San Joaquin River Restoration Program

Fisheries Management Work Group
Technical Feedback Meeting

CSU-Stanislaus
January 16, 2009

Agenda

- Introductions
- Program Update
- Fisheries Management Plan
  - Status
  - Schedule
  - Detailed Summary
- Next Steps and Future Meetings

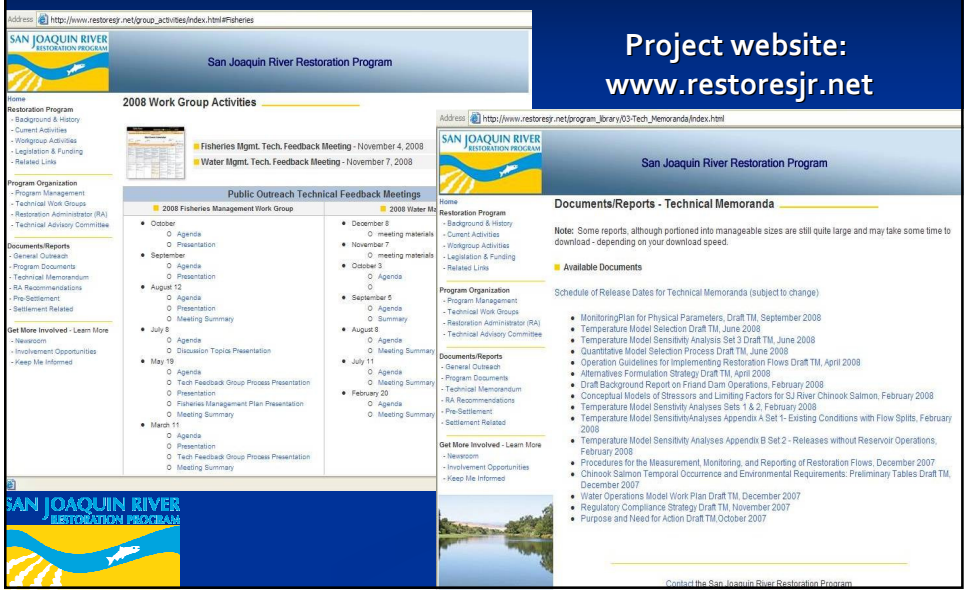
Introductions

- Name
- Agency or Affiliation

Program Update

- Federal Legislation
- PEIS/R
- Interim Flows
- Site Specific Implementation

Prior Documents and Meeting Materials Available on the Website



Project website: www.restoresjr.net

Input from the Feedback Group is an Important Aspect of the FMP

Fisheries Management Plan Status

Fisheries Management Plan Outline

- Chapter 1: Introduction
  - Scope
  - Planning process
- Chapter 2: Existing Conditions
  - River conditions
  - Fisheries conditions
- Chapter 3: Fish Management Goals
  - Definition of good condition
  - Salmonid population parameters
  - Salmonid population goals
  - Chinook salmon genetic management
  - Reintroduction strategy
  - Fish habitat goals
  - Water quality goals
- Chapter 4: Conceptual and Quantitative Models
- Chapter 5: Adaptive Management Approach
  - Adaptive management components
  - External review and coordination
  - Climate change
- Chapter 6: Performance Measures
- References
- Appendix

Fisheries Management Plan Appendices

- Temporal Occurrence and Environmental Requirements
- Conceptual Models
- Quantitative Model Selection
- Substrate Requirements
- Floodplain Considerations
- Restoration Flows and Flow Schedule
- Data Needs and Management Approach

Chapter 1: Introduction

- Introduction
  Brief Settlement background
  Refer to Settlement, PMP
  - Scope
    Scope of document relative to PEIS/R
    Site-specific implementation
  - Planning process
    Writing process
    Key documents and guidelines utilized (DOI, RA, etc.),
    Description of appendix

Chapter 2: Existing Conditions

- River Conditions

  4-page summary by reach

  Refer to existing condition document

- Fisheries Conditions

  Refers to Moyle and DFG

  Review of 4 assemblages:

  - Rainbow trout

  - California roach

  - Pikeminnow-hardhead-sucker

  - Deep-bodied fish

  Refer to existing condition document

Chapter 3: Fish Management Goals

- Fish Management Goals
  - Definition of good condition

  FGC 5937, Moyle et al. 1998, Moyle 2005

  - Viable salmonid population concept (McElhaney et al. 2000, Lindley et al. 2007)

  "has a negligible risk of extinction due to threats from demographic variation, local environmental variation, and genetic diversity changes…"

  - Sufficient abundance to buffer from environmental variation
  - Sufficient abundance to enable compensatory density-dependent processes
  - Sufficient abundance to maintain long-term genetic integrity
  - Sufficient abundance to provide ecological functions throughout life cycle
  - Population status evaluations should take uncertainty about abundance into account

  VSP criteria to evaluate populations: abundance, growth rate, spatial structure, and diversity

Chapter 3: Fish Management Goals

- Fish Management Goals
  - Definition of good condition
  - Viable salmonid population concept (McElhaney et al. 2000, Lindley et al. 2007)
  - Salmonid population goals

Performance Period	Annual Average Target	Period of Average	Annual Minimum/Maximum	SR[1]	FR[2]	Source
Adult						
n/a	833[4]	3 years	500/none	X	X	Lindley et al. (2007)
by Dec. 31, 2019	n/a	n/a	500/none	X	X	Meade (2007, 2008)
Jan. 1, 2020-Dec. 31, 2024	2,500	5 years	500/5,000	X	X	Meade (2007, 2008)
Jan. 1, 2025-Dec. 31, 2040+	30,000	5 years	500/none[3]	X		Meade (2007)
Jan. 1, 2025-Dec. 31, 2040+	10,000	5 years	500/none[3]		X	Meade (2008)
Juvenile (smolt)						
n/a	n/a	n/a	62,550[5]/none	X	X	Various sources (see text)

[1] spring-run Chinook salmon, [2] fall-/late fall-run Chinook salmon, [3] acknowledges potential annual fluctuations of up to 50% for each run and corresponding annual maxima and minima, [4] Minimum viability target, and [5]based on annual average target of 833 adults above.

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Chapter 3: Fish Management Goals

- Fish Management Goals
  - Definition of good condition
  - Viable salmonid population concept (McElhaney et al. 2000, Lindley et al. 2007)
  - Salmonid population goals
  - Chinook salmon genetic management
    - Broodstock source individuals – evaluation 1) effective population size and genetic diversity, and 2) life history characteristics, abundance, disease prevalence, transplantation history and genetic relationships.
    - Hatchery origin individuals – 1) create breeding protocols and SOPs for hatchery operations maximizing effective population size and minimizing natural population impacts, 2) employ genetic marking techniques, and 3) evaluate effective population size.
    - Natural origin individuals – 1) develop monitoring sites, 2) repatriation strategies, 3) permit natural processes, 4) allow straying into artificial facilities, and 5) restrict hybridization
    - Non-target population individuals – 1) restrict non-target hybridization (spring and fall run), 2) permit non-target spawning with fall-run, and 3) utilize breeding protocols

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  - Salmonid population goals
  - Chinook salmon genetic management (con't)
    - Stock selection and criteria, broodstock collection strategies, artificial propagation strategies, outplanting strategies, natural population re-establishment strategy, and phase out of artificial propagation.
    - Includes specific guidelines, such as the potential use of physical barriers to separate spring- and fall-run spawners, specific genetic techniques, etc.
    - Includes risks and uncertainties, such as level of hybridization, adaptation of source stocks, and unintended impacts of hatchery produced-fish.

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  - Salmonid population goals
  - Chinook salmon genetic management
  - Fish habitat goals
    - Restoration Area goals for salmon focus on supporting a variety of salmon life history strategies under a variety of water year types. Uncertainty regarding life history strategies is key.
    - Restoration Area goals for other fishes include:
      - Maintain extant populations of native fish where possible
      - Restore flow regime that maximizes winter and spring floodplain inundation and year-round connectivity
      - Restore natural habitat features such as instream habitat complexity, floodplains
      - Remove barriers and impediments to passage and dispersal
      - Remove and or isolate warm, lentic, off-channel ponds and flooded pits that favor exotic fish and introduced species

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  - Salmonid population goals
  - Chinook salmon genetic management
  - Fish habitat goals
  - Water quality goals
    - Summarizes water temperature standards in Restoration Area
    - Summarizes water quality objectives in Restoration Area

DRAFT Water Temperature Objectives Table

DRAFT Salinity Objectives Table

DRAFT Trace Element Objectives Table and DRAFT Dissolved Oxygen Objectives Table

DRAFT Narrative Water Quality Objectives Table

DRAFT Diazinon and Chloropyrifos Objectives Table

DRAFT Pesticide Performance Goals Table

DRAFT Groundwater Objectives Table

RECOMMENDED NUMERICAL WATER QUALITY LIMIT – FISHERIES MANAGEMENT WORK GROUP	
Category	**Suggested Numerical Water Quality Limit**
Ammonia (Total Ammonia Nitrogen)	USEPA National Recommended Water Quality Criteria to Protect Freshwater Aquatic Life[a] If the following conditions are met: Minimum Target Temperature for fish = 55°F (13°C)[b] Mean daily pH in the lower San Joaquin ≥ 8.0[c] Total Ammonia should not exceed: Continuous Concentration, 30-day Average (mg N/L) ≤ 2.43; when early life stages are present Maximum Concentration, 1-hour average (mg N/L) ≤ 5.62; when salmonids are present

Reference:

a Central Valley RWQCB. 2007. "A Compilation of Water Quality Goals".

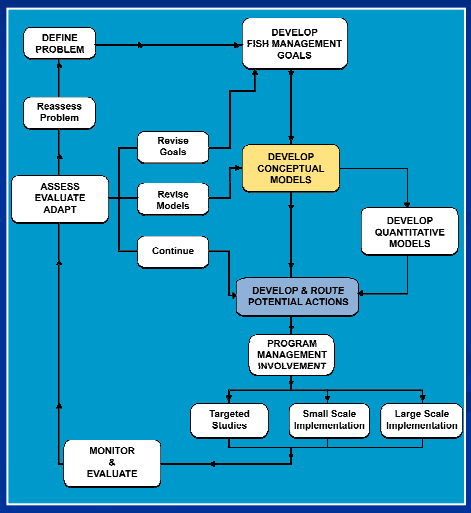
b SJRRP. 2007. Chinook Salmon Temporal Occurrence and Environmental Requirements: Preliminary Tables. December 14, 2007

c FMWG.2008.Conceptual Models of Stressors and Limiting Factors for San Joaquin River Chinook Salmon. February 1, 2008

Chapter 4: Adaptive Management Approach

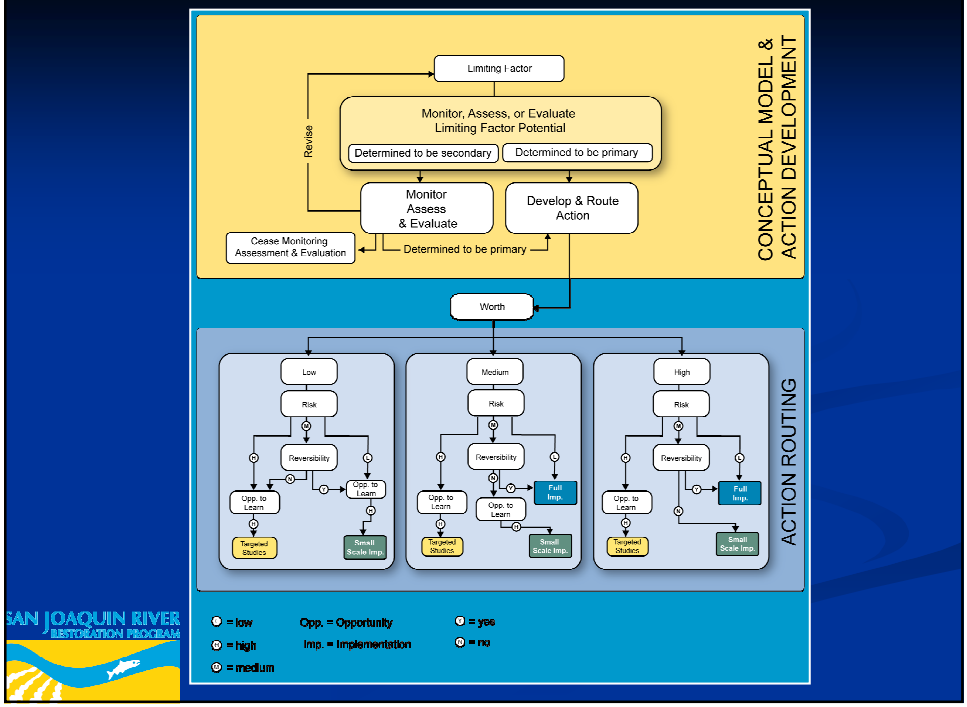
- Adaptive management components

Description of adaptive management and importance, key references



Chapter 4: Adaptive Management Approach

- Adaptive management components
  - *Description of adaptive management and importance, key references*
  - Problem identification
    - *Description of component, refers to key documents (TAC, pre-Settlement, etc.)*
  - Solution identification and conceptual model development
    - *Description of component, refers to key limiting-factors-related documents (conceptual models, TAC, pre-Settlement, etc.)*
  - Developing and routing potential actions
    - *Description of action development and routing process*



DRAFT Data Needs Table

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  - Developing and routing potential actions
    - *Description of action development and routing process*
  - Solution implementation
    - *Non-biological evaluation (cost, feasibility, cost sharing, political, etc.)*
  - Preliminary management actions
    - *Provides preliminary actions, refers to appendix*

DRAFT Routing Table

Chapter 4: Adaptive Management Approach

- Adaptive management components
  - Problem identification
  - Solution identification and conceptual model development
  - Developing and routing potential actions
  - Solution implementation
  - Preliminary management actions
  - Monitoring and evaluation
    - *Limiting factor monitoring and assessment*
    - *Action-specific*
    - *Program*

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  - Developing and routing potential actions
    - *Description of action development and routing process*
  - Solution implementation
    - *Non-biological evaluation (cost, feasibility, cost sharing, political, etc.)*
  - Preliminary management actions
    - *Provides preliminary actions, refers to appendix*
  - Monitoring and evaluation
    - *Limiting factor monitoring and assessment, action-specific, program*
  - Adaptive response
    - *Describes how the Program will respond to new information and change*

Chapter 4: Adaptive Management Approach

- Adaptive management components
- External review and coordination

  External review process:
  - *Peer review*
  - *Technical committee review*
  - *Science advisory group*
  - *SJRRP review panel*

  Coordination
- Climate change

  Description of problem, management actions
- Management actions

  Final routing of management actions and recommended adaptive management category for each

Chapter 5: Performance Measures

- Hypothesis based monitoring of fisheries and physical habitat
- Specific performance measures linked with targets and potential monitoring approaches
- Some physical monitoring defers to existing monitoring TM

Appendices

- EDT Selection Technical Memorandum (TM)
- Conceptual Models
- Temporal Occurrence and Env. Req TM (Temperature and Water quality tables)
- Substrate Requirements
- Floodplain Considerations
- Data Needs and Management Approach

Next Meetings

- February 10
  - Location: CSU Stanislaus, South Dining
  - Time: 1:00 p.m. to 4:00 p.m.
- Early April
  - Location: CSU Stanislaus, Room to be determined
  - Time: 1:00 p.m. to 4:00 p.m.


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