



# Upper San Joaquin River Basin STORAGE INVESTIGATION

Winter 2005 - 2006 Newsletter

## AGENCY COORDINATION WILL GUIDE ALTERNATIVES FORMULATION

As the Investigation proceeds, the Investigation Team will coordinate with numerous agencies that possess technical expertise and regulatory responsibilities in key resource areas. Technical teams will provide input on data, evaluation methods, results, and potential mitigation strategies. In addition, the Investigation Team will keep stakeholders and the general public informed as preliminary findings are developed. A summary of key technical study areas includes:

**Water Operations** – Water operations evaluations will focus on potential uses of new water supplies and identifying project benefits, including potential contributions to San Joaquin River restoration, improving San Joaquin River water quality, facilitating conjunctive management and water exchanges that provide high-quality water to urban communities, and other operational actions to support hydropower generation, recreation, and additional flood protection.

**Environmental Resources** – The Investigation Team will identify how aquatic, botanic, wildlife, cultural, historic, and archeological resources in and around potential reservoir areas would be affected by the alternatives. In addition, the Investigation Team will continue coordination with environmental resources agencies to identify and review information needed to support regulatory requirements.

**Economics** – The Investigation Team will identify monetary benefits related to changes in water delivery, groundwater pumping, water quality, flood damage reduction, hydropower generation, and recreation. The ability of an alternative to support river restoration objectives will be based on the extent to which it provides water at the desired quantity, timing, and temperature for release from Friant Dam.

**Groundwater Storage and Conjunctive Management** – Additional work is needed to develop specific conjunctive management and groundwater storage measures for inclusion in Investigation alternatives. Specific projects recommended in a Conjunctive Management Opportunities Study, currently being completed by DWR, will be evaluated for inclusion in the Investigation. Retained groundwater storage and conjunctive management measures will be combined with surface water storage measures in project alternatives.

**The Upper San Joaquin River Basin Storage Investigation (Investigation)** is a joint feasibility study by the U.S. Department of the Interior, Bureau of Reclamation and the California Department of Water Resources (DWR). Investigation guidance derives from Federal feasibility study authorization provided in P.L. 108-7 (enacted February 2003) and the CALFED Programmatic Environmental Impact Statement/Report (EIS/R) Record of Decision.

**Primary objectives** include developing and managing San Joaquin River water supplies to contribute to restoration of the San Joaquin River, improve water quality of the San Joaquin River, and facilitate additional conjunctive management and water exchanges that improve the quality of water deliveries to urban communities.

**Secondary objectives** include increasing control of flood flows at Friant Dam, contributing to long-term Environmental Water Account water supply, developing hydropower generation opportunities, and developing recreation opportunities.

## INITIAL ALTERNATIVES INFORMATION REPORT RELEASED

The Investigation is being completed through several incremental documents that will culminate in a Feasibility Report (FR) and supporting environmental documents. The first document, the Phase 1 Investigation Report completed in October 2003, screened 17 possible reservoir sites in the Eastern San Joaquin Valley and selected six for continued study. Nearly all of those retained sites are located in the upper San Joaquin River basin.



The second document, the Initial Alternatives Information Report (IAIR), was completed in June 2005. It evaluates the six reservoir sites retained from Phase 1, other reservoir storage sites added through public scoping, and identifies potential groundwater storage measures. Twenty-four reservoir measures (based on location and size), many with multiple hydropower generation options, were evaluated in the IAIR. The evaluations considered construction cost, potential new water supply that could be developed, hydropower impacts, replacement power generation potential, and preliminary environmental impacts. In addition, several initial water operations scenarios were developed to address study objectives. The IAIR recommended continued detailed study of four reservoir sites (Figure 1) that, when combined with a broad range of operating rules, constitute initial alternatives.

As shown in the schedule below, the Investigation Team is working on the next document, the Plan Formulation Report, which will be followed by a Draft Feasibility Report and EIS/R.



A Study By:

**RECLAMATION**  
Managing Water in the West



California Department of Water Resources

In Coordination With:

**CALFED**  
BAY-DELTA  
PROGRAM

A Study By:

**RECLAMATION**  
Managing Water in the West



California Department of Water Resources

In Coordination With:



CALFED  
BAY-DELTA  
PROGRAM

To receive Investigation updates and notifications for future meetings, please contact:

**Patricia Roberson, Project Manager**  
**Bureau of Reclamation, Mid-Pacific Region**  
**2800 Cottage Way, MP-720**  
**Sacramento, CA 95825**  
**phone: 916-978-5074**  
**e-mail: proberson@mp.usbr.gov**

Or visit the project Web site: [www.usbr.gov/mp/sccao/storage](http://www.usbr.gov/mp/sccao/storage)



**Figure 1. Surface Storage Sites Retained in IAIR for Continued Study**



**Table 1. Summary of Initial Alternatives**

Alternative	Additional Storage Capacity (TAF)	Average New Water Supply (TAF/year)	Hydropower Features	Change in Power Generation (GWh/year)	Total Construction Cost (\$ Million)
Raise Friant Dam 25 ft	130	24 - 29	Enlarge Friant River Outlet Powerhouse	0	220
Fine Gold Reservoir	400	65 - 78	Pumping/generating plant in Millerton Lake	not evaluated	470
	800	113 - 136		-40	640
Temperance Flat 274	1,310	165 - 183	Powerhouse at base of new dam	-216	1,000
Temperance Flat 279	450	86 - 103	Powerhouse at base of new dam	not evaluated	670
			Powerhouse on extended Kerckhoff Tunnel	not evaluated	800
	725	122 - 146	Powerhouse at base of new dam	-121	870
			Powerhouse on extended Kerckhoff Tunnel	-23	1,000

Costs are preliminary and do not include mitigation, relocated or new recreation facilities, acquisition of impacted power facilities, or replacement power for lost generation.

**ISSUES BEING CONSIDERED DURING PLAN FORMULATION**

The Investigation Team has begun detailed technical studies for preparation of the Plan Formulation Report (PFR). During plan formulation, analytical methods to evaluate benefits and impacts will be developed, cost estimates will be refined, operations scenarios will be applied, benefits will be estimated, and a tentatively recommended alternative will be identified. Key issues to be considered during plan formulation include:

**Allocation of project benefits and costs** – The PFR will describe preliminary costs and benefits of alternatives to be evaluated in the EIS/R. This will include allocating project costs based on the distribution of benefits, both monetary and non-monetary.

**Environmental impacts and mitigation strategies** – Environmental mitigation can be a significant cost for large water projects. The Investigation Team is characterizing habitat that would be affected by each reservoir site. Mitigation strategies will be developed in coordination with resource management agencies.

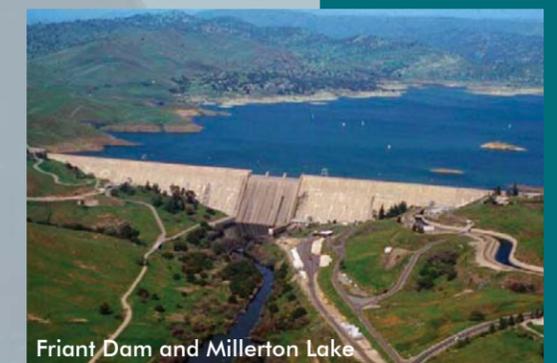
**Litigation regarding San Joaquin River restoration** – The current operation of Friant Dam does not include releases to the San Joaquin River above those for downstream water rights. The Investigation is not developing a restoration plan; flow patterns for restoration of the San Joaquin River developed by others are being used. The Investigation will describe the extent to which a storage alternative could contribute to a given restoration plan, but will not address other actions that also may be needed. If the requirements for releases from Friant Dam are changed to include restoration flows, the Investigation will adapt the planning processes accordingly.

**Impacts to existing hydropower projects** – Hydropower evaluations will address the effects of multiple-purpose water operations on hydropower generation, ancillary benefits of

hydropower facilities, and pumped storage opportunities for peak and off-peak conditions. This work will be coordinated with operators of power facilities in the upper San Joaquin River basin. Project alternatives that include development of new hydroelectric generating facilities would likely require non-Federal partnership for the long-term operation of facilities.



**Changes in Friant Division Operations** – Friant Dam is currently operated as an annual reservoir with an objective to deliver as much water as possible in any given year in direct relationship to inflow conditions. In some years, this involves delivery of water to evacuate dedicated flood storage space. Developing additional water storage capacity would result in fewer flood space deliveries, thereby changing the availability of water to Friant Division contractors and other users of Friant water supplies. The analysis will address the change in available water supplies and identify the regional effects of resulting water delivery patterns.



**HOW MUCH WATER SUPPLY IS AVAILABLE?**

The Upper San Joaquin River Basin is substantially developed for hydropower generation, water supply, and flood control. Water storage in Millerton Lake and numerous upstream reservoirs owned and operated by power utilities is about 1.1 million acre-feet.

Simulations of long-term hydrologic conditions (1922 to 2003) show that about 250 thousand acre-feet (TAF) is subject to spill over Friant Dam on an average annual basis. Because of the great variability in hydrology, annual flood spills range from zero to 2.7 million acre-feet.

The Investigation is measuring new water supply based on an average available supply of approximately 250 TAF/year.