

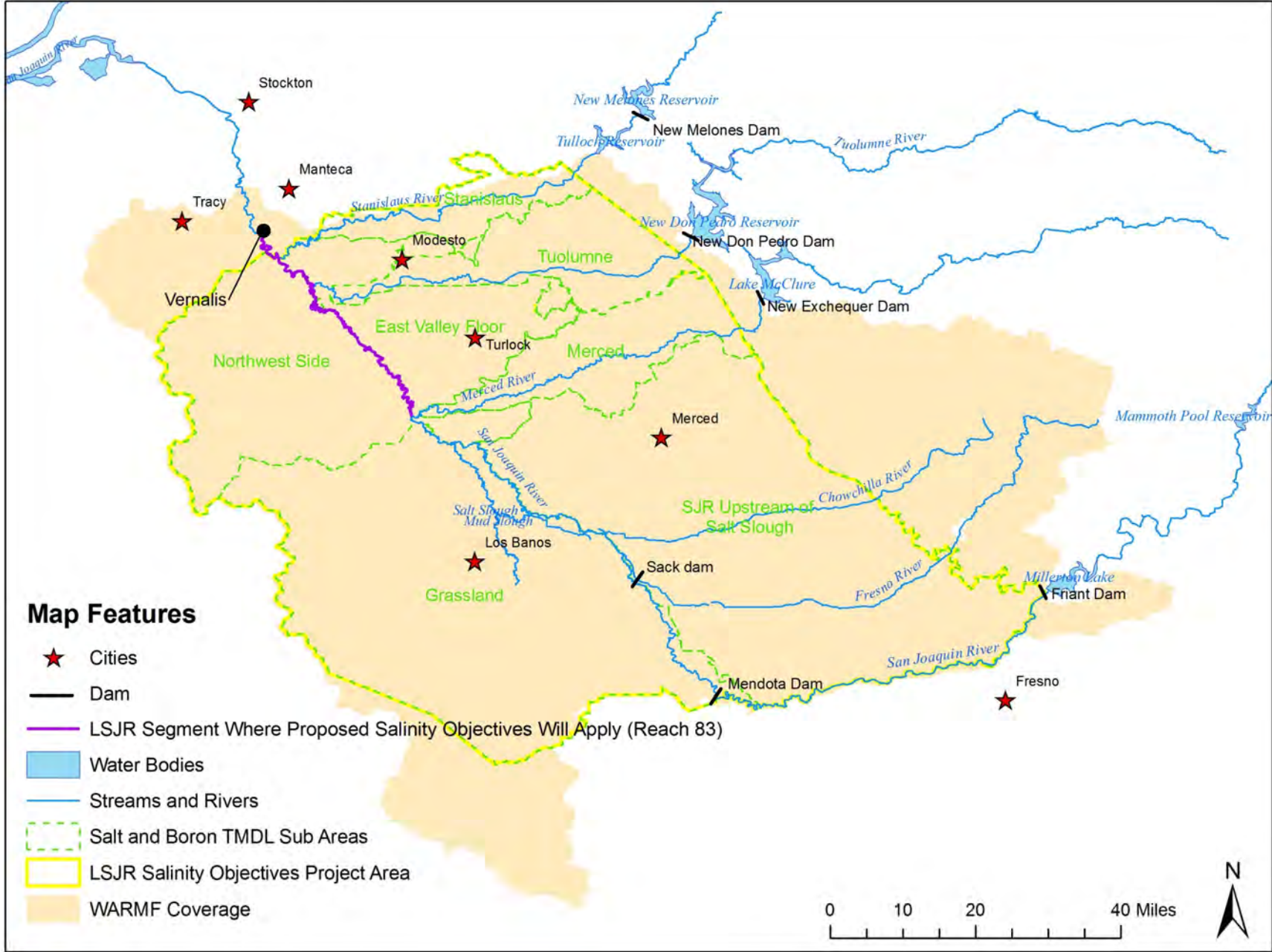
Development of Salinity Water Quality Objectives in the Lower San Joaquin River

Presentation to

CVSALTS Executive Committee

September 17, 2020





Goals

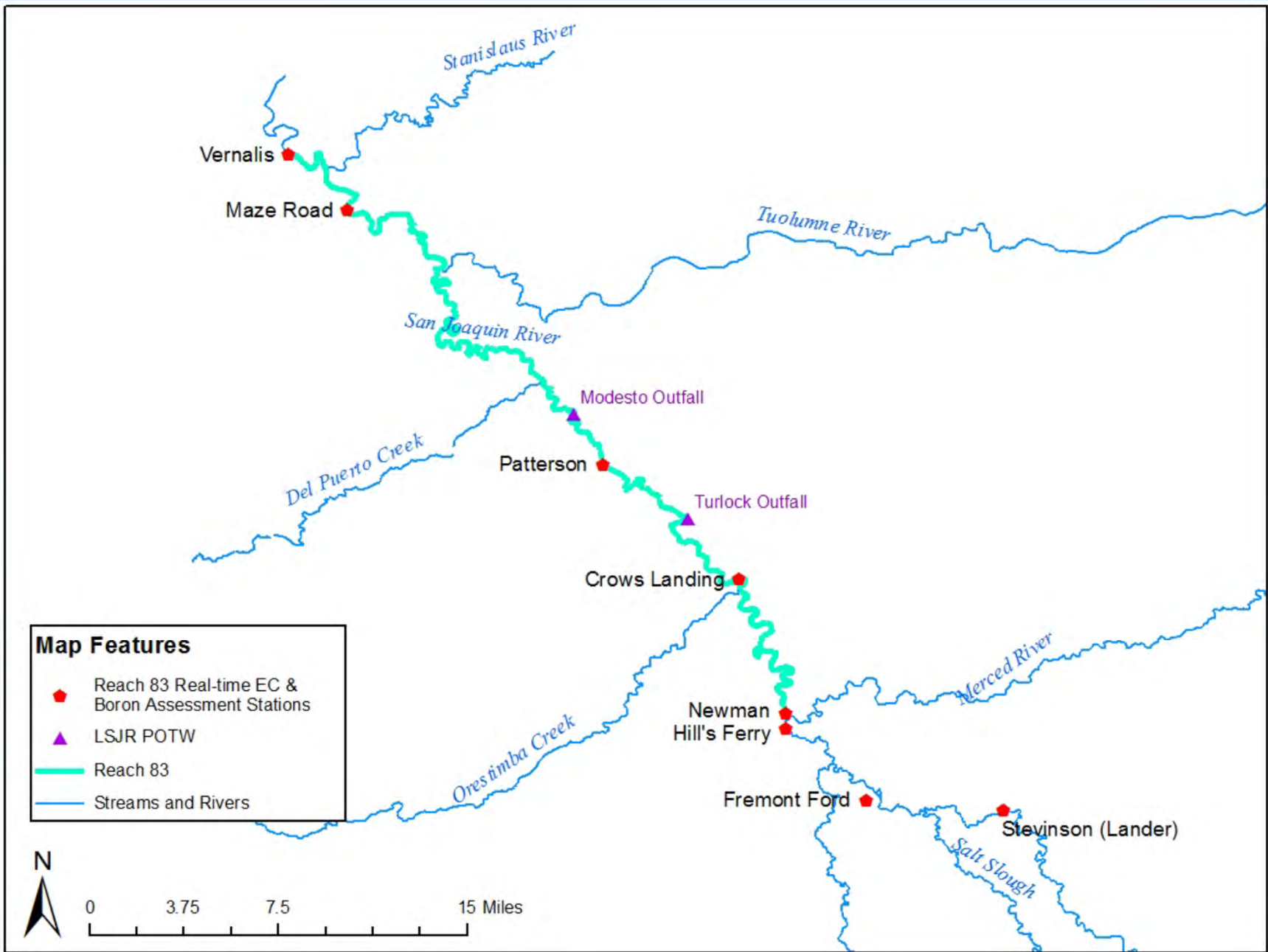
- Develop Site-specific Water Quality Objectives (WQOs) for Salinity
- Protect Salt-Sensitive Beneficial Uses
- Meet Water Code Requirements for WQOs
- Satisfy Requirements for Basin Plan Amendment
- Gain Stakeholder Acceptance

Guiding Principles

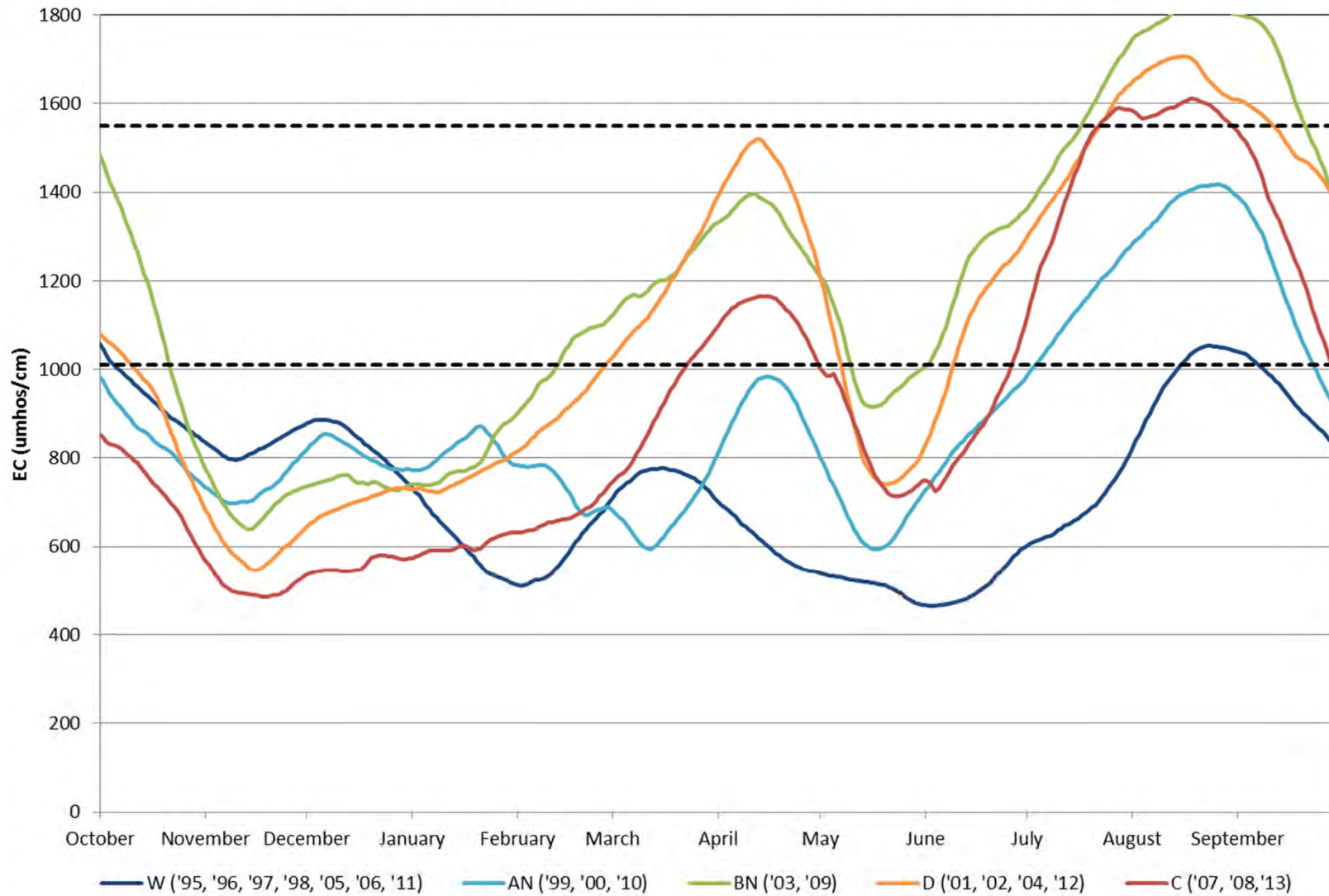
- Effectively Engage Stakeholders
- Need Practical Approach to Identify Sensitive Crops to be Protected
- Select and Effectively Use Appropriate Modeling Tools
- Understand Means of Attaining Candidate WQOs

Approach

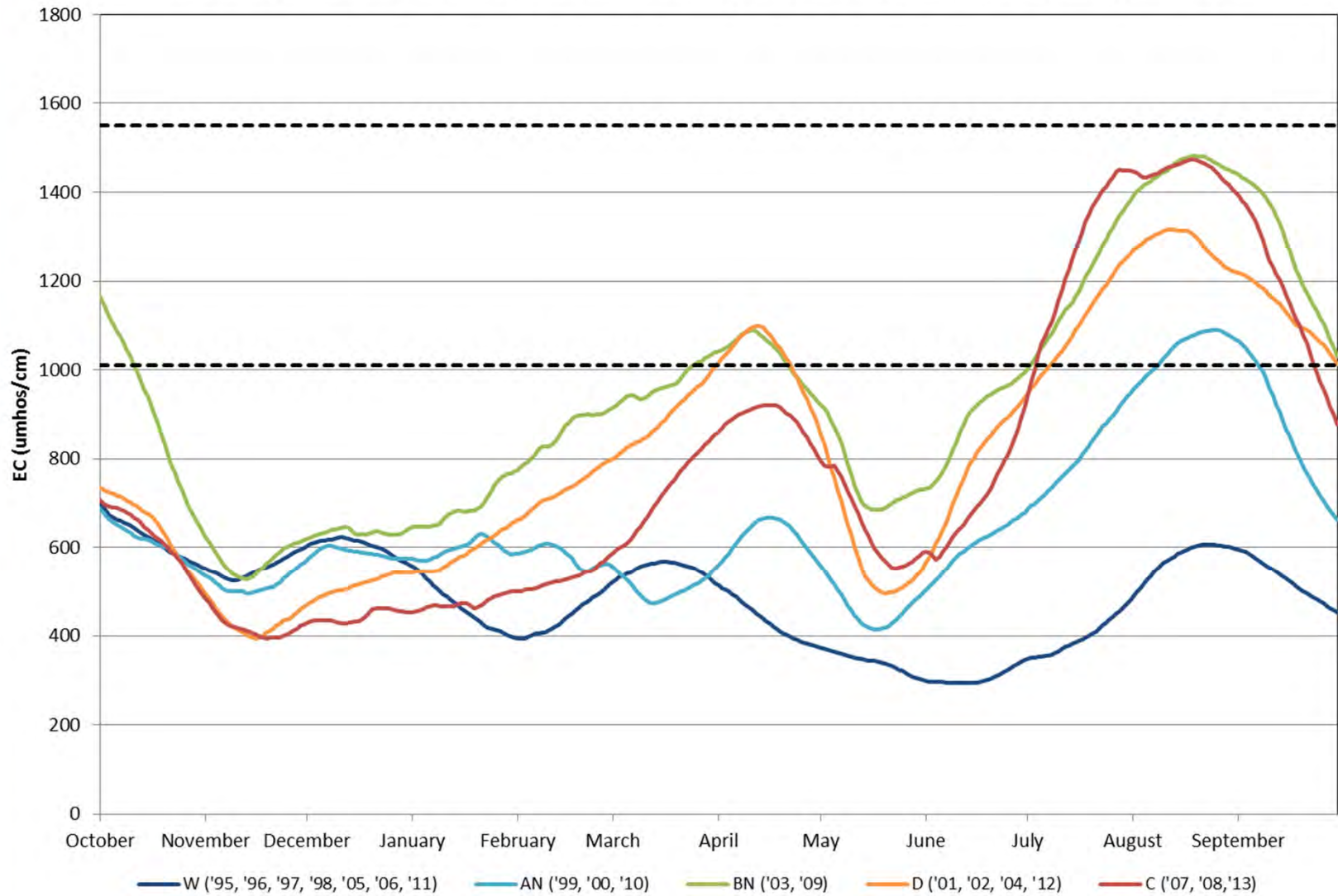
- Worked closely with LSJR Committee
- Evaluated different beneficial uses
- Developed range of potential WQOs
- Identified range of salinity control measures – stakeholder workshops
- Modeled scenarios to understand effectiveness of management options
- Engaged agricultural stakeholders in selecting WQOs
- Developed WQOs for normal and extended dry periods



Crows Landing Baseline Running Average EC by Water Year Type (Oct. 1, 1995 - Sept. 1, 2013)



Crows Landing Planned Alternative Running Average EC by Water Year Type (Oct. 1, 1995 - Sept. 1, 2013)



Modeling Tools

- Hoffman Model – used to determine EC of ag supply water for sensitive local crop (almonds)
 - Crop yield
 - Rainfall
 - Leaching fraction
- WARMF Model – used to assess effectiveness of management options on EC levels in LSJR
 - Watershed model accounting for climate, soils, land use, hydrology

Stakeholder Engagement

- LSJR Committee
 - Central Valley Water Board
 - Ag representatives
 - POTWs
 - Water supply interests
- Agricultural Stakeholders – LSJR water users

Key Considerations: Ag Stakeholders

- Balance exists between desired supply quality and agricultural runoff constraints
- Higher salinity water can be managed – better than no water
- Developed different (less restrictive) objectives applicable during extended dry period conditions (drought plus following year)

Water Quality Objective/ Performance Goal (EC)

- Wet and Above Normal: 1350 goal (Mar-Oct)/
1550 WQO (Nov-Feb)
 - Below Normal and Dry: 1350 goal (Mar-Jun)/
1550 WQO (Jul-Feb)
 - Critical: 1550 WQO year round
- Extended Dry Period WQO: 2200 annual avg/
2470 monthly avg

Comparison to Another Approach

- “AGR Class” approach described in SNMP (Section 4.2.2.3)

AGR Class 1: <1000 EC

AGR Class 2: 1000 to 3000 EC

AGR Class 3: 3000 to 7500 EC

AGR Class 4 >7500 EC

Key SNMP Language

- AGR Classes: Not proposed to be adopted
- After completion of P&O study, will re-evaluate approach

- Not an alternative/competing approach, per SNMP

Issues

- Same problem as with 700 EC default – per SWRCB Order WQO 2004-0010, Regional Board must consider site-specific conditions, allow relaxation as appropriate
- Use LSJR as case in point
 - AGR Class 1 needed to protect almonds
 - Attainment of AGR Class 1 – problematic per LSJR modeling
 - Requires Site specific study

Questions to be Answered

1. Can work/tools developed in LSJR effort be used in P&O study?

■ YES - Methodologies for:

- Sensitive crop determination
- Sensitive use evaluation
- Range of target values
- Management scenario development, evaluation
- Extended dry period definition

Questions to be Answered

2. Was existing data used in LSJR? Was new data collection required?

- Existing data: WQ, flows, land use, cropping data sets were robust
- New data: Collected information from ag users regarding irrigation practices, drought response

Questions to be Answered

3. What are the biggest challenges in considering groundwater in addition to surface water?

- Complexities of water supplies, blends, interannual changes
- Varying quality in different aquifers
- Point of compliance determinations
- Data gaps

Questions to be Answered

4. How can complexities/dynamics of water management be addressed?

- Data Collection

- Local Stakeholders, Water Districts
- GSP water budgets
- Other Local studies

- Appropriate selection and use of models

Questions to be Answered

5. How will archetype areas be selected?

- Potential Considerations

- Willing stakeholders
- Representative conditions
- Diversity of conditions
- Data Availability
- Boundaries

Additional Questions?

Thank You!

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