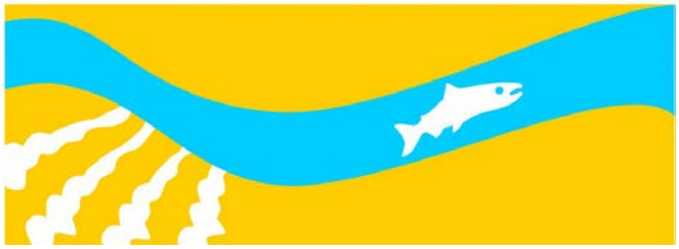
Study 3

Changes in Soil Salinity Conditions Resulting from Interim Flows

Final
2014 Monitoring and Analysis Plan

SAN JOAQUIN RIVER
RESTORATION PROGRAM



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3.0 Changes in Soil Salinity Conditions Resulting from Interim Flows

3.1 Statement of Need

Establish baseline soil salinity levels for seepage-prone areas, and quantify salinity changes over time so that the presence of shallow groundwater during Interim Flows may be understood in relation to existing conditions. This study is guided by the Seepage Management Plan, and informs potential changes to groundwater thresholds for Appendix H.

3.2 Background

An adverse seepage impact to crops is mobilization of salts upward into the root zone.

3.3 Anticipated Outcomes

Quantifying antecedent soil salinity conditions will allow Reclamation to track changes in salinity during the release of Interim Flows to more accurately assess reductions in crop yield. Repeated monitoring of soil salinity will allow Reclamation to determine changes in soil salinity, and potentially eliminate constraints to the release of flows when salinity represents background conditions unrelated to Interim Flows.

3.4 Methods

Delineate change in soil salinity through the following activities:

- Perform soil salinity measurements pre-irrigation/planting
- Perform soil salinity measurements post-harvest
- Compare with salinity measurements from previous years and other influences
- Determine influence of irrigation water (measure irrigation electrical conductivity (EC)),
- Determine influence of river water (measure river and groundwater electrical conductivity (EC)),

- Determine fertilizer correlation
- Determine correlation of groundwater rise with salinity changes
- Determine potential deepening of groundwater thresholds to protect for salinity effects