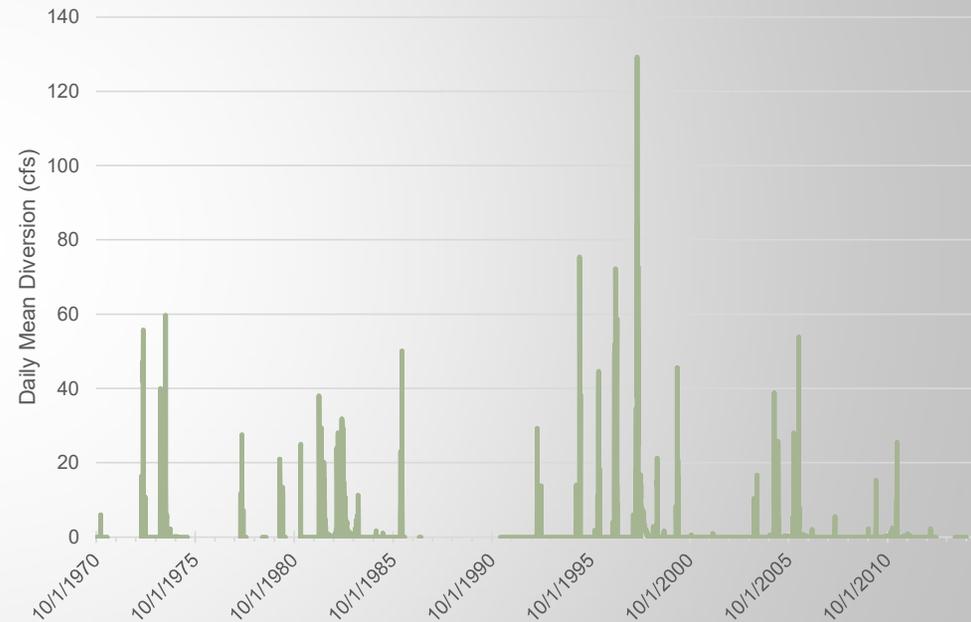
Could be paired with:

- Rotational fallowing
- Fallow bank
- Agricultural land retirement

Will
Discuss
at
Next
Meeting

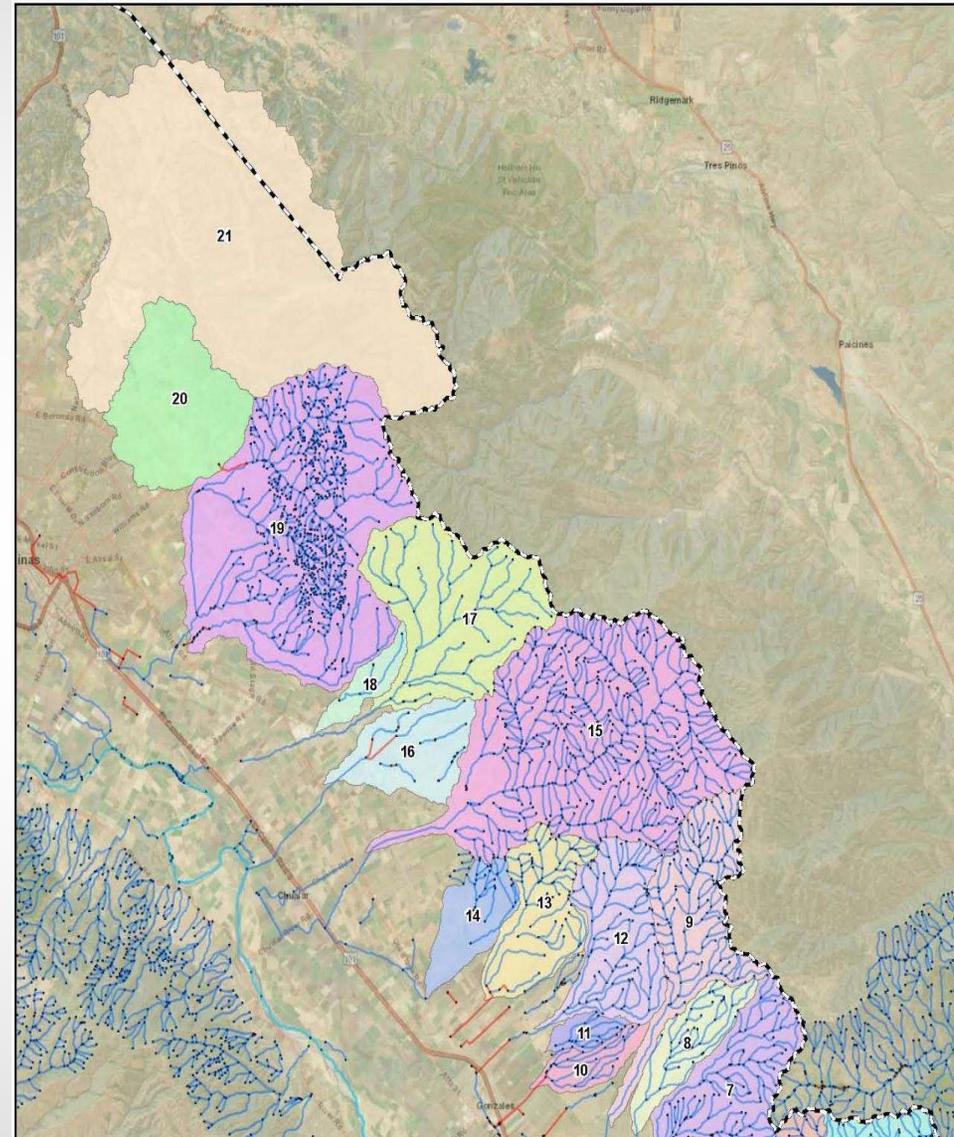
Surface Water Diversion from Gabilan Creek

- Diversion only allowed on days with streamflow above 90th percentile compared to historical mean
- 20 cfs diversion structure would capture 500 AF/yr. during wet weather years
- Cost for 20 cfs diversion structure, pipe, recharge pond, and two injection wells = \$10,074,000 (cost of water treatment not included)



Diversion from all Streams

- Streamflow captured in a series of recharge basins
- Would need to secure water rights and land for recharge basins



NEW WATER SUPPLY

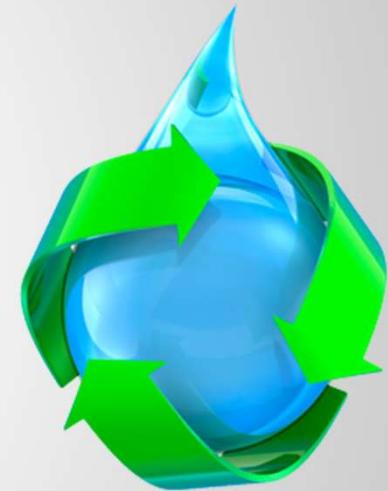
Diversion at Chualar or Soledad

- MCWRA 11043 Diversion Permit, a wet weather diversion right on the Salinas River
- An estimated 63,000 AF/year could be diverted
- Requires expensive new infrastructure



Salinas Scalping Plant

- Build a wastewater treatment plant to recycle wastewater from eastern Salinas
- Use the recycled water for direct non-potable uses such as irrigation
- Expensive, and wastewater from Salinas is already being used by Monterey One Water

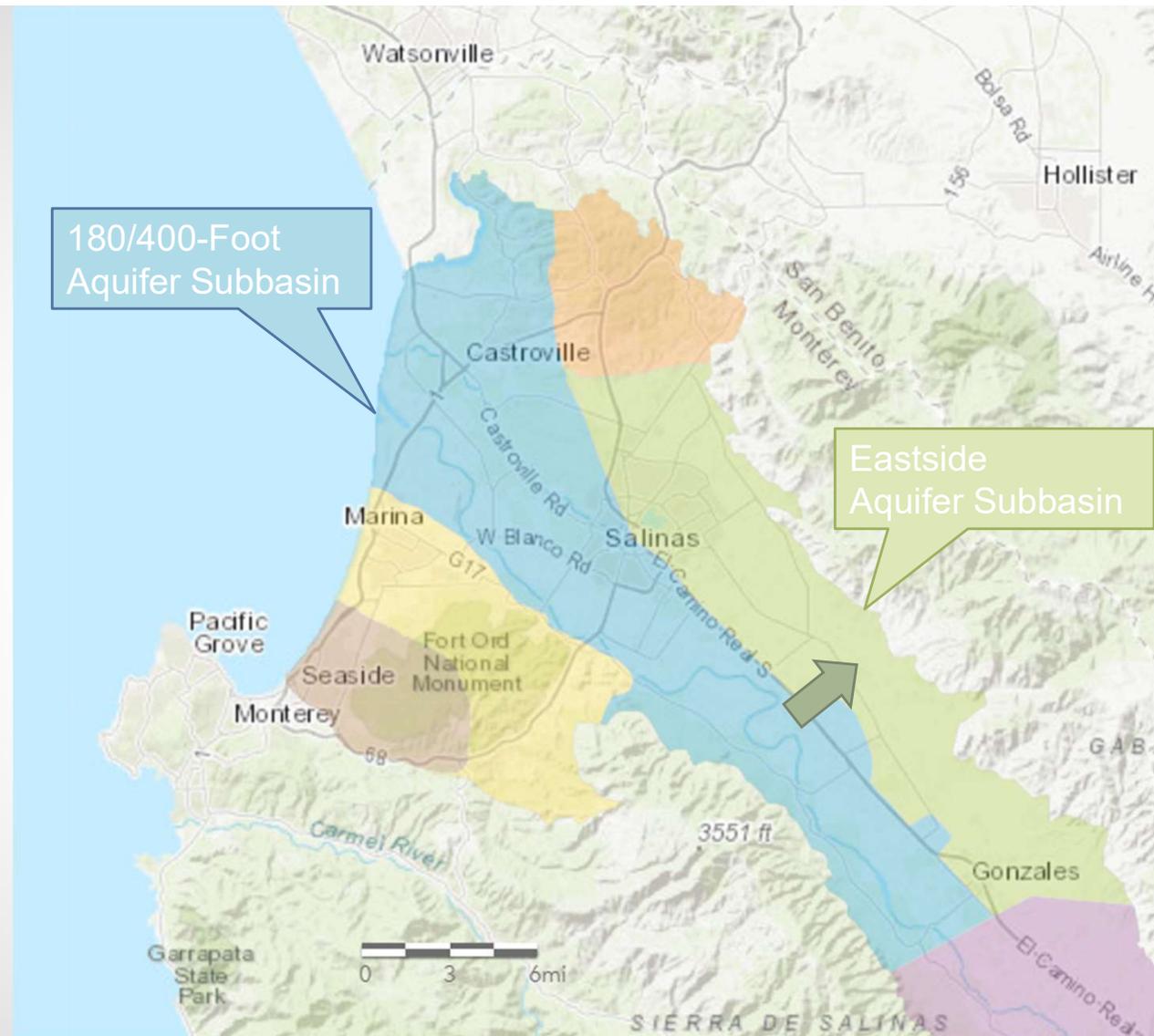


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NEW WATER SUPPLY

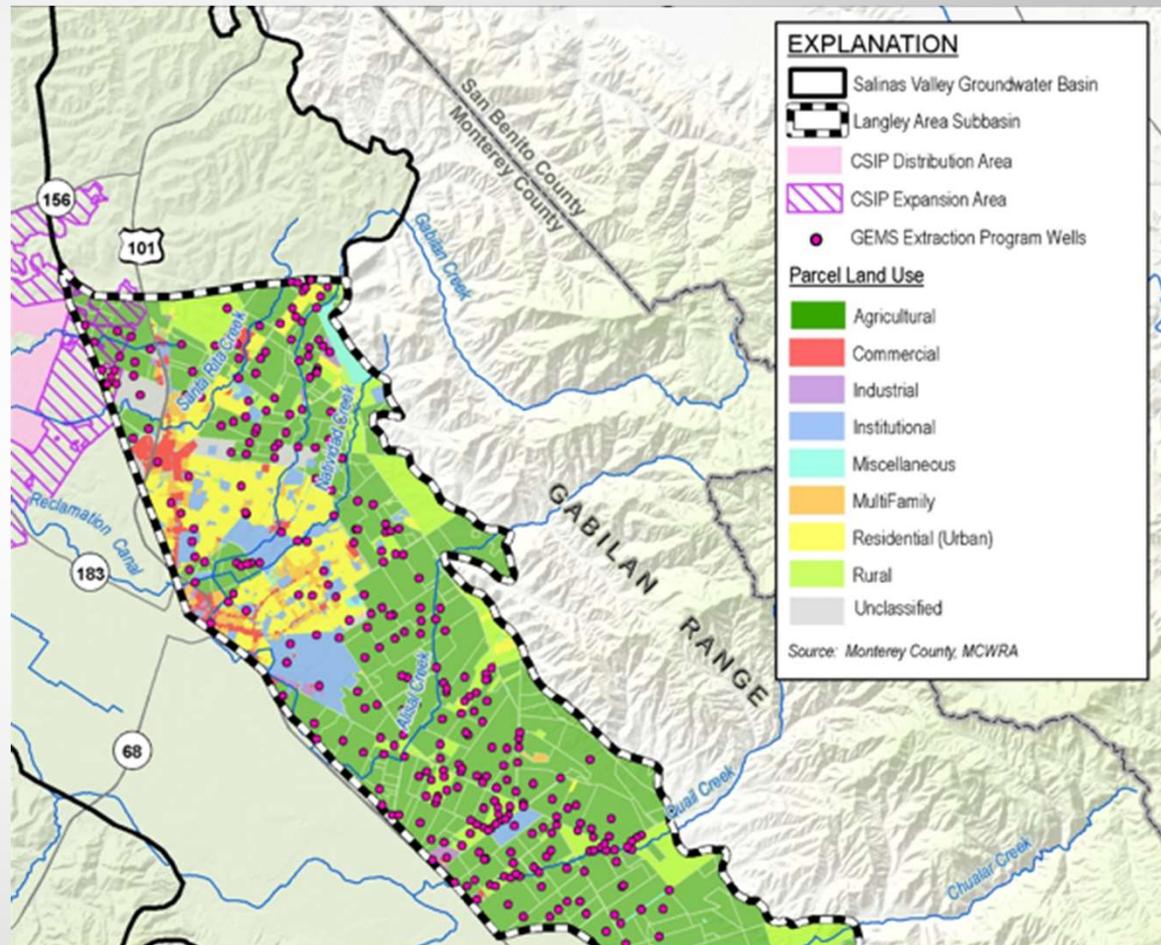
Extraction of Groundwater from 180/400-Foot Aquifer Subbasin to use in the Eastside Aquifer Subbasin

- 3 extraction wells in the 180-Foot Aquifer would extract 3,000 AF during irrigation season, to be used in Eastside
- Recharged from Salinas River during typical winter high flow season
- Requires a river crossing; would need to address water rights; would need to find landowners willing to have wells on their property



Castroville Seawater Intrusion Project (CSIP) Expansion

- Expand CSIP inland to include part of Eastside Aquifer Subbasin
- Reduces seawater intrusion, provides limited additional water to the Subbasin, expensive

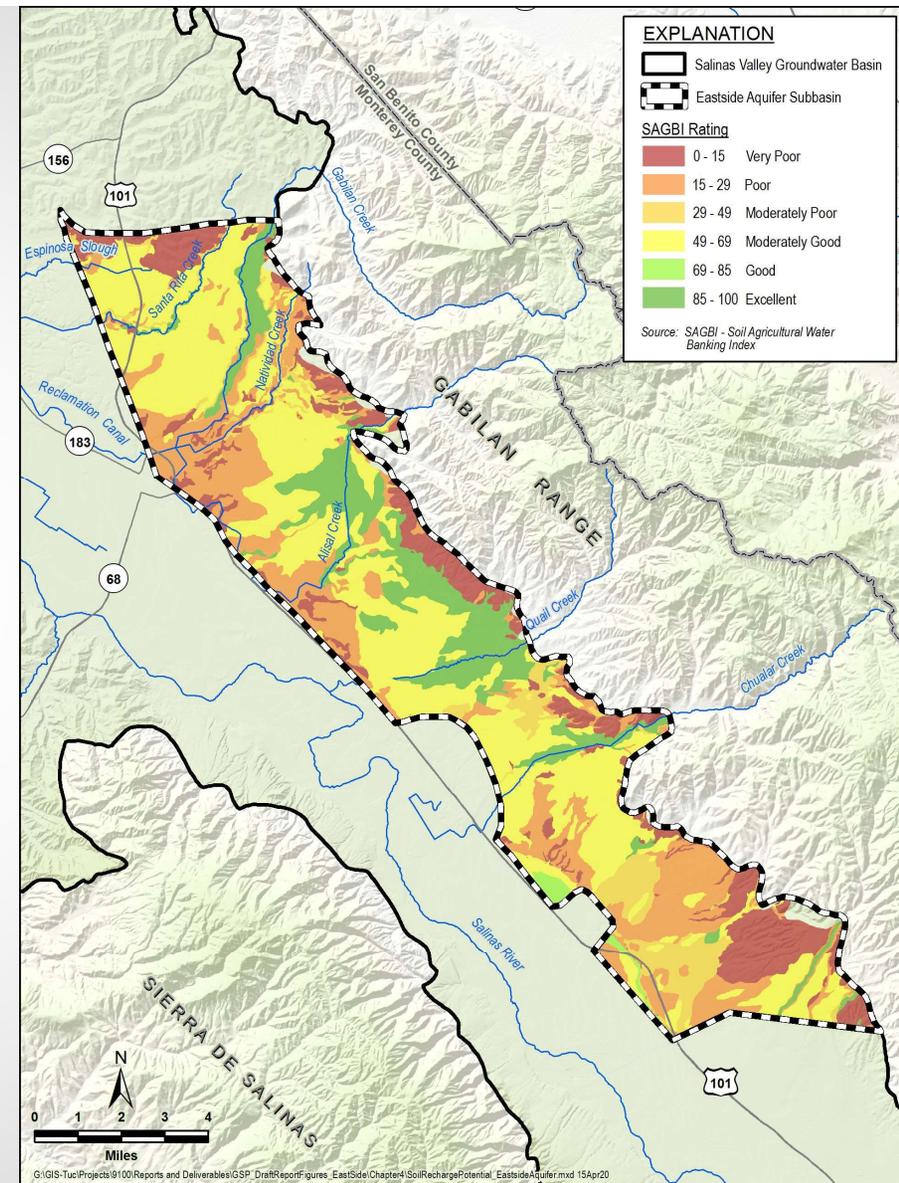


IMPLEMENTATION ACTION

Protect Areas of High Recharge

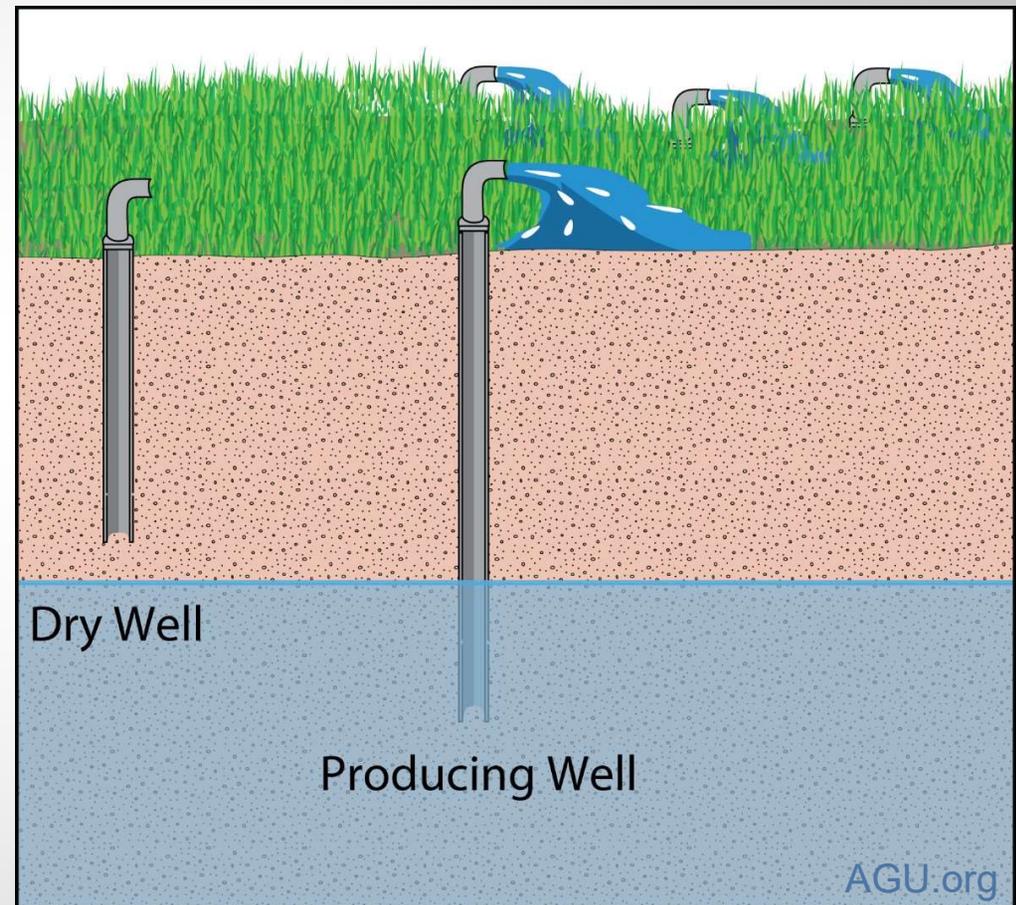
Work with County and Cities to:

- Place controls on development and agriculture to preserve areas of high recharge
- Develop requirements for new development to include infiltration features
- Look for opportunities to retrofit infiltration features whenever existing surfaces are being repaved
- Encourage cultivation practices to increase infiltration



Localized Groundwater Elevation Trigger

- Provide resources for well owners whose wells go dry, such as:
 - Short-term supply solutions
 - Technical support to determine why the well went dry
 - Long-term supply solutions
- Working groups could be convened if some areas are disproportionately affected by declining groundwater elevations





Next steps

- Develop water budget, sustainable yield, and overdraft
- Draft Projects & Management Actions Chapter
 - Will discuss pumping allocation and financing in upcoming meetings
 - For selected projects
 - Further develop project concepts and descriptions,
 - Develop expected benefits and evaluation of benefits,
 - Draft circumstances for implementation, public noticing, permitting and regulatory process, implementation schedule, and legal authority sections
 - Estimate project cost and amortized cost of water
 - Assess mitigation of overdraft (once have sustainable yield estimate from model)



Discussion Questions

- Which projects does the Subbasin Committee **not** want to include in the GSP?
- Which projects does the Subbasin Committee want to continue to pursue?
- How would you rank projects?
- What additional projects should be pursued?

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Questions

