Fishery Management Plan Outline

The FMW identified the following draft list of 20 sections to be developed for the Fishery Management Plan. This list is based on their review of nine Fishery Management Plans developed for other West Coast watersheds as well as a 2004 report by Hansen Environmental, Inc. titled *Review of Fishery Management Plans and Related Scientific Literature for Regulated Rivers:*

1. Executive Summary
2. Table of Contents
3. List of Figures
4. List of Tables
5. List of Abbreviations
6. Introduction
    a. Purpose or goal
    b. Background to the plan including a summary of the key elements of the Settlement that involve fish management;
    c. Description of the planning team; and
    d. Scope of the plan.
7. Legal and Policy Context
    a. Citation of laws and regulations governing the planning process; and
    b. Brief analysis of how law and regulation constrain the scope of the plan.
    c. Consistency with ESA/CESA, CWA, other laws.
8. Status Review
    a. Regional setting;
    b. Land use and habitat characteristics;
    c. Watershed characteristics;
    d. Hydrology;
    e. Physical facilities affecting the fishery;
    f. Fish, wildlife, and plant populations;
    g. Plan target species and their life histories; and
    h. Trends in the status of plan target species.
9. Problem Analysis
    a. A listing of management problems which are to be addressed in the plan and how the problem negatively affects target and non-target species
    b. Conceptual and quantitative population models describing the environmental factors that are expected to affect the production of spring-run and fall-run Chinook salmon in the San Joaquin River.
        i. Describe the Settlement parties' conceptual model that was used to develop the Restoration Hydrographs (Exhibit B) and Channel and Structural Improvements (Paragraph 11).
        ii. Develop alternative conceptual models, which would be continuously revised as new information becomes available.
        iii. Develop quantitative model(s).
        iv. Describe functions of the models:

1. Identify likely limiting factors that will require restoration or other remedies;
2. Develop population goals for spring run and fall-run Chinook salmon, other performance measures, and metrics;
3. Help guide habitat restoration and flow management;
4. Identify key uncertainties, data needs, and develop testable hypotheses; and
5. Identify criteria for construction and operation of water management and fish protection facilities.

10. Planning Criteria, Planning Process, Plan Assumptions
    a. Description of the planning team and any advisory committees;
    b. Description or tabulation of the formal steps in planning;
    c. List of criteria used in making decisions or recommendations; and
    d. List of key assumptions.
11. Strategies/Objectives
    a. Maintain naturally-reproducing and self-sustaining populations of salmon and other fish in "good condition"
        i. spring run Chinook, highest priority
        ii. fall-run Chinook
        iii. potential conflicts between fall-run and spring run
        iv. other fish
    b. Viable Population Sizes and Quantitative Population Goals
        i. salmon population objectives
        ii. define role of hatcheries
    c. Habitat Objectives
        i. channel form and function
        ii. spawning gravels
        iii. holding habitat
        iv. floodplain habitat
        v. water temperature
        vi. riparian vegetation
        vii. water quality
    d. Passage Objectives
        i. Ladders
        ii. Screens
        iii. Passage flows
    e. Legal and Illegal Harvest
12. Alternatives: A list of alternatives considered and the rationale for not pursuing them (usually in terms of not meeting one of the planning criteria).
13. Plan Description
    a. Actions described in the Settlement;
        i. Channel and structural improvements from Paragraph 11;
        ii. Environmental compliance for channel and structural improvements completed by Sep 2009;
        iii. Apply for a permit from the National Marine Fisheries Service to reintroduce spring run by 30 September 2010;

iv. Interim flow studies between October 2009 and January 2014;
v. Reintroduce and manage spring run and fall-run Chinook salmon by December 2012;
vi. Begin full restoration flows no later than January 2014;

b. Flow Management (Hydrograph Flexibility and Buffer Flows);
c. Additional Habitat Restoration Recommended by FMW and the RA;
d. Fisheries Monitoring Plan;
e. Fisheries Adaptive Management Plan; and
f. Communication Plan addressing all reporting requirements.

14. Impacts/Benefits
    a. A list of predicted benefits to the targeted fishery and/or ecosystem; and
    b. A full analysis of direct and indirect impacts.
15. Implementation Plan: As described in the Program Management Plan
    a. Implementation priorities;
    b. Implementation responsibilities;
    c. Funding;
    d. Contingencies;
    e. Program administration; and
    f. External review.
16. Fishery Monitoring Plan
    a. Define monitoring objectives:
        i. Long-term research program designed to evaluate uncertainties regarding restoration goal and downstream impacts;
        ii. Monitoring to help guide the use of Buffer flows and flexibility in the hydrographs;
        iii. Monitoring potential impacts of recirculation, recapture, reuse, exchange or transfer of the Interim Flows and Restoration Flows; and
        iv. Monitoring the production and escapement of spring- and fall-run Chinook salmon.
    b. List data needs and testable hypotheses.
        i. Annual monitoring (data needs);
        ii. Focused studies (testable hypotheses); and
        iii. Develop metrics to assess progress at project and program level.
    c. Describe monitoring methods, and how they are linked to specific project elements or objectives;
    d. Responsible Parties that will carry out the monitoring and reporting;
    e. Funding;
    f. Term;
    g. External Peer Review; and
    h. How data would be used for management.
17. Fishery Adaptive Management Plan
    a. Specific issues to which adaptive management approaches would be applied;
    b. Consequences if monitoring is not conducted;
    c. The range of actions to be considered;

    d. Monitoring and/or research required to "trigger" an adaptive management action;
    e. Responsible parties; and
    f. The role of technical advisory committee or management committee in deciding when to implement adaptive management and what to recommend.
18. Projected schedule for implementation, at least covering major phases of the proposed management
19. Linkages with Other Programs
20. References