

Lower San Joaquin River Regional Flood Risk Reduction & Climate Resilience Study



ADVISORY WATER COMMISSION

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Presentation Outline

- Background & Purpose
- Need for the Study
- Study Area
- Study Scope
- Planning Goals, Opportunities & Constraints
- Past and Ongoing Studies
- Preliminary Concepts
- Next Steps



Background & Purpose

Background

- 2017 CVFPP climate change projections
 - Peak 200-year flood flows on the Lower San Joaquin River (LSJR) projected to triple over the next 50 years
- Funding opportunity through the Bay Area Council Foundation
 - 2020 California Resilience Challenge (CRC) grant program

Study Purpose

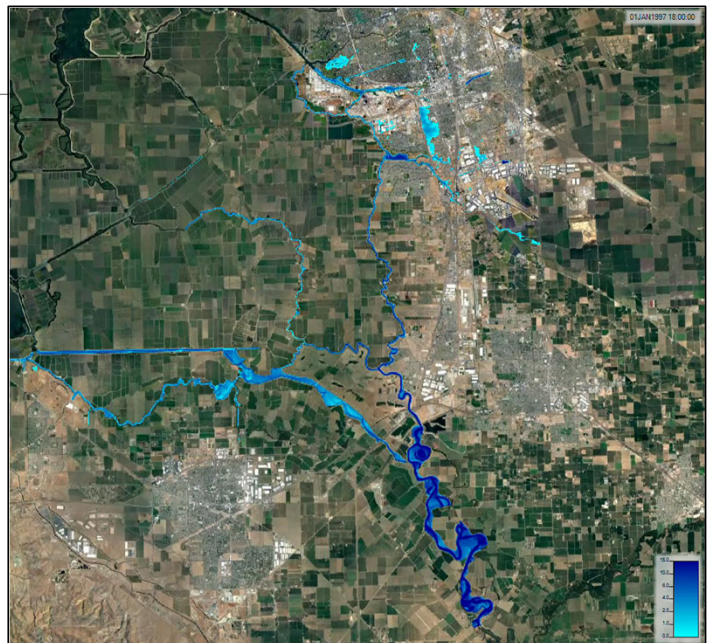
- To identify and prioritize locally preferred systemwide strategies for mitigating the impacts of projected climate change flows on the mainstem of the LSJR.

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Need for the Study

- Flows coming down the San Joaquin River during both the 100- and 200-year events are projected to nearly triple in the next 50 years
- The system in its current state is not able to withstand these flows and, if a flow event of this size were to occur, it would have the potential to result in a massive loss of life and have a devastating impact on the local and State economies
- Study will focus on mitigating increased flows on the mainstem of the LSJR

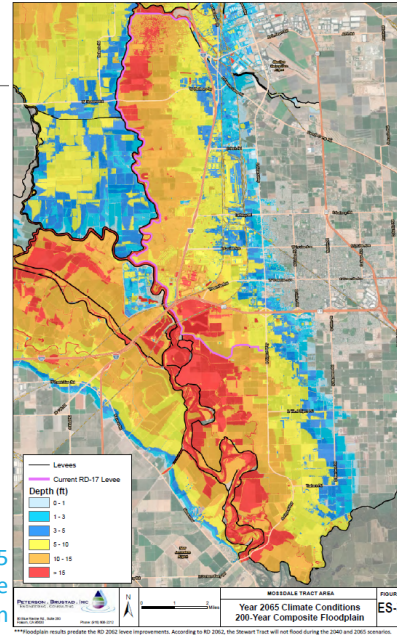
200-Year
2065 Climate Change
Flooding Scenario



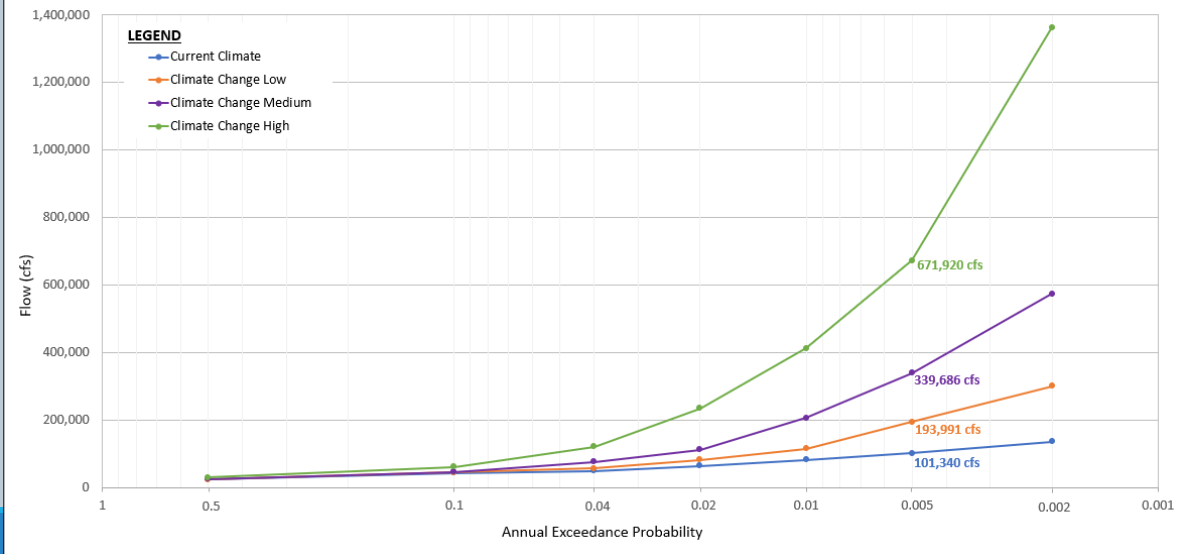
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2022 CVFPP Climate Change Projections at Vernalis

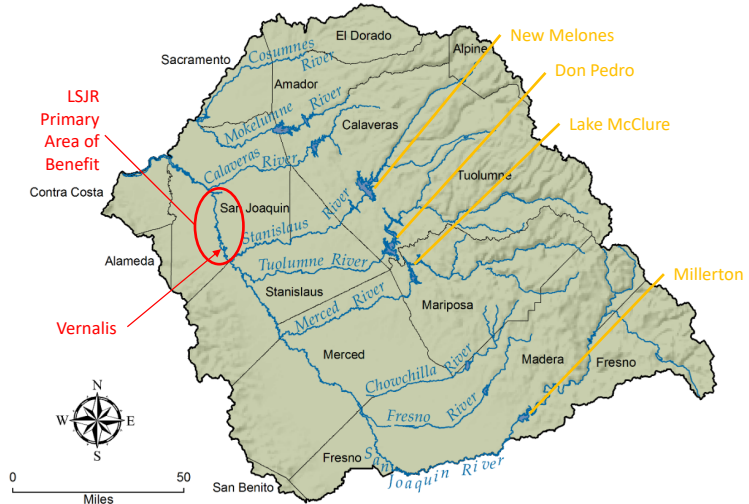
Data Source: DWR. 2022 CVFPP Update. Public Draft Appendix A: Climate Change Analysis. May 2022.

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Study Area

- The type of large-scale, systemwide strategies that will need to be contemplated as part of this *LSJR Climate Resilience Study* requires expanding the study area to include reservoirs and tributaries which feed into the upstream portions of the SJR and contribute to the peak flow at Vernalis



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Study Scope

Phase 1 (through end of 2022):

1. Gathering background information
2. Stakeholder engagement ←
3. Formulating a set of alternatives that are recommended for further evaluation
4. Preparing final report

Phase 2 (immediately following Phase 1):

1. Quantitative and qualitative analyses on the set of alternatives identified in Phase 1
2. Scoring and ranking of alternatives
3. Additional Stakeholder Engagement
4. Selection and refinement of a locally preferred strategy
5. Development of a conceptual implementation plan for the selected strategy
6. Preparing final report

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Planning Goals, Opportunities, and Constraints

Planning Goals	Opportunities	Constraints
Primary Goal:	Coordination with Concurrent Regional Projects	Limited Local Funding
Flood Risk Reduction		
Supporting Goals:	Improve Water Supply Reliability	Finding Willing Landowners
Promote Ecosystem Functions		
Promote Multi-Benefit Opportunities	Non-Structural Flood Management	Permitting and Regulatory Constraints
Improve Institutional Support	Riparian and Floodplain Restoration	Water Rights Limitations
Improve Operations and Maintenance		
Cost Effectiveness	Recreation Enhancement	Adverse Hydraulic Impacts

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Past & Ongoing Studies

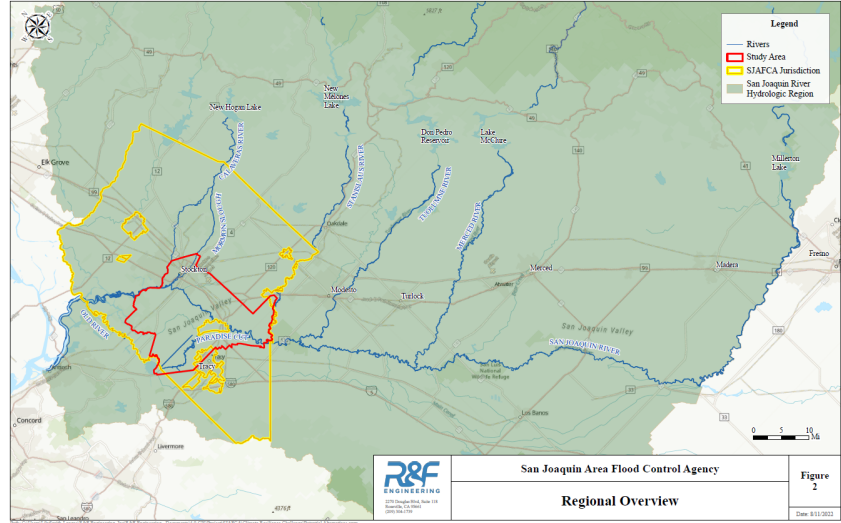
- Central Valley Flood Protection Plan (CVFPP) [DWR, 2012, 2017, 2022]
- San Joaquin River Basin-Wide Feasibility Study (BWFS) [DWR, 2017]
- Lower San Joaquin River and Delta South Regional Flood Management Plan [LSJR/DS RFMP] (SJAFCA, 2014)
- Lower San Joaquin River Feasibility Study (LSJRFS) [USACE/SJAFCA, 2018]
- 200-Year Freeboard Analysis & Floodplain Mapping within RD 17 [PBI, 2014]
- Urban Levee Design Criteria (ULDC) Evaluation of the RD 17 Levee [PBI, 2016]
- Paradise Cut Expansion Project Conceptual Design Technical Memo [American Rivers & South Delta Water Agency, 2019]
- 2021 Climate Change Update to the Mossdale ULDC Engineer’s Report [PBI, 2021]
- Mossdale Tract Area Urban Flood Risk Reduction (UFRR) Study [PBI, 2021]
- Delta Adaptation Strategy [Delta Stewardship Council (DSC), 2022]
- Merced River Flood-MAR Reconnaissance Study [DWR, 2022]
- USACE Water Control Manual Updates for various SJR Reservoirs [In-Progress]



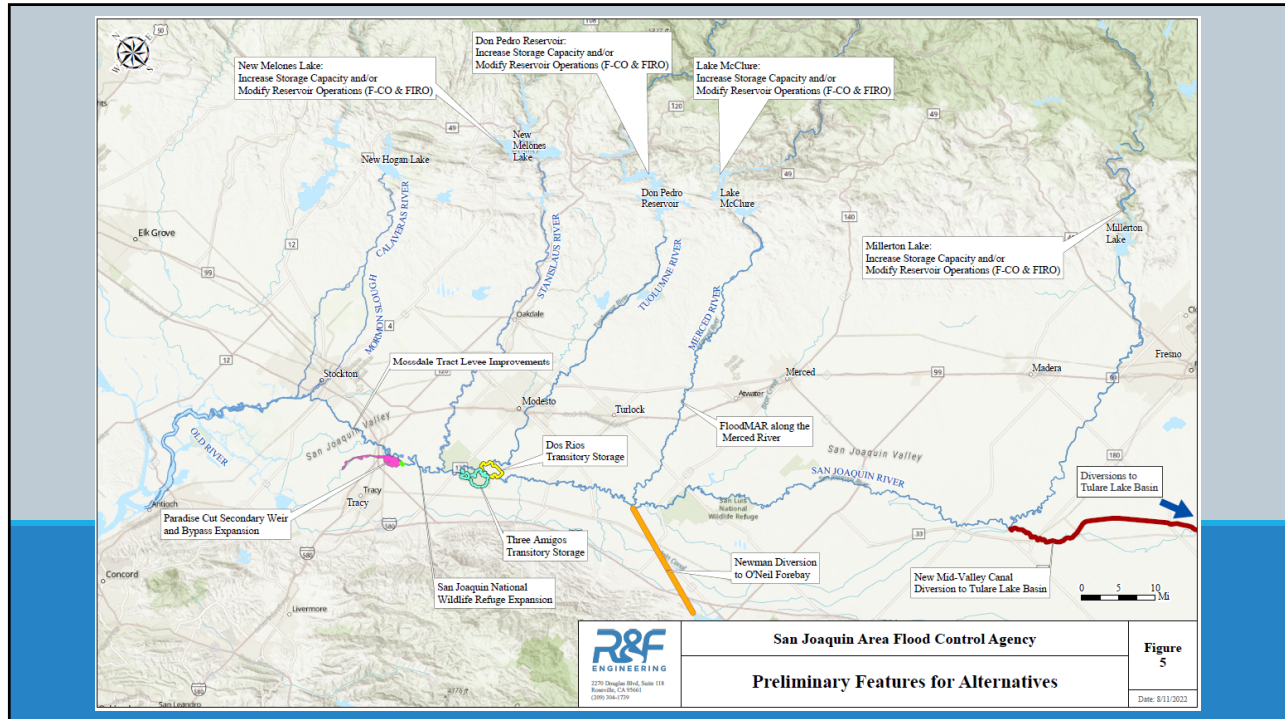
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Preliminary Concepts for Discussion

1. New and/or Expanded Flood Bypasses
2. Increased Storage at Existing Upstream Reservoirs
3. New Storage Reservoirs
4. Modified Reservoir Management Operations (F-CO & FIRO)
5. Increase Channel Capacity
6. Large Scale Diversion Canals
7. Diversion of SJR flows to the Tulare Lake Basin
8. Transitory Storage Opportunities
9. FloodMAR Opportunities
10. Levee Improvements
11. Elevate Bridges and Roads used as Primary Evacuation Routes
12. Residual Risk Management

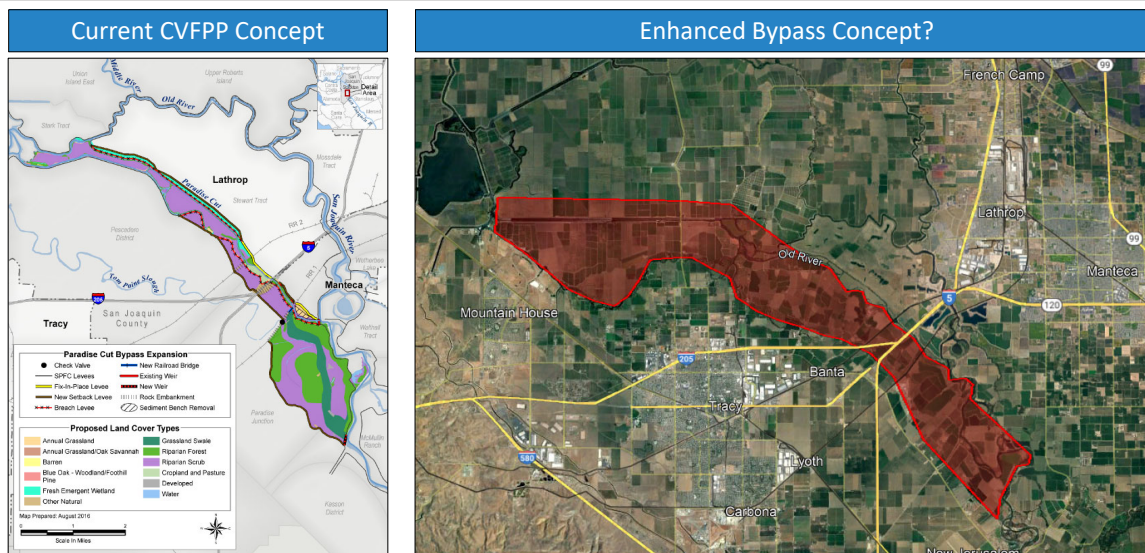


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Example: Paradise Cut Bypass Expansion



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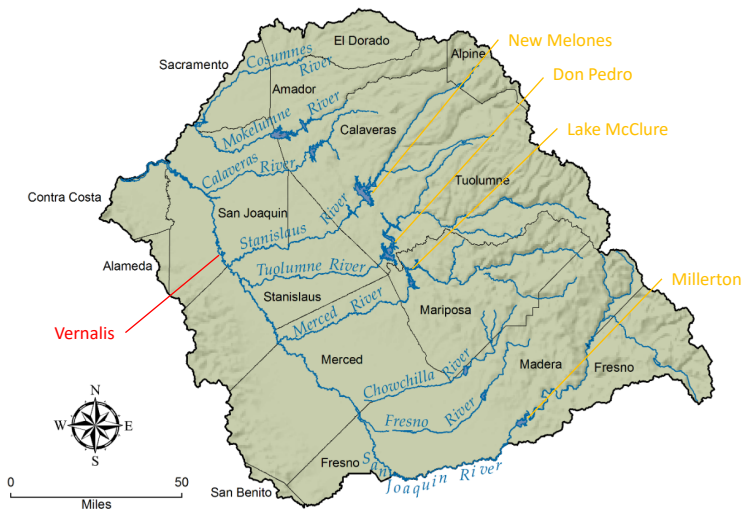
Example: Modifications at Upstream Reservoirs

Options

- Modified Reservoir Management Operations (F-CO & FIRO)
- Increased Storage at Existing Upstream Reservoirs
- New Storage Reservoirs
- Transitory storage opportunities downstream of reservoirs

Topics for Further Evaluation

- Reservoirs that drive the peak flow at Vernalis?
- Reservoirs that are most vulnerable to the climate change projections?
- Prioritization of reservoirs based on their influence at Vernalis?



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Outreach Efforts

- Presentation at SJAFCA-Reclamation District (RD) Coordination Meeting (July 2022)
 - Included representatives from various RDs in the LSJR region
- Meetings with Non-Governmental Organizations (July/August 2022)
 - Included meetings with representatives from River Partners and American Rivers
- Presentation at SJAFCA Principals Meeting (August 2022)
 - Included representatives from Cities of Lathrop, Manteca, Stockton, and County of San Joaquin
- Presentation at SJAFCA Board Meeting (August 2022)
 - Includes SJAFCA Board members and members of the public
- Presentation at San Joaquin County Advisory Water Commission Meeting (August 2022)
 - Includes members from County of San Joaquin as well as from various cities, water districts, irrigation districts, and reclamation districts around the County
- Presentation at DWR FIRO-MAR Learning Group Meeting (Planned September 2022)
 - Includes primarily attendees from DWR and the CVFPB

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Discussion

