Merced River Basin Flood-MAR Reconnaissance Study

The Department of Water Resources (DWR), in partnership with Merced Irrigation District, is studying the potential for managed aquifer recharge using flood flows (Flood-MAR) in the Merced River watershed. This reconnaissance study is exploring Flood-MAR concepts from DWR's 2018 white paper, *Flood-MAR: Using Flood Water for Managed Aquifer Recharge to Support Sustainable Water Resources*. The study will describe and quantify potential public and private benefits associated with Flood-MAR strategies, including:
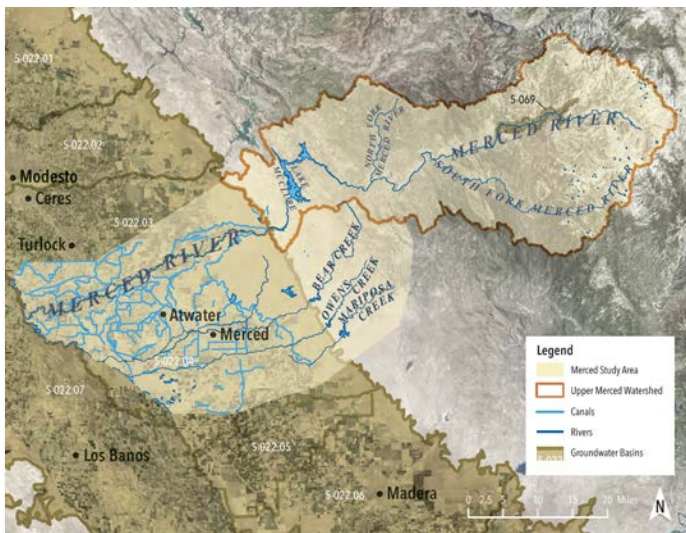
Public Benefits

• Flood risk reduction
• Aquifer replenishment
• Ecosystem enhancement
• Drought preparedness
• Subsidence mitigation
• Climate adaptation
• Working landscape preservation and stewardship
• Recreation and aesthetics

Private Benefits

• Water supply reliability
• Reduced groundwater pumping costs

Merced River Watershed

Flood-MAR Analysis

The study is using a watershed vulnerability and adaptation assessment approach, first assessing vulnerabilities to climate change in flood, water supply, ecosystems, and groundwater sustainability. Next, performance of Flood-MAR and related adaptations will be evaluated with potential climate change futures. The analysis will be completed with three distinct adaptation or implementation "levels."

Level 1 "Existing" — Evaluate potential Flood-MAR benefits with existing facilities and existing operations.

Level 2 "Modified Reservoir Operations" — Evaluate how changing operations of upstream reservoirs or conveyance canals can expand Flood-MAR benefits.

Level 3 "Expanded Infrastructure and Modified Operations" — Evaluate how new or modified infrastructure, coupled with operational changes, can increase Flood-MAR benefits.

Model Development and Tools Application

The headwaters to groundwater study is using a state-of-the-art climate change assessment and an innovative integrated analytical toolset with nine models, including rainfall-runoff, operations, recharge, groundwater, and flood. Metrics have been selected to describe potential benefits and effects, by type, and associated economic analysis will describe both costs and benefits of implementation.

Schedule

The Merced River Basin Reconnaissance Study has progressed through plan of study, tools development and integration, and metrics identification to the analysis and reporting phase A series of technical memorandums (TMs) will describe and report on the study with the following schedule:

TM 1	Plan of Study	April 2020
TM 2	Model Integration	Fall 2020
TM 3	Baseline and Vulnerability Analysis	Winter 2020/21
TM 4	Level 1 Analysis	Winter 2020/21
TM 5	Level 2 Analysis	Spring 2021
TM 6	Level 3 Analysis	Summer 2021
TM 7	Study Completion Summary	Summer 2021