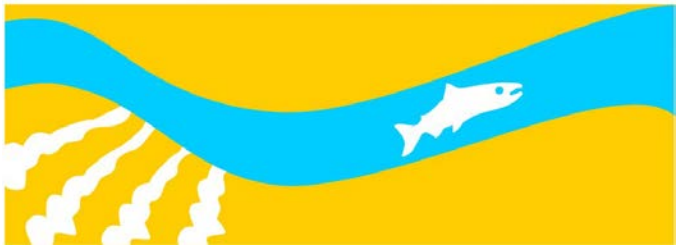
Study 24

Additional Water Level Recorders

Public Draft
2014 Monitoring and Analysis Plan

SAN JOAQUIN RIVER
RESTORATION PROGRAM



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24.0 Additional Water Level Recorders

24.1 Statement of Need

The data for this study specifically address needs related to San Joaquin River Channel Capacity Management Problem Statement and indirectly address certain aspects of other problem statements by providing a continuous record of Water Surface Elevations (WSE) at key locations during Restoration releases to calibrate hydraulic models being used to assess channel capacity, fishery habitat, channel stability, and many other aspects of Restoration planning and design. They also provide additional data that will help calibrate unsteady hydraulic models of the river by recording flow bench travel times and attenuation.

24.2 Background

There are currently several active stream gages on the main stem San Joaquin River within the Restoration reach. To provide additional data to calibrate the hydraulic and flow-routing models, six additional water-level recorders (WLR) were installed in 2009/2010 at key locations in Reaches 1 and 2 to supplement existing stream gages. The additional recorders provide a continuous record of stage at 15 minute intervals at six six additional locations. These stage readings can be used to assess hydrograph translation characteristics through the upstream reach and corresponding WSEs can be used to validate hydraulic models. Assuming that the stage-discharge relationship remains constant over time, rating curves can also be developed at the sites using opportunistic flow measurements and correlation with flows at the closest upstream and downstream gages to provide estimates of the local discharge.

24.3 Anticipated Outcomes

Through analysis of the data collected to-date, DWR expects to be able to identify locations where no recorders exist but calibration data is needed. If new locations are identified, DWR expects to add a few additional recorders in those locations.

Data from the WLRs have been compared to routing model results, and adjustments made to the models, as necessary, to better match the data. The data will also be evaluated with respect to the surrounding topography to understand inundation levels associated with the Interim Flows (and eventually Restoration Flows). Improved model performance from these comparisons and resulting adjustments to the models will provide more certainty in predicted inundation levels, channel capacities, and other channel characteristics.

24.4 Methods

The detailed installation and data collection procedures of WLRs are presented in 2009 and 2010 ATRs.

24.5 Schedule

This is an ongoing monitoring study and recorders will continue to collect data to track hydrograph shapes and flow change travel times in the upper reaches of the river.

24.6 Deliverables

WSE data at each recorder site will be included in the ATR. New location data will also be provided for each additional recorder, if anything is installed in the future. The existing recorders will be kept in place if DWR determines a viable stage-discharge relationship can be developed for the sites.

24.7 Point of Contact/Agency

Dave Encinas/DWR

24.8 References

Final 2009 SJRRP Annual Technical Report

Final 2010 SJRRP Annual Technical Report