PRELIMINARY CONSIDERATIONS FOR TASKS 2B, 3B, 4 AND 7
Current Project Conditions

Recommendations regarding Proposed Direction
February 22, 2014

Introduction

The LWA Team has been working with a sub-group of the Lower San Joaquin River Committee (LSJRC) to determine how the "current project conditions" will be defined and used in the performance of the work to support development of a Basin Plan amendment (BPA) to establish salt and boron water quality objectives in the Lower San Joaquin River (LSJR).

LSJRC decisions regarding the key inputs and outputs for the current project conditions are necessary to allow timely progress on the following work efforts identified in the approved Work plan:

- Task 2b – Update Analysis of Baseline Salt Loading to the LSJR
- Task 3b – Conduct Evaluation and Analysis of Existing Water Quality and Compliance with Water Quality objectives being Considered in the LSJR
- Task 4 – Conduct Implementation Planning
- Task 7 – Substitute Environmental Documentation

Conference calls have been held (December 12, 2013, January 22, 2014, and February 20, 2014) with key members of the LWA Team and the sub-group. As a result of the discussions on those calls and follow-up work by the LWA Team, recommendations to define current project conditions have been developed.

These recommendations, which were approved by the sub-group on February 20, 2014, are now being forwarded to the full LSJRC for discussion and approval.

Overall Approach for the LSJR Water Quality Objectives Work Effort

Question: How will the various tasks in the approved Work plan come together in the development of information to support the BPA and staff report?

Recommendation: It is recommended that the flow chart, depicting the overall work effort that was discussed at the January 23 LSJRC meeting, be finalized and modified as agreed upon in the future.

Rationale: As a result of the December 12 conference call, the LWA Team determined that it would be helpful to develop a graphic to describe the proposed approach to be used to complete the LSJR water quality objectives work effort. The approach was described verbally in the December 12 call and the attached graphic was developed and provided to the LSJRC sub-group and then the full Committee on January 23. The approach was discussed during the LSJRC meeting and additional comments were requested by February 5. Comments received to date have been supportive of the proposed approach.

Clarity on the overall framework and linkages for the LWA Team effort is needed to put the discussion regarding current project condition into context. The graphic that has been created is intended to provide a clear picture of the process that the LWA Team will utilize in the performance of the tasks under the approved Work plan. The proposed approach is intended to provide the information necessary for the fulfillment of Section 13241 and 13242 requirements under the California Water Code and to allow timely progression of the work on inter-related tasks. It is understood that adjustments to the chart may be made in the future, if deemed to be necessary by both the LWA Team and the LSJRC.

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Time Period Used for the Current Project Condition

Question: What period of record should be used to characterize the current project condition, which will serve as the basis for analysis of model simulations of alternative management scenarios in comparison to the No Project alternative?

Recommendation: The sub-group has evaluated several candidate time periods and is recommending use of the 1987 to 2013 time period as the basis for defining the current project condition.

Rationale:

It is recognized that several factors need to be balanced in selecting the time period for the current project condition:

- Coverage of a range of inter-annual hydrologic conditions;
- Appropriate representation of the current operations;
- Reasonable representation of the current water quality conditions and flows in the LSJR;
- A sufficiently long time period to include the full diversity of annual climatic conditions; and
- Availability of reliable and complete information in flow inputs to allow model simulation.

Based on the factors indicated above, the following time periods were considered:

- 2004 to 2013
- 1995 to 2013
- 1987 to 2013
- 1970 to 2013

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Information regarding the candidate time periods is provided in the following table.

Considerations	1970-2013	1987 - 2013	1995 - 2013	2004 - 2013
Period of Record	44 water years	27 water years	19 water years	10 water years
Coverage of Critical Wet/Dry Years (Variability)	*[Representative of the historical record – see the table below]*			
Representative of Current Flow Conditions	No – Can be Addressed by noting changes	No – Can be addressed by noting changes	Possibly	Yes
Data Quality[1]	Poor quality for over half the period	Poor quality pre-1995	Good	Good

[1] – Pre 1995 the WARMF database has incomplete datasets; Pre 1992 the delivery data for the irrigation districts was not available.

The distribution of water year types for the candidate time periods is provided in the following table.

Water Year Type	1901-2013	1970-2013	1987 - 2013	1995 - 2013	2004 - 2013
Critical	17%	27%	37%	16%	30%
Dry	15%	18%	19%	26%	30%
Below Normal	15%	5%	4%	5%	0%
Above Normal	20%	16%	11%	16%	10%
Wet	33%	34%	30%	37%	30%

The 1987 to 2013 time period has the advantage of including the multi-year drought period that occurred between 1987 and 1992. Several sub-group participants emphasized the importance of capturing this prolonged drought period. A disadvantage of the 1987 to 2013 period is that model input information is less robust in the period from 1987 to 1995. The 1987 to 2013 period also contains more extreme dry water year conditions than have been observed in the longer historic record (1901 to 2013).

Regarding the 2004 to 2013 period, several sub-group participants were concerned that the period was too short to provide a complete characterization of different annual conditions. Also, the 2004 to 2013 period contained years on the extremes (wet and critically dry) but did not adequately capture other water year types. The 1995 to 2013 period has a similar problem, and over-represents wet year conditions.

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Use of the period from 1970 to 2013 has an advantage of best representing the distribution of conditions that occur in the LSJR (as compared to the 1901 to 2013 record). However, the use of this period would suffer from a lack of adequate input data to allow a reasonable historical simulation of this period.

The sub-group recognized that a decision ultimately had to be made between capturing the multi-year drought period (1987-1994) or using only the highest quality data and recent flow information. Ultimately the sub-group determined that it was important to capture the multi-year drought and that the data quality during that corresponding time period can be appropriately qualified in the presentation of results.

Water System Operations Used for the Current Project Condition

Question: What water system operations should be used for the current project condition?

Recommendation: The sub-group recommends that the depiction and modeling of current project conditions not be modified to attempt to account for unique operational conditions that have occurred during the selected time period (e.g. VAMP flows, etc.). Instead, these conditions will be summarized and considered in the post-processing of modeling output for different scenarios.

An exception to this approach will be with regard to the releases that have occurred from eastside reservoirs to meet Vernalis salinity objectives. Mandated LSJR flow releases for fisheries and other regulatory requirements (current FERC license requirements) will be used as WARMF input to derive a simulation of salinity conditions in the LSJR.

Finally, the sub-group does not recommend using CalSIM simulated flows as WARMF input to define the current project condition.

Rationale: Since an objective of the BPA is to recommend salinity control practices in the project area that would facilitate compliance with recommended salinity objectives in the LSJR, it is important to understand the magnitude of salt management necessary to meet existing salinity objectives at Vernalis and new salinity objectives in Reach 83 in the absence of diluting flows from east side tributaries that are currently used to achieve compliance with the water quality goals at Vernalis. The modeling of existing salt conditions in Reach 83 without the benefit of dilution flows from east side tributaries will provide an understanding of the capability and cost of achieving proposed salinity objectives through salt load reduction measures.

The LWA Team is working with the parties involved in the operation of the eastside reservoirs to obtain the above described information. The results of that work will be reported in the description of model inputs. The planned use of WARMF is to model simulated future salinity conditions in the LSJR in comparison to a simulation of historic conditions, using the time period and inputs as described above. This approach allows daily simulation of flow and salinity conditions and best reflects the actual conditions that have been observed in the LSJR. The use of CalSIM information as WARMF model input, which provides monthly flow input based on projected (rather than actual) operations would not be consistent with the proposed historical simulation approach.

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Future Regulatory Constraints Considered for the Current Project Condition

Question: Should future regulatory constraints be considered and incorporated as a part of the current project condition?

Recommendation: The sub-group recommends that future regulatory conditions not be utilized in the WARMF modeling simulations of either the current project condition or the three management scenarios that will be modeled under Task 4.

Rationale: It is recognized that there are a number of ongoing regulatory efforts that may result in significant changes in flow conditions or salt loadings in the future, including:

- Bay-Delta Plan modifications by the SWRCB;
- LSJR Salt and Boron TMDL implementation;
- Various NPDES permits;
- New FERC re-licensing requirements for eastside reservoirs

Since the anticipated regulatory requirements from the above regulatory actions are impossible to predict and would likely not decrease flow releases into the LSJR, it is believed that the use of the current project condition will provide a conservative estimate of salinity conditions in the LSJR and will serve as a reasonable basis for evaluating the effect of different management scenarios.