# Upper San Joaquin River Basin Storage Investigation
## Workshop Summary - DRAFT
### Ecosystem Restoration Flows Workshop, September 4, 2002

## Introduction

This summary describes the Ecosystem Restoration Flows Workshop for the Upper San Joaquin River Basin Storage Investigation (Investigation). The need for a workshop on Ecosystem Restoration flows was identified during Workshop #2 on July 31, 2002. Charles Gardiner, the meeting facilitator, opened the meeting by discussing the agenda, objectives, and participation principles for the workshop. Agenda topics included:

- Study Purpose and Process
- Restoration Focus and Sub-Group Purpose
- Initial Modeling Approach for Restoration
- Information Sources and Next Steps;

This workshop focused on obtaining guidance for Friant Dam release patterns to use in single-purpose evaluations, as described in Workshop #1 on July 31, 2002.

## Phase I Study Approach

Jason Phillips, Reclamation's project manager, described the overall study approach for the Investigation - Phases I (Appraisal Study) and II (Feasibility Study and EIS/EIR).

Mr. Phillips outlined the proposed study approach for Phase I, and presented information on the process steps. Workshops 1 and 2 also included this material. Summaries of all Investigation workshops are available on the project web site, http://www.mp.usbr.gov/sccao/storage/ .

Mr. Phillips noted that several other programs are developing ecosystem restoration plans and projects along the San Joaquin River. Coordination with these programs will assist the Investigation team in determining how new storage could contribute to San Joaquin River restoration.

***Initial Modeling Approach***

The evaluation will employ CALSIM2, a hydrologic model used by CALFED programs to simulate CVP and SWP operations. The initial evaluation will increase Millerton Lake's size in the model by 700 thousand acre-feet (TAF), and evaluate how additional water supply from the new storage could contribute to CALFED goals for upper San Joaquin storage.

Various assumptions and constraints will be necessary to run the initial simulations. To identify the potential new water supply made available for restoration, the modelers will constrain the model so that the long-term average annual water deliveries from Friant are not affected. The team recognizes that this approach may result in impacts to existing water uses due to changes in groundwater recharge and pumping conditions and the inability of

some areas to utilize groundwater. If this is the case, the initial results will be refined to identify how these effects could be reduced or offset.

***Restoration Focus and Sub-Group Purpose***

To determine yield (how much water a reservoir could provide reliably), the modelers must make assumptions about how the reservoir is to be operated. That is, the yield from a new or enlarged reservoir varies depending on the demands placed upon it, and the modelers will need different demand patterns for each of the project purposes. While water supply and non-habitat related water quality demands are understood sufficiently for the initial simulations, the demand patterns for river restoration are something that the Investigation team wanted to coordinate with the sub group. Specifically, the modelers need at least one annual flow pattern and instructions for carrying over water year-to-year.

Participants' questions and comments on this topic focused on the relationship of the Investigation to other restoration efforts, and the sources and types of information that the team would use for its analysis, and included:

- Without looking below Friant dam, will the benefits to water quality be evaluated? Response: At this point, the analyses will not be used to determine specific potential water quality benefits, but rather to determine how much water would be available with certain demand patterns and an enlarged Friant.

- Has the Investigation eliminated any of the storage projects yet? Response: The Investigation has been directed to look at Friant or an equivalent program. This initial evaluation will eliminate options that don't make sense or are not equivalent.

- Keep the analysis open and explore the potential of other options that may be larger or smaller than the 700 TAF.

- When considering how storage could affect restoration from a water quality standpoint, the Investigation will need to evaluate parameters other than temperature. Volumetric data may assist with temperature evaluations, but is not sufficient for all of the analyses that may be needed.

***Initial Modeling Assumptions***

The study team listed the major modeling assumptions for the initial evaluations. The participants' discussion during this part of the workshop focused primarily on the Investigation's initial modeling constraint on annual average deliveries.

Several participants expressed a preference for maintaining the historical annual deliveries of Class 2 water in the model, and/or for constraining the model to annual deliveries that would have otherwise occurred, absent new storage. The study team and other participants noted that such constraints would limit the model's flexibility for meeting deliveries and could constrain the analysis unnecessarily.

Participants inquired about how the initial evaluation would consider flood control. Initial evaluations will use the existing flood control diagram and will shift it up– this will likely result in increased flood control. Initial evaluations can identify a reduction or increase in the number of years when flooding would happen (i.e., more often or less often), but not flow rates. A more detailed flood operations model would be needed during Phase II to quantify the benefits. Thus, more detail on potential changes to the flood control diagram may be needed during Phase II.

An additional question concerned the CALFED goal, "Improve water quality of urban deliveries and facilitate conjunctive water management and water exchanges." The study team's approach to "urban deliveries" is that improving water supply reliability to existing water users would increase opportunities for exchanges to improve water quality to urban areas. The team will first investigate the improvement of supply reliability for existing contracts, and then determine which opportunities are available.

Participant comments included:

- "Holding contracts" exist that would allow downstream water users to take more water out of the river if it's available. The study team will investigate these, along with the water rights that could be exercised in the definition of the "future without project condition."

- Simply maintaining long-term deliveries and following current rules and regulations may be contradictory.

***Restoration Assumptions***

Participants noted that some levels of restoration might be neither possible nor appropriate. Other comments included:

- Both spatial and temporal decisions must be made. Having chinook below the river mouth requires a certain hydrograph, for example, while having chinook up to Friant requires a different one. Cottonwood, willow and maintenance flows may only be needed in certain years once establishment is complete. It is a complex analysis, not just an allocation question.

- The upper reach of the River (downstream of Friant Dam) is an attractive area with wildlife that was not present before Friant Dam was built. This type of restoration is an option if the number of years that some water is available for the river is maximized.

***Month-to-Month Flow Patterns and Suggested Sources of Information***

The study team asked the participants to provide suggestions for how to simulate restoration demands. Participants expressed general agreement that a month-to-month distribution based on the historical unimpaired flow distribution for the San Joaquin River during the 1900-2001 record would be a reasonable starting point. Comments during this part of the workshop included:

- The San Joaquin River Resource Management Coalition has begun a study paralleling the NRDC/Friant process to create a river restoration plan. The documents from this plan will be circulated publicly.

- Other in-place restoration projects may provide examples of flow patterns to use. The flow patterns in other rivers are single-species driven; however, and they may not be appropriate for the San Joaquin River. The Tuolumne River is an example.

- The CALFED objectives are for a diversity of species, but there are also target species, such as steelhead. The team could start with the unimpaired distribution as a baseline, and then adjust. To manage biodiversity, it is preferable to mimic the natural pattern; however, simulated releases would be much lower than natural flows. Because lower flows are required now, management decisions in favor of certain species are needed.

***Year-to-Year Flow Patterns***

Participants viewed a 100-year hydrology, showing year types and releases from Friant Dam since 1960, including riparian deliveries and flood control releases. The study team noted that in contrast to the current reservoir, which has little or no carryover capability, a larger reservoir would allow shifting from annual to longer-term operation. The participants were asked to consider and comment on how to allocate releases over dry periods from year to year, given a larger reservoir. Generally, participants suggested that the team model several scenarios for managing restoration water year to year. That is, the team should look at managing water for shorter drought periods (2-5 years) and longer periods (6-12 years). Participants' comments regarding year-to-year flow patterns included:

- Once constructed, flood control and other factors will influence operations. The Investigation should have reasonable expectations regarding the amount of reservoir management that can be predicted.

- An increase of more than double the volume still won't provide multiple years of storage on the system. A cycle of more than 3-5 years is not realistic – the length of the cycles may result in the reservoir being spilled more than needed because of length of cycles.

- Look at the possible environmental benefit achievable with a small amount of water at a minimum flow.

- The Investigation should consider the impacts of increased population growth. Increased demands on the river and groundwater by increased population downstream could affect river hydrology.

## Next Steps

The team is working on two parallel efforts at this time – the single-purpose modeling evaluations and a review of several surface storage sites (in a variety of sizes) that may be considered in developing a functionally equivalent program. The team is scheduled to

present the results of the initial models runs at the next Workshop. The team will continue with analyses and documentation over the next 8-9 months, then will release reports. Phase I will be completed during the Summer of 2003, so that the recommendation can inform FY 2004 budget requests and other Congressional action.

The next Investigation workshop will be on October 18th in the Los Banos area (Location TBD).

| Workshop Participant | Organization |
|---|---|
| Tom Boardman | San Luis and Delta Mendota Water Authority |
| John Brooks | U.S. Fish and Wildlife Service |
| Jim Cobb | San Joaquin River Resource Management Coalition |
| Valerie Curley | Bureau of Reclamation |
| Nello Ferretti | Delta Farms |
| Karla Fullerton | Fresno County Farm Bureau |
| Steve Haze | Millerton Area Watershed Coalition |
| Dave Hopelain | Eastern Madera County |
| Randy Houk | Columbia Canal Company |
| Campbell Ingram | Ecosystem Restoration Program |
| Ron Jacobsma | Friant Water User Association |
| Wayne Johnson | U.S. Army Corps of Engineers |
| Paula Landis | Department of Water Resources |
| Dale Mitchell | California Department of Fish and Game |
| Steve Ottemoeller | Madera Irrigation District |
| Malia Pickering | Table Mountain Rancheria |
| Ron Pistoresi | Madera Irrigation District |
| Monty Schmitt | NRDC |
| Dan Steiner | Consultant |
| Ernie Taylor | SJRMP |
| Sharon Weaver | San Joaquin River Parkway and Conservation Trust |
| Marcia Wolfe | Friant Water Users |

**Study Team Members Present**

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|---|---|
| Reclamation | Jason Phillips<br>Marian Echeverria<br>Claire Hsu |
| DWR | Richard Hayes |
| MWH | Bill Swanson<br>Yung-Hsin Sun |
| CDM | Coral Cavanagh |
| SKS | Russ Grimes |