COSUMNES RIVER FLOW AUGMENTATION PROJECT

2005 PROJECT DELIVERABLES

Prepared for:

Southeast Sacramento County Agricultural Water Authority

The Nature Conservancy

Sacramento County Water Agency

Prepared by:

Robertson - Bryan, Inc.

Specializing in Water and Power Resources

April 4, 2006

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REPORTS

COSUMNES RIVER FLOW AUGMENTATION PROJECT
PROJECT SUMMARY

Introduction

The Cosumnes River Flow Augmentation Project (Project) is being proposed by a Coalition of interests[1] to provide supplemental flows to the Cosumnes River that will provide fish passage improvements for fall-run chinook salmon and for evaluation of groundwater recharge rates from the Cosumnes River channel. This project will be facilitated by releasing supplemental water from the Folsom South Canal into the Cosumnes River to pre-wet the river channel prior to the onset of natural fall flows in the lower reaches of the river. Figure 1 shows the project location and major features. The Project will provide critical information regarding the effectiveness of releasing supplemental water for local groundwater recharge and of supplementing the natural flow regime to restore a historical flow pattern for the improvement of fall-run chinook salmon passage.

The Cosumnes River is a keystone of fishery conservation efforts in the North Delta. The Anadromous Fish Restoration Program (AFRP), The Nature Conservancy (TNC), and the University of California, Davis (UCD), have sponsored numerous research projects on the health of the salmon fishery of the Cosumnes River. AFRP has also identified the Cosumnes as having potential for contributing to the fish doubling goals of the Central Valley Project Improvement Act (CVPIA). The AFRP has also set program objectives specifically directed at the Cosumnes River and the acquisition and restoration of fish habitat, primarily directed at improving passage and spawning habitat for fall-run chinook salmon.

The geologic setting and unregulated nature of the Cosumnes River has also made it a focus of regional water management strategies for Sacramento County, and particularly for the Southeast Sacramento County Agricultural Water Authority (SSCAWA). The SSCAWA, in partnership with the Sacramento County Water Agency (SCWA), the TNC and UCD are sponsoring a number of programs aimed at evaluating and developing a conjunctive use strategy that capitalizes on the natural geology of the region for groundwater recharge and surface water management.

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[1] The Coalition consists of the Sacramento County Water Agency, The Nature Conservancy, the Southeast Sacramento County Agricultural Water Authority (members include Omochumne-Hartnell Water District, Galt Irrigation District, and Clay Water District), the Fisheries Foundation of California, and the UCD Center for Integrated Watershed Science and Management.

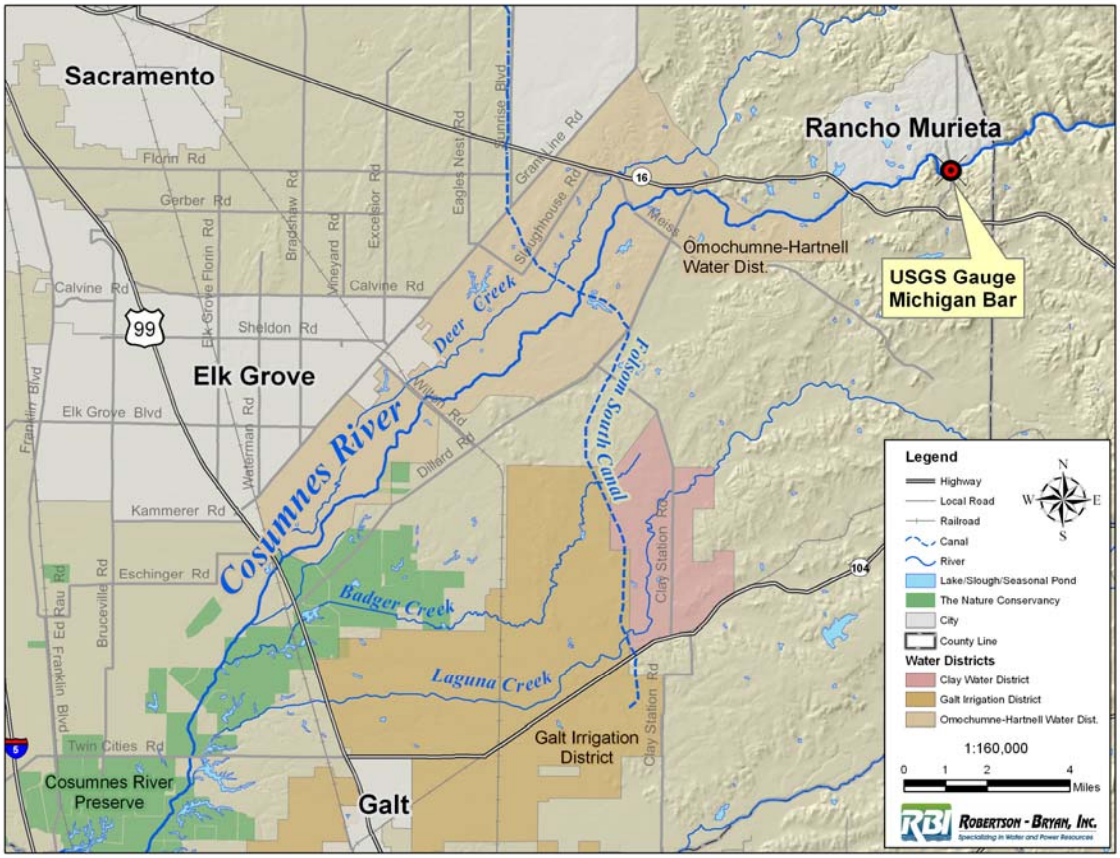

Figure 1. Project Area.

Project Overview

The Project will release up to 5,000 acre-feet (af) of water into the Cosumnes River from an existing turnout of the Folsom South Canal. The objectives are to 1) improve upstream fall migration of salmon, and 2) to evaluate groundwater recharge from the Cosumnes River channel. The first objective will be accomplished by allowing the Cosumnes to connect to tidewater earlier in the fall and sustaining non-barrier flow conditions after initial connection. The second objective will be accomplished by making controlled releases into the river channel and monitoring the surface water–groundwater exchange processes along the length of the channel.

Project Water Supply

The long-term water supply for the Project will be provided by Sacramento County Water Agency (SCWA) using water developed from the Eastern Sacramento County Replacement Water Supply Project (RWSP). The RWSP is intended to provide for the beneficial use of remediated water generated by groundwater extraction and treatment (GET) facilities of the Aerojet / Boeing groundwater cleanup project mandated by the Regional Water Quality Control Board.

Currently, GET facilities are discharging approximately 11,600 acre-feet annually (afa) to Alder Creek, which discharges to Lake Natoma, and 8,600 afa to Buffalo Creek, which discharges to the American River below Lake Natoma. None of the current discharges are being reclaimed for beneficial uses. At full development the RSWP will provide 30,465 afa of water for potable use and 5,000 afa to the CRFAP. Remediated water from the GET facilities will be discharged to the American River via various creeks and drainages and rediverted from the American and Sacramento River at the following locations:

Discharge Points:	**Diversion Points:**
Alder Creek to Lake Natoma(15,951 afa)	Folsom South Canal to American States Water Company (5,000 afa)
Buffalo Creek (6,693 afa)	Folsom South Canal to Cosumnes River (5,000 afa)
Boyd Station Channel (8,798 afa)	Fairbairn Diversion to City of Sacramento (5,000)
Local storm drain (3,709 afa)	Freeport Diversion to SCWA (20,465 afa)
Cordova Drainage Channel (323 afa)	

Project Operations

The Project is designed to create river conditions similar to what might have been experienced prior to the reduction of groundwater levels underlying the Cosumnes River between Highway 16 and the Cosumnes River Preserve (downstream of Twin Cities Road). The Project is not intended to create a hydraulic connection with the tidewater area of the Cosumnes River and the Delta before it naturally occurs from run-off generated by fall precipitation in the Sierra Nevada foothills.

A preliminary flow-release schedule (Figure 2) has been develop that meets the following criteria: (1) pre-wet the greatest length of channel possible, and (2) maintain sufficient water in reserve for augmenting river flow to sustain the connection with tidewater during the optimal salmon migration period of November 1 to December 31.

Channel pre-wetting flows will begin on October 15 and continue through December 31. By beginning flow releases on October 15, the Cosumnes River channel would receive approximately 2,000 af of water before the river typically connects with tidewater (mid-November).

Water not used for channel pre-wetting will be held in reserve and used to supplement natural flows through December 31 to eliminate stranding conditions during the migration period. Flow augmentation releases will be made when Cosumnes River flows fall below that required to maintain upstream migration conditions, estimated to be 65–70 cubic feet per second (cfs), measured at the U.S. Geological Survey (USGS), Michigan Bar gauging station. Historical flow record for the Cosumnes River, with consideration

of today's groundwater conditions, indicates that supplement releases to maintain migration conditions would be needed in about 93% of the years.

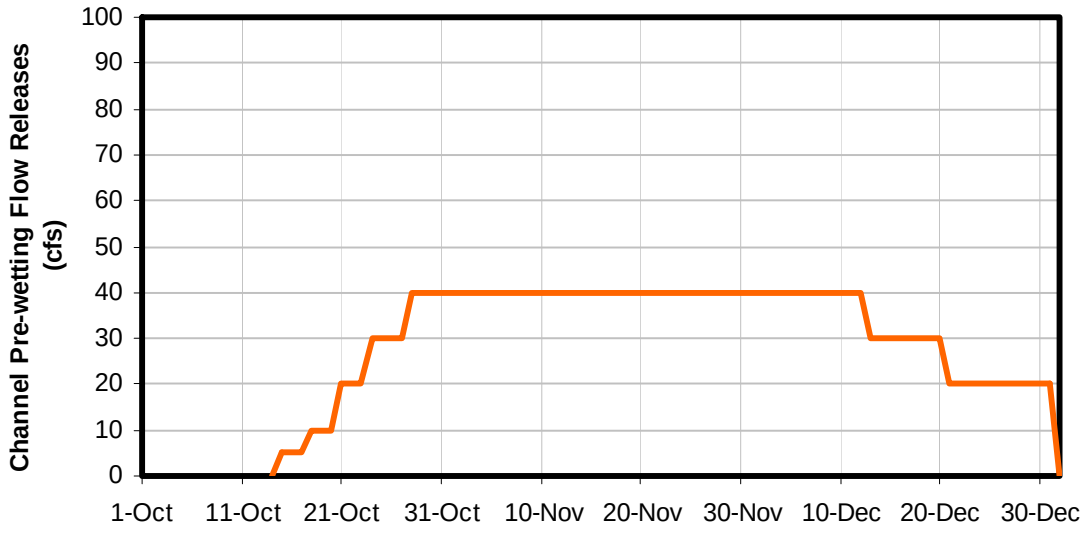

Figure 2. Cosumnes River channel pre-wetting releases from the Folsom South Canal.

Monitoring Program

Escapement and Out-Migration Monitoring

The Fisheries Foundation of California (FFC) will conduct Escapement and Out-Migration Monitoring. The FFC will either be funded through the SSCAWA, if the SSCAWA and Coalition partners develop the funding for this task, or the FFC may fund this task directly.

This task will evaluate the adequacy of flows for salmon passage by life stage. Flow needs will focus on the lower critical passage reach, below Folsom South Canal, to above tidewater (Twin Cities Road crossing) where passage presents the biggest problem. The duration and rate of flow needed to allow the run to proceed upstream and successfully reach spawning grounds will be a focused evaluation building on information gathered in previous years. The duration and rate of flow needed to maintain a successful migration pattern will be determined through adaptive management of flow releases from the Folsom South Canal. The FFC will also conduct out-migration surveys to provide information on the success of fall spawning in the Cosumnes River.

Groundwater-Surface Water Interaction Monitoring

Professor Graham Fogg, Ph.D., of the Land, Air, and Water Resources and Geology Department at UCD, will lead the Groundwater–Surface Water Interaction Monitoring

Task. UCD will either be funded through the SSCAWA, if the SSCAWA and Coalition partners develop the funding for this task, or UCD may fund this task directly.

Ongoing work on hydrogeology of the Cosumnes River aquifer system has shown that the river is the major source of recharge to the local groundwater system and that most of this recharge probably occurs over a small percentage of the channel between Michigan Bar and Twin Cities Road. Successful management of river flows to sustain salmon migration in the fall requires more detailed information on river–aquifer water exchange along this entire reach. This more detailed information can be obtained through careful hydrologic monitoring before and after a controlled flow release experiment, wherein a known amount of water is diverted into the channel near Folsom South Canal. Instrumentation deployed for such an experiment will also be useful for studying interaction between groundwater and surface water in the system on a continuous basis.

COSUMNES RIVER FLOW AUGMENTATION PROJECT
2005 PILOT PROJECT OPERATION PLAN

Introduction

The Cosumnes River Flow Augmentation Project (Project) is being proposed by a coalition of interests[1] to provide supplemental flows to the Cosumnes River that will provide fish passage improvements for fall-run chinook salmon and for evaluation of groundwater recharge rates from the Cosumnes River channel. This project will be facilitated by releasing supplemental water from the Folsom South Canal into the Cosumnes River to pre-wet the river channel prior to the onset of natural fall flows in the lower reaches of the river. Figure 1 shows the project location and major features.

The pilot project phase of the Project is aimed at implementing the releases to the Cosumnes River in the fall of 2005, to evaluate the effectiveness and adequacy of project operations. Information gained in during the pilot project phase will be used to refine long-term project operations planning. The pilot project will have a duration of only one season (October 2005 through January 2006) for which a temporary non-permanent water supply is being requested from the U.S. Bureau of Reclamation (Reclamation).

Project Objectives

The pilot project phase of this Project proposed to release up to 5,000 acre-feet (af) of water into the Cosumnes River from an existing turnout of the Folsom South Canal. The objectives are to: 1) improve upstream fall migration of salmon, and 2) evaluate groundwater recharge from the Cosumnes River channel. The first objective will be accomplished by allowing the nature flows of the Cosumnes River to connect to tidewater earlier in the fall, and sustaining non-barrier flow conditions after initial connection. The second objective will be accomplished by making controlled releases into the river channel and monitoring the surface water–groundwater exchange processes along the length of the channel.

The Cosumnes River is a keystone of fishery conservation efforts in the North Delta. The Anadromous Fish Restoration Program (AFRP), The Nature Conservancy (TNC), and the University of California, Davis (UCD), have sponsored numerous research projects on the health of the salmon fishery of the Cosumnes River. AFRP has also identified the

[1] The Coalition consists of the The Nature Conservancy, the Southeast Sacramento County Agricultural Water Authority (members include Omochumne-Hartnell Water District, Galt Irrigation District, and Clay Water District), the Sacramento County Water Agency (SCWA), the Fisheries Foundation of California, and the UCD Center for Integrated Watershed Science and Management.

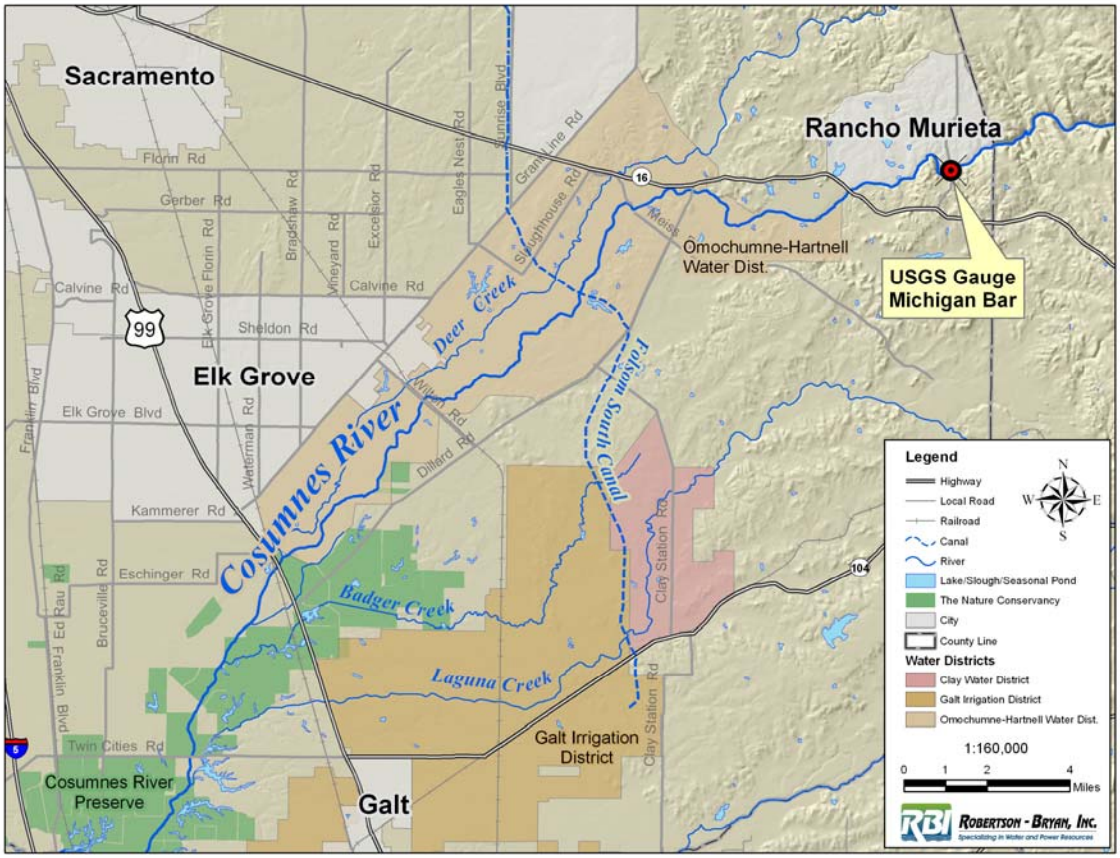

Figure 1. Project Area.

Cosumnes as having potential for contributing to the fish doubling goals of the Central Valley Project Improvement Act (CVPIA). The AFRP has also set program objectives specifically directed at the Cosumnes River and the acquisition and restoration of fish habitat, primarily directed at improving passage and spawning habitat for fall-run chinook salmon.

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Pilot Project Water Supply

The Project proponents are requesting the assistance of the Reclamation in identifying a source of surplus or environmental water for implementation of this pilot project. The Project proponents make this request in light of the surplus water conditions that exist

within the State this year. This request is aimed at acquiring a one-time commitment of 5,000 ac-ft in the fall of 2005, as described in the following sections. The Project proponents also understand that should Reclamation identify and provide water for this pilot project that this supply will be for one year only. The intent of the pilot project is to allow the Project proponents and Reclamation to identify and address issue that will be faced under long-term implementation of the Project. The Project proponents are committed to addressing the concerns raised by Reclamation regarding the source of water identified for the long-term implementation of the Project.

Pilot Project Operations

The Project is designed to create river conditions similar to what might have been experienced prior to the reduction of groundwater levels underlying the Cosumnes River between Highway 16 and the Cosumnes River Preserve (downstream of Twin Cities Road). The Project is not intended to create a hydraulic connection with the tidewater area of the Cosumnes River and the Delta before it naturally occurs from run-off generated by fall precipitation in the Sierra Nevada foothills.

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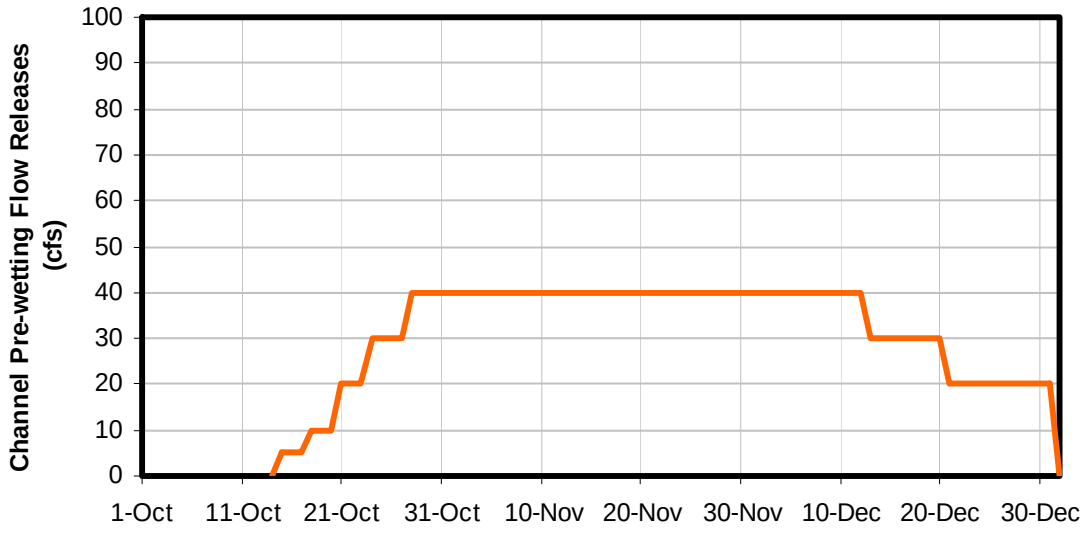

Figure 2. Cosumnes River channel pre-wetting releases from the Folsom South Canal.

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COSUMNES RIVER FLOW AUGMENTATION PILOT PROJECT

MONITORING PLAN

Prepared for:

Southeast Sacramento County Agricultural Water Authority

The Nature Conservancy

Sacramento County Water Agency

Prepared by:

RBI ROBERTSON - BRYAN, INC.
Specializing in Water and Power Resources

September 26, 2005

COSUMNES RIVER FLOW AUGMENTATION PILOT PROJECT

MONITORING PLAN

Prepared for:

Southeast Sacramento County Agricultural Water Authority

The Nature Conservancy

Sacramento County Water Agency

Prepared by:

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September 26, 2005

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1 INTRODUCTION

A coalition of interests[1] supports and developed the Cosumnes River Flow Augmentation Pilot Project (Project) to provide supplemental flows to the Cosumnes River that will improve fish passage for fall-run chinook salmon (*Oncorhynchus tshawytscha*) and provide an opportunity to evaluate the interaction of groundwater and surface water in the Cosumnes River channel. The objectives of the Project are twofold:

- To improve fall-run chinook salmon migration conditions by: (1) allowing the Cosumnes River to connect to tidewater earlier in the fall, and (2) sustaining surface flow continuity within the Cosumnes River after its initial connection.

- To evaluate the rate of groundwater recharge from the river channel between the Folsom South Canal and Twin Cities Road to better guide future groundwater management and environmental restoration efforts along the Cosumnes River corridor.

The Project will release up to 5,000 acre-feet of water into the Cosumnes River from an existing turnout of the Folsom South Canal. The project constitutes the first year of augmenting Cosumnes River flows to meet the above objectives. It is the intent of the coalition of interests that are supporting the Project to continue the Pilot Project through 2010, after which it will become an ongoing annual operation. Hence, this first year effort largely constitutes a demonstration effort to help the Project proponents develop and improve the long-term management of this action. The U.S. Bureau of Reclamation (Reclamation) and the B2 Environmental Water Program will provide the water supply for the Project during its demonstration phase.

This Monitoring Plan identifies the monitoring programs necessary to evaluate the effectiveness of the Project. Monitoring will include:

1) flow-release scheduling performed by Robertson-Bryan, Inc. (RBI), under contract with the Southeast Sacramento County Agricultural Water Authority (SSCAWA);

2) passage of low-flow migration barriers by immigrating adult fall-run salmon and location and timing of spawning by the Fisheries Foundation of California (FFC), under contract with the Anadromous Fish Restoration Program (AFRP); and

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3) groundwater recharge quantification performed by the Center for Integrated Watershed Science and Management at the University of California, Davis (UCD).

2 PROJECT BACKGROUND

The Cosumnes River corridor provides habitat for a number of special-status plants and animals and is considered an ecological area of statewide importance. The Cosumnes River is the last unregulated major river draining the western slope of the Sierra Nevada having no major dams (Figure 1). Historically, the lower reach of the river supported a matrix of riparian habitats, freshwater marshes, and large tracts of valley oak woodlands.

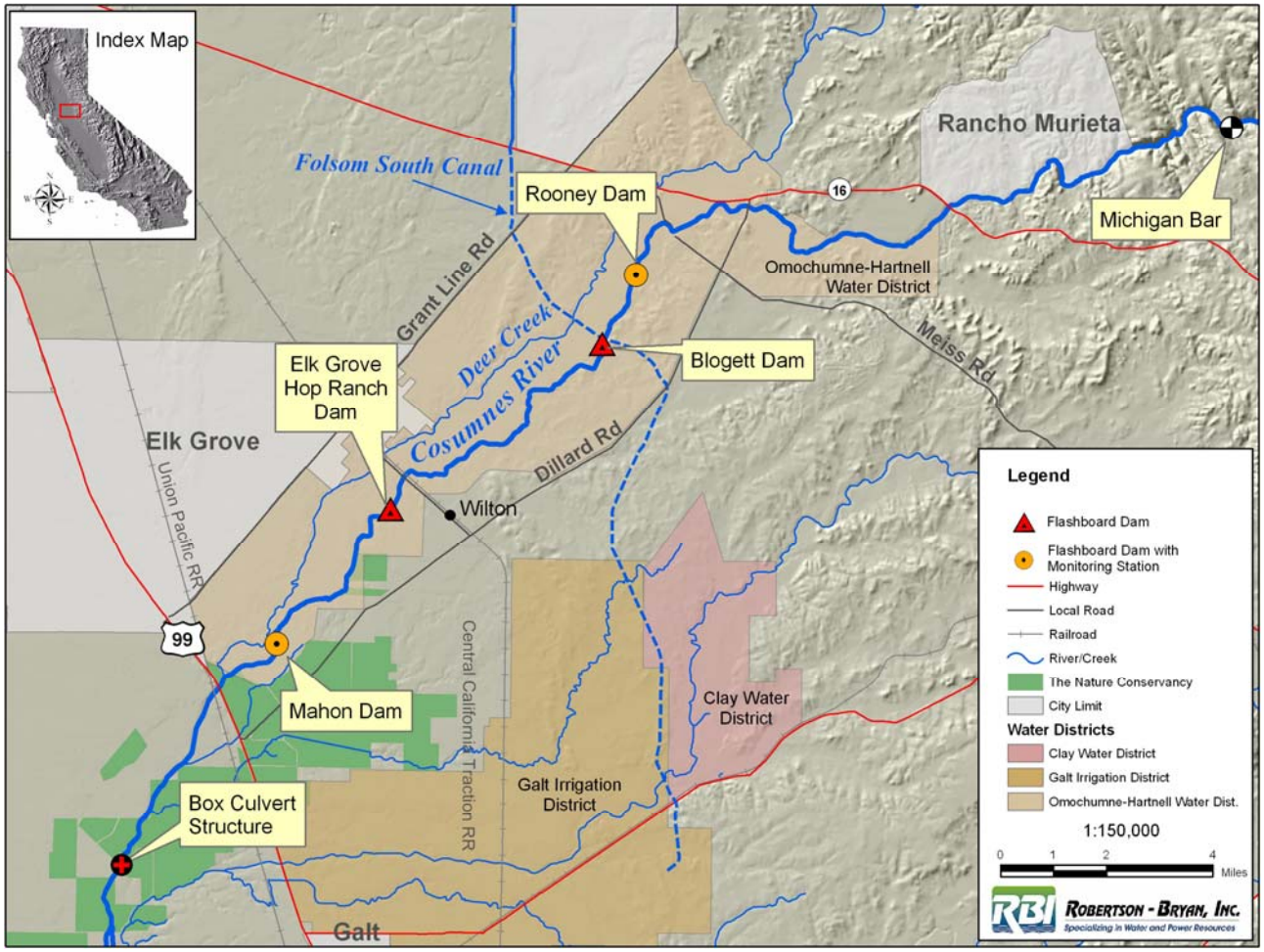

Figure 1. Location map for the Cosumnes River Flow Augmentation Pilot Project.

Recent field and modeling efforts conducted by UCD and others indicate that extensive regional and local groundwater withdrawals over the past 50 years substantially lowered groundwater tables and reduced the base flow of the Cosumnes River and its major tributaries. The Cosumnes River now frequently ceases to flow during summer months, stays dry longer into the fall, and has a dry river bed over an increasingly longer reach compared to historical conditions.

Diminished surface flows have reduced the quality and quantity of aquatic and riparian habitats and the species associated with those habitats.

The Cosumnes River is a cornerstone of fishery conservation efforts in the North Delta. The Anadromous Fish Restoration Program (AFRP) sponsored research on surface flows in the Cosumnes River, the relationship of surface flows to groundwater conditions, and the health of the salmon fishery. The AFRP also identified the Cosumnes as having potential for contributing to the fish doubling goals of the Central Valley Project Improvement Act (CVPIA). The AFRP work plan for Fiscal Year 2004 identifies program objectives specifically directed at the Cosumnes River and the acquisition and restoration of fish habitat, primarily directed at improving passage and spawning habitat for fall-run chinook salmon. In addition, the Nature Conservancy and its partners established the Cosumnes River Preserve on approximately 30,000 acres upstream of the river's confluence with the Mokelumne River. The Preserve provides protection for important biological resources associated with the Cosumnes River through land conservation, habitat restoration, and research.

The size of the Cosumnes River's fall-run chinook salmon population has declined over the past several decades, which has been related to a decline in fall streamflow in the lower Cosumnes River and a shortage of spawning and rearing habitat. Adult fall-run chinook salmon generally migrate up the river with the first fall rains, sometimes becoming stranded by receding flows following the initial storms. Groundwater pumping in the lower basin increased beginning in the 195's, resulting in reduced groundwater levels, such that the river is now disconnected from the regional groundwater table. Summer and fall flow in the lower river below Highway 16 is generally zero, leaving a barren channel of dry substrate. Above Highway 16, in the Sierra foothills, the stream is perennial with some minimal flow even in late summer. Most of the spawning occurs in the upper 10 miles of the reach extending from Latrobe Falls (a natural barrier to upstream passage of anadromous fish) downstream to Meiss Road at Sloughhouse, several miles below the Highway 16 crossing. Some additional spawning occurs below Meiss Road for several miles to the town of Wilton (observations from FFC 2002 survey). The problem for chinook salmon has been lack of fall flows between Highway 16 and tidewater to provide upstream passage to spawning grounds in the perennial flow reach in the foothills. In some years the river remained disconnected with a dry riverbed between tidewater and the spawning grounds (about 20 miles) during the entire fall spawning season.

3 MONITORING PLAN ELEMENTS

Information developed by the monitoring efforts will be used to refine Project operations and to assist in the development of a long-term program for improvement of fall-run chinook salmon

migration conditions in the Cosumnes River. The following section describes the approaches that will be used to:

1. monitor and adaptively manage releases from the Folsom South Canal to the Cosumnes River to achieve Project objectives;

2. monitor the abundance, distribution, and lifestage-specific migration timing of fall-run chinook salmon in the Cosumnes River and compare these data to historical data to determine Project effectiveness; and

3. monitor groundwater-surface water interactions to develop a better understanding of the rate and locations of groundwater affected from the river channel.

TASK 1 – FLOW RELEASE SCHEDULING AND MANAGEMENT

The SSCAWA will take the lead in scheduling and managing releases from the Folsom South Canal. On behalf of the SSCAWA, RBI will facilitate the task of flow release scheduling and management. RBI also will coordinate with all members of the Coalition, Reclamation, and permitting and other regulatory authorities regarding the flow releases, as needed. RBI also will also perform field measurements of flows to monitor the effect of releasing channel-wetting flows and regulate flow releases as needed to meet the multiple objectives of the Project.

Flow Schedule

The Project is designed to create river conditions similar to what might have been experienced before the lowering of groundwater levels underlying the Cosumnes River between Highway 16 and the Cosumnes River Preserve (downstream of Twin Cities Road). The Project is not intended to create a hydraulic surface-flow connection with the Mokelumne River and the Delta before it would naturally occur from run-off generated by fall precipitation in the Sierra Nevada foothills (i.e., following the first few substantial storm events).

The flow-release schedule is designed to meet the following operational objectives: (1) to pre-wet the channel (i.e., saturate the channel's underlying substrates), and (2) maintain sufficient water in reserve for purposes of augmenting the Cosumnes River flow in the event additional water is needed to sustain surface water flows to tidewater during the peak salmon migration period during November and December. Figure 2 shows flow-release schedule developed for the demonstration phase of the Project. This schedule provides a framework for managing releases; however, flows may change through adaptive management to maximize the benefits of the available water supply. Channel pre-wetting releases will be made until natural flows sustain a surface-flow connection to tidewater. Studies indicate that in most years, a minimum flow of 75 cfs is required at Michigan Bar to create a connection to tidewater, when the river channel is

properly wetted. Therefore, pre-wetting releases from the Folsom South Canal will likely stop once flows measured at Michigan Bar reach 75 cfs.

Once surface flows connect to tidewater as a result of pre-wetting and natural flows, RBI and Fisheries Foundation will monitor river conditions to ensure that upstream passage is maintained free of low-flow barriers. In the event that flows measured at Michigan Bar fall below 75 cfs, augmentation releases will likely begin to prevent stranding of adult salmon in the river reach between the Folsom South Canal and tidewater, with releases to maintain a minimum flow of 75 cfs at Blodgett Dam, immediately downstream of the canal. RBI will evaluate the adequacy of this flow through field measurements and observation of known, low-flow barriers, and make changes to canal releases as appropriate.

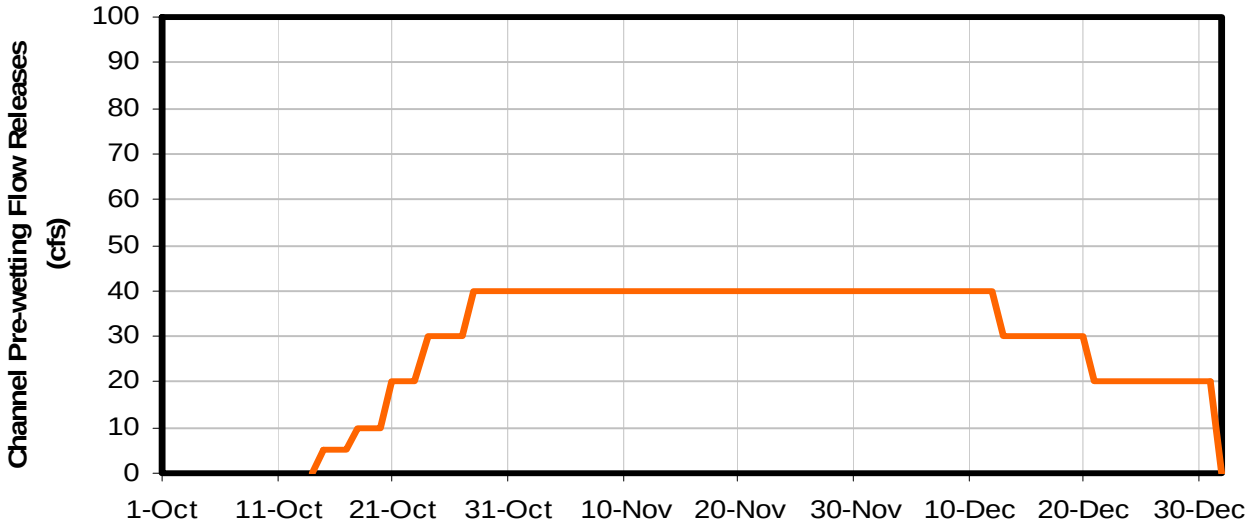

Figure 2. Planned Cosumnes River channel pre-wetting releases from the Folsom South Canal.

The following additional operational criteria will govern releases to achieve Project objectives.

1. Channel pre-wetting flows will be released from the Folsom South Canal beginning on or about October 15, and continue until natural runoff is predicted to create a surface-flow connection with tidewater.
2. The flow-release schedule represents a proposed maximum rate of release. Release rates will be modified, as necessary, to prevent channel erosion at the outlet facility, increase the extent of channel wetting, or improve fish passage conditions.
3. The rate of release of channel-wetting flows will be managed to avoid prematurely creating a surface-flow connection to tidewater. In the event that either the rate of channel wetting releases or a combination of channel wetting releases plus natural run-off creates a connection, the rate of release from the Folsom South Canal will be reduced to avoid an "unnatural" connection.

4. Water not released for channel wetting purposes will be credited to the volume of water allocated for flow augmentation purposes. During most years, the Cosumnes River connects around mid-November and, therefore, will not require the use of the entire 5,000 acre-feet. Water not used for channel pre-wetting will be allocated for surface-flow augmentation following initial connection to tidewater.
5. The flow-release schedule for channel pre-wetting and the volume of water for flow augmentation will be re-evaluated and modified based on results of Project implementation, research findings, and/or coordination with other projects that provide mutually acceptable benefits.

By beginning flow releases on October 15, the Cosumnes River channel would receive approximately 2,400 acre-feet of water prior to the time the river typically has surface flow continuity to tidewater (mid-November). To the extent that water allocated for channel pre-wetting is not required for that purpose, it would be held in reserve and used for sustaining surface-flow continuity during salmon migration or, if excess water is available, for enhancing critical habitat along the Cosumnes River or its tributaries.

Flow-Monitoring Locations

Monitoring flows in the Cosumnes River resulting from natural and/or released flows will require constant field monitoring and reporting during the October 15 through December 31 period. RBI will conduct flow and temperature measurements at two-day intervals at the following five locations along the river (Figure 1) to determine the progress of channel-wetting flows and to determine the need to change Cosumnes River releases from the Folsom South Canal:

1. Rooney Dam (RM 24) – approximately 1.1 miles upstream of the Folsom South Canal,
2. Blodgett Dam (RM 22.8) – approximately 500 feet downstream of the Folsom South Canal,
3. Elk Grove Hop Ranch (RM 16.2) – approximately 6.7 miles downstream of the Folsom South Canal,
4. Mahon Ranch (RM 11.5) – approximately 11.4 miles downstream of the Folsom South Canal,
5. Box Culvert Structure (Oneto Property; RM 6.5) – 16.4 miles downstream of the Folsom South Canal.

Flows from the Michigan Bar USGS gauging station (Figure 1), and precipitation forecasts, will be reviewed daily to assist in managing flow releases.

TASK 2 – FALL-RUN CHINOOK SALMON RUN SIZE (ESCAPEMENT) AND JUVENILE DOWNSTREAM MIGRATION (EMIGRATION) MONITORING

This task will evaluate the effects of the Project on adult and juvenile fall-run chinook salmon migration. Flow needs will focus on the lower critical passage reach, from Folsom South Canal to tidewater, where low-flow barriers have historically existed. The duration and rate of river flow needed at Blodgett Dam immediately downstream of the Folsom South Canal to eliminate all downstream low flow barriers will be a focused evaluation building on information gathered in previous years. The duration and rate of flow needed to maintain successful upstream adult migration will be determined through adaptive management of flow releases from the Folsom South Canal.

Flow needs for successful juvenile downstream migration (emigration) will depend directly on the timing of emigration and the rate at which young salmon travel from the spawning/rearing reaches to tidewater. Screw trap sampling in the lower river in the winter and spring of 2003 indicated that salmon emigrate as fry, fingerlings, pre-smolts, and smolts. This Project's findings, combined with information from past surveys, will be useful in determining flow needs for emigrating salmon. Emigration surveys will, indirectly, provide information on the success of fall spawning in the Cosumnes River.

Run Size (Escapement) Surveys

Field crews will closely monitor critical riffles and barriers during the October through December 2005 migration period to determine the success of adult upstream migration and to determine if additional flows need to be released from the Folsom South Canal to minimize delays in migration and stranding. Ultimately, the distribution of spawners and redds in the river in relation to critical riffles and weirs among and within years, and their relationship to flow, will be the primary indicator of migration delay or hindrance, as well as success of the run reaching spawning habitat in the upper river. Carcass and spawner surveys will be conducted weekly throughout the spawning season to determine spawning distribution, mortality of fish that fail to reach spawning grounds, and total run size or "escapement". In addition, carcasses will be examined for the presence of markings (e.g., fin clips, coded wire tags) indicating whether fish are of hatchery origin. All observations of markings will be recorded for subsequent estimation of straying rates from other (e.g., Mokelumne River) systems. Two independent escapement estimates will be made for adult spawners: (1) carcass tag returns, and (2) redd counts. Estimates will be made of the proportion of the run that passes known barriers to spawning in the Cosumnes River between Latrobe Falls and Meiss Road. During the surveys, this section of the Cosumnes River will be divided into two reaches based on historic protocol and local access to survey crews: (1) Michigan Bar to Highway 16, and (2) Highway 16 to Meiss Road.

Total escapement and escapement relative to improved sites will be estimated using the standard Peterson Index (Lincoln Index) as employed by Snider and Reavis (2000):

$$N = MC/R$$

where,

- N = estimated spawning population,
- M = number of carcasses marked during the survey,
- C = total number of carcasses examined during the survey, and
- R = number of marked carcasses recovered during the survey.

The Petersen index is a consistent estimator of the population size under the following conditions:

1. Either or both of the samples is a simple random sample (i.e., all fish in the population have the same probability of being tagged or all fish have the same probability of being captured in the second sample, or tagged fish mix uniformly with untagged fish).
2. The population is closed.
3. There is no tag loss.
4. The tagging status of each fish is determined without error.
5. Tagging has no effect on the subsequent behavior of the fish.

Employing the Peterson Index under these circumstances has the potential of severe bias (Snider and Reavis 2000, Law 1994); particularly when fish numbers are low (Ricker 1975). If observations at the weirs suggest that the run size on a given year will be low, Bailey's (1951) modification, which allows for multiple recaptures of marked fish, may be employed as an alternative. The equation for the Bailey's Modification is:

$$N = M(C+1)/(R+1)$$

The parameters for Bailey's Modification are the same as the Peterson Index described above.

Escapement also will be estimated by expanding total redd counts by a factor of 2.5. This information also will add to information gathered as part of the AFRP sponsored Project, "***Flow Requirements for Salmon Passage, Cosumnes River, Sacramento County, California***".

Juvenile Downstream Migration (Emigration) Surveys

The FFC will continue to operate a screw trap during the winter-spring juvenile emigration period (typically mid-January to May, depending on initiation of spawning) at river mile 6.7 to

estimate emigration timing and production, relative to total escapement. As juvenile salmon migrate downstream, they will be intercepted at a five-foot rotary screw trap. The number of juvenile emigrants will be estimated by using a trap efficiency method of releasing marked fish upstream of the trap. Fish will be marked with Bismark Brown dye prior to being released 1 mile upstream of the trap. Trap efficiency tests will be conducted when numbers captured merit the effort (i.e., when more than 100 fish are available to be marked and released). Trap efficiency will be estimated using a modification to the Petersen estimate from the equation:

$$e = (R+1)/(M+1),$$

where:

- e is the estimated trap efficiency,
- M is the number of marked fish released upstream of the trap, and
- R is the number of marked fish recaptured.

Murphy et al. (1996) listed the standard assumptions of the Petersen method. The same assumptions apply in trap-efficiency experiments: (1) the population is closed, (2) all fish have the same probability of capture in the first sample, (3) marking does not affect catchability, (4) the second sample is either a simple random sample, or if the second sample is systematic, marked and unmarked fish mix randomly, (5) fish do not lose their marks, and (6) all recaptured marks are recognized. Specific performance measures will be juvenile abundance relative to total escapement and emigration timing.

These data will be used to monitor the overall success of emigration and determine rates of migration at various flow rates. Data collected under this monitoring plan will be incorporated with data collected in the fall of 2004 as part of the AFRP-sponsored Project, ***"Flow Requirements for Salmon Passage, Cosumnes River, Sacramento County, California"***.

TASK 3 – GROUNDWATER-SURFACE WATER INTERACTION MONITORING

Professor Graham Fogg, Ph.D., of the Land, Air, and Water Resources and Geology Department at UCD, will lead the Groundwater–Surface Water Interaction Monitoring Task. UCD will either be funded through the SSCAWA, if the SSCAWA and Coalition partners develop the funding for this task, or UCD may fund this task directly.

Ongoing work on hydrogeology of the Cosumnes River aquifer system has shown that the river is the major source of recharge to the local groundwater system, and that most of this recharge probably occurs over a small percentage of the channel between Michigan Bar and Twin Cities Road. Successful management of river flows to sustain salmon migration in the fall requires

more detailed information on water exchange between the river and the underlying groundwater aquifer along this entire reach. This more detailed information can be obtained through careful hydrologic monitoring before and after a controlled flow release experiment, wherein a known amount of water is diverted into the channel near the Folsom South Canal. Instrumentation deployed for such an experiment also will be useful for studying interaction between groundwater and surface water in the system on a continuous basis.

Channel Instrumentation

Portions of the Cosumnes River channel between the Folsom South Canal and Twin Cities Road will be instrumented in order to detect, in real time, spatially and temporally varying losses and gains of streamflow due to interplay with groundwater. Observations will attempt to detect key river reaches within which most of the streamflow losses (groundwater recharge) are occurring.

Instrumentation will include the following:

- Automatic monitoring of river bed temperature along 6 to 8 transects to provide higher-resolution information on the rate of downstream movement of flow pulses during dry and wet conditions (100 Tidbit temperature loggers). This also will help detect sub-reaches that are most active in terms of groundwater interaction.

- Additional installation of shallow piezometers in near-channel and floodplain areas to provide more groundwater level information beyond our existing triangular floodplain and Highway 99 sites. This also will help us pin down the role of little-studied and little-understood perched aquifers in regulation of baseflow into the summer and fall months.

- Additional streamflow monitoring at strategic locations.

This task would begin prior to water releases and continue through July 2006.

TASK 4 – PROJECT REPORTING

The SSCAWA and RBI will lead the task of reporting Project activities and results. RBI will provide the SSCAWA and Coalition partners with periodic report of operations for flow management activities, during all periods in which flows are being released. The FFC will provide a report on escapement and juvenile emigration monitoring, approximately 3 months after the completion of emigration monitoring activities. Information gathered by UCD will be included in a report on groundwater and surface water Interaction, approximately 6 months after the completion of monitoring activities.

4 LITERATURE CITED

Bailey, N.J. 1951. On estimating the size of mobile populations from recapture data. Biometrika 38:293-306.

Law, P.M.W. 1994. A simulation study of salmon carcass survey by capture-recapture method. California Department of Fish and Game 80(1): 14-28.

Murphy, M.L., J.F. Thedinga, and J.J. Pella. 1996. Bootstrap confidence intervals for trap-efficiency estimates of migrating fish. U.S. Department of Commerce, National Marine Fisheries Service, Alaska Fisheries Science Center, Juneau, Alaska.

Ricker, W.E. 1975. Computation and interpretation of biological statistics of fish populations. Bulletin of Fisheries Research Board of Canada (23) Suppl.1(2):519–29.

Snider, B., B. Reavis, and R. Titus. 2000. 1999 Upper Sacramento River winter-run chinook salmon escapement survey, April – August 1999. CDFG Environmental Service Division, Sacramento, California.

ENVIRONMENTAL DOCUMENTATION

Notice of Exemption

Form D

To: ☐ Office of Planning and Research
PO Box 3044, 1400 Tenth Street, Room 212
Sacramento, CA 95812-3044

☑ County Clerk
County of Sacramento County

From: (Public Agency) Southeast Sacramento Co. Agricultural Water Authority (SSCAWA)
P.O. Box 445, Herald, CA 95638
(Address)

Project Title: Cosumnes River Flow Augmentation Project - 2005 Demonstration Phase

Project Location - Specific:

Project Location – City: n/a **Project Location – County:** Sacramento County

Description of Project:

The project would release up to 5,000 acre-feet of water from the Folsom South Canal to supplement flows in the lower Cosumnes River during October-December 2005. The purpose is to conduct monitoring to evaluate effectiveness for improving passage of migrating fall-run chinook salmon and to evaluate groundwater recharge rates in the channel. The Bureau of Reclamation would provide B2 surplus water for the project.

Name of Public Agency Approving Project: SSCAWA

Name of Person or Agency Carrying Out Project: SSCAWA

Exempt Status: (*check one*)

☐ Ministerial (Sec. 21080(b)(1); 15268);
☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
☑ Categorical Exemption. State type and section number: Class 6, Sec. 15306
☐ Statutory Exemptions. State code number:

Reasons why project is exempt:

The project would not involve any construction or operation disturbances to environmental resources and would specifically benefit anadromous fish production goals. No regulatory permits or appprovals are required for the project. Fisheries and hydrologic data would be collected to aid design of the future long-term operations. None of the exceptions under CEQA Guidelines Section 15300.2 apply to the project.

Lead Agency Contact Person: Ronald R. Lowry Area Code/Telephone/Extension: (209) 748-5044

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? ☑ Yes ☐ No

Signature: Date: Title:

☑ Signed by Lead Agency
☐ Signed by Applicant

Date received for filing at OPR:

January 2004

CEC # 566

CATEGORICAL EXCLUSION CHECKLIST

Project: Cosumnes River Augmentation Pilot Study **Date:** 9/19/2005

Nature of Action: Local groundwater withdrawals over the past 50 years have substantially lowered groundwater tables and reduced the Cosumnes River and Deer Creek baseflow. The Cosumnes River now ceases to flow earlier in the year, stays dry longer into the fall, and dries over an increasingly long reach compared to historic conditions. Because of the increase over time in the number of days that the river is dry each year, it requires more surface flow from the upper watershed to re-wet the channel and connect the surface flow from the upper watershed to re-wet the channel and connect the Cosumnes River to the Delta. Cosumnes River surface flows supporting aquatic and riparian habitats and species have been diminished, thereby reducing the quality and quantity of those habitats and associated species. The objective of this project, to improve fall salmon migration conditions, would be accomplished by: (1) allowing the Cosumnes River to connect to tidewater earlier in the fall; (2) sustaining the flow of the Cosumnes River after its initial connection; and, (3) redistributing excess water for improvement and maintenance of fish passage flows on the Cosumnes River. This pilot study is designed to demonstrate the effectiveness of using limited surface water supplies to meet multiple objectives of improving conditions for key aquatic communities as part of an integrated regional water management strategy. In the initial year, some of the basic assumptions will be tested, operational issues will be addressed, and fishery and hydrologic conditions will be monitored.

The water source for this pilot study would be 5,000 acre-feet of previously banked CVP project storage accounted for as a portion of the supply annually dedicated under §3406(b)(2) of the Central Valley Project Improvement Act for the primary purpose of implementing the fish, wildlife, and habitat restoration purposes.

Exclusion Category: D.12. Conduct of programs of demonstration, educational, and technical assistance to water user organizations for improvement of project and on-farm irrigation water use and management.

Evaluation of Criteria for Categorical Exclusion

1. This action or group of actions would have a significant effect on the quality of the human environment. No __x__ Uncertain ____ Yes____

2. This action or group of actions would involve unresolved conflicts concerning alternative uses of available resources. No __x__ Uncertain ____ Yes____

USBR-CCAO (FOLSOM)
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CODE	ACTION	INITIALS & DATE
100		
105		
400	9/19	
413	last	9/21

Evaluation of Exceptions to Actions within Categorical Exclusion

1. This action would have significant adverse affects on public health or safety. No __x__ Uncertain ____ Yes____

2. This action would affect unique geographical features as: wetlands, wild or scenic rivers, refuges, floodplains, etc. No __x__ Uncertain ____ Yes____

3. The action will have highly controversial environmental effects. No __x__ Uncertain ____ Yes____

4. The action will have highly uncertain environmental effects or involve unique or unknown environmental risk. No __x__ Uncertain ____ Yes____

5. This action will establish a precedent for future actions. No __x__ Uncertain ____ Yes_____

6. This action is related to other actions with individual insignificant but cumulatively significant environmental effects. No __x__ Uncertain ____ Yes_____

7. This action will affect properties listed or eligible for listing in the National Register of Historic Places. No __x__ Uncertain ____ Yes_____

8. This action will adversely affect species listed or proposed to be listed as Endangered or Threatened. No __x__ Uncertain ____ Yes_____

CATEGORICAL EXCLUSION CHECKLIST
(Continued)

9. This action threatens to violate Federal, State, local or tribal law or requirements imposed for protection of the environment. No __x__ Uncertain ____ Yes_____

10. This action will affect Indian Trust Assets. No__x__ Uncertain ____ Yes_____

11. This action will disproportionately affect minority or low-income populations. No __x__ Uncertain ____Yes_____

NEPA Action: Categorical Exclusion

Remarks / Comments: Reclamation has determined that the proposed action is appropriate for Categorical Exclusion under the National Environmental Policy Act of 1969 (42 United States Code [U.S.C.] 4321, et seq.) based on the following information:

- The project is designed to be beneficial by supporting the restoration of more normative ecological conditions within the lower watershed;
- The quality of the water to be used is very good and would not cause an adverse impact to native biota or groundwater. Local proponents have consulted with the Regional Water Quality Control Board;
- The inter-basin movement of water would not induce additional straying of salmonids from neighboring watersheds due the timing and magnitude of the application of available source supply (e-mail communication from C. Ingram, US Fish and Wildlife Service, 9/16/05);
- There would be no effect to threatened steelhead because the presence of a natural barrier to upstream migration at a point upstream for the point of deliver has historically excluded steelhead from suitable spawning habitat. The Cosumnes Rive is not considered to provide any critical habitat for steelhead.

Preparer: David B Robinson **Date:** 9/19/05

Concur: Pete Vanh **Date:** 9/19/05
NEPA and ESA adequacy

Concur: (see attached) **Date:** _____
Regional Archeologist Concurrence with Item 7

Concur: (see attached) **Date:** _____
Regional Director or ITA Designee Concurrence with Item 10

Approve: _____ **Date:** 20 SEP 2005
Area Manager, CCAO

ENV 6.00

COSUMNES RIVER FLOW AUGMENTATION PROJECT

CATEGORICAL EXEMPTION

Prepared for:

Southeast Sacramento County
Agricultural Water Authority

Prepared by:

ROBERTSON - BRYAN, INC.
Specializing in Water and Power Resources

October 10, 2005

COSUMNES RIVER FLOW AUGMENTATION PROJECT

CATEGORICAL EXEMPTION

Prepared for:

Southeast Sacramento County
Agricultural Water Authority
P.O. Box 445
Herald, CA 95638

Prepared by:

ROBERTSON - BRYAN, INC.
Specializing in Water and Power Resources

9888 Kent Street
Elk Grove, CA 95624
(916) 714-1801

October 10, 2005

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1 INTRODUCTION

The Southeast Sacramento County Agricultural Water Authority (SSCAWA) will be undertaking the Cosumnes River Flow Augmentation Project (Project) – 2005 Demonstration Phase from October through December 2005. The activity is specifically designed to collect basic operational and research information to refine a long-term program of fisheries enhancement and groundwater recharge. Because the activity will not cause adverse environmental effects, the Project qualifies for a categorical exemption as outlined in State California Environmental Quality Act (CEQA) Guidelines Sections 15061, 15062, and 15306. The following information describes the activities that will occur during the demonstration phase of the Project and the regulatory determination for supporting a CEQA categorical exemption.

2 PROJECT DESCRIPTION

2.1 Introduction

The Cosumnes River is a keystone of anadromous salmon fishery conservation efforts in the North Delta. The Anadromous Fish Restoration Program (AFRP), The Nature Conservancy (TNC), and the University of California, Davis (UCD), have sponsored numerous research projects on the health of the salmon fishery of the Cosumnes River. Historical decline of the Cosumnes River fall-run chinook salmon (*Oncorhynchus tshawytscha*) populations are apparently due to the altered hydrology of the system during the critical salmon migration period coupled with a short supply of suitable spawning and rearing habitat. AFRP has identified the Cosumnes as having potential for contributing to the fish doubling goals of the Central Valley Project Improvement Act (CVPIA). The AFRP has also set forth program objectives specifically directed at the Cosumnes River and the acquisition and restoration of fish habitat, primarily directed at improving passage and spawning habitat for fall-run chinook salmon.

The geologic setting and unregulated nature of the Cosumnes River has also made it a focus of regional water management strategies for south Sacramento County, and particularly for SSCAWA and its member district, Omochumne-Hartnell Water District (OHWD), through which the Cosumnes River flows. SSCAWA and OHWD, in partnership with the Sacramento County Water Agency (SCWA), TNC, and UCD are sponsoring a number of programs aimed at evaluating and developing a conjunctive use strategy that capitalizes on the natural geology of the region for groundwater recharge and surface water management.

Recent field and modeling efforts conducted by UCD researchers and others indicate that extensive regional and local groundwater withdrawals over the past 50 years substantially lowered groundwater tables and reduced the base flow of the Cosumnes River and its major

tributaries. The Cosumnes River now frequently ceases to flow during summer months, stays dry longer into the fall, and has a dry river bed over an increasingly longer reach compared to historical conditions.

A Coalition of interests[1] support this project that will provide supplemental flows to the Cosumnes River to improve fish passage for fall-run chinook salmon and provide a controlled environment to evaluate the interaction of groundwater and surface water in the Cosumnes River channel. Figure 1 shows the project area and major features. The objectives of the Project are twofold:

- To improve fall-run chinook salmon migration conditions by: (1) allowing the Cosumnes River to connect to tidewater earlier in the fall, and (2) sustaining surface flow continuity within the Cosumnes River after its initial connection.

- To evaluate the rate of groundwater recharge from the river channel between the Folsom South Canal and Twin Cities Road to better guide future groundwater management and environmental restoration efforts along the Cosumnes River corridor.

2.2 Demonstration Project Operations

The Project will release up to 5,000 acre-feet (af) of water into the Cosumnes River starting on or about October 15, 2005, from an existing turnout of the Folsom South Canal. The Folsom South Canal diverts water from the lower American River at Lake Natoma and conveys it to the south Sacramento County area. The Project is designed to create river conditions similar to what might have been experienced prior to the reduction of groundwater levels underlying the Cosumnes River between Highway 16 and the Cosumnes River Preserve (downstream of Twin Cities Road). The Project is not intended to create a hydraulic connection with the tidally influenced area of the Cosumnes River and the Delta before it would historically have occurred naturally from run-off generated by fall precipitation in the Sierra Nevada foothills.

The intent of the Coalition is that the Project continue into a Pilot Project phase from 2006 through 2010, after which it will become a permanent annual operation. Hence, the 2005 effort constitutes a demonstration phase to help the project proponents develop and improve the long-term management strategy of the Project. Sacramento County Water Agency (SCWA) will provide the long-term water supply for the Project using water developed from the Eastern Sacramento County Replacement Water Supply Project (RWSP). CEQA compliance for the

[1] The Coalition consists of the Sacramento County Water Agency, The Nature Conservancy, Southeast Sacramento County Agricultural Water Authority (members include Omochumne-Hartnell Water District, Galt Irrigation District, and Clay Water District), Fisheries Foundation of California, and the UCD Center for Integrated Watershed Science and Management.

Pilot Project phase (2005–2010) will be prepared by the end of 2005, and any necessary regulatory permits or approvals for construction of permanent features associated with the Project would be secured in early 2006.

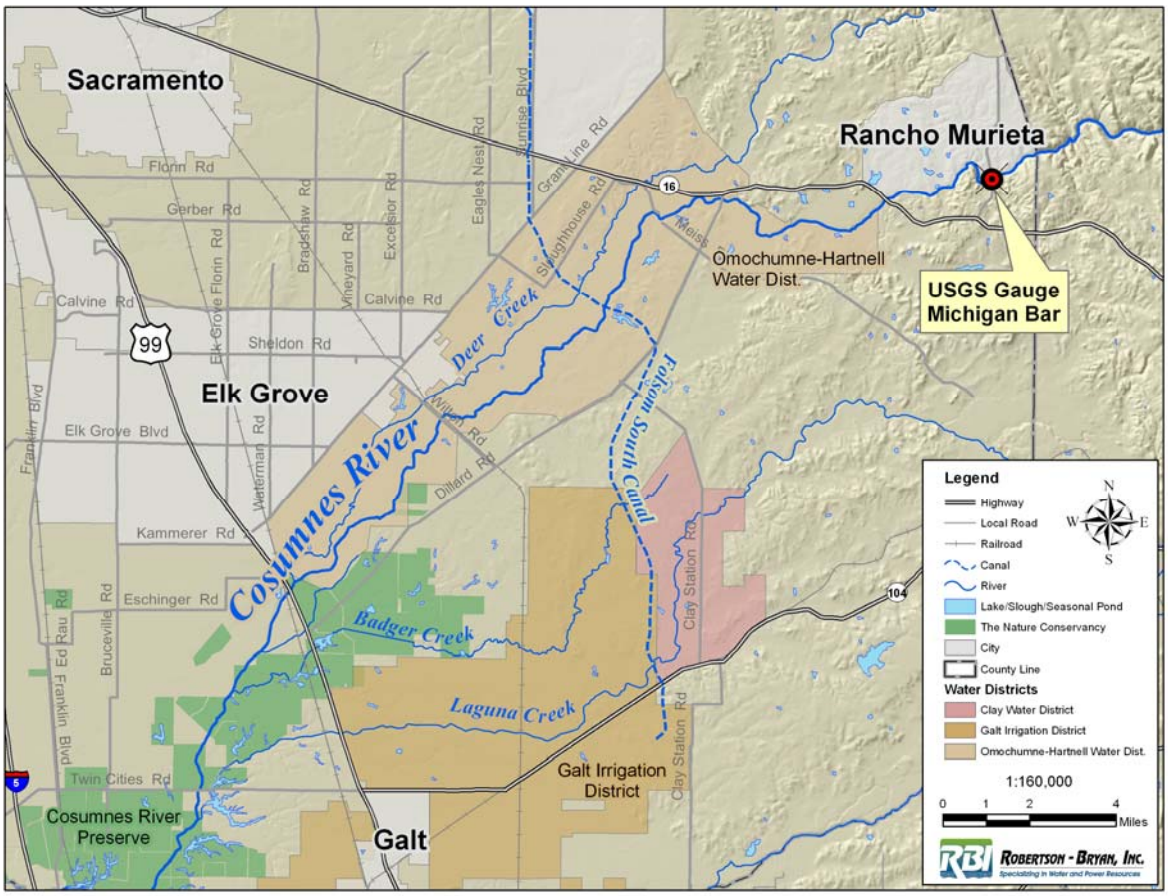

Figure 1. Location map for the Cosumnes River Flow Augmentation Project.

Demonstration Phase Water Supply

The U.S. Bureau of Reclamation (Reclamation) and the B2 Environmental Water Program will provide the water supply for the demonstration phase of the Project. Up to 40 cubic feet per second (cfs) will be diverted from the American River system, supplied from storage in Folsom Reservoir, between October 15 and December 31. This water is allocated to the B2 Environmental Water Program and, as such, will be diverted entirely from storage, thereby leaving streamflow in the American River unaffected. Water released from Folsom Reservoir for the Project will fall within Reclamation's normal operating ranges for the fall period.

Flow Release Operations

The demonstration phase of the Project will not require construction or physical alteration of existing facilities, streambed or streambank modifications, or vegetation removal to implement the release of water from the Folsom South Canal to the Cosumnes River. Releases will be made from the canal via an existing outlet structure on the canal abutment on the south side of the Cosumnes River. The outlet structure consists of an operable gate located on the canal leading into a buried 48-inch pipeline. The gravity-fed pipeline terminates on the south bank of the river, approximately three feet above the normal water surface elevation. Releases will be controlled and monitored to ensure that the hydraulic energy of the water entering the river does not cause adverse localized channel or streambank scour, erosion, or excessive turbidity in the water column. In addition, there is natural streamflow in the Cosumnes River in this section of the river because of the large 2004-05 winter snowpack in the Sierra Nevada. Existing streamflow currently extends downstream to the vicinity of Wilton Road (river mile 15) where percolation into the stream channel is complete and the channel becomes dry from that point downstream to the area of tidal influence (river mile 5). Natural streamflow is expected to continue through the 2005 implementation period. The existing streamflow will also serve to dissipate the hydraulic energy of the discharge from the canal, eliminating the need for streambed erosion controls.

Figure 2 depicts the flow release schedule developed to meet the following criteria: (1) pre-wet the greatest length of channel possible without reaching the tidally influenced area, and (2) maintain sufficient water in reserve for augmenting river flow to sustain the connection with tidewater during the optimal salmon migration period of November 1 to December 31.

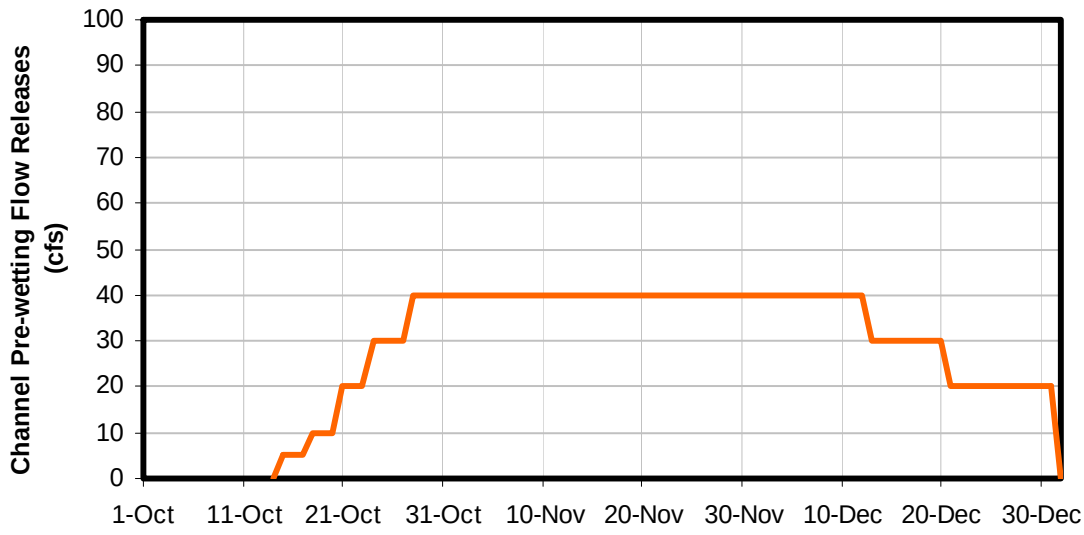

Figure 2. Cosumnes River channel pre-wetting releases from the Folsom South Canal.

Channel pre-wetting flows will begin on or about October 15 and continue through December 31. By beginning flow releases in mid-October, the Cosumnes River channel will receive approximately 2,400 af of water before the river typically connects to tidewater in mid-November. Water not used for channel pre-wetting will be reserved and used to supplement natural flows through December 31 in an effort to eliminate stranding conditions during the migration period. Flow augmentation releases will be made when Cosumnes River flows fall below that required to maintain upstream migration conditions, estimated to be 65–70 cfs, measured at the U.S. Geological Survey (USGS), Michigan Bar gauging station. Historical flow records for the Cosumnes River, with consideration of today's groundwater conditions, indicate that supplemental flows to maintain barrier-free migration conditions would be needed in about 93% of years.

2.3 Monitoring Program

SSCAWA and partner organizations of the Coalition will conduct fisheries and hydrologic monitoring as an element of the Project. Information developed by the monitoring efforts will be used to refine Project operations and to assist in the development of the long-term streamflow augmentation program for improvement of fall-run chinook salmon migration conditions in the Cosumnes River.

Flow Release Scheduling

SSCAWA will take the lead in scheduling and managing releases from the Folsom South Canal. On behalf of SSCAWA, Robertson-Bryan, Inc. (RBI) will facilitate the task of flow release scheduling and management. RBI will perform field measurements of flows to monitor the effect of releasing channel-wetting flows and regulate flow releases as needed to meet the multiple objectives of the Project. RBI will coordinate with all members of the Coalition, Reclamation, and permitting and other regulatory authorities regarding flow releases, as needed.

Fall-run Chinook Salmon Run Size (Escapement) and Juvenile Downstream Migration (Emigration) Monitoring

The Fisheries Foundation of California (FFC) will monitor the abundance, distribution, and lifestage-specific migration timing of fall-run chinook salmon in the Cosumnes River and compare these data to historical data to determine Project effectiveness. This task will evaluate the adequacy of flows for salmon passage by life stage. Flow needs will focus on the lower river reach, from below the Folsom South Canal to the tidal area, where passage of migrating adult salmon presents the biggest problem. The duration and rate of flow needed to allow the run to proceed upstream and successfully reach spawning grounds will be a focused evaluation building on information gathered in previous years. The duration and rate of flow needed to maintain a

successful migration pattern will be determined through adaptive management of flow releases from the Folsom South Canal. The FFC will also conduct out-migration surveys to provide information on the relative success of fall spawning in the Cosumnes River.

Groundwater-Surface Water Interaction Monitoring

Professor Graham Fogg, Ph.D., of the Land, Air, and Water Resources and Geology Department at UCD, will lead the Groundwater–Surface Water Interaction Monitoring task. Ongoing work on hydrogeology of the Cosumnes River aquifer system has shown that the river is the major source of recharge to the local groundwater system and that most of this recharge probably occurs over a small percentage of the channel between Michigan Bar and Twin Cities Road. Successful management of river flows to sustain salmon migration in the fall requires more detailed information on river–aquifer water exchange along this entire reach. This more detailed information can be obtained through careful hydrologic monitoring before and after a controlled flow release experiment, wherein a known amount of water is diverted into the channel near Folsom South Canal. Instrumentation deployed for such an experiment will also be useful for studying interaction between groundwater and surface water in the system on a continuous basis.

3 PROJECT DETERMINATION

In compliance with the State CEQA Guidelines, the potential environmental effects of the demonstration phase of the Project were evaluated and it was determined that its implementation is exempt from CEQA under the State CEQA Guidelines; specifically, Title 14, California Code of Regulations (CCR) Section 15061(b)(3), and subject to a Category Exemption under Title 14, CCR Section 15306 (Class 6, Information Collection).

Pursuant to CEQA, a categorical exemption provides for an exemption from CEQA environmental documentation requirements for a class of projects determined not to have a significant effect on the environment. The demonstration phase of the Project is consistent with the designated Class 6 categorical exemption and thus determined to be exempt from the provisions of CEQA. The Class 6 – Information Collection class of categorical exemptions is defined as follows:

> *Class 6 consists of basic data collection, research, experimental management, and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource. These may be strictly for information gathering purposes, or as part of a study leading to an action, which a public agency has not yet approved, adopted, or funded.*

The demonstration phase of the Project meets this definition in that the Project serves to develop and evaluate research data in support of planning and design options for long-term resource management that would benefit anadromous fisheries and groundwater recharge in the Cosumnes River. Additionally, any subsequent projects that would be developed to address this problem have not yet been approved, adopted, or funded by SSCAWA.

In addition, the demonstration phase of the Project is covered by the general rule that CEQA does not apply to activities where it can be seen with certainty that there is no possibility that a significant effect on the environment could occur (State CEQA Guidelines Section 15061[b][3]). The project consists of a temporary discharge of American River water from the Folsom South Canal to the Cosumnes River for the specific purpose of anadromous fisheries enhancement and groundwater recharge. Thus, the Project is similar to a temporary water transfer program for which the State Water Resources Control Board has found to be subject to a CEQA Statutory Exemption under State CEQA Guidelines Section 15282(v) and the California Water Code, Section 1729.

Reclamation has determined that the use of B2 Environmental Water for the Project is consistent with Reclamation policy for a Categorical Exclusion for the "Conduct of programs of demonstration, educational, and technical assistance to water user organizations for improvement of project and on-farm irrigation water use and management" pursuant to the National Environmental Policy Act (NEPA), Code of Federal Regulations (CFR) Section 1508.4.

No other local, state, or federal regulatory approvals or permits are required for implementation of the Project.

3.1 Analysis of Potential CEQA Exceptions to the Categorical Exemption

Categorical exemptions represent activities that generally do not result in significant environmental impacts. However, there are six exceptions to categorical exemptions, defined in CEQA Guidelines Section 15300.2. Generally, a categorical exemption does not apply if a project would occur in certain specified sensitive environments, would affect scenic resources within official state scenic highways, or is located on a designated hazardous waste site. In addition, a categorical exemption would not apply if the project causes substantial adverse changes in the significance of a historical resource or would be considered significant within a cumulative context. Table 1 identifies specific exceptions from CEQA Guidelines Section 15300.2 and a brief discussion as to why each exception does not apply to the demonstration phase of the Project.

Table 1. Categorical Exemption Exceptions (CEQA Guidelines Section 15300.2)

Exception	Applicability
(a) Location. Classes 3, 4, 5, 6, and 11 are qualified by consideration of where the project is to be located—a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant. Therefore, these classes are considered to apply in all instances, except where the project may impact an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.	The Project is specifically designed to benefit fisheries resources and local water supplies associated with Cosumnes River where resource conditions are known to be limited by the historical reduction in favorable seasonal streamflow conditions. Central Valley steelhead are threatened under the federal Endangered Species Act and the Mokelumne River downstream of the project area is designated critical habitat for steelhead. The Project will not create early attraction flows or false attraction flows that would lead to straying of fish from their native stream of origin. In addition, the Project would not involve any construction activity or operations that would cause an impact to any resource of hazardous or critical concern.
(b) Cumulative Impact. All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.	Resource data collection conducted during the Project will specifically be used to refine the design of the long-term streamflow augmentation project. Consequently, it is anticipated that the long-term project will be constructed and operated so as to not cause any significant cumulative environmental effects.
(c) Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.	The proposed study design incorporates measures to ensure that no significant impacts will occur as a result of study activities. These include manually controlling and monitoring the flow augmentation operations, conducting hydrologic and fisheries monitoring downstream of the discharge to ensure that adverse effects do not occur, and using the data that is collected to refine the design of the long-term flow augmentation project.

Table 1. Categorical Exemption Exceptions (CEQA Guidelines Section 15300.2)

Exception	Applicability
(d) Scenic Highways. A categorical exemption shall not be used for a project which may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway. This does not apply to improvements, which are required as mitigation by an adopted negative declaration or certified EIR.	There are no officially designated state scenic highways in the proposed study area. The Project will not cause any aesthetic effects.
(e) Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site, which is included on any list compiled pursuant to Section 65962.5 of the Government Code.	The Project does not involve any construction or operations that would disturb, and/or alter the fate and transport, of any known or unknown hazardous waste sites.
(f) Historical Resources. A categorical exemption shall not be used for a project, which may cause a substantial adverse change in the significance of a historical resource.	The Project does not involve any construction or operations that would disturb any known or unknown cultural resources.

3.2 Environmental Impact Analysis

The following briefly describes the environmental setting in the project area, the environmental effects of the demonstration phase of the Project, and supporting evidence for this categorical exemption.

Biological Resources

The Cosumnes River is a tributary of the Mokelumne River. The discharge location is approximately 23 river miles upstream of the confluence of the two rivers. The Mokelumne River supports an annual run of Central Valley Evolutionarily Significant Unit (ESU) steelhead (*Oncorhynchus mykiss*), which are listed as threatened under the federal Endangered Species Act, and the Mokelumne River is within the designated critical habitat for the species. Anecdotal evidence suggests that Central Valley ESU steelhead may occur, seasonally, in the Cosumnes River upstream of Rancho Murrieta during some years. However, the Cosumnes River is excluded from the critical habitat designation, and steelhead occurring in the Cosumnes River are likely strays from the Mokelumne River. It is highly unlikely that the Cosumnes River can support a naturally reproducing steelhead population because juvenile fish rear in their natal streams for a period of one to three years and require perennial flow and cool summertime water temperatures during this rearing period. The Cosumnes River does not provide perennial flows and cool summertime water temperatures below Latrobe Falls, the section of the river accessible to steelhead.

It is unlikely that steelhead from the American River or Mokelumne River will be falsely attracted into the Cosumnes River, or attracted earlier than would occur without the Project, for several reasons. First, American River water will be used to "pre-wet" dry reaches of the Cosumnes River channel primarily during October and November and possibly into December (depending on when initial rains occur). Because the time at which active flow will extend to the tidal area from the discharge location will not differ appreciably from existing conditions, the discharge will not produce early attraction flow. Second, adult American River steelhead migrate upstream through the Sacramento River and are primarily attracted by a combination of olfactory cues and increased flows. Transferred water will be diluted by Cosumnes River, Mokelumne River, and numerous other tributaries to the extent that it is not expected to alter the migratory cues for American River steelhead coming up through the Delta to levels that would cause them to stray, with greater frequency, into the Cosumnes River. The small and short-term increase in flows will be regulated to pre-wet the Cosumnes River channel only, and will not be substantial enough to artificially create or increase attraction flows at the confluence of the Mokelumne and Cosumnes rivers. In addition, monitoring of the fisheries and hydrologic conditions will occur during the Project.

Folsom and Nimbus operations will not be affected by the demonstration phase of the Project. The Project will not adversely affect coldwater pool management at Folsom Reservoir, nor will it alter lower American River flows or temperatures.

Hydrology and Water Quality

The temporary interbasin transfer of water from the American River to the Cosumnes River would not cause or contribute to any substantial adverse hydrologic or water quality effects. American River water and Cosumnes River water physical and chemical characteristics are generally similar with respect to their origin from Sierra Nevada sources and suitability for designated beneficial uses supported in both rivers.

Other CEQA Issues

The demonstration phase of the Project will have no other direct or indirect environmental effects for CEQA resource issues of concern (i.e., aesthetics, agricultural resources, air quality, cultural resources, geology and soils, hazards and hazardous materials, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/ traffic, utilities and service systems) or any cumulative impacts.

Memorandums

ROBERTSON - BRYAN, INC.
Specializing in Water and Power Resources

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MEMORANDUM

DATE: SEPTEMBER 15, 2005

TO: DAVE ROBINSON, US BUREAU OF RECLAMATION

FROM: LARRY RODRIGUEZ
DAVE THOMAS
MICHAEL BRYAN

PROJECT: COSUMNES RIVER FLOW AUGMENTATION PROJECT

SUBJECT: NO ADVERSE AFFECT TO CENTRAL VALLEY STEELHEAD

Robertson-Bryan, Inc. (RBI) has prepared the following to support the U.S. Bureau of Reclamation's (Reclamation) determination of no adverse affect to Central Valley Evolutionarily Significant Unit (ESU) steelhead or designated critical habitat as a result of implementation of the demonstration phase of the Cosumnes River Flow Augmentation Pilot Project using water available through the B2 Environmental Water Program.

Anecdotal evidence suggests that Central Valley ESU steelhead (*Oncorhynchus mykiss*) may occur seasonally in the Cosumnes River upstream of Rancho Murrieta during some years. Central Valley ESU steelhead are currently listed as threatened under the federal Endangered Species Act (63 FR 13347, May 18, 1998); no State designation has been made. NOAA Fisheries issued its final designation for critical habitat on September 2, 2005 (50 CFR Part 226). The designation includes the Mokelumne River; however, the Cosumnes River was considered and excluded because the watersheds containing this river were of "…low conservation value." Steelhead occurring in the Cosumnes River are likely strays from the Mokelumne River, which supports an annual run of steelhead. In contrast, it is unlikely that the Cosumnes River can support a naturally reproducing steelhead population because juvenile fish rear in their natal streams for a period of one to three years and require perennial flow and cool summertime water temperatures during this rearing period. The Cosumnes River does not provide perennial flows and cool summertime water temperatures below Latrobe Falls, the section of the river accessible to steelhead. Latrobe Falls, located at river mile 40 where elevation is approximately 350 feet (msl), is a natural barrier to upstream migration

The proposed Pilot Project will augment the natural flow regime of the Cosumnes River with American River water conveyed through the Folsom South Canal. The potential adverse effects of such an action on Central Valley ESU steelhead include: (1) false attraction of non-natal (i.e., American River- or Mokelumne River-derived) fish into the Cosumnes River as a result of the

inter-basin water transfer, (2) early attraction and potential stranding of steelhead because of early hydraulic connectivity, and (3) adverse alteration of designated critical habitat, including habitats of the lower American River.

It is unlikely that steelhead from the American River or Mokelumne River will be falsely attracted into the Cosumnes River, or attracted earlier than would occur without the Pilot Project, for several reasons. First, American River water will be used to "pre-wet" dry reaches of the Cosumnes River channel primarily during October and November and possibly into December (depending on when initial rains occur). Second, adult American River steelhead migrate upstream through the Sacramento River and are primarily attracted by a combination of olfactory cues and increased flows. Transferred water will be diluted by Cosumnes River, Mokelumne River, and numerous other tributaries to the extent that it is not expected to alter the migratory cues for American River steelhead coming up through the Delta to levels that would cause them to stray, with greater frequency, into the Cosumnes River. The small and short-term increase in flows will be regulated to pre-wet the Cosumnes River channel only, and will not be substantial enough to artificially create or increase attraction flows at the confluence of the Mokelumne and Cosumnes rivers.

It is unlikely that critical habitat will be adversely affected by increases in flow for several reasons. First, the Cosumnes River, which will be directly affected by the Pilot Project, is not designated critical habitat for steelhead. Second, increases in flow will be short-term in nature. Third, the incremental increase in flow will be small in the Cosumnes River and negligible in the Mokelumne River, thereby leaving critical habitat virtually unaffected. The American River, which also is designated critical habitat for steelhead, will not be adversely affected by the Pilot Project. The water to be diverted (up to 40 cfs) from the American River system will be taken from storage in Folsom Reservoir between October 15 and December 31. This water is allocated to the B2 Environmental Water Program and, as such, will be diverted entirely from storage, thereby leaving stream flow in the American River unaffected. Water released from Folsom Reservoir for the Pilot Project will fall within Reclamation's normal operational parameters for the fall period. Folsom and Nimbus operations are not anticipated to be affected by the Pilot Project. Any minor effect on operations would not adversely affect coldwater pool management at Folsom Reservoir, nor would it alter lower American River flows or temperatures by magnitudes that would adversely affect steelhead or critical habitat.

For the reasons stated herein, the proposed Pilot Project will not adversely affect Central Valley ESU steelhead or designated critical habitat.

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MEMORANDUM

Date: October 12, 2005

To: David Robinson, US Bureau of Reclamation

From: Larry Rodriguez

Project: Cosumnes River Flow Augmentation Project

Subject: Flow Release Scheduling

On behalf of the Southeast Sacramento County Agricultural Water Authority (SSCAWA), Robertson-Bryan, Inc. (RBI) prepared this memorandum to provide US Bureau of Reclamation (Reclamation) with an updated flow release schedule and communication protocols for the Cosumnes River Flow Augmentation Project – Demonstration Phase (Project). Conditions in the Cosumnes River, readiness of Folsom South Canal (FSC) turnout facilities, and the timing of the availability of US Bureau of Reclamation (Reclamation) water supplies have prompted these changes to the release schedule provided to Reclamation in the Project Monitoring Plan (September 26, 2005).

Release Schedule

The Monitoring Plan indicates that releases from the FSC will be ramped up to 40 cubic-feet-per-second (cfs) beginning on October 15. The intent of ramping flows was to first wet then fill the in-channel pool located at the FSC crossing, presuming that the channel is typically dry in October. However, the Cosumnes River at the FSC crossing is currently flowing at about 16 cfs, therefore, we do not feel the need to ramp up flows to 40 cfs. Instead, we are requesting that Reclamation start releases at 40 cfs. RBI will monitor releases to ensure that no excessive erosion occurs. If it is determined that releases need to be reduced to avoid erosion, RBI will request a change from Reclamation.

RBI is requesting that Reclamation adopt the following schedule to facilitate the initial release of water and to allow for channel erosion evaluation.

- **Monday October 17, 2005, 10:00 –** Release begin at a rate of 40 cfs. First releases will be coordinated with a project initiation ceremony and media coverage.
- **Thursday October 20, 2005, afternoon –** Shut off releases to allow for channel erosion evaluation on Friday morning.
- **Friday October 21, 2005, afternoon –** Reinitiate releases at a rate determined by RBI. Flows will be maintained at the determined rate until natural river flows increase or the channel

wetting front progresses to downstream of Twin Cities Road. RBI will determine when changes to releases are needed and will notify Reclamation of the needed change. Requests for changes in releases will be made 3 days prior to needed change.

As a component of the monitoring program, RBI will conduct regular flow measurements in the Cosumnes River. Flow monitoring locations include the seasonal dam located immediately downstream of the FSC and a location above the FSC that captures the inflow to the in-channel pool formed at the FSC crossing. These monitoring points will assist RBI and Reclamation in calibrating the releases from the FSC. All flow measurements and FSC meter readings will be conducted by RBI at two-day intervals and will be recorded onto a project data sheet that will be distributed to all project partners.

Communication Protocols

RBI will direct all communication for changes in release rates to the following parties:

1. David Robinson via phone at (916) 979-7179 and email at drobinson@mp.usbr.gov,
2. Dave Lawson via email at dlawson@mp.usbr.gov and by phone at (916) 979-7233, if David Robinson is not available, and
3. James Taylor via email at jtaylor@mp.usbr.gov and by phone at (916) 979-7252, if either David Robinson or Dave Lawson are not available.
4. In the case of an emergency, RBI will contact the Reclamation Control Room at (916) 979-7251.

RBI will direct regular communications of project status and flow reporting to David Robinson and Dave Lawson via email.

Reclamation will direct all communications regarding release management to following parties:

1. Brook Edwards via phone at (916) 714-8351 (office) or (916) 216-7330 (cell phone), and by email at brook@robertson-bryan.com,
2. Larry Rodriguez via email at larry@robertson-bryan.com, or by phone at (916) 714-1806 (office) or (916) 212-4678 (cell phone), if Brook Edwards is not available, and
3. Stuart Robertson via phone at (916) 687-7799, if either Brook Edwards or Larry Rodriguez is not available.

Reclamation will direct all general communications about project status and management to Larry Rodriguez.

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MEMORANDUM

Date: November 18, 2005

To: B2 Environmental Water Program – Interagency Management Team

From:

Project Partners:	***Project Management Team (RBI):***
The Nature Conservancy	Larry J. Rodriguez
Fisheries Foundation of California	David Thomas
Southeast Sacramento County Agricultural Water Authority	Michael Bryan, Ph.D.

Project: Cosumnes River Flow Augmentation Project

Subject: Proposed Operational Changes to the Cosumnes River Flow Augmentation Project

INTRODUCTION

The operational approach for the Demonstration Phase of the Cosumnes River Flow Augmentation Project (Project) is being reconsidered in light of current conditions on the Cosumnes River, and the small amount of allocated water used to date. Due to rather unique hydrologic conditions this year, it required only 760 acre-feet (ac-ft) of B2 water to "pre-wet" the river channel, which was the original goal of the Project. Although the channel is now pre-wetted, there have been no significant precipitation events and none are projected in the near future. Salmon are likely waiting to enter the Cosumnes River, but cannot due to the lack of surface flow continuity between the tidal reach and the upper watershed. Based on this situation, coupled with availability of over 4,000 ac-ft of allocated water, we now propose to release water from the Folsom South Canal sufficient to attract salmon into the river and ultimately to historic spawning reaches. The Project partners have determined that creating an attraction flow would be a reasonable use of available water and would offer a unique opportunity to assess numerous additional research questions regarding salmon behavior.

This memorandum provides a summary of the original project objectives and operations, 2005 operations and conditions, and proposed next steps for the Demonstration Phase of the Project.

PROJECT OBJECTIVES AND OPERATIONS

The intent of the 2005 Demonstration Phase of the Project is to allow the Project partners to refine and improve the long-term operations plan for the Project. During the Demonstration Phase up to 5,000 acre-feet (ac-ft) of water is available from the B2 Environmental Water Program and the U.S. Bureau of Reclamation (Reclamation). The objectives of the Project are twofold:

- To improve fall-run chinook salmon migration conditions by: (1) allowing the Cosumnes River to connect to tidewater earlier in the fall, and (2) sustaining surface flow continuity within the Cosumnes River after its initial connection.

- To evaluate the rate of groundwater recharge from the river channel between the Folsom South Canal and Twin Cities Road to better guide future groundwater management and environmental restoration efforts along the Cosumnes River corridor.

To achieve the above objectives the Project design is to create river conditions similar to what might have existed prior to the reduction of groundwater levels underlying the Cosumnes River. This historical condition is a "gaining" riverine system connected to and receiving water input from the underlying groundwater table. This system would have remained wet, if not flowing, in all but the driest of conditions and flow would have been reestablished each fall with even small amounts of precipitation in its watershed.

The Project will accomplish this by releasing pre-wetting flows into the Cosumnes River from the Folsom South Canal (Figure 1). Pre-wetting release will be managed to wet the river channel from the Folsom South Canal to Twin Cities Road beginning on October 15 and continue through December 31, depending

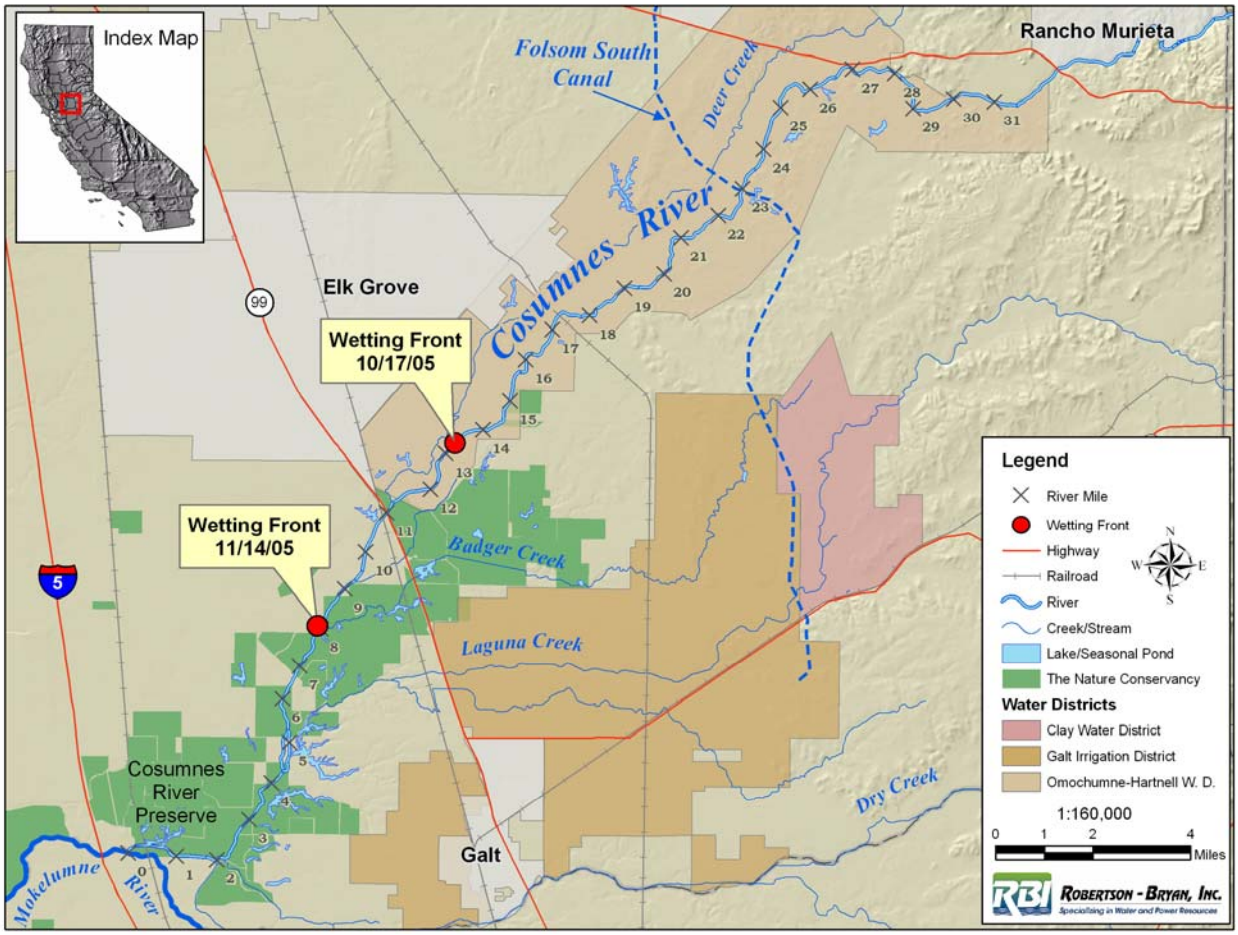


Figure 1. Cosumnes River Flow Augmentation Project location map.

on precipitation and natural flow conditions. Figure 2 shows the schedule for pre-wetting flow releases. Creating a connection with tidewater during the pre-wetting phase will be avoided to avoid attracting salmon into the river during the pre-wetting phase. During the pre-wetting period the Cosumnes River upstream of the Folsom South Canal is typically dry or has very little flow and, therefore, conditions above the canal would not support salmon passage or provide adequate spawning habitat.

Water not used for pre-wetting will be available to augment natural flows through December 31 to eliminate stranding conditions after a natural connection with tidewater is been established. Flow augmentation releases will be made when Cosumnes River flows fall below that required to maintain upstream migration conditions, estimated to be 65–70 cubic feet per second (cfs), measured at the Michigan Bar gauging station. Historical flow records for the Cosumnes River, with consideration of today's groundwater conditions, indicate that 93% of all years would require supplement releases to maintain migration conditions through December 31.

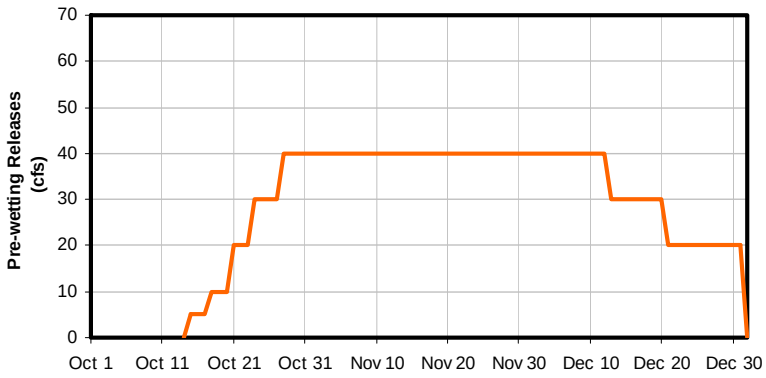


Figure 2. Cosumnes River channel pre-wetting releases from the Folsom South Canal.

2005 Operations and Conditions

The 2005 Demonstration Phase of the Project has presented several unique challenges. Implementation of the Demonstration Phase is possible because of available surplus water in the B2 Program resulting from a wetter than normal winter and spring. On the Cosumnes River, wet conditions sustained higher flows on the river throughout the summer (Figure 3). These higher flows kept the river channel wet to about river mile 13, near Wilton. Typically, summer flows will only maintain a wet channel to about river mile 32, just below the Highway 16 crossing.

At the start of the Demonstration Phase, October 17 2005, the Cosumnes River at the Folsom South Canal had a flow of 20 cfs (Figure 1). Because the river channel at the Folsom South Canal outfall was full of water, canal releases were not ramped up as shown in Figure 2; rather, the initial release was set at 40 cfs. The purpose of ramping up releases was to fill the in-channel pool at the canal outfall, which would dissipate the energy of full releases from the canal.

Not surprisingly, the first weeks of operation revealed that the seepage losses in the

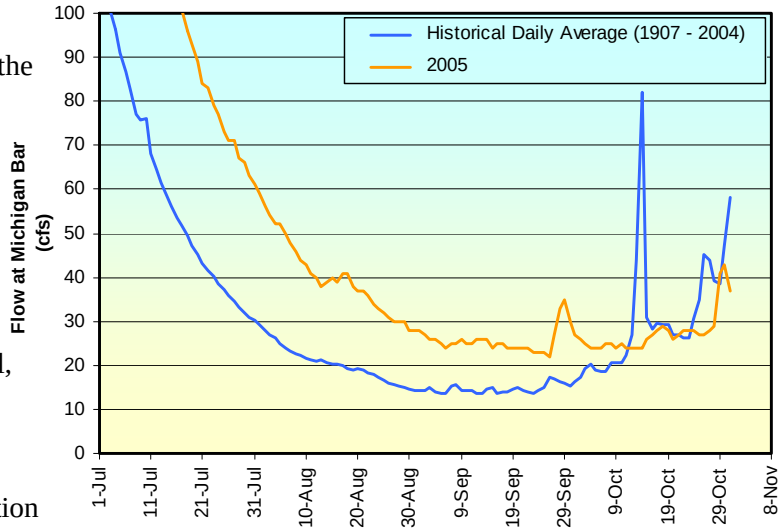


Figure 3. Historical daily average flow and 2005 flow at Michigan Bar.

channel were much lower than expected. Lower seepage losses meant that the river was very responsive to pre-wetting flows and the wetting front moved quickly downstream. Figure 4 shows the rate of release from the Folsom South Canal and the combined flow of the river and canal releases at Blodgett Dam, immediately downstream of the canal. Figure 5 shows the location of the wetting front resulting from the combination of canal releases and natural river flow. As Figure 5 shows, connection to tidewater occurred on two separate occasions. The first was a result of pre-wetting releases from the canal. During this occurrence a maximum of 8 cfs flowed into tidewater over a period of about 5 days. The second occurrence was the result of unpredicted precipitation in the upper watershed. This resulted in a maximum of 12 cfs entering tidewater for another 5 days. Neither occurrence attracted salmon into the river.

Erosion at the canal outfall was evaluated on October 21, after 4 days of 40 cfs releases into the river. Streambed surveys taken on the 21st were compared to surveys taken prior to the start of the Project. This comparison indicated that while some shifting of the sandy channel bottom has occurred, no significant scouring below the outfall or on the stream bank has occurred as a result of canal releases.

Because of the higher than normal natural river flow, only 740 ac-ft of the available 5,000 ac-ft has been released from the canal. In addition, as Figure 4 indicates, canal releases have been shut off since November 2. The current natural flow of about 40 cfs is maintaining a wetted channel to river mile 8, approximately 3.5 miles upstream of tidewater.

The current forecast for the Sacramento area is for dry and warm conditions through November 24. Under these conditions, the flows at Michigan Bar are expected to remain stable at just above 30 cfs and the wetting front is expected to maintain its position at about river mile 8.

If current weather and river conditions persist, additional pre-wetting releases will not be required. Additionally, continued dry conditions may jeopardize this year's entire salmon run on the Cosumnes River if no significant precipitation occurs until December.

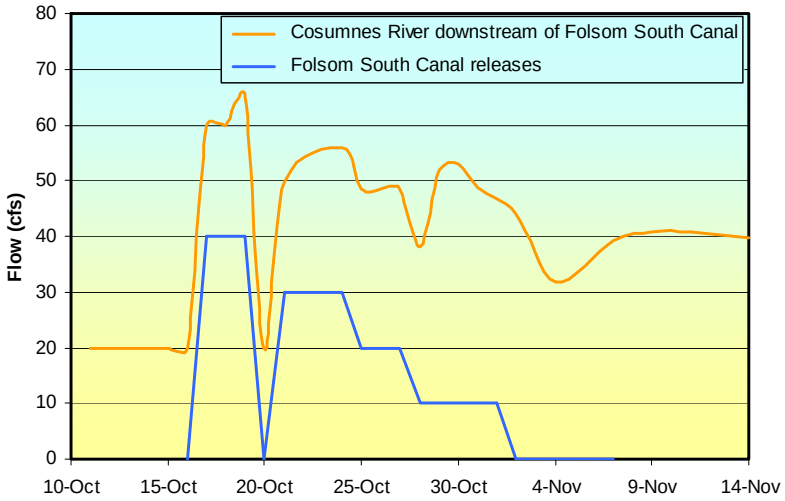


Figure 4. Folsom South Canal releases and flow in the Cosumnes River immediately downstream.

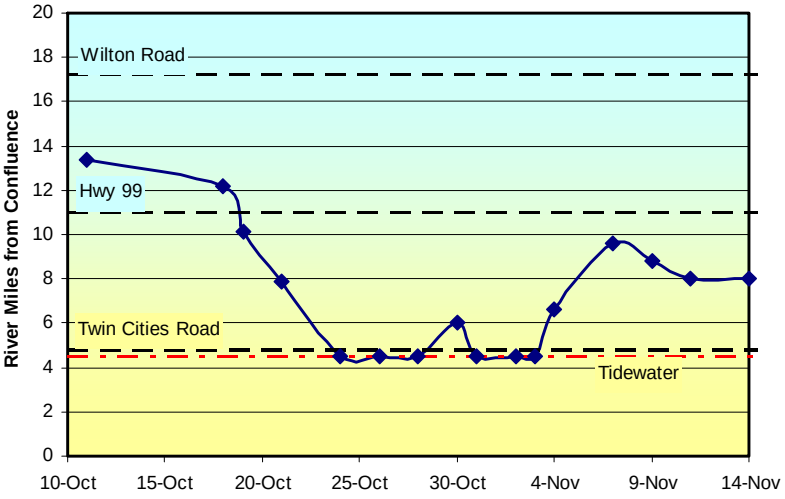


Figure 5. Location of wetting front on the Cosumnes River.

PROPOSED NEXT STEPS

Unique conditions on the Cosumnes River make it possible to consider changing the Project's operation to make canal releases that will provide attraction flows for salmon. The Project partners have determined that creating an attraction flow would be a reasonable use of available water and would offer a unique opportunity to assess numerous research questions regarding salmon behavior. This section details proposed Project operations for the remainder of 2005, provides justification for these operations, and identifies the research questions that will be addressed based on proposed operational changes.

Proposed Operational Changes

The proposed change to the original operations plan, summarized above, would entail making canal releases sufficient to augment natural flows to create a total river flow adequate to attract salmon into the Cosumnes River. Observations from this year's operations and historical hydrology suggest that a total flow of approximately 100 cfs immediately downstream of the Folsom South Canal for a period of 7 days would be sufficient to provide a freshwater pulse through the tidal portion of the lower Cosumnes River (river mile 4.5 to 0) and into the Mokelumne River. Based on observations from previous years, such a pulse should attract salmon into the Cosumnes River.

After completion of the pulse flow, Project operations will shift to maintaining viable upstream passage conditions from tidewater to the Folsom South Canal, according to the original operations plan. A total flow of approximately 70 cfs immediately below the canal is required to maintain upstream migration conditions for salmon.

According to the original operation plan, release will be made from the Folsom South Canal to meet the required flow.

Figure 6 shows the proposed pulse and augmentation flow releases needed to maintain passage under the worse case scenario that natural river flows remain near 33 cfs through December 31. Under this scenario, the Project would release an additional 3,910 ac-ft of the remaining 4,260 ac-ft available to the Project.

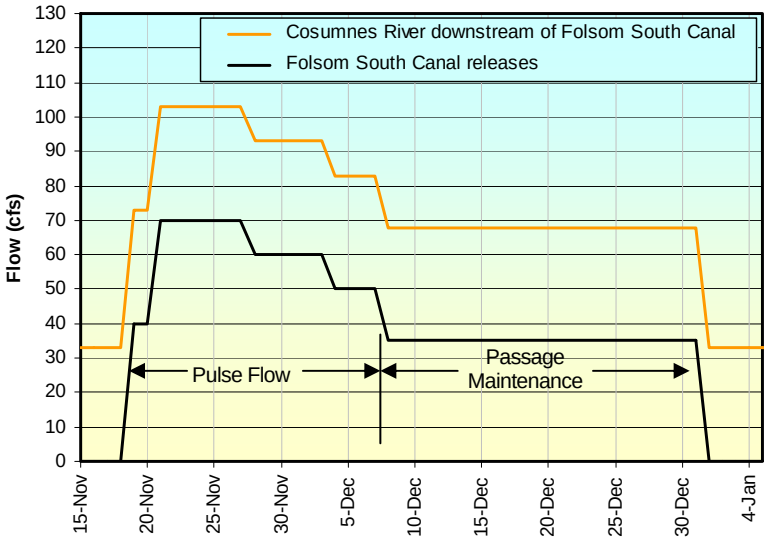


Figure 6. Proposed Folsom South Canal releases.

Justification for Operational Changes

River Conditions – Several conditions exist that justify the proposed changes to the original operations plan. Foremost of these is the natural flow condition of the Cosumnes River. As shown in Figure 3, flows have been much higher than normal this year. These higher flows have created acceptable salmon spawning conditions in the main spawning reach (river mile 27.5 to 51) of the river, as verified by Fisheries Foundation of California (FFC) biologists during several field surveys conducted since the

November 1. FFC monitoring indicates that water temperatures at the bottom of the spawning reach (river mile 17.5) are ranging from 55°C to 59°C. The current availability of spawning habitat provides spawning opportunities similar to conditions experienced in 2002, when the Cosumnes experienced a run of over 1,300 salmon. In 2002, the river experienced 4 days of high flows in early November, peaking at nearly 300 cfs, after which flows receded to 34-38 cfs until early December.

In most years, fall river conditions, in the absence of significant precipitation, would not provide suitable conditions for salmon spawning. Therefore, the original project objectives included language that specifically precluded creating attraction flows which would draw salmon into inhospitable conditions. As described in this document, conditions in the river are not typical and as such warrant consideration of alternative operations that would overcome the lack of precipitation and take advantage of acceptable spawning conditions that currently exist in the upper river.

"…conditions in the river… warrant consideration of alternative operations that would overcome the lack of precipitation and take advantage of acceptable spawning conditions."

Water Availability – With the dedication of 5,000 ac-ft of B2 water to the Demonstration Phase of the Project there is ample water supply to make the pulse flow release and to sustain upstream migration conditions through December 31. To date the project has only utilized 740 ac-ft of the available supply. The proposed pulse flow operation will require 2,240 ac-ft. Augmentation releases to maintain upstream migration will require 1,670 ac-ft, in the worse case scenario that no precipitation occurs before December 31. With the proposed operational changes, an additional 3,910 ac-ft is needed to complete the Demonstration Phase, bringing the total projected water need to 4,650 ac-ft.

"With the proposed operational changes, an additional 3,910 ac-ft is needed to complete the Demonstration Phase, bringing the total projected water need to 4,650 ac-ft "

Rescuing the 2005 Cosumnes River Salmon Run – While it has been eluded to extensively in this document, the primary justification for using canal releases to create an attraction flow is to simply rescue the 2005 fall chinook salmon run on the Cosumnes River. River conditions and the availability of water have converged to present the fisheries and water management interests on the Cosumnes River with an opportunity to rescue this year's salmon run, which has suffered significant declines due to groundwater pumping and habitat degradation.

"…the primary justification for using canal releases to create an attraction flow is to simply rescue the 2005 fall chinook salmon run on the Cosumnes River."

Research Questions and Assessment Approaches

The implementation of proposed operational changes will allow the FFC, The Nature Conservancy (TNC), UC Davis, and the Southeast Sacramento County Agricultural Water Authority (SSCAWA) to assess the following list of research questions. The FFC, TNC, and SSCAWA will collect much of the data required to perform these assessments through existing monitoring program.

1. Will release of American River via the Folsom South Canal (FSC) result in immediate immigration of fall-run chinook salmon presumably holding in the tidal reach of the lower Cosumnes River?
   a. Examine the confluence pool prior to connection for the presence of holding fish;

   b. Monitor the number of fish moving upstream immediately following connection (e.g., at the box culvert).

2. Will artificially creating passage by releasing water from the FSC increase attraction of non-natal fall-run chinook salmon?
   a. Conduct carcass surveys of the Cosumnes River;
   b. Examine carcasses for adipose fin clips (indicating the presence of a coded wire tag) to determine the hatchery origin of marked fall-run chinook salmon in the Cosumnes River;
   c. Determine the origin of coded wire tags to obtain abundance of fish from other systems (e.g., American River, Mokelumne River, Merced River);
   d. Compare numbers of fish derived from other systems this year with numbers from previous years;
   e. Determine the proportion of any fish derived from the American River that spawned in the lower reach of the Cosumnes River where flows are influenced/dominated by releases from the FSC.

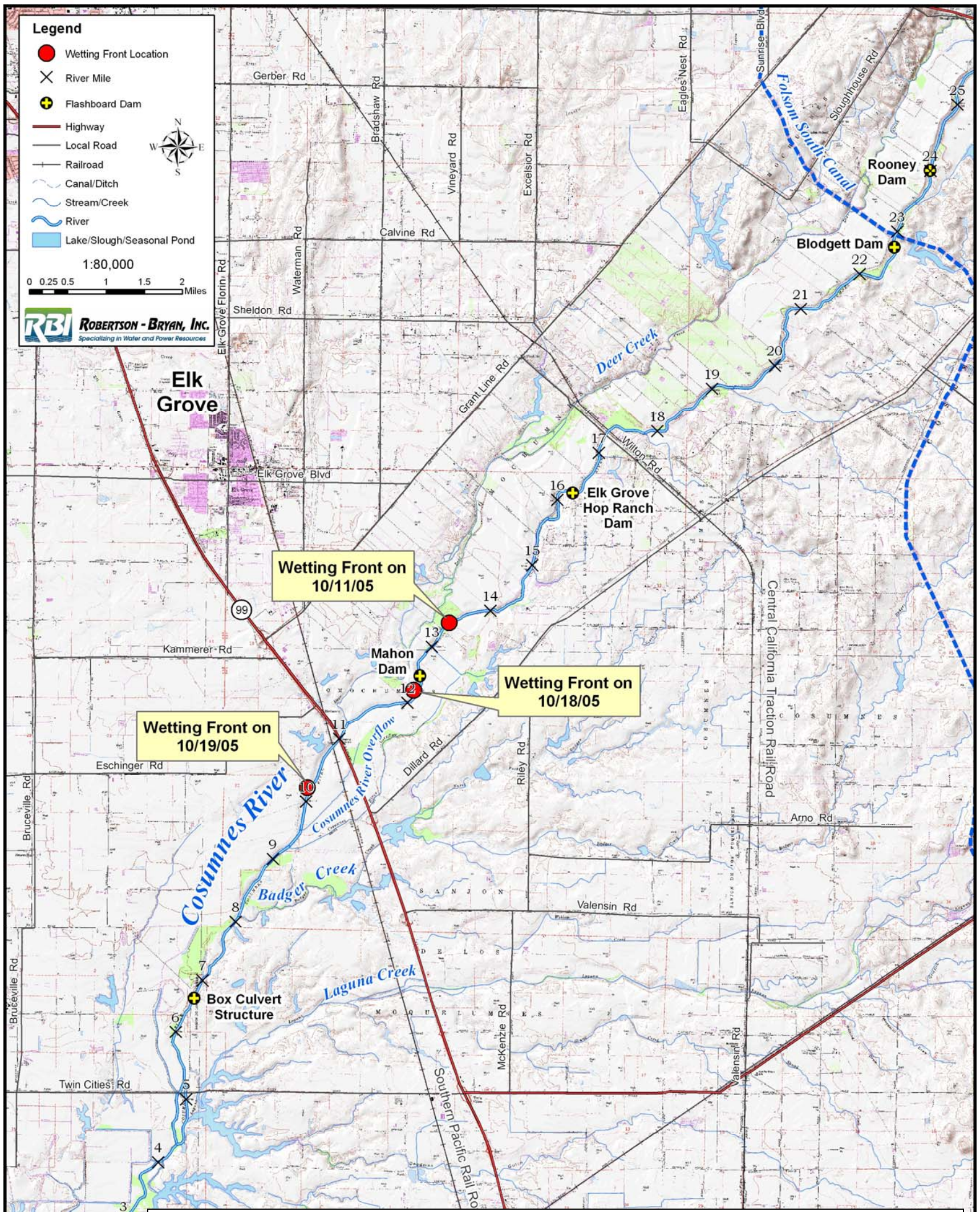
3. Will artificially creating passage affect pre-spawning mortality relative to past years?
   a. Determine the relative numbers of spawned-out carcasses and non-spawned carcasses;
   b. Calculate the proportion of each;
   c. Compare the proportions of each to previous years.

4. At what water temperature does chinook salmon spawning activity begin? Peak?
   a. Monitor spawning activity throughout historic spawning reaches of the Cosumnes River;
   b. Monitor water temperatures at several locations using Onset StowAway loggers; deploy additional units at the following locations: 1) in the FSC and 2) at Blodgett Dam;
   c. Characterize the relationship between water temperature and the onset and peak of spawning activity.

5. Will release of American River water affect the spawning distributions of fall-run chinook salmon within the Cosumnes River?
   a. Determine the relative numbers of fish spawning upstream and downstream of the FSC;
   b. Compare upstream/downstream spawning distributions to historic data.

6. Will release of water from the FSC turnout delay or disrupt migrating fishes, causing them to congregate at the outfall?
   a. Examine the outfall of the FSC for the presence of milling fish and/or fish trying to jump into the outfall;
   b. Survey the Cosumnes River upstream of the FSC for potential migration barriers.

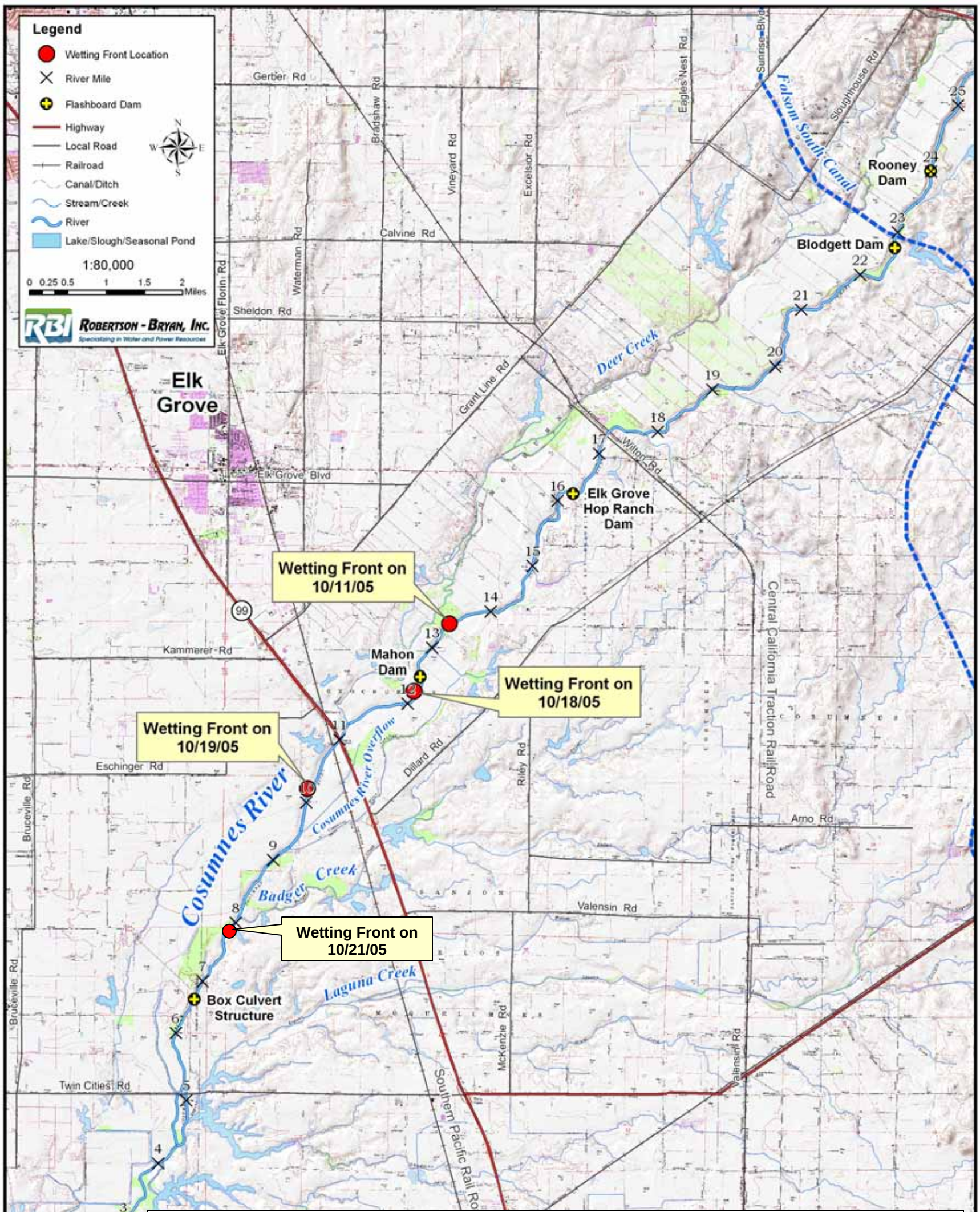
Monitoring Reports



MEASURED OR GAUGED FLOWS FOR THE COSUMNES RIVER FLOW AUGMENTATION PROJECT

Date	River Gauge at Michigan Bar (RM 32.8)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Flow at Rooney Dam (RM 24)	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	af	cfs	cfs	cfs	cfs	cfs
10/11/05[1]	24		4,980.8	20.85	19.81	6.70	0	0
10/17/05	28	36-40						
10/19/05	28			24.10	65.20	56.0	43.90	0
10/20/05		36-40	5,214.2					

NOTES: *1 – Starting condition*
Flow release began at approximately 10:30 on October 17, 2005 at a rate of 40 cfs.



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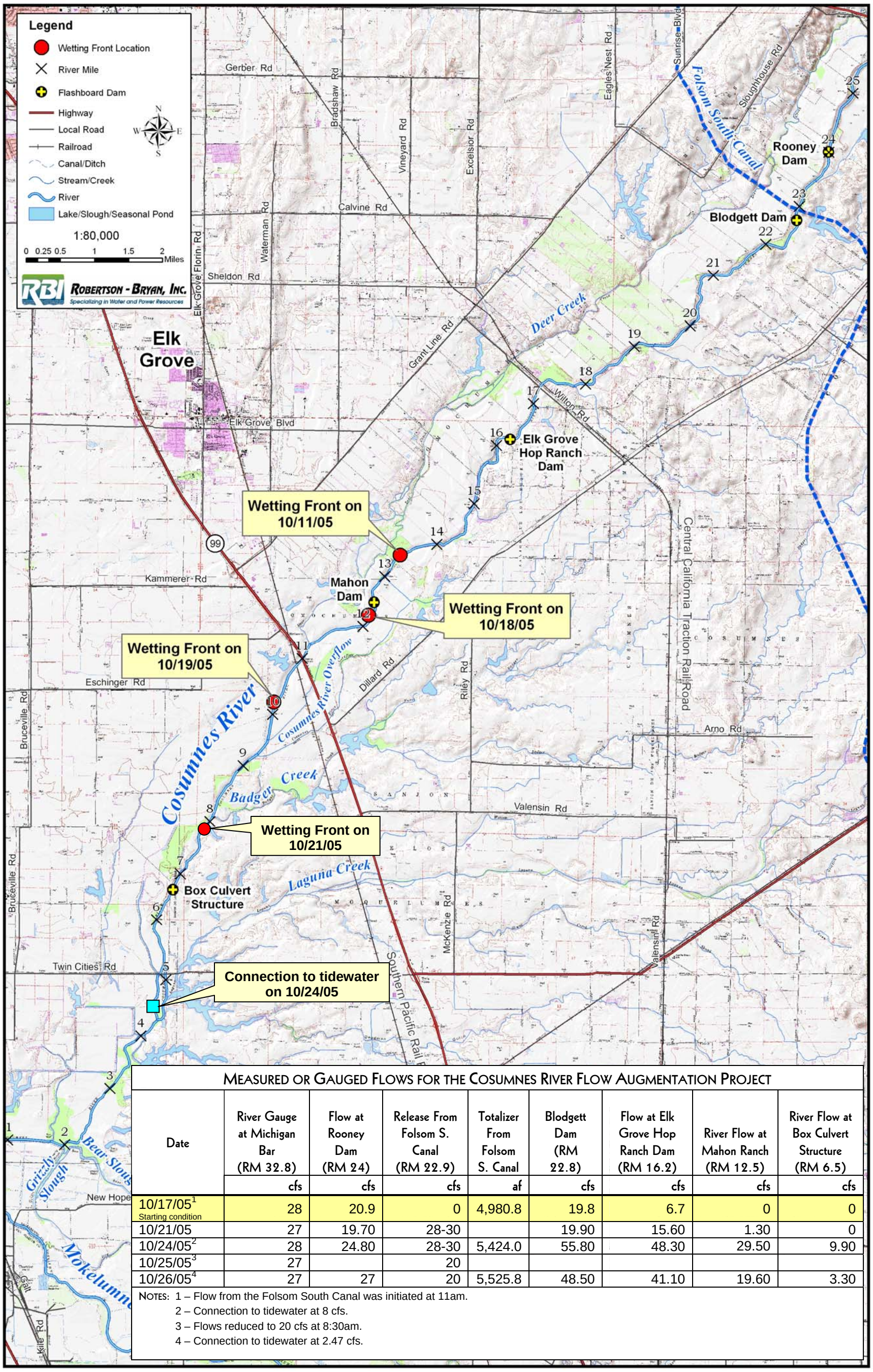
	cfs	cfs	af	cfs	cfs	cfs	cfs	cfs
10/19/05	28	36-40		24.1	65.2	56.0	43.9	0
10/20/05[1]	26	36-40(am), 0 (pm)	5,214.2					
10/21/05	27	28-30		19.7	19.9	15.6	1.3	0

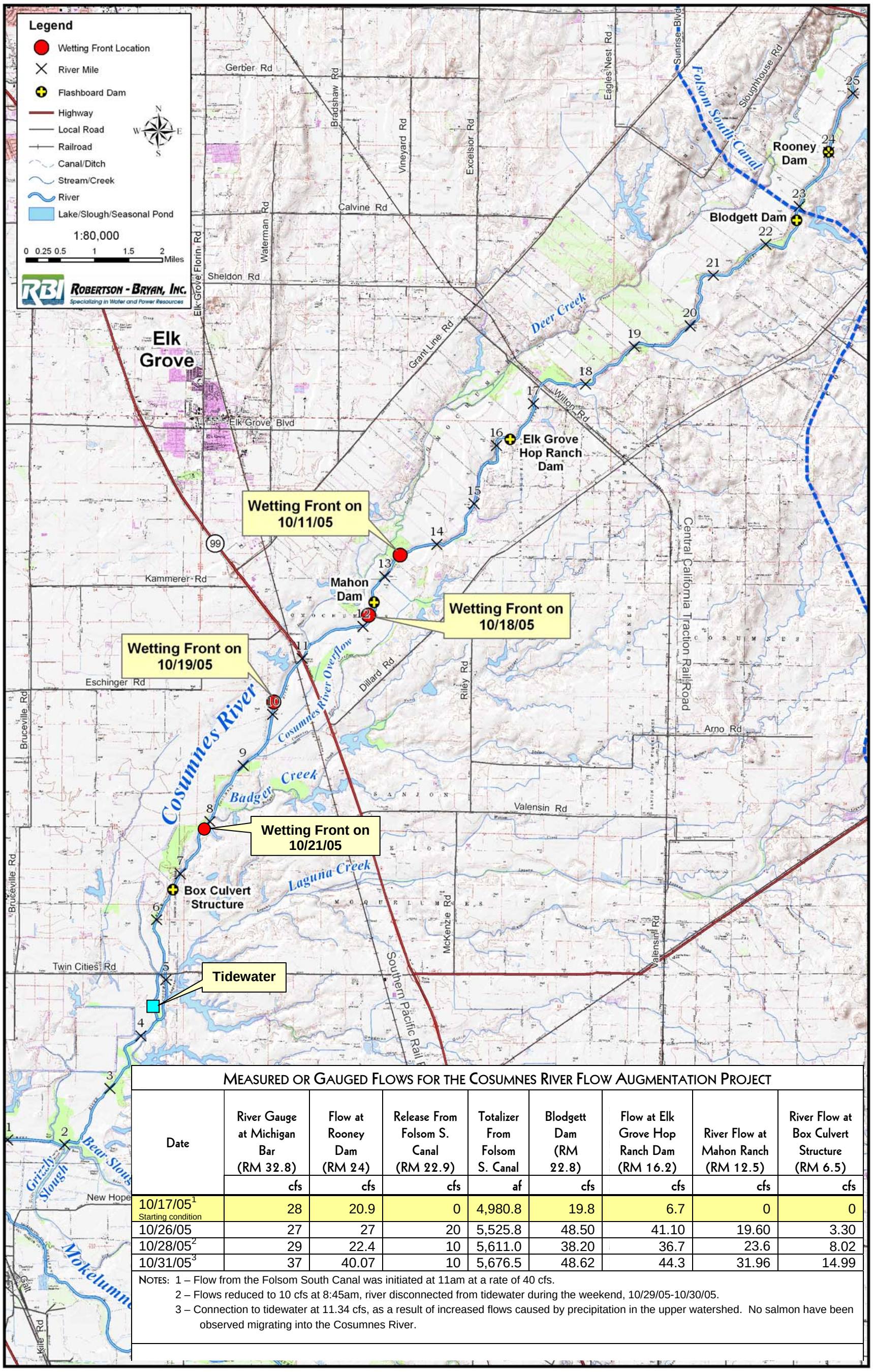
NOTES: *1 – Flow was shut off in the afternoon of October 20, 2005 to survey canal outlet and river channel for erosion. No erosion problems were found. Flows re-initiated at 11am on October 21, 2005 at a rate of 28-30 cfs.*



Measured or Gauged Flows for the Cosumnes River Flow Augmentation Project

Date	River Gauge at Michigan Bar (RM 32.8)	Flow at Rooney Dam (RM 24)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
10/21/05	27	19.70	28-30		19.90	15.60	1.30	0
10/24/05[2]	28	24.80	28-30	5,424.0	55.80	48.30	29.50	9.90
10/25/05[3]	27		20					
10/26/05[4]	27	27	20	5,525.8	48.50	41.10	19.60	3.30

NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am.
2 – Connection to tidewater at 8 cfs.
3 – Flows reduced to 20 cfs at 8:30am.
4 – Connection to tidewater at 2.47 cfs.



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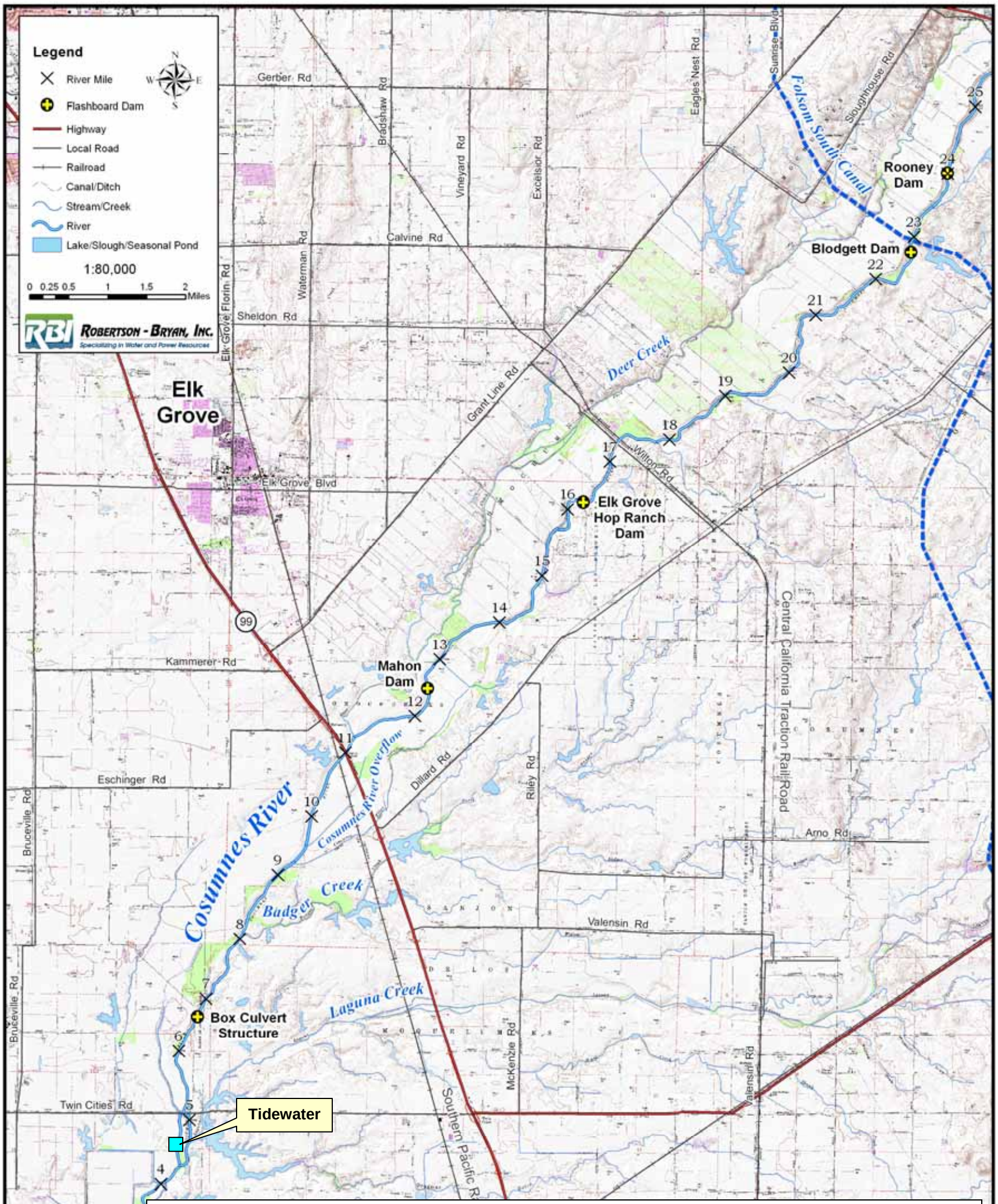
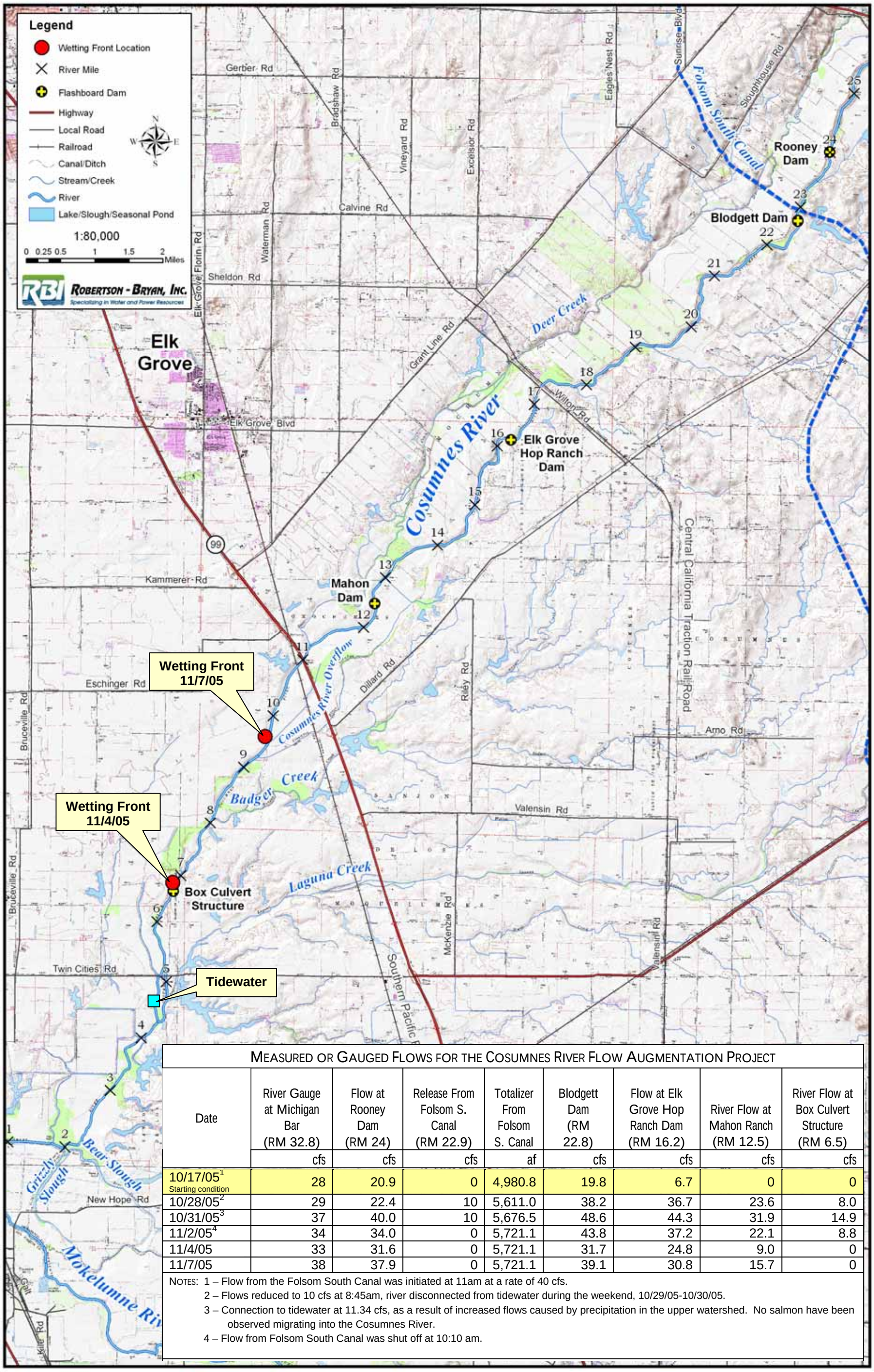
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
10/26/05	27	27	20	5,525.8	48.50	41.10	19.60	3.30
10/28/05[2]	29	22.4	10	5,611.0	38.20	36.7	23.6	8.02
10/31/05[3]	37	40.07	10	5,676.5	48.62	44.3	31.96	14.99

NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am at a rate of 40 cfs.
2 – Flows reduced to 10 cfs at 8:45am, river disconnected from tidewater during the weekend, 10/29/05-10/30/05.
3 – Connection to tidewater at 11.34 cfs, as a result of increased flows caused by precipitation in the upper watershed. No salmon have been observed migrating into the Cosumnes River.



Measured or Gauged Flows for the Cosumnes River Flow Augmentation Project								
Date	River Gauge at Michigan Bar (RM 32.8)	Flow at Rooney Dam (RM 24)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
10/26/05	27	27	20	5,525.8	48.5	41.1	19.6	3.3
10/28/05[2]	29	22.4	10	5,611.0	38.2	36.7	23.6	8.0
10/31/05[3]	37	40.0	10	5,676.5	48.6	44.3	31.9	14.9
11/02/05[4]	34	34.0	0		43.8	37.2	22.1	8.8

NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am at a rate of 40 cfs.
2 – Flows reduced to 10 cfs at 8:45am, river disconnected from tidewater during the weekend, 10/29/05-10/30/05.
3 – Connection to tidewater at 11.34 cfs, as a result of increased flows caused by precipitation in the upper watershed. No salmon have been observed migrating into the Cosumnes River.
4 – Flow from Folsom South Canal was shut off at 10:10 am.



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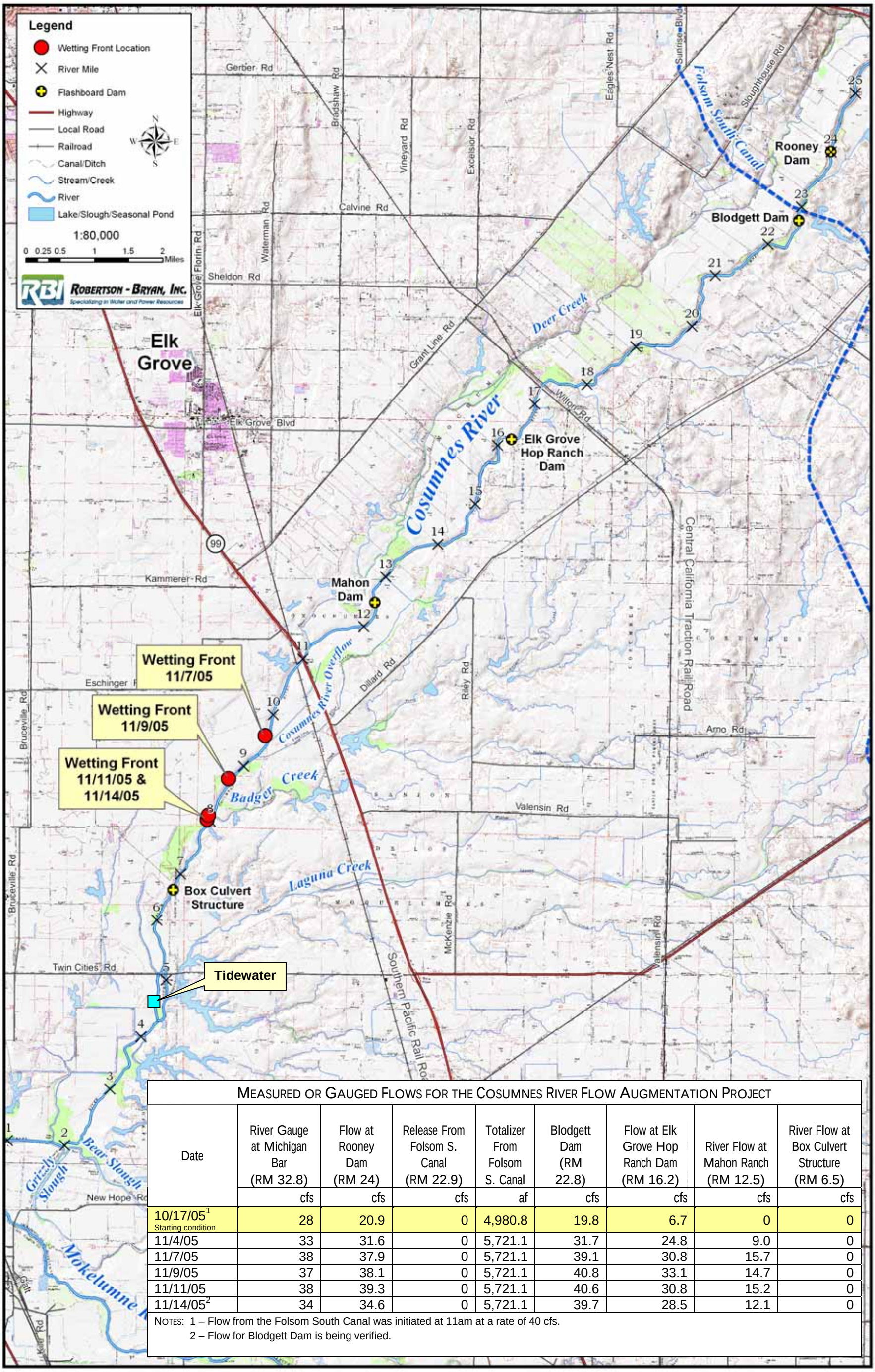
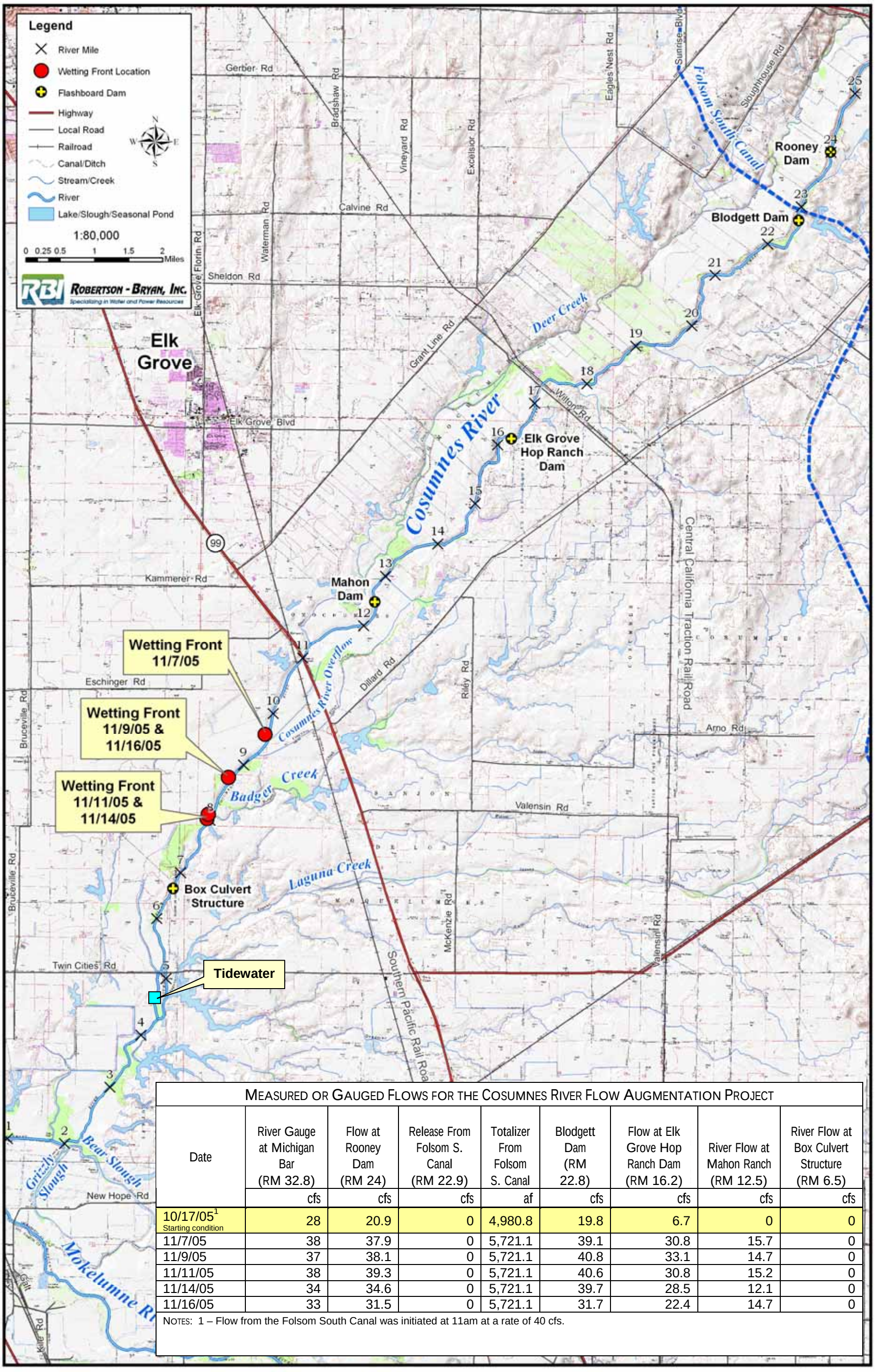
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
10/28/05[2]	29	22.4	10	5,611.0	38.2	36.7	23.6	8.0
10/31/05[3]	37	40.0	10	5,676.5	48.6	44.3	31.9	14.9
11/2/05[4]	34	34.0	0	5,721.1	43.8	37.2	22.1	8.8
11/4/05	33	31.6	0	5,721.1	31.7	24.8	9.0	0
11/7/05	38	37.9	0	5,721.1	39.1	30.8	15.7	0

NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am at a rate of 40 cfs.
2 – Flows reduced to 10 cfs at 8:45am, river disconnected from tidewater during the weekend, 10/29/05-10/30/05.
3 – Connection to tidewater at 11.34 cfs, as a result of increased flows caused by precipitation in the upper watershed. No salmon have been observed migrating into the Cosumnes River.
4 – Flow from Folsom South Canal was shut off at 10:10 am.



Measured or Gauged Flows for the Cosumnes River Flow Augmentation Project								
Date	River Gauge at Michigan Bar (RM 32.8)	Flow at Rooney Dam (RM 24)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
11/4/05	33	31.6	0	5,721.1	31.7	24.8	9.0	0
11/7/05	38	37.9	0	5,721.1	39.1	30.8	15.7	0
11/9/05	37	38.1	0	5,721.1	40.8	33.1	14.7	0
11/11/05	38	39.3	0	5,721.1	40.6	30.8	15.2	0
11/14/05[2]	34	34.6	0	5,721.1	39.7	28.5	12.1	0

NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am at a rate of 40 cfs.
2 – Flow for Blodgett Dam is being verified.



MEASURED OR GAUGED FLOWS FOR THE COSUMNES RIVER FLOW AUGMENTATION PROJECT

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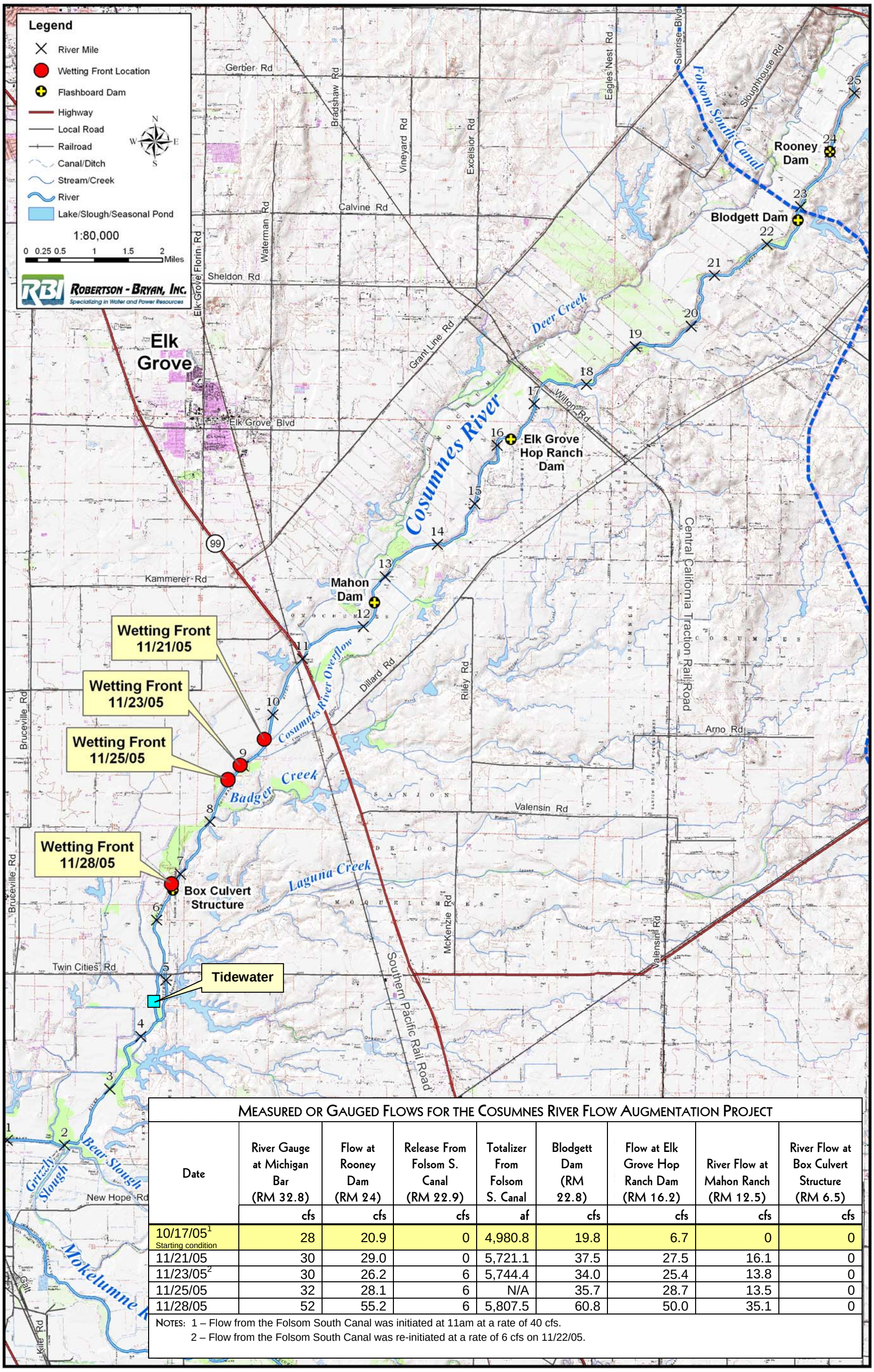
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
11/7/05	38	37.9	0	5,721.1	39.1	30.8	15.7	0
11/9/05	37	38.1	0	5,721.1	40.8	33.1	14.7	0
11/11/05	38	39.3	0	5,721.1	40.6	30.8	15.2	0
11/14/05	34	34.6	0	5,721.1	39.7	28.5	12.1	0
11/16/05	33	31.5	0	5,721.1	31.7	22.4	14.7	0

NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am at a rate of 40 cfs.



Measured or Gauged Flows for the Cosumnes River Flow Augmentation Project

Date	River Gauge at Michigan Bar (RM 32.8)	Flow at Rooney Dam (RM 24)	Release From Folsom S. Canal (RM 22.9)	Totalizer From Folsom S. Canal	Blodgett Dam (RM 22.8)	Flow at Elk Grove Hop Ranch Dam (RM 16.2)	River Flow at Mahon Ranch (RM 12.5)	River Flow at Box Culvert Structure (RM 6.5)
	cfs	cfs	cfs	af	cfs	cfs	cfs	cfs
10/17/05[1] Starting condition	28	20.9	0	4,980.8	19.8	6.7	0	0
11/21/05	30	29.0	0	5,721.1	37.5	27.5	16.1	0
11/23/05[2]	30	26.2	6	5,744.4	34.0	25.4	13.8	0
11/25/05	32	28.1	6	N/A	35.7	28.7	13.5	0
11/28/05	52	55.2	6	5,807.5	60.8	50.0	35.1	0

NOTES: 1 – Flow from the Folsom South Canal was initiated at 11am at a rate of 40 cfs.
2 – Flow from the Folsom South Canal was re-initiated at a rate of 6 cfs on 11/22/05.

Correspondence

From: David Robinson [mailto:DROBINSON@mp.usbr.gov]
Sent: Friday, August 12, 2005 2:01 PM
To: Larry Rodriguez
Subject: NEPA info

Here is the information I referenced regarding Categorical Exclusions (CE). The problem with this approach is that the proposed action has to qualify under one of our previously approved catagories. We have developed a variety of CEs for normal planning activities, research/data collection but only for non-manipulative studies, minor consruction, O&M, etc, but none of them really apply to pre-wetting. The next step we can try is the mini-EA if we can demonstrate that all the criteria on the attached checklist are possible, but there is no CE that applies.

This is a farily abbreviated process, but will take some time to write, review and finalize. There will also be ESA to complete. I assume that we could get by with an informal consultation with a finding of not likely to adversely effect. This requires concurrance from the Services before we can take the action. They can require up to 30 working days to review and issue their concurrance letter. Finally, I think you are aware that the project proponent will be responsible for preparing the environmental documents. All the agency folks plates are already full, particularlly with the end of our fiscal year comming up.

Hope this helps....we can visit again next week.

David B. Robinson
Bureau of Reclamation
Central California Area Office
7794 Folsom Dam Road (CC-413)
Folsom, CA 95630-1799
(916) 989-7179 - voice
(916) 989-7208 - fax
drobinson@mp.usbr.gov

From: David Robinson [mailto:DROBINSON@mp.usbr.gov]
Sent: Monday, August 29, 2005 11:31 AM
To: Larry Rodriguez
Cc: Paul Fujitani; Robert Schroeder; Shawn Oliver
Subject: RE: NEPA info

First, let me give you my understanding of where we are in the process right now. I think the fish agencies are basically ok with the proposal, but with some qualifiers. The first is that the Service is willing to dedicate some supply so long as it is banked b2. The behind the scenes issue is that we have never had the potential for having water in the bank, nor have we sorted through how we would implement banking. There continues to be discussion between Reclamation and the Service directed towards the issues. It is also my understanding that DFG had some lingering concerns over trans-basin movement of water. I have only secondhand knowledge of this concern, but it seems that the one way to deal with it would be in an analysis suitable for inclusion in an environmental document.

Regarding the environmental documentation hoops, Reclamation does not have a CE that applies to the proposed action. I am not aware of what the Service may have in place, or what they perceive to be their need for environmental documentation. CEs are generally for administrative types of actions or for routine ongoing operations where there has been a history demonstrating no impacts. In the case of this action, it seems clear that there are some potentially significant environmental issues that would need addressed. That bumps us into the EA realm. It is possible, although challenging, for you to complete an EA by the time you expect to start the action. It also presumes that there are no unresolved controversies or impacts that can not be mitigated though agreed to modifications to the project description. A common problem early in process like yours is that the project description is not of sufficient detail to fully describe and analyze the effects, nor does it articulate the measures needed to avoid all the potential impacts. Related to this is that the EA needs to meet the needs of the agenciesthat would use it and be consistent with the Federal authorities used to take the action. Assuming you are successful in getting a commitment of b2 water, then the purpose and need and project description in the EA would need to emphasize the fisheries aspects of the action given our reliance on 3406 (b)(2) as our authority to take the action.

Another key aspect is the potential for effects to listed species. We will need to comply with the section 7 of the ESA consultation requirements irrespective of the level of NEPA required. Key to having the section 7 go quickly will be an ability to make a determination of "no effect." This is for all species, not just the aquatic, and will depend on the reach of potential impacts (direct, indirect, and cumulative). If there are effects that are positive, are small, or the are completely discountable, we would still have to make a finding of "not likely to adversely effect" which requires concurrence from both of the Services. The Services generally require at least 30 days to complete their analyses and issue a concurrence letter. One way or another, a definitive analyses of effects to all potential listed species is needed.

I do not know how far you are in your processes or to what extent you have documentation and analyses available, but you can see that there is a lot of additional process needed before we could take any kind of action. I also do not know if there is a CEQA obligation for the water district that would also be needed to deliver the water from the Folsom South Canal to the river.

Regarding your section 215 water question, this term came to be used after section 215 of Reclamation Reform Act of October 12, 1982 (Public Law 97-293) defined temporary supplies of water as: "(1) an unusually large water supply not otherwise storable for project purposes; or (2) infrequent and otherwise unmanaged flood flows of short duration." The term excess water is often used to describe situations where there is more water in the system needed to meet all environmental, regulatory, and water user downstream demands. The two do not always match.

I hope this helps give you a better picture of what I see as the remaining challenges to using b2 water for your proposed project. I recognize that having a firm supply would help justify committing to the effort needed to button up the environmental documentation, but regardless of source, you will need to help Reclamation jump through all the above hoops before we would authorize use of our facilities. My personal opinion is that you have a better than 50/50 chance of there being b2 water to use, but it will take a focused effort to complete the environmental due diligence in the time remaining. Give me a call if you want to discuss the issues further.

David B. Robinson
Bureau of Reclamation
Central California Area Office
7794 Folsom Dam Road (CC-413)
Folsom, CA 95630-1799
(916) 989-7179 - voice
(916) 989-7208 - fax
drobinson@mp.usbr.gov

From: Larry Rodriguez
Sent: Tuesday, October 11, 2005 3:05 PM
To: David Robinson; Campbell Ingram (campbell_ingram@fws.gov)
Subject: Cosumnes River Flow Aug Proj. CAT-EX

David /.Campbell

Attached is the CEQA categorical exemption that was adopted today by the Southeast Sacramento County Agricultural Water Authority.

Would you please send me a copy of the exemptions that your respective agencies prepared and adopted.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Larry Rodriguez
Sent: Thursday, October 13, 2005 9:50 AM
To: David Robinson; Dave Lawson; James Taylor
Subject: Flow Release Schedule for Cosumnes River

Dave, et al

Attached is a memo describing our revised flow schedule and communications protocols.

Please contact me if have any questions.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: David Robinson [mailto:DROBINSON@mp.usbr.gov]
Sent: Friday, October 14, 2005 10:01 AM
To: Campbell_Ingram@fws.gov; roger_guinee@fws.gov; David Jones; David Lawson; James Taylor; Margaret Gidding; Larry Rodriguez
Cc: Mike Finnegan; Ronald MILLIGAN; Richard Johnson; Robert Schroeder
Subject: Cosumnes Project a go

We are go for a 10 am start next Monday with the following proviso.....check you e-mail first thing Monday am. A discussion with State Board personnel is scheduled for this afternoon. It is expected to be information sharing and there are not expected to be any showstopper issues. However, if something unexpected comes up, I will notify all by e-mail this weekend, and follow-up with a phone call by 8 am Monday morning.

The Project Proponents have also canceled their plan to have media present during the initial release. Additional plans will follow. Thanks to all for your patience and support in making this happen. I'll be following up with some of you on your specific questions, but meatime, let me know if you have any questions.....

David B. Robinson
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(916) 989-7179 - voice
(916) 989-7208 - fax
drobinson@mp.usbr.gov

From: Jeffrey Mount [mailto:mount@geology.ucdavis.edu]
Sent: Monday, October 17, 2005 9:46 PM
To: Jan Fleckenstein; Bill Fleenor; Gregory Pasternack; G.Schladow; crg2@ice.ucdavis.edu
Cc: Wendy Trowbridge; Anthony Saracino; Dylan Ahearn; Peter Moyle; Mike Eaton; Keith Whitener; Larry Rodriguez; Michael L.Anderson; Ramona Swenson; Randy Dahlgren; Evan Buckland
Subject: Thanks

To all:

Today was one of those days in applied research that makes the effort worthwhile. About 9 years ago, Rich Reiner, then the project ecologist on the Cosumnes River Preserve, came to UC Davis to ask if a partnership could be developed to look at the causes and the cures for the decline of fall flows and salmon on the Cosumnes River. Graham Fogg and his students, Jan Fleckenstein and Rich Niswonger, along with Michael Anderson from engineering, took on the task of describing the complex interaction between surface water and groundwater in the Cosumnes and prescribing what flows might be necessary to restore flows for fall run chinook salmon while not hurting groundwater resources. Wendy Trowbridge, Carson Jeffres and others helped with the calibration work for this effort. Keith Whitener had done a lot of the preliminary work, along with Trevor Ford and others, to show that salmon escapement roughly coincided with declines in fall flow conditions, thus building the case for restoring fall flows. Mike Eaton, with the help of Larry Rodriguez, Anthony Saracino and others did the heavy political lifting with the locals and the Bureau of Reclamation. So many more to mention, with apologies to all who are left out.

The bottom line, as picture 1 and 2 show, the Bureau released B2 Environmental Water into the Cosumnes at around 10:00 a.m. this morning. 40 cfs added to the low flows of the Cosumnes will help reduce infiltration capacities, possibly charge perched, local aquifers, and wet up the bed before the first rains fall on the watershed, hopefully opening up the river to chinook salmon.

This triumph of persistence and will is owed to many people. Specifically Mike, Larry, Graham, Jan, Rich N., Rich R., Keith, Carson, Wendy, and a bunch of others. It is a unique experiment: unprecedented in California and beyond. Thanks to everyone who worked on this. What seemed so simple at the start was tough, but worth it to do. Please forward to those I have left out. Again, thanks to all. What a treat.

Jeff

From: David Robinson [mailto:DROBINSON@mp.usbr.gov]
Sent: Tuesday, October 18, 2005 11:15 AM
To: Larry Rodriguez
Subject: good start

I'm glad all went well yesterday. I do have to bring up that the volume of press present was surprising and unexpected. Please convey to the other project proponents that any other outreach that involves access to Reclamation facilities or representations of the facts involving our role/involvement must be coordinated with me/us first. (especially if Leo is going to be taking the credit for "negotiating the deal").

The starting reading on the totalizer was 498080.8

Please have your monitoring crews regularly record the time, date, and reading on the totalizer as part of their routine monitoring. The gauge is located on the bottom of the flow meter which is in the vault adjacent to the waste way valve. The locks on the vault and gate providing access to the river are now the same as the main gate key. Be sure your crews lock the vault/gate when not in use.

When you come up for air, we can discuss a more comprehensive tour for the fish agency folks. We look forward to your first progress update.

From: Larry Rodriguez
Sent: Thursday, October 20, 2005 11:09 AM
To: David Robinson; Dave Lawson; James Taylor
Cc: Brook Edwards; Stuart Robertson
Subject: REQUEST FOR CHANGE IN FSC RELEASES

Gentlemen,

After reviewing the progression of the wetting front on the Cosumnes River, we are anticipating the need to change the rate of release from the Folsom South Canal to the Cosumnes River.

The exact change will be dependant on Reclamation's schedule. Please let us know the date and time that you will be available and RBI will provide you with the target release rate. Our desire is to have this change made at your soonest convenience, but by Tuesday Oct 25 at the latest.

As all project materials indicate, releases to the Cosumnes River will be adaptively managed based antecedent conditions, progression of the wetting front, and rates of channel losses. Not all of these factors are known at this time, hence the demonstration project. Therefore, Reclamation may be called upon to effect changes to the release on a frequent basis, and in some cases with short notice. Please understand that this is the nature of this project.

Please respond to this email with Reclamation's schedule meeting this request.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Larry Rodriguez
Sent: Thursday, October 20, 2005 5:43 PM
To: Anthony Saracino; 'Bob Caikoski'; Bruce Oppenheim (bruce.oppenheim@noaa.gov); Campbell Ingram (campbell_ingram@fws.gov); Cesar Blanco; Dave Lawson; David Robinson; David Hu (david_hu@fws.gov); niederbergerh@saccounty.net; James Taylor; Jeffery Mount (mount@geology.ucdavis.edu); Keith Whitener; Michael R. Eaton; Graham Fogg Ph.D; Ronald R. Lowry; Trevor Kennedy; Carson Jeffres
Cc: Brook Edwards (brook@robertson-bryan.com); stuart@robertson-bryan.com; Tina K. Lunt
Subject: Cosumnes River Flow Augmentation Report 1

All,

Attached is a brief report of the progression of flows on the Cosumnes River resulting from the additional 40 cfs being released from the Folsom South Canal.

RBI will provide this report every couple of days. If you know of anybody else that would like to receive this data please forward it, or provide me their email and I will include them in the future.

If you have any questions please contact me at the email or phone number listed below.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Brook Edwards
Sent: Monday, October 24, 2005 1:43 PM
To: Larry Rodriguez; 'Anthony Saracino'; 'Bob Caikoski'; 'Bruce Oppenheim (bruce.oppenheim@noaa.gov)'; 'Campbell Ingram (campbell_ingram@fws.gov)'; 'Cesar Blanco'; 'Dave Lawson'; 'David Robinson'; 'David Hu (david_hu@fws.gov)'; 'niederbergerh@saccounty.net'; 'James Taylor'; 'Jeffery Mount (mount@geology.ucdavis.edu)'; 'Keith Whitener'; 'Michael R. Eaton'; 'Graham Fogg Ph.D'; 'Ronald R. Lowry'; 'Trevor Kennedy'; 'Carson Jeffres'
Cc: Brook Edwards; Stuart Robertson; 'Tina K. Lunt'
Subject: Cosumnes River Flow Augmentation Report for 10/21/05

All,

Attached is a brief report of the progression of flows on the Cosumnes River. Flows were shut offin the afternoon of October 20th to survey the canal outlet and river channel for erosion. No erosion problems were found. Flows were re-initiated at 11am on October 21st at a rate of 28-30 cfs.

If you have any questions please contact Larry or me at the email or phone numbers listed below.

Brook R. Edwards
Restoration Ecologist
Robertson-Bryan, Inc.
9888 Kent Street
Elk Grove, CA 95624
Office: 916.714.8351
Cell: 916.216.7330

From: Brook Edwards
Sent: Monday, October 24, 2005 5:02 PM
To: Larry Rodriguez; 'David Lawson'; 'David Robinson'; 'James Taylor'
Cc: Stuart Robertson
Subject: RE: REQUEST FOR CHANGE IN FSC RELEASES

Gentlemen,

After reviewing the progression of the wetting front on the Cosumnes River, we need to change the rate of release from the Folsom South Canal to the Cosumnes River. The river has connected to tide-water and we need the flows to be reduced to 20 cfs. We would appreciate it if this could be done as soon as possible.

Please respond to this email with Reclamation's schedule meeting this request.

Thanks,

Brook R. Edwards
Restoration Ecologist
Robertson-Bryan, Inc.
9888 Kent Street
Elk Grove, CA 95624
Office: 916.714.8351
Cell: 916.216.7330

From: Larry Rodriguez
Sent: Tuesday, October 25, 2005 1:19 PM
To: David Robinson
Subject: RE: REQUEST FOR CHANGE IN FSC RELEASES

See response below.

Larry J. Rodriguez
Robertson-Bryan, Inc.
-----Original Message-----
From: David Robinson [mailto:DROBINSON@mp.usbr.gov]
Sent: Tuesday, October 25, 2005 7:46 AM
To: David Lawson; James Taylor; Brook Edwards; Larry Rodriguez
Cc: Stuart Robertson
Subject: RE: REQUEST FOR CHANGE IN FSC RELEASES

Order recieved. Will implement asap and expect that it will be done by around 8 am today.

You guys have let the one thing the Fish Agency folks were most concerned about happen.
I spoke with Nick Hindmen this morning, He does not feel that this a big deal. We are adaptively managing flows to maximize extent of wetted channel, without intentionally creating a connection that would support upstream migration. I informed him that we were cutting back flows to eliminate any possible opportunity for upstream migration. He was comfortable with that. He understood that the reason for the pilot project is help determine how the system will respond, that every year is expected to be different, and that the primary purpose is to refine project operations based on expected system responses and varying annual conditions. That is what we are now doing.

Have any fish gotten up in the system?
Survey crews have not seen any evidence of upstream migration. We also don't believe that rate of flow entering tide water (>8 cfs) is enough to create attraction.

How long befor a cut is manifested at the mouth?
Based on our observations over the past several days, it appears the change in release made this morning will manifest itself at Twin Cities Road by tomorrow morning. This response time is much quicker then all previous studies have indicated. This is probably due to several factors. First, a portion of the channel was already flowing and is not experiencing the magnitude of loss (seepage) that would normally be expected. And second, the portion of the channel that was dry is not experiencing expected loss rates.

What do you expect 20 cfs to result in and why?
We expect that a 10 cfs reduction in flow will eliminate any connect to tide water. Specifically, we don't "expect" to see flow passing Twin Cities Road. This is based on

our observation of 10 cfs at the box culvert, consequently a 10 cfs reduction should almost eliminate flow at that point (several miles above Twin Cities Road).

What are you plans now?,disconnect, maintain connection at a low flow, something else??
We are sticking to our original plan to not maintain a connection that allows for upstream migration prior to a “natural” conenction. That’s why we asked for a reduction in the canal release. We will monitor current conditions and request changes as needed. Once rainfall generates sufficient natural flow we will request that releases be shut off. If after that point, natural flows do not maintain connection we will request additional releases to maintain connection. All of this is according to our original project plan.

Are you soliciting input from the fish agencies?
I have spoken with FWS.

I'm in meetings this morning,but expect that I will have another 8 messages from the fish guys/management when I return asking me what your plans are.
Please feel free to forward all 8 emails to me and I will respond appropriately.

>>> "Brook Edwards" <brook@robertson-bryan.com> 10/24/2005 5:02:23 PM
>>>
Gentlemen,

After reviewing the progression of the wetting front on the Cosumnes River, we need to change the rate of release from the Folsom South Canal
to the Cosumnes River. The river has connected to tide-water and we need the flows to be reduced to 20 cfs. We would appreciate it if this
could be done as soon as possible.

Please respond to this email with Reclamation's schedule meeting this request.

Thanks,

Brook R. Edwards
Restoration Ecologist
Robertson-Bryan, Inc.
9888 Kent Street
Elk Grove, CA 95624
Office: 916.714.8351
Cell: 916.216.7330

From: Brook Edwards
Sent: Thursday, October 27, 2005 4:30 PM
To: Brook Edwards; Larry Rodriguez; 'David Lawson'; 'David Robinson'; 'James Taylor'
Cc: Stuart Robertson
Subject: REQUEST FOR CHANGE IN FSC RELEASES

Gentlemen,

After reviewing flows on the Cosumnes River, we need to change the rate of release from the Folsom South Canal to the Cosumnes River. Currently, the connection to tidewater is very weak and is flowing at about 2.5 cfs. We would appreciate it if you could schedule a reduction in flow to 10 cfs within the next 3 days.

Please respond to this email with Reclamation's schedule meeting this request.

Thanks,

Brook R. Edwards
Restoration Ecologist
Robertson-Bryan, Inc.
9888 Kent Street
Elk Grove, CA 95624
Office: 916.714.8351
Cell: 916.216.7330

From: Brook Edwards
Sent: Tuesday, November 01, 2005 3:25 PM
To: 'James Taylor'; 'David Lawson'; 'David Robinson'; Larry Rodriguez; 'mfinnegan@mp.usbr.gov'; 'rshroeder@mp.usbr.gov'; 'pfujitani@mp.usbr.gov'; 'twashburn@mp.usbr.gov'; 'roger_guinee@fws.gov'; 'derrek_hilts@fws.gov'; 'nick_hindman@fws.gov'
Cc: Stuart Robertson
Subject: RE: REQUEST FOR CHANGE IN FSC RELEASES

All,

After reviewing flows on the Cosumnes River, we would appreciate it if you could schedule to shut off the flow from the Folsom South Canal in anticipation of upcoming precipitation.

Please respond to this email with Reclamation's schedule meeting this request.

Thanks,

Brook R. Edwards
Restoration Ecologist
Robertson-Bryan, Inc.
9888 Kent Street
Elk Grove, CA 95624
Office: 916.714.8351
Cell: 916.216.7330

From: Larry Rodriguez <larry@robertson-bryan.com>
Date: Thu, 3 Nov 2005 10:08:11 -0800
To: Sylvia Wright <swright@ucdavis.edu>
Conversation: Cosumnes Project new Coverage
Subject: Cosumnes Project new Coverage

Sylvia,

I am trying to run down all of the media coverage for the Cosumnes River Flow Augmentation Project. So far I have found the Sac Bee Article, Sac Bee Editorial, the Davis Enterprise article, and I know there was a KVIE/UCD spot. Can you give me more info on the KVIE/UCD spot and any other media coverage that I don't know about. I am compiling a summary of media coverage for the SSCAWA and others.

Also, I would like to get a copy of photos that were taken that day, if you can make them available.

Hope all is well and thanks for getting all the great coverage of this project.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com <mailto:larry@robertson-bryan.com>
9888 Kent Street, Elk Grove CA 95624

From: Sylvia Wright [mailto:swright@ucdavis.edu]
Sent: Thursday, November 03, 2005 3:46 PM
To: Larry Rodriguez
Subject: Re: Cosumnes Project new Coverage

In external media were these stories; I have full text of all but the Ch. 3 story (I have a dvd of the Ch. 3 story but it has not been transcribed):

10/21/05 Editorial: A river, reborn: Cosumnes gets a new lease on life The Sacramento Bee
10/19/05 River resource KCRA Channel 3 (NBC)
10/19/05 Salmon run restored: Creative flow helps UCD researchers lead way Davis Enterprise
10/18/05 A watershed deal: Increased flows on Cosumnes River will recharge groundwater, aid salmon run The Sacramento Bee

In internal media (that is, from my office) were the UC Davis NewsWatch story on KVIE (1 minute, 30 secs) and a story in the campus newspaper, Dateline UC Davis.

The Dateline story is online: http://www.dateline.ucdavis.edu/dl_detail.lasso?id=8493
The NewsWatch story may be online; let me check. Will send URL if so.

It was satisfying to work on this project. Thank you for all the hard work you did to make it happen.

Sylvia

.....

SYLVIA WRIGHT
Public information officer
for environmental science & policy

News Service
University of California, Davis

Office (530) 752-7704
Cell (530) 219-8849
E-mail: swright@ucdavis.edu
Office location: 334 Mrak Hall
News home page: <http://www.news.ucdavis.edu/>

From: Larry Rodriguez
Sent: Tuesday, November 08, 2005 5:52 PM
To: David Robinson; Trevor Kennedy; James Taylor; David Lawson
Cc: Stuart Robertson; Brook Edwards; Nick_Hindman@fws.gov
Subject: New Release Procedures for Cosumnes River

All,

After evaluating the Cosumnes River's responses to flow releases, the background flow of the river, and projected weather conditions, we would like to request the following changes in operating procedures.

Our original project design was based on having a constant controllable flow from the canal, which translated to a constant controllable flow in the Cosumnes River just below the canal. This was based on the fact that there is typically no background flow in the river and all river flows would be derived from canal releases. Under this condition, changes to canal release would be expected to be minimal.

This year presents a quite different situation. Background flows in the river have made predicting the river's response a bit more challenging. However, based on our observations the best approach for creating a stable flow at Blodgett Dam, immediately downstream of the canal, will be to make more frequent adjustments to canal releases based on flows measured at Blodgett.

Therefore, we would like to implement the following procedure:

- Field crews measure flows at Blodgett Dam every Monday, Wednesday and Friday morning before 10:00 am. The measured flow value will be transmitted to RBI before 10:30 am. RBI will determine what, if any change needs to be made to canal releases.
- Reclamation be available to make adjustments to canal releases every Monday, Wednesday, and Friday after 12:00 pm. RBI will contact Reclamation with required release changes prior by 11:00 pm.
- Implement this procedure beginning Friday, November 11.

The objective is to maintain a flow at Blodgett of 40 cfs, which we estimate will push water to about the Box Culvert. In some cases, there will be no need to change releases from the canal, in other cases there may be a need to change the release by only a few cfs to 10s of cfs. The 40 cfs target will be maintained until natural flows connect the river to tidewater. Given the dry weather pattern ahead of us, that will be weeks away.

After we get a "natural" connection, we will reevaluate our target flow at Blodgett, with the goal of maintaining a barrier free migration corridor. The amount of canal release will depend on natural flow conditions.

I intentionally did not send this out to the larger ops email group, because I wanted to make sure that we could work out the kinks of implementing this procedure before we go too “public”. However, we welcome input from all interested parties and other Reclamation or agency reps not included in this email.

Thank you,

Larry J. Rodríguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Larry Rodriguez
Sent: Friday, November 11, 2005 10:48 AM
To: Keith Whitener; Trevor Kennedy; tccannon@comcast.net; Cesar Blanco; Nick Hindman (nick_hindman@fws.gov)
Cc: David Robinson
Subject: Cosumnes Flow Releases

Folks,

I've discussed this with some of you and some of you have brought this up independently.

If dry conditions continue in the Cosumnes River watershed, do we want to release water from the canal to force a connection to tidewater and attract salmon into the river?

This type of action is not part of the typical operations plan, because we surmised that if natural flows were not sufficient to create a connection then the flows in the river would be really low and conditions for salmon would be unacceptable. However, this year is not typical. We have had flow in an extended portion of the river all summer. Meaning, conditions for salmon spawning may be acceptable. I defer to Trevor, in particular, to determine whether this is the case.

It would seem like a reasonable use of this year's water to create an attraction flow for salmon, rather then risking a zero run year. However, the water is being provided from Reclamation and the B2 Program. Therefore, I am not in a position to ask Reclamation to make this adjustment to the operations plan. I believe that the request should come from FWS and AFRP. I am willing to help in whatever manner I can.

We have only used 740 ac-ft of the available 5,000 ac-ft. Currently there are no releases being made from the canal and the flow past the canal is just less than 40 cfs. The wetting front is located about 1.5 miles downstream of Hwy 99. The seven day forecast (NOAA) calls for temps in the 70s and no precipitation.

Please let me know how you would like to proceed.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Larry Rodriguez
Sent: Tuesday, November 15, 2005 2:56 PM
To: Keith Whitener; Trevor Kennedy; Cesar Blanco; David_Hu@r1.fws.gov; Jeffery Mount (mount@geology.ucdavis.edu); Peter B. Moyle; Anthony Saracino; Tom
Cc: David Thomas; Brook Edwards; Michael Bryan
Subject: Cosumnes Flow Release Strategy - Conference call

All,

To coordinate our request to change the Cosumnes River Flow Augmentation Project, I am requesting a **conference call for this Thursday at 9:00 am.**
Please let me know your availability to participate.

As you all know, we are considering changing the operation of the flow augmentation project from a "pre-wetting" program to a "salmon attraction" program. This change is contemplated because of the sustained dry weather pattern we are experiencing (which is jeopardizing this year's salmon run), our availability of water for this proposed use, the favorable ambient condition of the main spawning reach of the river, and to broaden our experimental design to address additional questions regarding salmon behavior on the Cosumnes River.

The B2 Water Program management group will be discussing this issue at their regular Thursday meeting. I am anticipating that USFWS and Reclamation will want to discuss this request with us after that meeting, potentially as early as this Thursday afternoon or Friday. To ensure that "our side" is on the same page, I am requesting the above conference call. To facilitate our coordination RBI, with assistance from Trevor Kennedy, is preparing a brief memo addressing the following issues:

- Original project operations
- Reasons for changing operations
- Hypotheses that will to evaluated through this new "experiment."

Our experience tell us that USFWS will want to know what benefit will be derived from this program and use of the B2 water. A clear and coordinated response to that question will strengthen our case and, more importantly, will facilitate a quick response. Ideally, we would like to begin attraction release before Thanksgiving.

Please provide a response regarding your availability for the conference call or if you have any other questions.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Larry Rodriguez
Sent: Friday, November 18, 2005 9:27 AM
To: David Robinson; jwhite@dfg.ca.gov; nick_hindman@fsw.gov; Derrick_Hilts@fws.gov; roger_guinee@fws.gov; Paul Fujitani; Thuy Washburn; cesar_blanco@r1.fws.gov; <"Keith Whitener"
Subject: RE: Cosumnes conference #

All,

To help facilitate this morning's conference call, attached is a memo outlining the conditions on the Cosumnes River and proposed operational changes being requested by The Nature Conservancy, Fisheries Foundation and Southeast Sacramento County Agricultural Water Agency.

Thank you,

Larry J. Rodriguez
Robertson-Bryan, Inc.

From: Larry Rodriguez
Sent: Monday, November 21, 2005 11:24 AM
To: 'James Taylor'; 'David Lawson'; 'David Robinson'; 'mfinnegan@mp.usbr.gov'; 'rshroeder@mp.usbr.gov'; 'pfujitani@mp.usbr.gov'; 'twashburn@mp.usbr.gov'; 'roger_guinee@fws.gov'; 'derrek_hilts@fws.gov'; 'nick_hindman@fws.gov'
Cc: Stuart Robertson; Brook Edwards; Trevor Kennedy; Cesar Blanco; kwhitener@tnc.org
Subject: REQUEST FOR CHANGE IN FSC RELEASES

Gentlemen,

We would like to request that releases from Folsom South Canal to the Cosumnes River be reinitiated at a rate of 5-8 cfs, closer to 8 cfs if possible. We will be trying to maintain 40 cfs just below the canal, within the infrastructure capabilities.

Our goal is to try to move the wetting front a few more miles downstream. The front has been creeping back upstream as a results of slightly declining flows at Michigan Bar (currently at 30 cfs) and dry conditions in the lower river channel. This supplemental release should move the wetting front back to about 2 mile upstream of tidewater.

Thank you,

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Cesar_Blanco@fws.gov [mailto:Cesar_Blanco@fws.gov]
Sent: Monday, November 21, 2005 3:31 PM
To: Tom
Cc: andrew_hamilton@fws.gov; Gary Bobker; Randy Brown; Michael Bryan; Campbell_Ingram@fws.gov; cosumnes; Cosumnes_Fish_Forum@delta.dfg.ca.gov; CSBA-Jack (E-mail); Dan B. Odenweller; David_Hu@r1.fws.gov; DeltaKeep@aol.com; demko@dcs-chico.com; Doug@fishfirst.com; Douglas W. Lovell; elizabeth.a.campbell@noaa.gov; Ed Pert; Erwin Van Nieuwenhuyse; Felix E Smith; Zeke Grader; Gary Adams; Gary Adams; Gonzalo Castillo; idrury@dfg.ca.gov; John Beuttler; Gerald Meral; Joe Merz; John Nelson; John C Baker; John_Icanberry@fws.gov; Jim White; Kenneth Lentz; KPerry@dfg.ca.gov; kwhitener@tnc.org; Lester Snow; Leo Winternitz; meaton@tnc.org; Marty Gingras; MHEALEY@dfg.ca.gov; mount@geology.ucdavis.edu; Matt Weiser; Peter B. Moyle; Dick Shannon; Fris, Rebecca; Whitey Rasmussen (E-mail); rstork@friendsoftheriver.org; Guillen, Sergio@CalWater; Spaar, Stephani; stripermike@earthlink.net; Red Bartley (E-mail); Tina Swanson; tfrink@water.ca.gov; Tom Philp
Subject: Re: Fw: Cosumnes Flow Release Strategy - Conference call

Tom,

I think it is important for everyone to understand that the b2 releases were never meant to serve as supplemental surface flows. The intent of the "COSUMNES RIVER FLOW AUGMENTATION PROJECT 2005 PILOT PROJECT OPERATION PLAN" was to use water from the Folsom South Canal to pre-wet the channel bed so that when natural rain-fall occurred the connection to the spawning reaches would occur sooner. There was never any agreement that we would use this water for supplemental surface flow. In fact it was my understanding that b2 managers explicitly stated that the water was not to be used for supplementing surface flow. This decision, however, does not affect the originally stated purpose of the Pilot Study and that is to pre-wet the channel bed and hope for rain.

Cesar Cadena Blanco, Ph.D.
Habitat Restoration Coordinator
U.S. Fish and Wildlife Service
Anadromous Fish Restoration Program
4001 N. Wilson Way
Stockton, CA 95205
(209) 946-6400 x. 315
(209)403-1457 (cell)
(209)946-6355 (FAX)
http://www.delta.dfg.ca.gov/afrp/

From: Brook Edwards
Sent: Wednesday, November 30, 2005 10:31 AM
To: Larry Rodriguez; 'James Taylor'; 'David Lawson'; 'David Robinson'; 'mfinnegan@mp.usbr.gov'; 'rshroeder@mp.usbr.gov'; 'pfujitani@mp.usbr.gov'; 'twashburn@mp.usbr.gov'; 'roger_guinee@fws.gov'; 'derrek_hilts@fws.gov'; 'nick_hindman@fws.gov'
Cc: Stuart Robertson; 'Trevor Kennedy'; 'Cesar Blanco'; 'kwhitener@tnc.org'
Subject: RE: REQUEST FOR CHANGE IN FSC RELEASES

Gentlemen,

We would like to request that releases from Folsom South Canal to the Cosumnes River be shut off.

Thank you,

Brook R. Edwards
Restoration Ecologist
Robertson-Bryan, Inc.
9888 Kent Street
Elk Grove, CA 95624
Office: 916.714.8351
Cell: 916.216.7330

From: Larry Rodriguez
Sent: Friday, December 16, 2005 1:48 PM
To: 'nick_hindman@fws.gov'; David Robinson
Subject: Cosumnes River Project for next year.

Nick & Dave,

The flow augmentation program is coming to a close and I think that we can call this a successful experiment. When we finally received enough precipitation to increase the natural river flow the river was able to establish a connection to tidewater at about 50-55 cfs (measured at Michigan Bar). This connection was strong enough that we also saw fish moving into the river. Compare this to our original estimate of needing a minimum of 110 cfs flow spike or more than 65 cfs for a sustained period (+7 days) to create connection.

Given the wet conditions in the river, prior to the start of the project, we have released less than 1,000 af into the river. Looking forward to next, I am unsure whether our permanent water supply from the County will be available by next October. Therefore, I would like to start the ball rolling on trying to secure water from the B2 Program next year. The simplest approach might be to allow us to retain the unused portion of water, slightly more then 4,000 af, for next year.

I have sent this email to just you two, to seek some input on the best approach to making this request.

Larry J. Rodriguez
Senior Water Resources Specialist
Robertson-Bryan, Inc.
Phone: (916) 714-1806
email: larry@robertson-bryan.com
9888 Kent Street, Elk Grove CA 95624

From: Nick_Hindman@fws.gov [mailto:Nick_Hindman@fws.gov]
Sent: Monday, December 19, 2005 3:15 PM
To: Larry Rodriguez
Cc: David Robinson
Subject: Re: Cosumnes River Project for next year.

Larry and Dave,

I agree that this year's pilot project on the Cosumnes was worthwhile and I hope it proves to be successful. That said, the B2IT group was very clear that this was a one-time pilot effort using 5 TAF of banked b2 water. In all likelyhood the remaining 4 TAF of banked water earmarked for the Cosumnes study will spill if/when Folsom goes into flood control releases.

You're welcome to pitch the idea of another Cosumnes effort in 2006 to B2IT, but I wouldn't be too optimistic.

Nick Hindman
Fishery Biologist
USF&WS, Sacramento CA
(916) 414-6543

From: David Robinson [mailto:DROBINSON@mp.usbr.gov]
Sent: Tuesday, December 20, 2005 8:00 AM
To: Larry Rodriguez
Subject: Re: Cosumnes River Project for next year.

Nick responded as I expected, hoever, you might try a couple of strategies. First try and get the project dayligheted in some of the annual science conferences/reviews. I know that when the EWA Science Review Panel looked at past EWA actions, the one they thought was one of the more beneficial actions taken was bypassing power production at Folsom to provide cold water. To the extent you can get independent reviewers to laud the merits of the project, the easier it would be to get the Service to dedicate some water in the future. Meantime, we should have some conversations about how we would account for the Aerojet water and what it will take to utilize that supply for your purposes. I know that ball is really in the County's court, but the sooner we get a group on the same page, the sooner you might have a more reliable supply. It is going to require quite a bit of analysis and discussion to come up with a proposal for use that Reclamation can live with.

From: Larry Rodriguez
Sent: Tuesday, December 20, 2005 8:28 AM
To: David Robinson
Subject: RE: Cosumnes River Project for next year.

Thanks for you input Dave.

I put some thouhght into our approach with FWS with others.

As for the long-term supply I am trying to get the county to re-work their management strategy to avoid an excahnge agreement. They will be supplying more then 40 cfs to the American River on a daily basis, so if we can manage that with all the other user, then we can simply divert wants needed on the Cosumnes (Oct-Dec) and in the remainder of the year the other users can take all the Aeroject discharge. I think that are coming round to the idea. I'll try to get something set up to explore this option from all sides.

Have a Merry Christmas and Best in the New Year.

Larry J. Rodriguez
Robertson-Bryan, Inc.