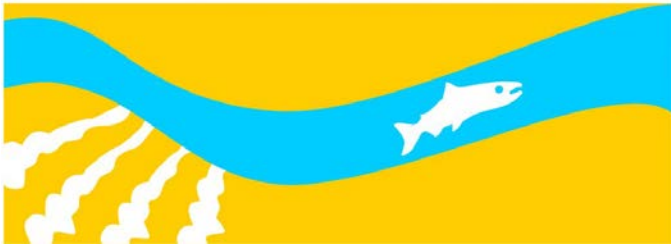


Study 24

Additional Water Level Recorders

**Public Draft
2013 Monitoring and Analysis Plan**

**SAN JOAQUIN RIVER
RESTORATION PROGRAM**



1 **24.0 Additional Water Level Recorders**

2 **24.1 Statement of Need**

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

10 **24.2 Background**

11 There are currently several active stream gages on the main stem San Joaquin River
12 within the Restoration reach. To provide additional data to calibrate the hydraulic and
13 flow-routing models, six additional water-level recorders (WLR) were installed in
14 2009/2010 at key locations in Reaches 1 and 2 to supplement existing stream gages. The
15 additional recorders supply six additional locations where a continuous record of stage
16 can be obtained. These stage readings can be used to assess hydrograph translation
17 characteristics through the upstream reach and corresponding WSEs can be used to
18 validate hydraulic models. Assuming that the stage-discharge relationship remains
19 constant over time, rating curves can also be developed at the sites using opportunistic
20 flow measurements and correlation with flows at the closest upstream and downstream
21 gages to provide estimates of the local discharge.

22 **24.3 Anticipated Outcomes**

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

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

1 **24.4 Methods**

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

4 **24.5 Schedule**

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

7 **24.6 Deliverables**

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

12 **24.7 Point of Contact/Agency**

13 Dave Encinas/DWR

14 **24.8 References**

15 Final 2009 SJRRP Annual Technical Report

16 Final 2010 SJRRP Annual Technical Report

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