

**CALIFORNIA WATER COMMISSION**

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February 1, 2018

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Temperance Flat Reservoir Project

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Member

VIA EMAIL

**Daniel Curtin**  
Member

[msantoyo@sjvwia.org](mailto:msantoyo@sjvwia.org)

**Joseph Byrne**  
Member

Subject: Public Benefit Ratio Review

**Joe Del Bosque**  
Member

Dear Mr. Santoyo,

**Maria Herrera**  
Member

As you know, the Water Storage Investment Program is an important opportunity to invest in California's water future. Staff from the California Water Commission, the California Department of Fish and Wildlife, the California Department of Water Resources and the State Water Resources Control Board are working diligently to meet the statutory requirements of Proposition 1 and move forward with funding projects that provide the best return on the public's investment.

**Catherine Keig**  
Member

**David Orth**  
Member

The enclosed packet includes the results of the initial technical review of information supplied in your application to quantify the public benefits associated with your proposed project. Please note that this represents the initial reviewer assessment and does not represent a Commission decision.

In many cases, technical reviewers found that additional supporting information is needed from applicants to properly verify the Public Benefit Ratio associated with their projects. Applicants have the opportunity over the next three weeks to provide additional clarifying information and address specific comments from the review process. It is anticipated that many recommendations from the technical staff review will change once the additional information is received and evaluated. The additional information must be received by 5 p.m. February 23. Specifics on how to submit the additional information can be found in the transmittal email to this packet.

In addition, Commission staff will be scheduling individual one-hour meetings with applicants on February 7 and 8 to answer clarifying questions related to the initial technical review. This step has been added in response to feedback received from many applicants and engaged stakeholders. These meetings will be open to the public. To schedule a meeting with Commission staff and technical reviewers on February 7 or 8, please consult the information included in the transmittal email to this packet.

This program is the first of its kind in California. In many respects, Commission staff, technical reviewers and applicants are navigating the rules and regulations together. We appreciate your continued participation and consider it critical to the success of the program.

Mario Santoyo, Executive Director  
Temperance Flat Reservoir Project  
February 1, 2018  
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Sincerely,

A handwritten signature in blue ink, appearing to read 'Joe Yun', with a long horizontal flourish extending to the right.

Joe Yun  
Executive Officer, California Water Commission

# Public Benefit Ratio Review Summary: Temperance Flat Reservoir Project

## Overview

This Public Benefit Ratio (PBR) review is the first component of the California Water Commission's (Commission's) technical assessment of applications for Water Storage Investment Program (WSIP) funding. This review serves as official notification to the applicant, and begins the appeal process. The reviewer-adjusted PBR indicates the need for additional information or clarification, which the applicant may submit in an appeal following the process described in the Commission's regulations section 6008(a)(2)<sup>1</sup> (also described below). The applicant may appeal any adjustments described in this review.

The reviewer-adjusted PBR does not reflect a Commission decision on this project's PBR; it is the result of the Commission's technical review team's assessment of the information provided in the application. The review team consists of Commission staff and consultants as well as agency staff from the California Department of Fish and Wildlife (CDFW), the California Department of Water Resources (DWR), and the State Water Resources Control Board (State Water Board). Commission staff ensured that reviews adhered to WSIP standards, as expressed in Proposition 1, Commission regulations, and the WSIP Technical Reference Document. Commission staff also coordinated independent agency reviews.

Applicants must submit their appeal to the Commission by 5:00 pm on February 23, 2018.

All appeals must:

- Include a written rebuttal that refers to the specific adjustments described in this PBR review; and
- Identify the PBR that the applicant believes to be correct or an alternative value or calculation with any new supporting information.

The Commission will not accept any revised or new information not directly related to the changes made by a reviewer, including changes to the project description and benefits claimed. The appeal may not exceed 20 pages in 12-point font (per regulations section 6008(a)(2)) and any referenced supporting information. The written rebuttal may refer to information that was submitted in the original application or additional information provided with the appeal. When citing information to support its rebuttal, the appeal should refer specifically to the location of the supporting information. All supporting information must be included with the appeal or in the application. If the applicant recalculates the PBR, the denominator must be the amount of funding requested in the application. Please refer to regulations section 6008 for complete details of what may be included in the appeal.

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<sup>1</sup> Unless otherwise noted, all references to "regulation" are to the California Code of Regulations, Title 23, Section 6000 et seq.

The applicant should consult the Technical Reference (TR) for additional information regarding the reviews conducted by CDFW, DWR, and the State Water Board (as applicable) regarding the requirements to substantiate the physical changes claimed in the application or questions regarding modeling. For questions related to calculating physical changes and water operations generally, see Chapter 4 of the TR. Specifically:

Section 4.2	General Project Analysis
Section 4.3	Surface Water Operations Analysis
Section 4.4	Groundwater Analysis
Section 4.5	Riverine Hydrologic/Hydraulic Analysis
Section 4.6	Delta Hydrodynamics/Hydraulic Analysis
Section 4.7	Ecosystem Analysis
Section 4.8	Water Quality Analysis
Section 4.9	Flood Risk Reduction Analysis
Section 4.10	Recreation Analysis
Section 4.11	Emergency Response Analysis
Section 4.12	Water Supply Analysis
Section 4.13	Hydropower Analysis

Similarly, if reviewers have adjusted the monetization of public benefits, the applicant should consult the TR and sections 6000(a)(4)(F) and (G) of the regulations. The TR contains information about monetization methods in Chapter 5 and Appendices D-F. Descriptions of the three approaches to monetizing a benefit – avoided cost, alternative cost, and willingness to pay – are provided in section 5.3.1 of the TR.

The reviewers will evaluate each applicant’s appeal and prepare a response. The response may include new recommendations based on the information in the appeal. The reviewers’ response will include a recommended PBR for the Commission to consider at the May 1-3, 2018 Commission meeting.

Once the Commission has determined the PBR for each application, reviewers will prepare the initial application scores. Changes in the magnitude of physical public benefits or monetized value resulting from the Commission-determined PBRs will be incorporated, as applicable, into all review elements, and will be reflected in the initial application scores. Initial scores and staff comments will be released on May 25, 2018 for public review. The Commission will decide on application scores at the June 27-29, 2018 Commission meeting.

## Summary

Reviewers have evaluated the WSIP application submitted by the San Joaquin Valley Water Infrastructure Authority (SJVWIA) for the Temperance Flat Reservoir Project (TFR), and adjusted the applicant’s PBR, as shown in Table 1. This document and its attachments explain the reasons for the adjustments.

<b>Table 1. Summary of Adjustments to Public Benefit Ratio</b>		
<b>PBR Summary</b>	<b>As Submitted</b>	<b>As Adjusted</b>
Total Public Benefit (\$ millions)	\$3,057.0	\$104.3
Program Funding Request (\$ millions)	\$1,068.7	
Public Benefit Ratio	2.86	0.10
Note: This table includes monetized benefits. Non-monetized benefits contained in the application were not evaluated to calculate the PBR but will be evaluated as part of the full technical review.		

This review summary incorporates the reviews conducted by the Commission’s economics consultants and water operations consultants, CDFW, and DWR. The following four reviews are attached to this summary:

- California Water Commission, Economics Review for Public Benefits Ratio (Economics Review)
- California Water Commission, Water Operations Review for Public Benefits Ratio (Water Operations Review)
- California Department Fish and Wildlife, Temperance Flat Reservoir Project Monetized Ecosystem Benefits (CDFW Review)
- California Department of Water Resources, Public Benefits Ratio Recommendations (DWR Review)

The water operations and economics evaluations were conducted by teams of subject matter experts. Each team implemented careful internal review and quality control. The reviewers used standard checklists and templates to verify assumptions and results. Teams met weekly for four months to discuss preliminary findings, assure consistency, and identify issues for further evaluation. Each individual reviewer’s findings were discussed by the broader review team and specifically double-checked by a designated senior reviewer.

Some team members were excluded from reviewing certain applications due to potential conflict of interest. In these cases, review and quality control were assigned to others.

Adjustments to the PBR may have resulted from one or more of the following: adjustments to the physical benefits, adjustments to the monetization of those benefits, or adjustments to costs or a cost allocation. The attached reviews describe the specific reasons for changes to the benefits and monetized values based on the reviewers’ evaluation of supporting models, data, analytical methods, and/or calculated results.

The applicant should note that more than one adjustment may have been made to the same benefit or monetized value.

## Monetized Public Benefits Summary

Table 2 shows the value of the benefits as submitted by the applicant and as adjusted by reviewers.

<b>Table 2. Summary of Adjustments to Monetized Public Benefits</b>		
<b>Public Benefits</b>	<b>As Submitted (\$ millions)</b>	<b>As Adjusted (\$ millions)</b>
Ecosystem	\$2,522.0	\$0.0
Water Quality	\$0.0	\$0.0
Flood Control	\$115.0	\$104.3
Emergency Response	\$217.0	\$0.0
Recreation	\$203.0	\$0.0
<b>Total Public Benefits</b>	<b>\$3,057.0</b>	<b>\$104.3</b>

## Physical and Monetized Benefits

Below are some overarching water operations issues identified in the application, which are further explained in the attached water operations review:

- Reviewers cannot verify proposed Millerton Lake Releases;
- Reviewers cannot confirm claimed temperature benefits or verify EDT modeling results;
- Reviewers cannot verify the proposed refuge water supply deliveries; and
- The applicant did not provide DSM2 analysis as required by WSIP regulations.

Table 3 summarizes reviewers' adjustments to claimed physical benefits and/or the economic valuation of those benefits, and refers to the applicable attached review.

<b>Table 3. Physical Benefits and Economic Issues</b>		
<b>Benefit</b>	<b>Physical Benefit</b>	<b>Economics</b>
Ecosystem—Fishery Improvement for Spring-run Chinook Salmon*	CDFW recommends removal from PBR calculation. See CDFW Review Pages 1-2.	Value Removed: <ul style="list-style-type: none"> <li>• Did not document that increasing floodplain habitat is the least-cost alternative.</li> <li>• Did not explain why the selective level intake structure was not considered.</li> <li>• Economics reviewers could not access cited documents regarding temperature control device at Friant Dam. See Economics Review Pages 3-4.</li> </ul>
Ecosystem—Refuge Water Supply*	CDFW recommends removal from PBR calculation. See CDFW Review Page 3.	Method Accepted.
Flood Control	DWR recommends reducing the benefit by 10 percent: <ul style="list-style-type: none"> <li>• No dedicated flood storage; and</li> <li>• The benefit was computed based on a 90 percent exceedance analysis. See DWR Review Page 2.</li> </ul>	Value Reduced: <ul style="list-style-type: none"> <li>• Recalculated flood benefits based on 10 percent physical reduction. See Economics Review Page 5.</li> </ul>
Emergency Response	DWR recommends removal from PBR calculation: <ul style="list-style-type: none"> <li>• Cannot verify analysis of emergency response event See DWR Review Page 2.</li> </ul>	Method accepted.
Recreation	DWR recommends removal from PBR calculation: <ul style="list-style-type: none"> <li>• Cannot verify effects on nearby lakes other than Millerton.</li> <li>• Cannot verify boat ramp availability throughout lake level fluctuations during peak recreation season.</li> <li>• Cannot verify estimated visitation use at affected areas. See DWR Review Pages 2-3.</li> </ul>	Method accepted.

**Table 3. Physical Benefits and Economic Issues, continued**

Note: This table includes monetized benefits. Non-monetized benefits contained in the application were not evaluated to calculate the PBR but will be evaluated later as part of the full technical review that will be released on May 25.

\*The applicant should note that the ecosystem benefits for fishery improvement for spring-run Chinook salmon and refuge water supply are the project's measurable improvements to the Delta ecosystem or to a tributary to the Delta, which is required by Water Code section 79752. If the applicant does not address the removal of these benefits through the appeal, staff will recommend that the Commission make an eligibility determination at the May 1-3, 2018 meeting.

## Eligible Program Funding

Per regulations section 6007(b)(1)(B), Table 4 shows eligible WSIP funding based on all adjustments to benefits and costs. Other changes affecting capital costs eligible for WSIP funding (e.g., changes to cost estimates, cost allocation, and other related calculations) are described on page 6 of the Economics Review.

**Table 4. Summary of Adjustments to Eligible Program Funding**

Eligible Costs (\$ millions)	As Submitted (\$ millions)	As Adjusted (\$ millions)
Capital Cost	\$2,660.7	\$ 2,641.2
Program Funding Request	\$1,068.7	
Adjusted Program Cost Share**		\$0.0

\*\*Water Code section 79756(b) requires that the value of ecosystem benefits must constitute at least 50 percent of WSIP program cost share. The removal of ecosystem benefits (as shown in Table 3) results in an adjusted program cost share of \$0.

**The applicant should address both the ecosystem physical benefit and monetization issues in its appeal to change the adjusted PBR and eligible funding amounts presented in this review.**



# Economics Review for Public Benefit Ratio: Temperance Flat Reservoir Project

This technical review describes the public benefit ratio (PBR) results for the Temperance Flat Reservoir (TFR) project, and adjusts the physical and monetary benefits and cost analysis. Changes to physical benefits show how all reviewer adjustments — to physical benefits, monetized benefits, and costs — affect benefits, PBR, and eligible funding.

## Adjusted PBR and Eligible Funding

After review, the adjusted PBR is 0.10 and adjusted eligible Water Storage Investment Program (WSIP) funding is \$0.0. Reviewer adjustments may be modified through the appeal process described in the review summary and in regulation section 6008(a).

## Summary of Application and Reviewer Adjustments

Table 1 summarizes the applicant's cost and benefits analysis. The column titled "As Submitted" lists the applicant's benefits, costs, and PBR. The applicant estimates a present value of total benefits (in 2015 dollars) of approximately \$5,503 million, of which \$3,057 million are public benefits eligible for funding and \$2,522 million of the public benefits are ecosystem benefits. The present value of TFR project costs is \$3,360 million, of which \$2,661 million are capital costs eligible for WSIP funding. The applicant requests \$1,069 million in WSIP funding. The PBR, or the ratio of public benefits to WSIP requested funds, is 2.86.

In Table 1, the column titled "As Adjusted" summarizes the results of all adjustments to physical benefits, monetized value of benefits, costs, and PBR. Economics reviewers concluded that about \$19.5 million in capital cost identified by the applicant is ineligible for WSIP funding. In addition, the California Department of Fish and Wildlife (CDFW) review indicated that the fishery improvement for spring-run Chinook salmon and refuge water supply physical benefits are insufficiently supported by information furnished in the application. As explained below, California Department of Water Resources (DWR) reviewers did not accept the applicant's stated recreation or emergency response physical benefits, but recommended adjusting the physical flood control benefits.

If these adjustments are not modified through the appeal process described in the summary and specified in regulation section 6008(a), no ecosystem benefits are eligible for funding. After economics reviewers' adjustments, the total public benefits are \$104.3 million, and the PBR is 0.1.

	As Submitted Allocated		As Adjusted Allocated		Summary
	Benefits	Capital Cost	Benefits	Capital Cost	
WSIP Eligible Capital		\$2,660.7		\$2,641.2	
Public Benefits					
Ecosystem	\$2,522.0	\$751.2	\$0.0	\$0.0	
Water Quality	\$0.0	\$0.0	\$0.0	\$0.0	
Flood	\$115.0	\$75.1	\$104.3	\$0.0	
Emergency Response	\$217.0	\$141.5	\$0.0	\$0.0	
Recreation	\$203.0	\$47.0	\$0.0	\$0.0	
Total Public Benefit (TPB)	\$3,057.0	\$1,068.7	\$104.3	\$0.0	
Federal and Other State		\$207.3		\$207.3	
Non-Public Benefits	\$2,446.0	\$1,384.7	\$32.8	\$2,433.9	
Total	\$5,503.0	\$2,660.7	\$137.11	\$2,641.2	
Total Cost					\$3,359.6
Applicant Request					\$1,068.7
PBR: TPB/Applicant Request					2.86
Adjusted Eligible Funding					\$0.0

Notes:

<sup>a</sup>Dollar values are shown in millions of 2015 dollars in present value.

- Source for applicant estimates is the file named "SJVWIA\_BCMR\_A10\_CostAllocation Tables.pdf," in Tables 2-4 and 3-2, and in the file named "SJVWIA\_BCMR\_A3\_MonetizedBenefitsAnalysis.pdf," in Table 4-2.
- Values are rounded to the nearest tenth of a million dollars for display purposes. Underlying calculations reflect the precision provided by the applicant, as will the final determinations of PBR and eligible funding.

## Monetized Benefits

This section documents reviewer adjustments to the applicant’s monetary and physical benefits. The following discussion about benefits monetization provides economics reviewers’ conclusions regarding monetization regardless of whether other reviewing agencies recommended removal of the physical benefits.

### Ecosystem

#### Benefits as Provided by the Applicant

The applicant quantifies ecosystem benefits for fishery improvement for spring-run Chinook salmon and refuge water supply. Monetized benefits are documented in the applicant’s files named "SJVWIA\_BCMR\_A5\_EconAtt.pdf" and "SJVWIA\_BCMR\_A3\_MonetizedBenefitsAnalysis.pdf."

For the fishery improvement for spring-run Chinook salmon benefit, physical benefits are monetized based on the alternative cost of increasing floodplain habitat to provide the same physical benefit as measured by the Ecosystem Diagnosis and Treatment (EDT) model. The applicant calculates the present value of this benefit as \$2,439.1 million.

Regarding refuge water supply benefits, the application states “The economic benefits associated with the refuge water supplies from the TFR Project were estimated through application of the unit values of water provided by the WSIP Technical Reference.” The applicant calculates the present value of this benefit as \$82.8 million.

## **Benefits as Adjusted by Reviewers**

### *Physical Benefits*

CDFW considered the monetized ecosystem benefit for fishery improvement for spring-run Chinook salmon to be insufficiently supported by the information in the application (see CDFW Review, attached). Therefore, the benefit was removed from the PBR calculation.

CDFW considered the monetized ecosystem benefit for refuge water supply to be insufficiently supported by the information in the application (see CDFW Review, attached). Therefore, the benefit was removed from the PBR calculation.

The discussion about ecosystem benefits monetization below provides economics reviewers’ conclusions regarding monetization regardless of whether CDFW recommended removal of the physical benefits.

### *Monetization*

Economics reviewers removed the monetized ecosystem benefit for fishery improvement for spring-run Chinook salmon.

On page 5-2 of the applicant’s file named “SJVWIA\_BCMR\_A5\_EconAtt.pdf,” and on page 3-6 of the file named “SJVWIA\_BCMR\_A3\_MonetizedBenefitsAnalysis.pdf,” the applicant states the following:

*“Least cost [alternative] actions for ecosystem improvements could include increasing floodplain habitat, installing and operating temperature control devices (TCD) on Friant Dam, or increasing storage in the upper San Joaquin River basin. These actions are beyond those considered in the without-project conditions, and can be modeled separately and in combination to evaluate whether they could achieve a similar type, quantity, and quality of habitat improvement as the TFR Project. Increasing floodplain habitat exceeds habitat improvement accomplishments of the TFR Project and is the least cost [alternative] action.”*

Reviewers were unable to find any documentation in the application that the floodplain habitat alternative is the least-cost alternative action, which is required by regulation section 6004(a)(4)(F). Documentation should refer to the cost and efficacy of the floodplain habitat alternative as well as other alternatives that might accomplish the same physical benefits. Some documentation of the floodplain habitat alternative is provided in the file “SJVWIA\_BCMR\_A5\_EconAtt.pdf,” but key analysis, and in particular, the EDT modeling of habitat abundance under this alternative, is not displayed.

Furthermore, the applicant provides no information that would allow for any other alternative cost or willingness-to-pay benefit measure to be compared to the floodplain restoration alternative.

The regulation<sup>1</sup> states the following:

*“If alternative ways of providing a public benefit were evaluated but dismissed as infeasible in the feasibility study or other published document (such as a plan formulation study), applicants shall briefly summarize the results of that analysis. If one or more feasible alternative ways of providing a public benefit exist, the applicant shall estimate the lowest cost of such feasible alternatives.”*

The applicant provided information about the temperature control device (TCD) at Friant Dam as part of the San Joaquin River storage investigations, including the plan formulation report, but did not provide it to reviewers. The cost-effectiveness of the floodplain restoration alternative should be compared to the TCD at Friant Dam to demonstrate whether floodplain restoration is the least cost alternative pursuant to regulation section 6004(a)(4)(F).

Also, the applicant’s draft feasibility study included four alternatives, of which three alternatives include a low-level intake structure (LLIS), and one alternative included a selective-level intake structure (SLIS).<sup>2</sup> Table 4-7 of the feasibility study shows that, under some assumptions, the LLIS provides negligible long-term average survival benefits, and the SLIS provides more fish survival benefits. The applicant submitted two files named “SJVWIA\_EGPI\_A3\_ProjectDescription.pdf” and “SJVWIA\_EGPI\_A4\_EngAtt.pdf” that show the LLIS option, not the SLIS option, is part of the TFR project. If the TFR project with the SLIS is feasible, it must be compared to the proposed TFR project as an alternative way to provide the ecosystem public benefit pursuant to regulation section 6004(a)(4)(F). The SLIS structure is not included in the TFR project. The reasons for this exclusion should be documented.

The applicant’s feasibility study suggests that the Friant TCD and the SLIS and associated water management might both provide a basis for an alternative cost other than floodplain restoration. The feasibility study references the following documents:

- U.S. Department of the Interior, Bureau of Reclamation. 2009. *Upper San Joaquin River Basin Storage Investigation, Draft Temperance Flat RM 274 Reservoir Selective Level Intake Structure Enhanced Appraisal Technical Memorandum*. Mid-Pacific Region. Sacramento, California. August.
- U.S. Department of the Interior, Bureau of Reclamation. 2011. *Upper San Joaquin River Basin Storage Investigation, Final Value Planning Report, TM No. K8T-1510-MP11-018-00-0-1*. Technical Service Center. Denver, Colorado. November.
- U.S. Department of the Interior, Bureau of Reclamation. 2013. *Upper San Joaquin River Basin Storage Investigation, Accountability Report on the Value Planning Study*. Technical Service Center. Denver, Colorado. May.

Economics reviewers could not access these documents, and therefore could not determine if they identify feasible alternatives that may be more cost-effective than the floodplain habitat alternative or the TFR.

<sup>1</sup> California Code of Regulations. Title 23. Waters. Division 7. California Water Commission. Chapter 1, *Water Storage Investment Program* section 6004(a)(4)(F)(2.).

<sup>2</sup> U.S. Department of the Interior, Bureau of Reclamation. 2014. *Upper San Joaquin River Basin Storage Investigation Draft Feasibility Report*. Mid-Pacific Region. January.

Economics reviewers accepted monetization of refuge water supply physical benefits. Reviewers noted that, from Table 4-3 in the file named “SJVWIA\_BCMR\_A3\_MonetizedBenefitsAnalysis.pdf,” annual benefits appear to be interpolated between 2033 and 2070. This may understate the present value of refuge water supply benefits because the TR unit values reach their maximum as early as 2045. However, removal of the physical benefit results in zero monetary benefit.

## Water Quality

No water quality benefits are monetized.

## Flood Control

### **Benefits as Provided by the Applicant**

The applicant quantifies flood control benefits along the San Joaquin River downstream of Friant Dam totaling \$116 million in present value.

### **Benefits as Adjusted by Reviewers**

#### *Physical Benefits*

DWR recommended discounting physical flood control benefits by 10 percent because they were computed on a 90 percent exceedance analysis of flood storage during the flood season rather than dedicated flood storage (see DWR Review, attached).

#### *Monetization*

Economics reviewers accepted monetization of physical flood control benefits. However, those benefits have been reduced by 10 percent per DWR’s physical flood control adjustments described above. The present value of the reviewer-adjusted flood control benefits is \$104.34 million.

## Emergency Response

### **Benefits as Provided by the Applicant**

The applicant quantifies emergency response benefits for emergency water supplies provided after a Delta levee failure event, with benefits totaling \$217 million in present value.

### **Benefits as Adjusted by Reviewers**

#### *Physical Benefits*

DWR recommended removal of the emergency response physical benefit (see DWR Review, attached). The discussion about emergency response benefit monetization below provides economics reviewers’ conclusions regarding monetization regardless of DWR’s recommended removal of the physical benefits.

#### *Monetization*

Economics reviewers accepted monetization of physical emergency benefits. If the physical benefit were not removed, the present value of the emergency response benefits would be \$217.75 million. However, removal of the physical benefit results in zero monetary benefit.

## Recreation

### **Benefits as Provided by the Applicant**

The applicant quantifies recreation benefits associated with reservoir surface area and facilities provided by the new storage facility, with benefits totaling \$203 million in present value.

## **Benefits as Adjusted by Reviewers**

### *Physical Benefits*

DWR recommended removal of the recreation physical benefits (see DWR Review, attached). The discussion about recreation benefit monetization below provides economics reviewers' conclusions regarding monetization regardless of DWR's recommended removal of the physical benefits.

### *Monetization*

Economics reviewers accepted monetization of physical recreation benefits. If the physical benefit were not removed, the present value of the recreation benefits would be \$203.11 million. However, removal of the physical benefit results in zero monetary benefit.

## **Non-Public Benefits**

### **Benefits as Provided by the Applicant**

The applicant quantifies non-public benefits for water supply and hydropower, which total \$2,446 million in present value (\$2,413 million for water supply and \$33 million for hydropower). The application indicates that the TFR project would increase surface water deliveries to the Friant Division and Central Valley Project (CVP) south-of-Delta contractors.

### **Benefits as Adjusted by Reviewers**

#### *Physical Benefits*

Water operations reviewers recommended removal of the water supply physical benefit (see Water Operations Review, attached). The discussion about water supply benefit monetization below provides economics reviewers' conclusions regarding monetization even though water operations reviewers recommended removal of the physical benefit.

#### *Monetization*

Economics reviewers accepted monetization of water supply physical benefits. If the physical benefit were not removed, the present value of the water supply benefits would be \$2,413 million. However, removal of the physical benefit results in zero monetary benefit.

Economics reviewers accepted monetization of hydropower physical benefits.

## **Project Costs**

### **As Provided by the Applicant**

Detailed costs are provided in the applicant's file named "SJWVIA\_EGPI\_A4\_EngAtt.pdf." Costs consist of about \$2,661 million in capital costs incurred from 2024 through 2032, \$529 million in interest during construction (IDC), \$164 million of future operations and maintenance (in present value terms), and \$7.0 million of future monitoring costs for a total of about \$3,360 million present value cost.

### **As Adjusted by Reviewers**

Economics reviewers concluded that \$19.6 million of the applicant's proposed capital cost is ineligible for WSIP funding, consisting of \$4.0 million for "DC & Denver Coordination," \$0.4 million for "website management," \$8.8 million for tribal and stakeholder coordination, and \$6.4 million for "Meetings, Internal and External." Removal of these costs reduces the amount of eligible capital costs from about \$2,661 to \$2,641 million.

## Other Monetization Assumptions

### As Provided by the Applicant

Other than the specific capital cost adjustments and monetization adjustments described above, economics reviewers concluded that the applicant has generally discounted costs and benefits and conducted cost allocation consistently with the directions of the regulation and TR.

# Water Operations Review for Public Benefits Ratio: Temperance Flat Reservoir Project

*Applicant: San Joaquin Valley Water Infrastructure Authority (SJVWIA)*

## Review of Water Operations Analysis Methodology

Temperance Flat Reservoir (TFR) is a CALFED surface storage project and is required per regulation Section 6004(a)(1) to use the CalSim II and DSM2 model products provided by the Water Storage Investment Program (WSIP) to analyze water operations effects on the State Water Project (SWP)/Central Valley Project (CVP) system and the Delta.

The applicant uses several different models to simulate TFR operations. A spreadsheet model (referred to as the “Gaming Tool”) is used to simulate Temperance Flat operations, and assumes all existing Millerton Lake operations would remain the same under both with- and without-project conditions. The applicant uses CalSim II to simulate conditions downstream of Millerton Lake by incorporating a user-defined timeseries for releases from Millerton Lake. To evaluate San Joaquin River temperature conditions, the applicant uses CE-QUAL-W2, a reservoir-temperature model, in conjunction with the HEC-5Q model to calculate San Joaquin River temperature conditions. CE-QUAL-W2 model results include Millerton Lake releases and temperatures that are used in HEC-5Q model.

Based on the information included in the application, reviewers have identified following limitations of the applicant’s analysis.

### CalSim II Model

CalSim II implementation for with-project conditions does not include refuge, agricultural, or municipal and industrial (M&I) deliveries provided by TFR. With this CalSim II implementation, effects of Temperance Flat operations on the greater SWP/CVP system cannot be assessed.

### DSM2 Analysis Not Provided

TFR is a CALFED surface storage project, and is required per regulation Section 6004(a)(1) to use the CalSim II and DSM2 model products as provided by the WSIP to analyze effects on the SWP/CVP system and the Delta. The applicant does not provide a DSM2 analysis.

### Data Transfer Between Models

Millerton Lake releases modeled in CalSim II, the Gaming Tool, and CE-QUAL-W2 are inconsistent; therefore, Millerton Lake releases cannot be verified.



# **Water Operations Review Conclusions Related to Benefits**

## **Fishery Improvement for Spring-Run Chinook Salmon**

The applicant uses the Ecosystem Diagnosis and Treatment (EDT) model to assess fish habitat enhancement. Staff reviewed the flow and temperature data that are used in the EDT model.

Millerton Lake release flow patterns in the EDT model (i.e., in Figures 3-3 and 3-4 in the file named "SJWVIA\_BCMR\_A3\_MonetizedBenefitsAnalysis.pdf") cannot be verified using CalSim II model results. The figures depicting Millerton Lake release flow patterns show a reduction in releases in wet years and supplemental additional releases in drier years. However, CalSim II releases show consistently lower flows on the San Joaquin River except for four to five occurrences of high releases (up to 40,000 cubic feet per second [cfs]) in the 82-year simulation period (comprised of 984 months).

To assess temperature improvements on the San Joaquin River, the applicant uses a critical threshold of 13 degrees Celsius (°C). Under 2030 conditions, the application states that the frequency of water temperatures greater than 13 °C would be reduced from 20 percent of the time for the without-project operations to 8 percent of the time during with-project operations. Under 2070 conditions, the application states that the frequency of water temperatures greater than 13 °C would be reduced from about 22 percent of the time for the without-project operations to about 6 percent of the time for the with-project operations. The reviewers are not able to verify these temperature improvement frequencies with the HEC-5Q model results. The HEC-5Q model results show that, below Friant Dam, the frequency of temperatures greater than 13 °C went from 25 percent of the time for the without-project operations to 17 percent of the time for the with-project operations under 2030 conditions, and went from 40 percent of the time for without-project operations to 22 percent of the time for with-project operations under 2070 conditions.

## **Refuge Water Supply**

The Gaming Tool results indicate that the TFR project would provide up to 10 thousand acre-feet (TAF) in dry years and 15 TAF in critically-dry years for Incremental Level 4 Water Supply to wildlife refuges. On an annual average basis, the TFR project would provide 4 TAF of Refuge Level 4 deliveries under 2030 and 2070 conditions. Long-term average annual Refuge Level 4 deliveries presented by the applicant in Table 3-3 of the "SJWVIA\_BCMR\_A3\_MonetizedBenefitsAnalysis.pdf" document do not match the results from the applicant's CalSim II model. The CalSim II model did not show any representation of Temperance Flat Refuge Level 4 Supply deliveries. Therefore, reviewers cannot confirm the applicant's statements regarding refuge water supply benefits.

## **Water Supply**

The application indicates that the TFR project would increase surface water deliveries to the Friant Division and CVP south-of-Delta contractors. The application also states that the TFR project would provide a long-term average additional agricultural and M&I water deliveries of 197 TAF per year under 2030 conditions and 257 TAF under 2070 conditions.

Long-term average annual changes in agricultural and M&I deliveries presented by the applicant in Table 2-1 of the file "SJWVIA\_BCMR\_A3\_MonetizedBenefitsAnalysis.pdf" do not

match the results obtained from the applicant's CalSim II model. The CalSim II model does not show any representation of Temperance Flat deliveries. Therefore, the reviewers cannot confirm the applicant's statements regarding water supply benefits.



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*EDMUND G. BROWN JR., Governor*  
*CHARLTON H. BONHAM, Director*



January 29, 2018

Joseph Yun  
Executive Officer  
California Water Commission  
P.O. Box 942836  
Sacramento, CA 94236-0001

Dear Mr. Yun:

### **ANALYSIS OF MONETIZED ECOSYSTEM BENEFITS IN WATER STORAGE INVESTMENT PROGRAM PROJECTS' PUBLIC BENEFIT RATIOS**

The California Department of Fish and Wildlife (Department) acknowledges the complexity of the task before the California Water Commission (Commission). The Department also appreciates that applicants to the Water Storage Investment Program (WSIP) are navigating rules and regulations for the evaluation of unique program aspects such as ecosystem benefits and public benefit ratios. The same is true for our Department.

Commission staff requested recommendations from the Department as to whether ecosystem benefits are sufficiently supported to factor into public benefit ratios calculated by applicants. (Cal. Code Regs., tit. 23, § 6007, subd. (b)(1)). Attached to this letter are concise summaries of the Department's analysis for monetized ecosystem benefits per proposed project. In addition, this cover letter provides: (a) a description of applicant responsibilities; (b) a summary of the analysis; (c) an acknowledgment of the iterative nature of this effort; and, (d) a commitment for next steps.

This cover letter is longer than a typical one because it is important to identify precisely what the Department is and is not doing at this moment in time pursuant to the Commission's WSIP process. First, the Department is not denying or rejecting any project. That is not the Department's role. Nor should anyone conflate the Department's analysis of benefits at this stage of your process with a denial or rejection of a project. It is simply not the case.

Instead, the Department conducted a technical review of the ecosystem benefits proposed by applicants requesting funding under the WSIP. Proposition 1, as set out in the Water Code, and the Commission's regulations require the Department to provide this review.

**Applicant Responsibilities:**

The WSIP regulations set forth the requirements for the quantification of physical changes and resulting ecosystem benefits of proposed projects. (Cal. Code Regs. tit. 23, § 6000 to 6015.) The Department reviewed the applicants' analyses using the standards established in the WSIP regulations. Section 6004, subdivision (a) requires an applicant to quantify the magnitude of the net public benefit using either an appropriate method identified in the Technical Reference, or an alternative method that is scientifically sound, appropriate for the project, and adequately documented. Further, Section 6004, subdivision (a)(3)(B) requires that an applicant shall disclose and quantify, where possible, any impacts or negative effects the proposed project would impose on the ecosystem to the extent that those impacts are less than fully mitigated.

Under Section 6007, staff shall rely on information supplied by the applicant. If an applicant claimed a benefit but did not supply information in the application to support the claim, then the Department's analysis was hindered. The application information controlled the Department's analysis related to reasonableness of assumptions, completeness and quality of analysis, and appropriate use of data and analytical methods to calculate public benefits.

**Summary of Analysis:**

The Department took each application and completed technical review under Section 6007. The Department identified the following general areas of concern across the applications: potentially unmitigated environmental impacts that were not disclosed or quantified in the "net benefit" determination; missing quantification or analysis of the proposed ecosystem benefits; and absence of supporting documentation.

Based on the information provided as well as separate independent calculations from the Commission's Water Operations Review, the attached project-specific summaries identify two basic results. The first basic result occurs where the application provided insufficient information or the supporting documentation is absent to support a claimed benefit at all at this time.

This outcome of absent supporting documentation is most pronounced where the Department received detailed input from the Water Operations Review, which is an expert modeling review facilitated by the Commission staff. In some instances, the Water Operations Review could not verify modeling results. As an example, if an application claimed to increase coldwater in a reservoir, but the water model experts could not identify any support in the application for that increase, the Department was simply unable to make assessments about ecosystem benefits.

In this situation, the WSIP regulations state that where staff could not adjust the public benefit ratio because of a lack of support, it must remove the benefit at this moment in the process. This occurred nine times across five of the eleven projects. The

Department believes the applicants may be able to cure these defects. For example, proposed delivery of wildlife refuge water could provide ecosystem benefit. However, failure of the application information to establish that water deliveries can and would occur as proposed means the Department cannot verify the refuge benefit. The Department points out that the appeals process can facilitate such corrections.

The other major result from the analysis is the possible overestimation of a claimed benefit. In most of the Department's analysis, this is more the situation than the scenario described above. Here, for example, an application's information may utilize models with a population figure for salmon that is many fold higher than actual data indicate is accurate. There are other examples of model discrepancies, data input inconsistencies, and other information in applications that create uncertainty about claimed benefits and possible overstatement of such benefits. However, there is not information in the application with which the Department could identify a recommended adjustment to the public benefit ratio. The Department's response to this situation is to acknowledge for Commission staff and the applicants those concerns that may cause a need for a benefit to be adjusted downwards but not removed. This second category is the majority of the Department's assessments.

**Iterative Nature of Process:**

Over a two-year period with extensive input from stakeholders and a broad spectrum of water interests, the Commission developed this process and these regulations to implement a voter-approved statute. All of this effort directs the Department to look closely at the information submitted by applicants. Ecosystem improvements are a key component of project applications because of statutory requirements that projects must provide ecosystem benefits. At the subsequent "additional eligibility" phase, the projects must also measurably improve the ecosystem of the Delta or its tributaries.

The Department's analytical summaries are the first step in the initial technical review of the applications, focused on quantifying the public benefits associated with proposed projects. No projects are out of the running because of this step. The Commission's frequently asked questions' document indicates they anticipate public benefit ratios will change based on the additional information. The appeals process provides the opportunity for applicants to underscore or add to the information in their applications, with another round of staff review and recommendations. The next step includes the opportunity for reinstatement or adjustment of public benefit values. The Commission anticipates holding hearings to consider revisions to the public benefit ratios in May.

In recognition of the iterative nature for the WSIP process, Commission staff scheduled a two-hour meeting with each project applicant and Department staff before the release of the full analysis so that no applicant team would be surprised by the Department's preliminary conclusions. Now with the submission of this cover letter and the release of the summaries, each applicant will have the opportunity over the following weeks to

Mr. Joseph Yun, Executive Officer  
California Water Commission  
January 29, 2018  
Page 4

provide additional supporting information and address specific comments from the review process. The Department could only judge the information submitted previously in the applications. With additional information, the Department may be able to confirm a benefit should be added or that a benefit's value be increased.

**Commitment for Next Steps:**

The Department understands that some parties and the general public may be quick to judge this analysis as too focused on technical details at the expense of the bigger policy objective of improved storage in California. The Department knows that the WSIP represents an important opportunity to invest in California's water future.

The Department recognizes the value and importance of additional surface water and groundwater storage in California. As called for in the California Water Action Plan, water storage is needed for environmental benefits as well as water supply. The Department is hopeful that the explanations contained in the enclosed assessments will assist applicants in providing the necessary information to demonstrate to that the proposed projects will provide net ecosystem improvements.

The WSIP is complex and unique in that it is an investment program wherein, early in the application review process, the Department shares its assessments and uncertainties about anticipated ecosystem outcomes with the applicants. The Department is hopeful that sharing this information will ultimately resolve those uncertainties during the appeal process. With that in mind, the Department looks forward to continuing to work with the Commission in the evaluation of projects applying for funding under the WSIP.

Sincerely,



Charlton H. Bonham  
Director

Enclosures: Public Benefit Ratio Assessments

cc: California Department of Fish and Wildlife

Kevin Hunting, Chief Deputy Director  
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Mr. Joseph Yun, Executive Officer  
California Water Commission  
January 29, 2018  
Page 5

Scott Cantrell, Water Branch Chief  
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## Temperance Flat Reservoir Project Monetized Ecosystem Benefits

In conducting the review as required by California Code of Regulations, title 23, section 6007, subdivision (b)(1), the California Department of Fish and Wildlife (Department) was unable to identify sufficient support in the methods used or values supplied in the application for certain monetized ecosystem benefits as discussed below. (Cal. Code Regs., tit. 23, § 6007, subd. (b)(1)(B).)

The discussion below identifies areas of concern regarding the application and information that was either not found in the application or did not have sufficient support.

The Department finds the monetized ecosystem benefit for the Temperance Flat Reservoir Project fishery improvement for spring-run Chinook insufficiently supported by the information in the application to establish this benefit; and, the monetized ecosystem benefit for refuge water supply insufficiently supported by the information in the application for the Temperance Flat Reservoir Project and, therefore, recommends removing this monetized ecosystem benefit from the public benefit ratio. Additional or modified information may enable the Department to recommend accepting or adjusting the magnitude of an ecosystem benefit.

Areas of concern regarding the application are as follows:

### **Fishery Improvement for Spring-run Chinook Monetized Ecosystem Benefit**

- The Water Operations Review could not verify proposed Millerton Lake releases to the San Joaquin River. The modeled temperature and ecological benefits depend on the modeled flow releases from Millerton Lake. The Department cannot verify the ecological benefit, because the Water Operations Review could not verify the hydrology.
- The Water Operations Review identified unexplained discrepancies between the temperature model results and the physical changes described in the application. The Water Operations Review states:  
“[T]o assess temperature improvements on the San Joaquin River, the applicant uses a critical threshold of 13 degrees Celsius (°C). Under 2030 conditions, the application states that the frequency of water temperatures greater than 13 °C would be reduced from 20 percent of the time for the without-project operations to 8 percent of the time during with-project operations. Under 2070 conditions, the application states that the frequency of water temperatures greater than 13 °C would be reduced from about 22 percent of the time for the without project operations to about 6 percent of the time for the with-project operations. The reviewers are not able to verify these temperature improvement frequencies with the HEC-5Q model results. The HEC-5Q model results show that, below Friant Dam, the frequency of temperatures greater than 13 °C went from 25 percent of the time for the without-project operations to 17 percent of the time for the with-project operations under 2030 conditions, and went from 40 percent of the time for without-project operations to 22 percent of the time for with-project operations under 2070 conditions.”

These discrepancies increase uncertainty about the magnitude of the ecosystem improvements applicant assumes will result from these temperature changes.

- There is a high level of uncertainty in the applicant’s Ecosystem Diagnostic Treatment (EDT) modeling results, due to a combination of a lack of empirical data for spring-run Chinook on the San Joaquin River, as well as a lack of detailed discussion pertaining to the model’s inputs and



## Temperance Flat Reservoir Project Monetized Ecosystem Benefits

assumptions. This uncertainty reduces confidence in the project's claimed fishery improvements. As per the Technical Reference, Section 4.7.6, "applications using models to estimate without-project conditions, impacts, and benefits must be accompanied by sufficient model documentation to facilitate the technical review process."

- The project would only provide consistent modeled temperature benefits in Reach 1A of the San Joaquin River Restoration Program (SJRRP) area, while at times detrimentally affecting temperature in the lower reaches.
- The applicant states that the EDT modeling assumed all adult spring-run Chinook would migrate up to Reach 1A by mid-May, because temperature impairment in the lower reaches of the SJRRP area would prevent migration after that time. Historically, peak migration for spring-run Chinook occurs in May and June, with the period of migration extending as late as September. The applicant's assumption may result in the model overestimating the number of adult spring-run Chinook that reach spawning grounds.
- The applicant provided the numerical results from the EDT model, but did not provide a thorough discussion of the factors affecting those results. The applicant did not provide an explanation of why the project detrimentally impacts equilibrium abundance in some water year types. For example, under current conditions with-Project, the model results indicate that the equilibrium abundance would decrease by 8 percent and 23 percent in normal wet and wet years, respectively. Additionally, the applicant did not provide an explanation of what factors create outliers in the model's results. For example, under with-Project 2070 conditions, equilibrium abundance increases by 5,105 percent in normal-dry water years, while other water year types show no more than a 223 percent increase. Furthermore, the applicant did not include a detailed explanation of how weighted average abundance was calculated for current, 2030, and 2070 climate scenarios.
- In their EDT model, the applicant used the two extreme 2070 climate scenarios provided for use in the uncertainty analysis to model 2070 with and without-project conditions. However, these two extreme 2070 climate scenarios were only intended to be used in the uncertainty analysis portion of the application, and not in place of the standard 2070 climate scenario provided to the applicant to quantify the ecosystem benefit.
- The project would capture flood flows to the detriment of spring-run Chinook. Further altering the San Joaquin River's natural hydrologic regime could hinder the successful re-establishment of a self-sustaining population of spring-run Chinook. The applicant did not disclose or analyze these negative impacts in its quantification of benefits, as required by California Code of Regulations, title 23, section 6004, subdivision (a).

Therefore, the information in the application insufficiently supports establishing this benefit at this time.

## **Temperance Flat Reservoir Project Monetized Ecosystem Benefits**

### **Refuge Water Supply Monetized Ecosystem Benefit**

The Department believes the proposed delivery of refuge water could benefit wetland habitat in wildlife refuges. However, the Water Operations Review was unable to verify the proposed refuge water supply deliveries; as such, the Department cannot verify the refuge water supply benefit and recommends removal.

**DEPARTMENT OF WATER RESOURCES**

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February 1, 2018

Joseph Yun  
Executive Officer  
California Water Commission  
P.O. Box 942836  
Sacramento, CA 94236-0001

**RE: Proposition 1 Water Storage Investment Program - Public Benefit Ratio  
Recommendations**

Dear Mr. Yun:

Thank you for your efforts to date in implementing the Proposition 1 Water Storage Investment Program (WSIP). As you well know, WSIP is a unique and groundbreaking opportunity for California to invest precious financial resources in the public benefits of new storage projects.

As one of three agencies called out in the statute to assist in valuing the public benefits of WSIP projects, the Department of Water Resources (DWR) plays a critical role in providing technical review and support for the California Water Commission's (Commission) efforts to implement this program. DWR is sensitive to the complex nature of the regulations and supports the Commission's ongoing efforts to engage in full dialogue with applicants in a transparent, timely and fair way.

On December 20, 2017, DWR issued formal letters to the Commission offering our recommendations for adjustment of WSIP applicant claimed physical benefits from the public benefit ratio. The physical benefit categories reviewed by DWR include Flood Control, Emergency Response, and Recreation. As this is the first stage of the technical review, DWR's recommendations are offered with the expectation that the public benefit ratios will likely change after the appeals process during which time applicants may offer up additional or supporting information.

We hope the Commission continues to build off the extensive stakeholder engagement it encouraged during the two-year regulation development process. DWR will continue to support the Commission's important work to ensure the best return on public investment so California can realize the storage projects it needs for the future.

Sincerely,

A handwritten signature in blue ink, appearing to read "Karla A. Nemeth".

Karla A. Nemeth  
Director

**DEPARTMENT OF WATER RESOURCES**

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December 20, 2017

Armando Quintero, Chair  
California Water Commission  
P.O. Box 942836  
Sacramento, California 94236-0001

**RE: Water Storage Investment Program – Public Benefits Ratio Recommendations**  
**Project: Temperance Flat Reservoir Project**  
**Applicant: San Joaquin Valley Water Infrastructure Authority**

Dear Chair Quintero:

The purpose of this letter is to provide the California Water Commission with the Department of Water Resources (DWR) recommendation for adjustment or removal of the applicant's claimed physical benefits from the public benefits ratio (PBR) for the Water Storage Investment Program (WSIP) Proposition 1 grant application.

The physical benefit categories reviewed by DWR consisted of Flood Control, Emergency Response, and Recreation. The information provided by the applicant in support of each claimed physical benefit was reviewed in a consistent manner across all applications for the summary of recommendations listed below. DWR did not attempt to replicate or modify models, and did not evaluate the project's physical benefits outside the information provided in the application.

During the review, if a PBR component was not supported by the information submitted in the application, DWR staff had the option to recommend adjustments. If the methods used or values supplied were not supported, and DWR staff were not able to adjust the PBR, the physical benefits monetized public benefit value was recommended for removal from the total PBR calculation.

DWR's summary of recommendations for adjustment or removal of the applicant's claimed physical benefits from the total PBR for this project is listed below; if a benefit was verified or not claimed, it was not included.

## **Summary of Recommendations:**

### **Flood Control:**

DWR recommends the adjustment of this physical benefit to the PBR calculation. The Temperance Flat Reservoir Project flood control physical benefit was adjusted for the reason listed below:

- ❖ The proposed water storage project does not provide any dedicated flood control storage. Flood control storage is incidental and cannot be assured or guaranteed to be in place during a flood event. The physical benefits associated with flood control should be credited but discounted by 10% to reflect that they were computed based on a 90% exceedance analysis of available storage during the flood season. The proposed Temperance Flat Reservoir project does not have an operations plan that increases the level of flood protection provided by the existing Friant Dam-Millerton Reservoir and relies solely on estimated incidental storage predicted to be available by reservoir simulation model runs. If funded, additional discussions will need to occur to develop assurances and a contract that the incidental flood storage will in fact be available throughout the flood season.

### **Emergency Response:**

DWR recommends the removal of this physical benefit from the PBR calculation. The Temperance Flat Project emergency response physical benefit cannot be verified with the information provided by the applicant for the reasons listed below:

- ❖ No information was provided in the planning analysis projection that the emergency response event and its use of project water occurred once, 30 years into the project operation period (50 years for earthquakes).

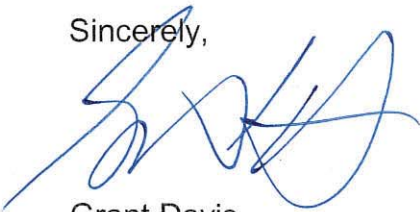
### **Recreation:**

DWR recommends the removal of this physical benefit from the PBR calculation. The Temperance Flat Reservoir's recreation physical benefit cannot be verified with the information provided by the applicant for the reasons listed below:

- ❖ No information was provided on the listed effects of Temperance Flat Reservoir on nearby lakes other than Millerton. Staff was unable to verify if the proposed project would negatively affect another facility or nearby recreation areas.
- ❖ No information was provided on the length of the two new proposed boat ramps on Temperance Flat Reservoir and their availability of use throughout the projected lake level fluctuations during peak recreation season (April-September). Staff was unable to verify that the proposed facilities would be available for use (in water) to support the estimated recreation post project.

- ❖ The applicant provided a limited breakdown in the SJVWIA\_BCMR\_A5\_Modeling Att chapter 7 of with-out project visitation numbers. The modeling chapter provides no information on use specific to the Millerton Lake areas that will be inundated by TFR or on the river/gorge area. The modeling chapter provides no information on the breakdown of with project estimated visitation use at each of the affected areas. Staff is unable to verify the with-out project visitation and the with project proposed visitation use estimates.
- ❖ SJVWIA\_EGPI\_A4\_EngAtt Attachment G provided information on the San Joaquin River Gorge Management Area with-out project visitation that could not be verified to have been included in the SJVWIA\_BCMR\_A5\_Modeling Att chapter 7 of with-out project visitation numbers. No information was provided on this with project inundated area in the SJVWIA\_BCMR\_A5\_Modeling Att chapter 7.
- ❖ The applicant provided limited detail in the SJVWIA\_EGPI\_A4\_EngAtt Attachment G on the proposed water taxi. No information was provided on who will run it, or who will pay for long term funding for the water taxi to evaluate the feasibility of this proposed replacement facility and its planned operations.

Sincerely,



Grant Davis  
Director