

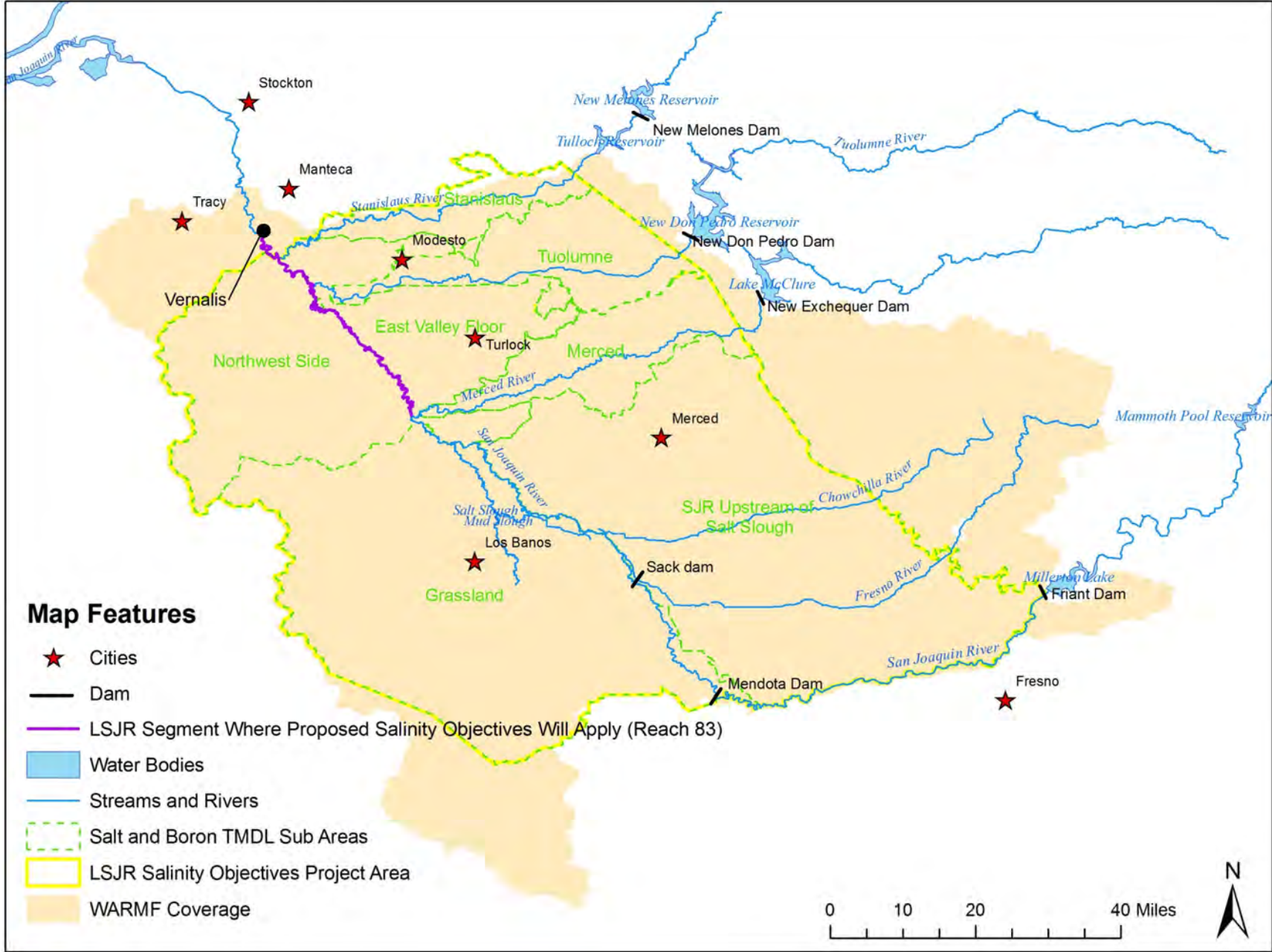
# Development of Salinity Water Quality Objectives in the Lower San Joaquin River

Presentation to

CVSALTS Executive Committee

September 17, 2020





# Goals

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- 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

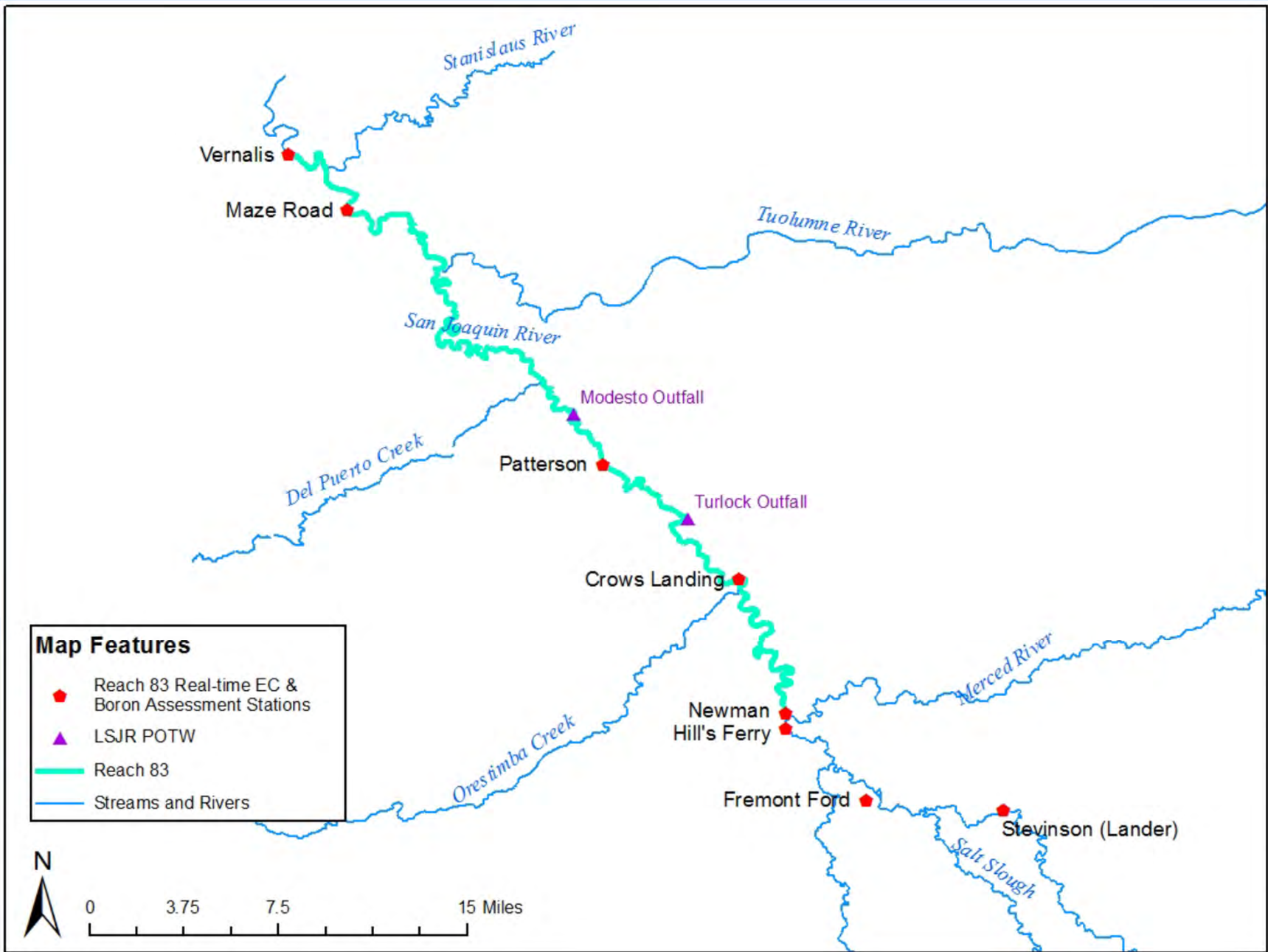
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- Effectively Engage Stakeholders
- Need Practical Approach to Identify Sensitive Crops to be Protected
- Select and Effectively Use Appropriate Modeling Tools
- Understand Means of Attaining Candidate WQOs

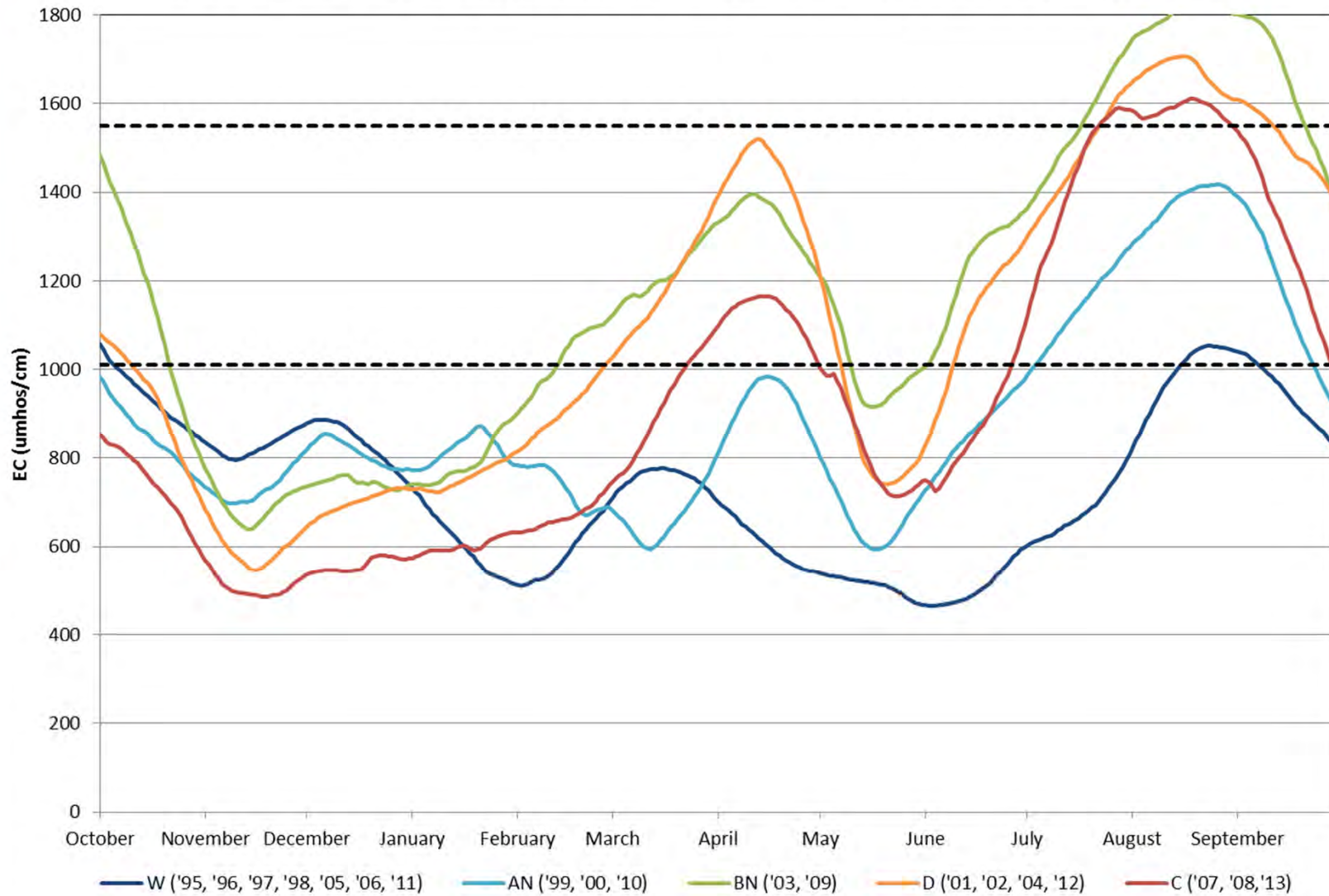
# Approach

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- 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

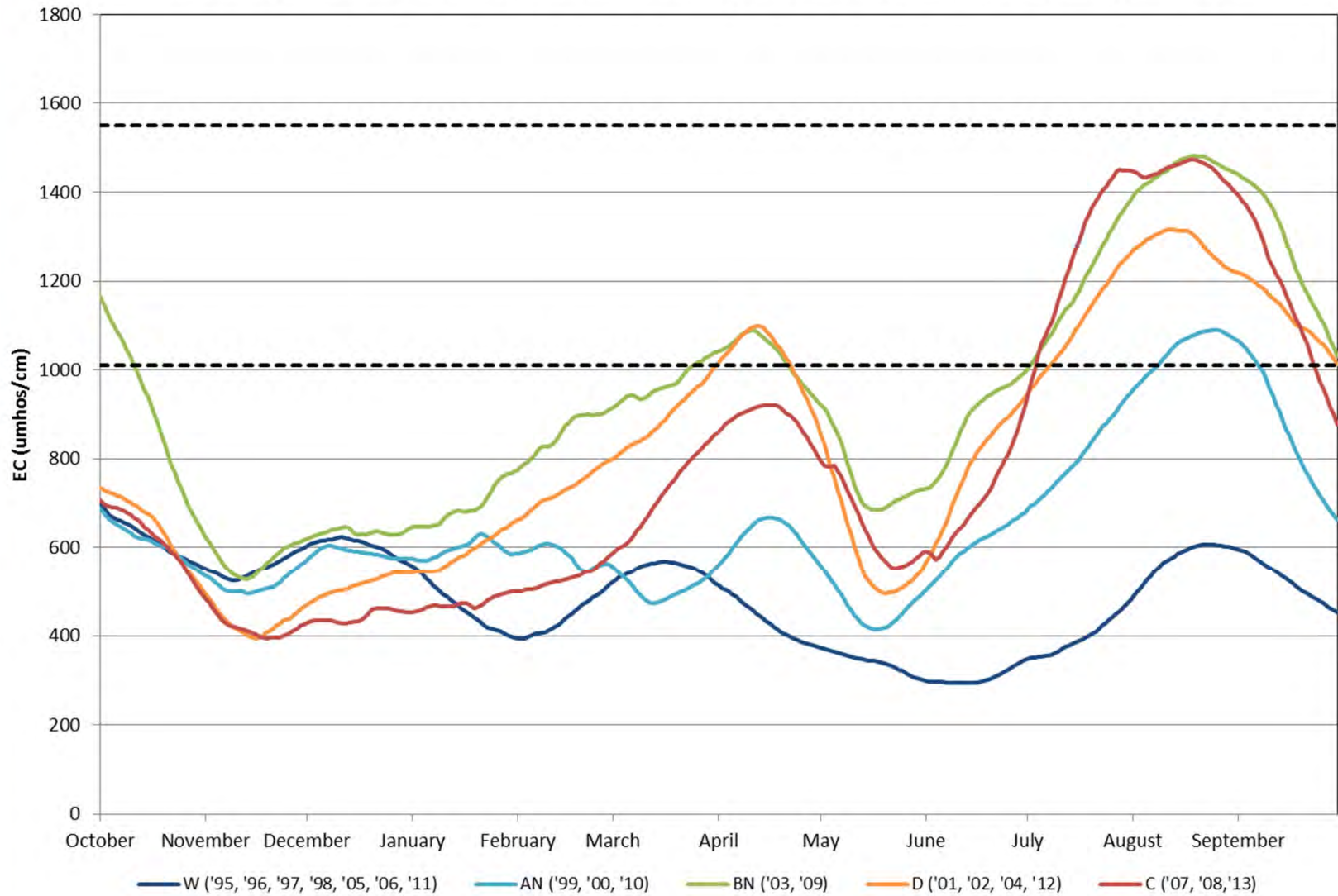


## Crows Landing Baseline Running Average EC by Water Year Type (Oct. 1, 1995 - Sept. 1, 2013)





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





# Modeling Tools

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- 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

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

# Key Considerations: Ag Stakeholders

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- 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)

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- 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

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- “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

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- 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

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- 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

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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

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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

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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

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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

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5. How will archetype areas be selected?

- Potential Considerations

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



# Additional Questions?

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Thank You!

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