

PLACER COUNTY WATER AGENCY
MIDDLE FORK AMERICAN RIVER PROJECT
FERC PROJECT NO. 2079

Pre-Application Document

Executive Summary

RUBICON RIVER AT BUCKEYE FLAT



**OXBOW POWERHOUSE AND
INDIAN BAR RAFTING ACCESS/
GENERAL PARKING AREA**

Introduction

This Executive Summary is intended to provide the reader with an overview of the PAD. The PAD is an extensive document, consisting of this Executive Summary and 10 volumes of Supporting Documents.

PLACER COUNTY WATER AGENCY (PCWA OR LICENSEE) owns and operates the Middle Fork American River Project (MFP or Project), a system consisting of two major storage reservoirs, five smaller regulating reservoirs and diversion pools, and five powerhouses that began operation in 1967. The MFP supplies water for homes, industry, and agriculture within western Placer County and clean renewable energy to the California electric grid.

The MFP is located on the west slope of the Sierra Nevada range primarily in Placer County, California. A small component of the Project (a portion of Ralston Afterbay Dam) is located in El Dorado County, California. The Project is almost entirely in the Tahoe (TNF) and Eldorado (ENF) National Forests, with a small portion on PCWA-owned property.

The Project's major storage reservoirs, French Meadows and Hell Hole, have a combined capacity of 342,583 acre-feet (ac-ft). The Project has a generation capacity of approximately 224 megawatts (MW) and has produced an average of about 1 million megawatt-hours (MWh) per year. The Project includes recreation facilities near its storage reservoirs. In addition, its

operations accommodate popular whitewater rafting opportunities in the Middle Fork American River below Oxbow Powerhouse.

The MFP is operated under a 50-year license (Project No. 2079), which was issued by the Federal Power Commission, predecessor of the current Federal Energy Regulatory Commission (FERC or Commission). The current license expires on March 1, 2013. PCWA is seeking the renewal of its license to continue operations of the MFP.

Although the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) did not exist in 1963 when the current license was granted, there was nevertheless an understanding of the tradeoff of natural resources and economic values inherent in the construction and operation of the MFP. Those 1963 decisions balancing environmental and economic values were consistent with the societal values of the day.

In 1986, the Federal Power Act (FPA) was amended requiring FERC to develop license conditions “with equal consideration of developmental and environmental values”. Developmental values include power generation, irrigation, flood control, and water supply. Environmental values include fish and wildlife resources, visual resources, cultural resources, recreation opportunities, and other aspects of environmental quality. This balancing of developmental and environmental values will be reflected in the terms and conditions of the new license for the MFP and will no doubt reflect current societal values and sensitivities.

PCWA and the County of Placer, as collaborators in this relicensing, consider themselves to be good stewards of the environmental, cultural, and economic resources of Placer County. Each looks forward in this relicensing to an open and straightforward investigation of the resource questions and a timely and fair resolution of issues with stakeholders, leading to the on-time issuance of a new license by FERC.

To formally initiate relicensing, FERC requires the Licensee to file a Pre-Application Document (PAD), a Notification of Intent (NOI) to seek a license, and to initiate consultations prescribed under the Integrated Licensing Process (ILP or relicensing process) a minimum of five years prior to the expiration of the current license. With submittal of the PAD and NOI to FERC, PCWA has formally initiated

PCWA and Placer County Relationship in MFP Relicensing

In 1963 the Placer County Board of Supervisors were the ex-officio Board of Directors of PCWA. In 1975 the PCWA Act was amended to provide for an independently elected Board of Directors for PCWA; however, each Board retains an economic interest in the MFP and the two Boards are collaborating on this relicensing.

the relicensing process for the MFP. The PAD was prepared in compliance with Section 18 Part 5 of the Code of Federal Regulations (18 CFR Part 5), which defines the content requirements of the document.

The PAD prepared for the relicensing of the MFP includes:

- PCWA’s proposed process plan and schedule for relicensing of the MFP, which is consistent with the ILP;
- A description of the Project’s existing facilities, historic operational practices, and proposed facility betterments/improvements;
- A description of existing environmental and cultural resources and potential impacts associated with the Project based on existing data sources and early field studies;
- A list of resource interests (preliminary issues) developed in collaboration with the stakeholders;
- Detailed stakeholder-approved Technical Study Plans which focus on filling gaps in the available environmental and cultural information, and providing a factual basis for the establishment of Protection, Mitigation and Enhancement measures (PM&Es) in the new license; and
- A description of consultation efforts with stakeholders made in connection with the preparation of the PAD.

Information contained in the PAD will be used during the NEPA and CEQA scoping process to further refine potential resource issues, identify

related information needs, formulate study requests, and develop any additional study plans.

FERC will be the lead agency for the preparation of an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) under NEPA, one of which is required for issuance of a new license for the Project. Upon receiving the NOI and PAD from PCWA, FERC will publish a Notice of Commencement (NOC) to prepare an EA or EIS and will initiate scoping.

PCWA is also required to obtain a 401 Water Quality Certification from California’s State Water Resources Control Board (SWRCB) as a precondition to FERC’s issuance of a new license. PCWA will be the lead agency for the preparation of an Environmental Impact Report (EIR) under CEQA, which is required for the issuance of the 401 Water Quality Certification by SWRCB (as a responsible agency) and for implementation of any betterments or PM&Es by PCWA which are allowed or required under the new license. PCWA will publish a Notice of Preparation (NOP) of a Draft EIR separate from the PAD in conjunction with FERC publishing the NOC, so that environmental scoping meetings under NEPA and CEQA can be combined, and to streamline the environmental documentation and review processes.

The PAD is an extensive document, consisting of an Executive Summary and 10 volumes of Supporting Documents. This Executive Summary is intended to provide the reader with an overview of the PAD contents

by summarizing the more detailed technical information contained within each Supporting Document.

All stakeholders are invited to comment on the PAD. Comments on the PAD and study requests are due to FERC no later than 120 days from the filing of the PAD and may be submitted in writing to:

Kimberly D. Bose, Secretary

Nathaniel J. Davis, Sr., Acting Deputy Secretary

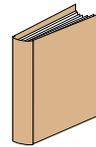
**Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426**

or electronically by “e-filing” at: <http://www.ferc.gov/docs-filing/efiling.asp>

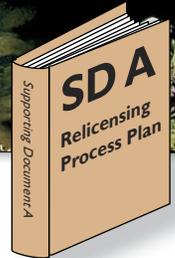
All comments sent to FERC should include a header that identifies the Project name “PCWA-Middle Fork American River Project” and associated docket number “P-2079”.

Contents of the Executive Summary

- Introduction
- Relicensing Process Plan
- Project Description
- Project Betterments/Improvements
- Stakeholder Interests
- Existing Resources
- Preliminary Issues and Potential Impacts
- Proposed Studies
- Consultation



This Book icon appears at the beginning of each section of the Executive Summary. It directs the reader to the relevant Supporting Document where more detailed technical information can be found.



Relicensing Process Plan

The filing of the Notice of Intent and Pre-Application Document on December 13, 2007 initiates the process to obtain a new license.

UNDER THE FPA, FERC IS RESPONSIBLE FOR REGULATING non-federal hydroelectric power projects through the issuance and enforcement of the project license. As the term of the license expires, a new license must be obtained from FERC to continue operations and maintenance of the project. PCWA intends to relicense the MFP using FERC’s ILP and complete the process by the license expiration date of March 1, 2013. To facilitate communication during the relicensing, PCWA has developed a Relicensing Process Plan and Schedule, and established a publicly-accessible Internet website <http://relicensing.pcwa.net/>, and a Resource Library, located at the PCWA Business Center, 144 Ferguson Road, Auburn, California. The website and library contain information regarding PCWA’s past and current relicensing activities including meeting notices and agendas, meeting summaries, documents distributed to or received from participants in the process, reference materials, key decisions, and relevant information sources such as FERC’s ILP regulations. Updates to PCWA’s Relicensing Process Plan and Schedule will be posted on the website. PCWA also developed Communication and Participation Protocols in collaboration with stakeholders to provide guidelines for participation in the MFP relicensing.

Early Relicensing Activities

Beginning in 2005, PCWA’s Board of Directors requested staff to begin early consultation with state and federal resource agencies, non-governmental organizations, Native American Tribes, and other stakeholders in preparation for the MFP relicensing. The intent of these early meetings was to identify potential stakeholders and understand their resource interests, describe MFP facilities and operations to interested parties, and solicit existing resource information. PCWA also used these early meetings to collaborate on the scope of early environmental and cultural data gathering activities.

PCWA began early environmental data gathering activities in 2005-2006 which focused on documenting river and stream channel characteristics (geomorphology), riparian vegetation, aquatic habitat, historical Project and pre-Project flows, water temperatures, and meteorological conditions in streams and rivers upstream and downstream of Project diversions and reservoirs. Cultural resource inventories within the FERC Project Boundary were also initiated. Results of these early environmental and cultural studies completed in 2005 and 2006 have been distributed to stakeholders in a series of technical reports. This information was used to prepare a more thorough description of select resources in the vicinity of the MFP and to facilitate stakeholder

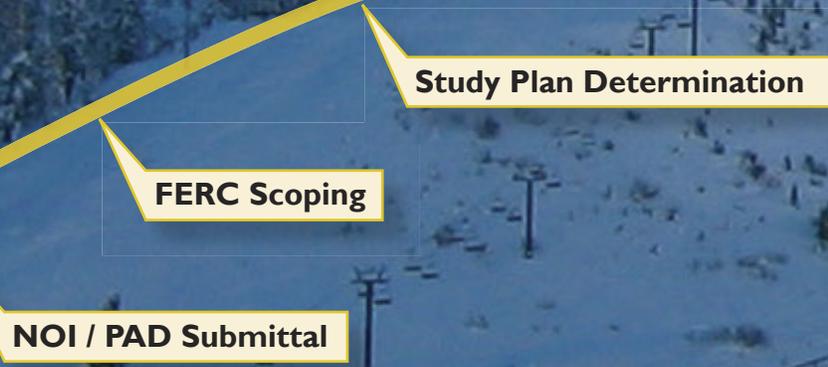
collaboration on the development of focused Project-specific Technical Study Plans included in the PAD.

PCWA, in consultation with the resource agencies, also began developing a computer model of Project operations. When completed, the operations model will characterize the effects of implementing alternative license conditions on flows downstream of Project facilities, reservoir water elevation/storage levels, power generation, consumptive water deliveries, and consistency with current FERC license requirement or other existing agreements.

Early Agreement and Implementation of Technical Study Plans

During April and May 2006, PCWA conducted several Introductory Stakeholder Meetings and organized a Plenary Group, which is open to all interested stakeholders, to facilitate communication and decision-making during relicensing. As of November 2007, 11 Plenary meetings have been held. Major activities completed in the Plenary meetings include: presentations on existing MFP facilities, operations, and proposed Project betterments; sharing of stakeholder interest statements; development and approval of Communication and Participation Protocols; and formation of Technical Working Groups (TWGs). A major accomplishment of the Plenary and TWGs was the collaborative development and approval

Ascent to a New License



of Technical Study Plans for inclusion in the PAD. Thirty-eight TWG meetings were held between August 2006 and August 2007 to review, revise, and reach consensus on the Technical Study Plans. The Plenary approved all of the Technical Study Plans during the May, June, and September 2007 meetings.

PCWA initiated implementation of select elements of the Plenary-approved Technical Study Plans in May 2007. Study plan elements completed in 2007 included selection of instream flow modeling transects; fish, amphibian, macroinvertebrates, and water quality surveys; recreation user counts; cultural resource inventories; vegetation community and wildlife habitat mapping; bat surveys; and visual quality assessments of Project facilities. This information will be shared with stakeholders in a series of technical study reports, which will be distributed in early 2008. The remainder of the technical studies presented in the PAD will be completed in 2008 and 2009.

60 days of the filing of the NOI and PAD, FERC is required to issue Scoping Document 1 and provide a public notice of upcoming events sponsored by FERC, including public scoping meetings and site visits.

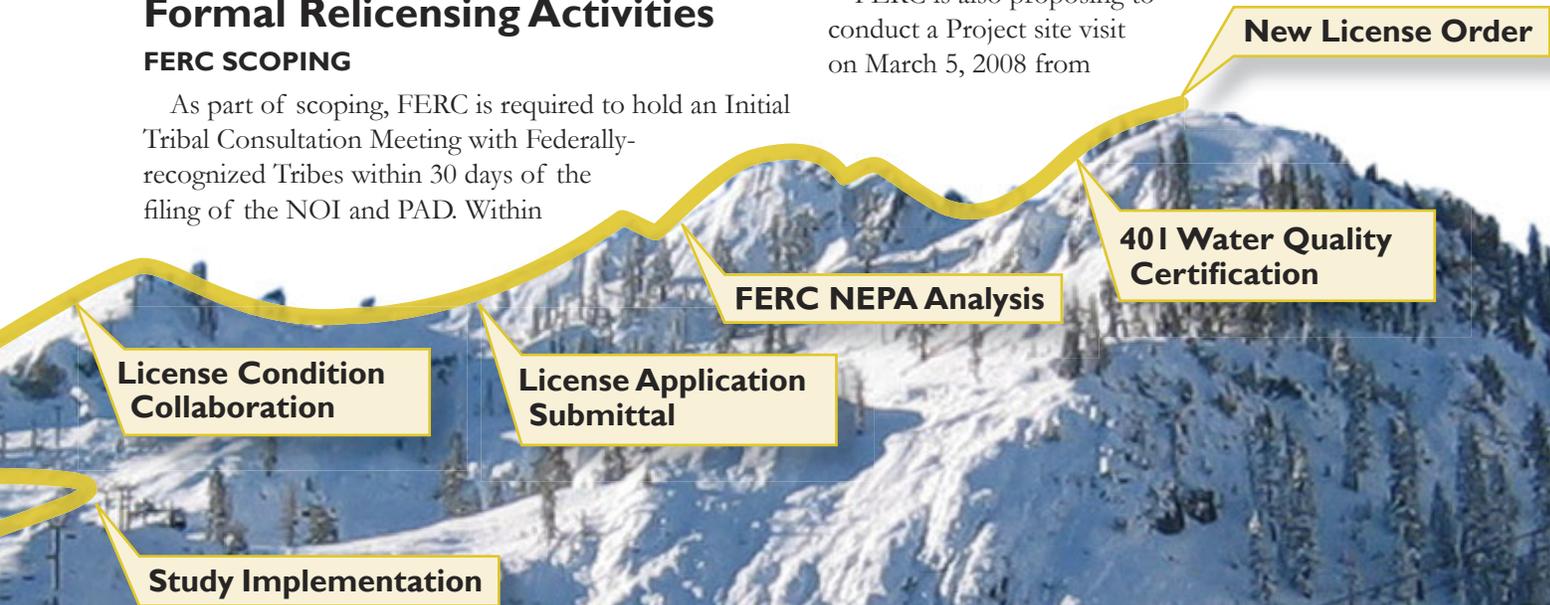
Currently, FERC is planning to hold two public scoping meetings related to the MFP relicensing in March 2008. These meetings will be held at the Auburn Recreation District-Canyon View Community Center, 471 Maidu Drive, Auburn, California on Tuesday, March 4, 2008 from 9:00 AM - 11:30 AM and from 6:30 PM - 9:00 PM. A virtual tour of the MFP will be provided during the public scoping meeting using maps, photographs and video. The purpose of the scoping meeting will be to discuss resource issues, management objectives, information needs and finalize the relicensing process plan and schedule. Comments on Scoping Document 1 must be submitted to FERC within 60 days of its distribution.

Formal Relicensing Activities

FERC SCOPING

As part of scoping, FERC is required to hold an Initial Tribal Consultation Meeting with Federally-recognized Tribes within 30 days of the filing of the NOI and PAD. Within

FERC is also proposing to conduct a Project site visit on March 5, 2008 from



KT22 AT SQUAW VALLEY SKI RESORT

Specific process objectives of the relicensing

- ✓ Retain the FERC license for the people of Placer County
- ✓ Meet all regulatory deadlines and acquire a new license by February 28, 2013
- ✓ Engage stakeholders in an open and transparent forum that promotes a free exchange of ideas and sharing of information among the participants
- ✓ Maintain an efficient process by retaining a neutral facilitator and providing stakeholders with informative presentations and “first drafts” of technical study plans and reports for review and comment
- ✓ Complete the study phase and analytical tool development early in the process to provide sufficient time for PCWA and the stakeholders to fully evaluate Project effects and collaboratively develop new license conditions

8:00 AM - 4:00 PM so that interested parties can view the lower elevation Project facilities. The Project site visit will originate from the Auburn Recreation District-Canyon View Community Center. Transportation during the site visit will be provided by PCWA. The upper elevation Project facilities are not accessible to the public during the winter and early spring due to snow. If necessary, a site visit to the upper Project facilities will be scheduled later in the year. More details on the site visits will be publicly noticed by FERC as the date approaches.

STUDY PLAN DEVELOPMENT, EXECUTION AND REPORTING

Although detailed stakeholder-approved Technical Study Plans are included in the PAD, FERC has a well-defined process for evaluation of study plans that must be followed. Due to extensive early consultation with stakeholders, PCWA does not anticipate that modifications to the study plans will be required during FERC’s review process. However, comments on the PAD Technical Study Plans and additional study requests may be submitted by stakeholders. These comments are due to FERC no later than April 11, 2008. After additional consultation with stakeholders, FERC will issue a Study Plan Determination, with regard to PCWA’s Technical Study Plans, including any modifications deemed necessary in light of the record. This process will take 315-405 days from the date that the PAD is filed, depending on whether formal dispute resolution is necessary. However, PCWA plans to continue implementation of the stakeholder-approved study plans in 2008 unless a substantial modification is under consideration by FERC.

PCWA will then be required to complete the study plans according to the final scope of work and schedule as modified by FERC. During study implementation, PCWA must file an annual study progress report to FERC describing overall progress in implementation of the study plans including data collected to date, any deviations in technical approaches or schedules, and a proposed schedule for completion of the remaining study plan components. The report must also include a description of any proposed modifications to the approved studies or new studies proposed by PCWA. FERC will then amend the approved study plans, as appropriate, after reviewing comments by stakeholders. However, any modification of the approved study plans or additions of new study plans must meet strict criteria prior to being considered by FERC.

FILING OF LICENSE APPLICATION

PCWA must file a Draft Application or a Preliminary Licensing Proposal to FERC no later than October 1, 2010. The Final Application must be filed with FERC by February 28, 2011, two years prior to the license expiration date. By beginning early, PCWA expects that the License Application will include proposed license conditions that have been developed in collaboration with stakeholders, address multiple resource interests, and represents the best comprehensive use of the waterway. The early commitment by PCWA and stakeholders to reach consensus on the Technical Study Plans and early implementation of these studies by PCWA is expected to provide the parties technical information in a timely manner to allow them to fully collaborate on the development of new license conditions prior to submittal of the License Application. PCWA believes that this collaboration will lead to the development of new license conditions that meet multiple resource interests while maintaining the benefits of the MFP for the people of Placer County.

FERC APPLICATION PROCESSING

A two-year period is allocated within the ILP regulations for FERC’s processing of the Final License Application (February 2011 - February 2013). During this time, FERC will issue a draft and final NEPA document (either an EA or an EIS) evaluating Project-related impacts and proposed new license conditions. Terms and conditions from mandatory resource agencies will be included in the environmental document and the new license, including those contained in the required Clean Water Act Section 401 Certification.



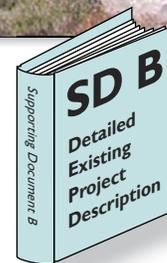
FRENCH MEADOWS RESERVOIR



HELL HOLE RESERVOIR

The backbone of the MFP is the capture and storage of water in French Meadows and Hell Hole reservoirs.

Project Description



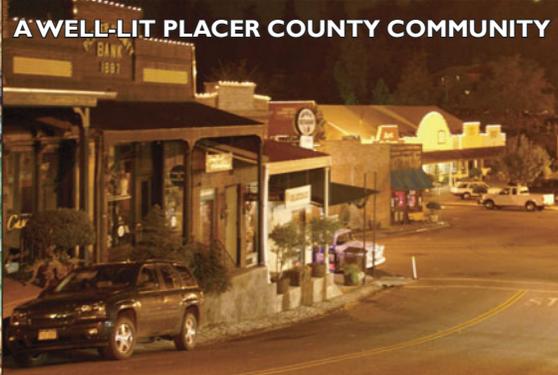
THE MFP SERVES AS A MULTI-PURPOSE WATER SUPPLY and hydro-generation project designed to conserve and control waters of the Middle Fork American River, the Rubicon River, and several associated tributary streams. The MFP is located within the Middle Fork American River Watershed (Watershed) at elevations ranging from approximately 1,100 feet to 5,300 feet. Water for hydroelectric generation and consumptive use is diverted and stored under permits and licenses issued by the SWRCB.

The MFP seasonally stores and releases water to meet consumptive demands within western Placer County and to generate power for the California electrical grid. Water for consumptive purposes is released from the MFP and re-diverted at two locations: (1) the American River Pump Station, located on the North Fork American River near the City of Auburn; and (2) Folsom Reservoir. Both points of re-diversion are downstream of the MFP facilities and neither is part of the MFP as defined in the FERC Project

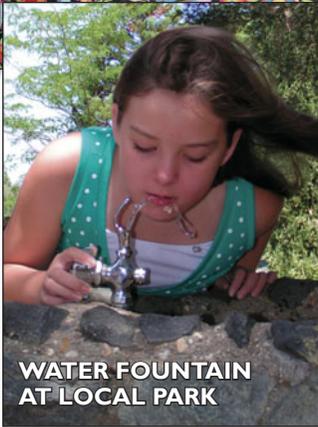


PLACER COUNTY FARMER'S MARKET

The MFP benefits the people of Placer County by providing water and electricity.



A WELL-LIT PLACER COUNTY COMMUNITY



WATER FOUNTAIN AT LOCAL PARK

License. PCWA's water rights and water supply agreements currently allow for the consumptive use of up to 120,000 ac-ft of MFP water per year. Consumptive water supplied by PCWA is used to

meet municipal, industrial, and agricultural demands.

Hydroelectric power from the MFP is produced at five Project powerhouses with a combined nameplate generating capacity of approximately 224 MW. The total annual flow through the MFP and the resulting total annual generation are highly variable. The MFP produces an average of 1,030,000 MWh annually on mean generation flows of 452,000 ac-ft. The highest annual generation was in 1983, a wet water year, when the MFP produced approximately 1,815,000 MWh on flows of 714,400 ac-ft. The lowest annual generation was in 1977, a critically dry water year, when the MFP only produced 211,000 MWh on flows of 75,000 ac-ft.

Project Facilities

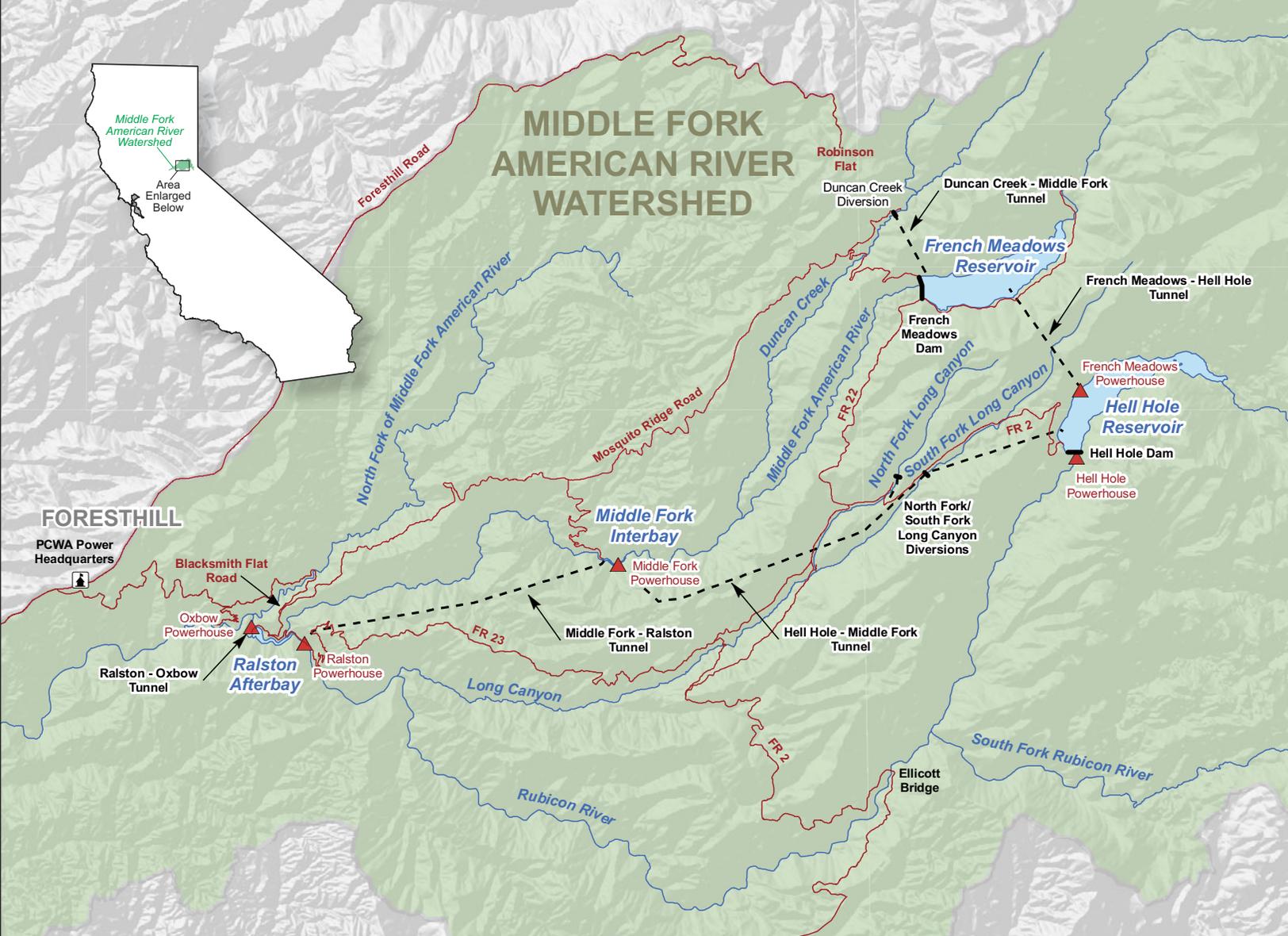
The MFP diverts, stores, and transports water through a series of stream diversions, reservoirs, water conveyance systems, and powerhouses before it is released back into the Middle Fork American River below Oxbow Powerhouse, approximately 29 miles

upstream of Folsom Reservoir. Instream flow releases below each diversion are made in accordance with FERC license requirements. All electricity generated by the MFP is delivered to Pacific Gas and Electric's (PG&E's) transmission system at Project switchyards and substations, typically located near powerhouses. PG&E's transmission system is not part of the MFP.

The backbone of the MFP is its two principal water storage reservoirs, French Meadows and Hell Hole. These reservoirs are located on the Middle Fork American River and the Rubicon River, respectively, and have a combined gross storage capacity of 342,583 ac-ft.

Starting at the highest elevation of the MFP, water is diverted from Duncan Creek at the Duncan Creek Diversion and routed through the 1.5 mile-long Duncan Creek-Middle Fork Tunnel into French Meadows Reservoir (134,993 ac-ft of gross storage).

Flows in the Middle Fork American River are captured and stored in French Meadows Reservoir along with diversions from Duncan Creek. From French Meadows Reservoir, water is transported via the 2.6 mile-long French Meadows-Hell Hole Tunnel, passed through the French Meadows Powerhouse (installed generating capacity of 15.3 MW) and released into Hell Hole Reservoir (207,590 ac-ft of gross storage). Flows in the Rubicon River are captured and stored in Hell Hole Reservoir along with water released from French Meadows Reservoir through French Meadows Powerhouse. Water released from Hell Hole Reservoir into the Rubicon River to meet instream flow requirements first pass through the Hell Hole



Powerhouse (installed generating capacity of 0.73 MW), which is located at the base of Hell Hole Dam.

From Hell Hole Reservoir, water is also transported via the 10.4 mile-long Hell Hole-Middle Fork Tunnel, passed through the Middle Fork Powerhouse (installed generating capacity of 122.4 MW) and released into the Middle Fork Interbay (175 ac-ft of gross storage). Between Hell Hole Reservoir and Middle Fork Powerhouse, water is diverted from the North and South Forks of Long Canyon creeks directly into the Hell Hole-Middle Fork Tunnel. Water diverted from these creeks into the Hell Hole - Middle Fork Tunnel can either be stored in Hell Hole Reservoir or be used to augment releases from Hell Hole Reservoir to the Middle Fork Powerhouse.

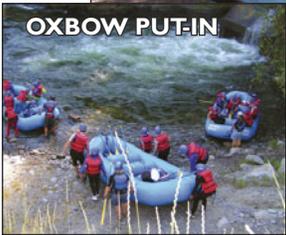
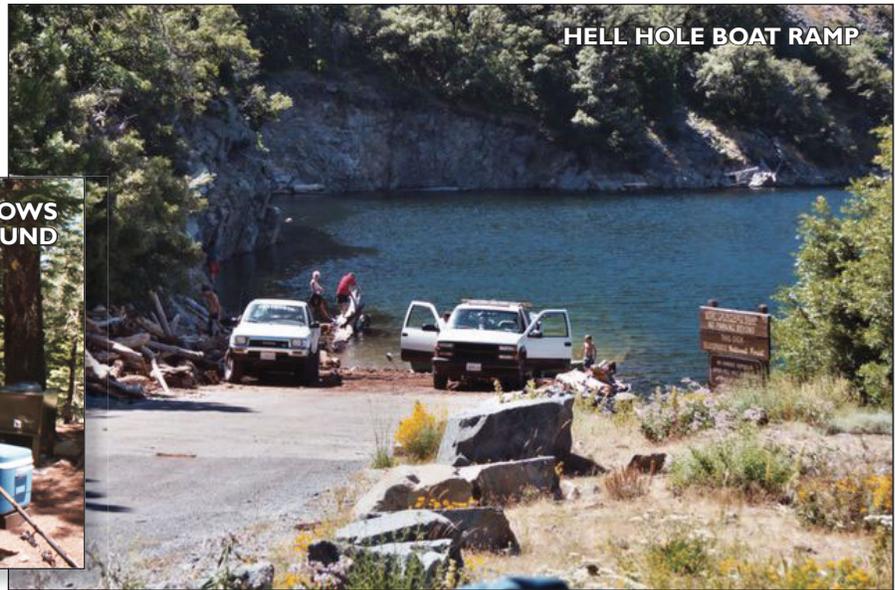
Flows from the Middle Fork American River (including instream flow releases from French Meadows Reservoir) are captured at Middle Fork Interbay along with water released from Hell Hole Reservoir through

Middle Fork Powerhouse. From Middle Fork Interbay, water is transported via the 6.7 mile-long Middle Fork-Ralston Tunnel, passed through the Ralston Powerhouse (installed generating capacity of 79.2 MW) and released into the Ralston Afterbay (2,782 ac-ft of gross storage).

Flows from the Middle Fork American River (including instream releases from Middle Fork Interbay) and flows from the Rubicon River (including instream releases from Hell Hole Reservoir) are captured in Ralston Afterbay along with water transported from Middle Fork Interbay through Ralston Powerhouse. From Ralston Afterbay, water is transported via the 400 foot-long Ralston-Oxbow Tunnel, passed through the Oxbow Powerhouse (installed generating capacity of 6.1 MW) and released from the MFP to the Middle Fork American River.

In addition to these major water and power facilities, the MFP includes 35 Project roads (totaling almost 18 miles) and 10 Project trails (totaling approximately 0.5 miles). These roads and trails are used almost exclusively

Project recreation facilities and reservoirs support a variety of recreational activities.



by PCWA to access Project facilities. The Project roads and trails represent less than 1% of the total miles of roads and trails in the Watershed. There are also over 6 miles of Project powerlines and communication lines, which provide power to operate Project equipment and allow communication between Project facilities. In addition, numerous smaller facilities and features support MFP operations including flow gaging stations and weirs, photovoltaic poles, microwave reflectors and radio towers, sediment disposal sites, generator and storage buildings, operator cottages, a maintenance shop, a dormitory facility, and security and public safety fences.

The MFP also includes 21 developed recreation facilities to enable public access to public lands and Project reservoirs. The developed Project recreation facilities are concentrated around French Meadows Reservoir, Hell Hole Reservoir, South Fork Long Canyon Diversion Pool, and Ralston Afterbay. PCWA is responsible for operation and maintenance of these facilities. The Project recreation facilities augment other recreation facilities in the Watershed operated by the TNF and ENF and the California Department of Parks and Recreation (DPR).

Project Operation

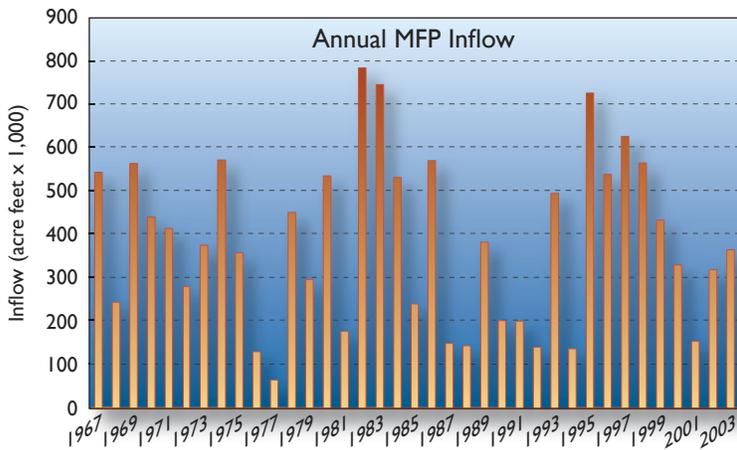
The MFP has been operated for over 40 years by PCWA as a multi-purpose project to benefit the people of Placer County. The MFP is operated with respect to four objectives, as follows:

- Meet FERC license requirements that protect environmental resources and provide for recreation;
- Meet the consumptive water demands of western Placer County;
- Generate power to help meet California’s energy demand and provide valuable support services required to maintain the overall quality and reliability of the state’s electrical supply system; and
- Maintain Project facilities to ensure their continued availability and reliability.

Project operations for water supply and electric power generation are constrained by regulatory and contract requirements, the physical capacities of the Project facilities, and water availability. Regulatory and contract requirements include conditions imposed by the FERC license, water rights permits, water delivery contracts, and the existing power purchase contracts with PG&E.

Water availability is influenced by carryover storage in the Project reservoirs and the timing and quantity of annual runoff.

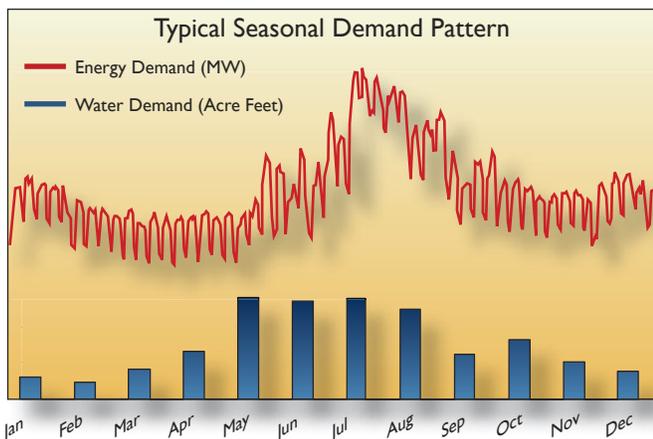




Annual operations are strongly influenced by inflow into the MFP.

Typical annual operation of the Project results in the capture of runoff which is diverted to increase storage in French Meadows and Hell Hole reservoirs in the winter and spring (filling period), and drawdown of the reservoirs during the summer, fall, and early winter (release period). Operation of the MFP varies from year-to-year based on the timing and magnitude of spring runoff, which is influenced by the amount of winter snow pack and ambient temperature conditions, as well as precipitation.

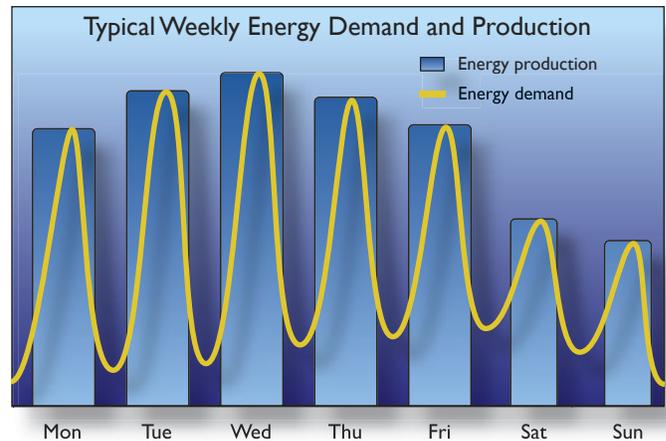
During the filling period, flows through the MFP powerhouses are highly dependent on projected and actual runoff conditions. In drier years, power releases are minimized during the filling period to increase the volume of water in storage to meet upcoming summer consumptive use and peak power demands. In wetter years, power releases during the filling period are increased to minimize spills from the reservoirs. In years when minimum



The MFP is operated to meet consumptive water and energy demands.

storage levels to meet consumptive demands are reasonably assured and the chance of spilling is low, power releases are adjusted through the filling season based on the volume of water in storage, projected runoff, and current and projected power demands.

During the release period, after the reservoirs have reached their maximum storage capacity, monthly releases for generation are largely predictable for the remainder of the year. However, daily and hourly releases for generation, which respond to demand for electricity and electrical grid reliability, remain highly variable. During the release period, flows are managed to: (1) meet storage and flow license requirements; (2) meet consumptive water supply requirements; (3) optimize power generation to meet peak electrical demand; and (4) achieve end-of-year carryover target storage levels.



The ability of the hydroelectric project to generate electricity during periods of peak demand maximizes the value of the MFP.

Decisions on the extent of the drawdown and the carryover target storage level is based on balancing of competing needs including: (1) providing sufficient empty storage space to minimize potential spills from the reservoirs during the next filling period if the runoff is high (wet year); and (2) retaining enough water in storage to ensure that license requirements and consumptive demands can be met in the following year if the next filling period runoff is low (dry year).

Water supply operations take priority over power generation operations. However, in all but dry years, current water supply demands are easily met as a by-product of power generation. The reason is that both consumptive water and electrical demands tend to coincide seasonally and the MFP generally

The Middle Fork and Ralston powerhouses account for over 90% of total MFP power generation.



The heart of the MFP is generation produced at Middle Fork and Ralston powerhouses.

controls and releases far more water annually than PCWA requires to meet its consumptive water demand. The majority of PCWA's consumptive deliveries are withdrawn from Folsom Reservoir, where the United States Bureau of Reclamation (USBR) allows for a 30-day balancing of supply and demand; thus hourly or even daily releases from the MFP do not need to explicitly match consumptive deliveries from Folsom Reservoir. Only the re-diversion of water for consumptive demand at the American River Pump Station near Auburn (maximum 100 cfs) requires hourly MFP system balancing to meet continuous minimum instream flows requirements below the pumping station.

The Middle Fork and Ralston powerhouses are the heart of MFP

generation. These two powerhouses generally run in tandem, using water transported from Hell Hole Reservoir to Ralston Afterbay. Together the two powerhouses have a rated capacity of 201.6 MW and produce about 90% of the MFP annual generation. Although Middle Fork Interbay is located between these powerhouses, Middle Fork Interbay has little ability to re-regulate flows because of its small storage capacity (175 ac-ft). If the flows through the Middle Fork and Ralston powerhouses are not matched, Middle Fork Interbay would be either drained or overtopped very quickly.

These powerhouses, running in tandem, are often used to help maintain reliable operations of the transmission grid by fine-tuning the flow of electricity in the grid to balance supply and demand. When operated to provide grid regulation, flow rates through the powerhouses vary quickly to meet constantly changing energy

Critical elements of MFP operations

- ✓ The flexibility to raise and lower water levels (water storage) at French Meadows and Hell Hole reservoirs at different rates and times throughout the year
- ✓ The ability to release water from storage at the appropriate time to meet an annual consumptive demand of up to 120,000 ac-ft
- ✓ The ability to maximize generation during periods of high electrical demand, especially in the summer and fall of dry years when water availability may limit generating opportunities
- ✓ The ability to simultaneously operate the Middle Fork and Ralston powerhouses (timing and flow) to maximize peak generation while avoiding spills at the Middle Fork Interbay
- ✓ The ability to independently generate at Oxbow Powerhouse (decoupled from operations of the Middle Fork and Ralston powerhouses) by using the re-regulation capability of the Ralston Afterbay
- ✓ The ability to shutdown the MFP annually for relatively short periods to perform routine maintenance

supply and demand conditions. These powerhouses are also frequently block loaded. When block loaded, flows through the powerhouses are usually set at an efficient operating level and run for a prescribed number of hours per day, depending upon hydrology.

French Meadows Powerhouse is used when water is moved from French Meadows Reservoir to Hell Hole Reservoir. It is nearly always operated in block loaded condition, with the duration of the block of operation set depending on the volume of water to be moved.

Ralston Afterbay and Oxbow Powerhouse are the final steps in the MFP system. Oxbow Powerhouse frequently runs in tandem with Middle Fork and Ralston powerhouses. Presently, water is released from Oxbow Powerhouse to the Middle Fork American River at the same rate it enters Ralston Afterbay. However, Ralston Afterbay has sufficient operational storage capacity (about 1,200 ac-ft out of 2,782 ac-ft gross) to allow Oxbow Powerhouse to operate independently of Middle Fork and Ralston powerhouses for several hours at a time. This independent operational flexibility is used to meet the ramping rate requirement downstream of Oxbow Powerhouse, and to make weekend releases for whitewater rafting without requiring operation of the Middle Fork and Ralston powerhouses.

Testing and Maintenance

To maintain and protect system reliability, PCWA conducts annual inspections, testing, and maintenance of Project facilities. Annual maintenance is scheduled at a time when the work can be expeditiously completed (during favorable flow and weather conditions) and have the least effect on water supply deliveries and power production.

These activities typically occur for facilities in the lower Project area beginning in late September, and require that the lower MFP powerhouses (Middle Fork, Ralston, and Oxbow) be taken out-of-service for 3-6 weeks. During the fall maintenance period, Middle Fork Interbay and Ralston Afterbay water levels are lowered to allow access to the facilities. Consumptive demands and instream flow requirements downstream of Oxbow Powerhouse during the fall outage are typically met by increasing flow releases from Hell Hole Reservoir into the Rubicon River. Inspection, testing, and the maintenance of facilities in the upper Project area (i.e., French Meadows and Hell Hole powerhouses), typically occur during



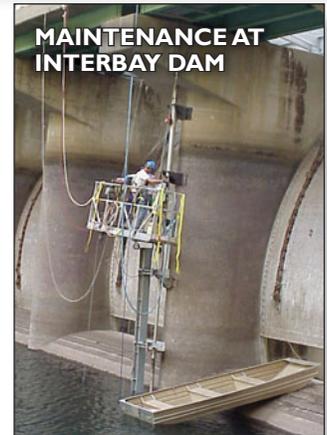
SEDIMENT REMOVAL AT NORTH FORK LONG CANYON DIVERSION POOL

Ongoing maintenance is essential for system reliability.

the spring, once the roads to the Project facilities are passable.

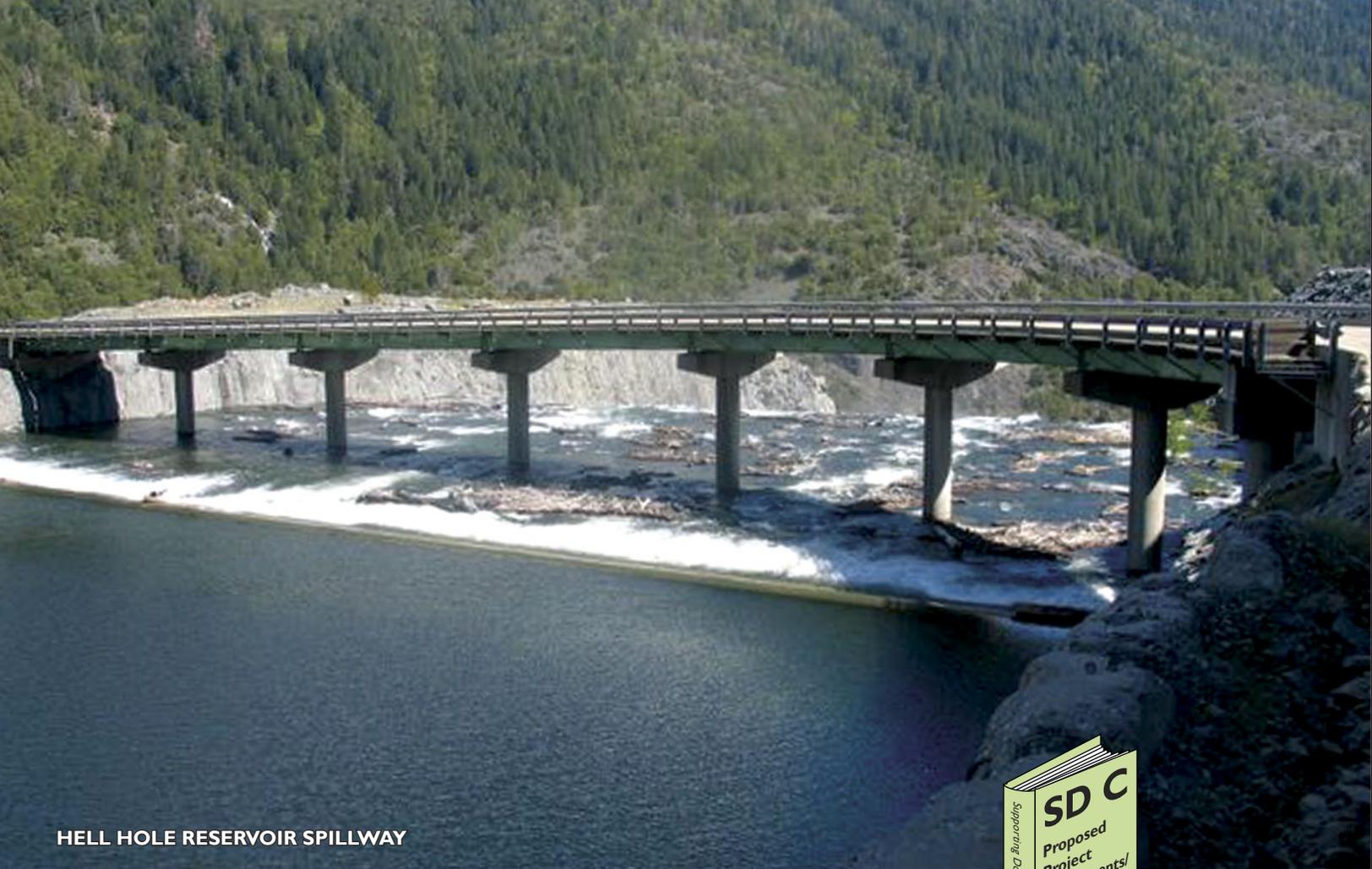
PCWA also implements routine maintenance activities within and around Project facilities to:

- Preserve Project flow and storage capacities by implementing sediment and debris management;
- Protect worker and public health and safety by implementing vegetation management, pest management, signage, and erosion and rock control measures;
- Provide facility access by implementing road and trail maintenance; and
- Protect facility reliability by implementing equipment maintenance, erosion and rock control measures, facility painting, and powerline and communication line pole replacement.



MAINTENANCE AT INTERBAY DAM

For Project recreational facilities, PCWA has on-going agreements with the TNF and ENF under which it provides the financial resources necessary to support a portion of the operation and restoration of these facilities by the respective National Forests. PCWA also has a cost-sharing agreement with the TNF and ENF to contribute funding for a portion of road maintenance on non-Project Forest Service roads used by PCWA.



HELL HOLE RESERVOIR SPILLWAY



Project Betterments/ Improvements

IN PREPARATION FOR THE RELICENSING OF THE MFP, PCWA conducted an assessment to identify potential modifications or additions (betterments) to existing Project facilities that would improve operations or maintenance of the Project, and result in an increase in net or peaking generation. As a result of this assessment, PCWA is including the following three potential Project betterments in the PAD:

- Hell Hole Reservoir Seasonal Storage Increase
- French Meadows Powerhouse Capacity Upgrade
- Ralston Powerhouse Capacity Upgrade

PCWA intends to further evaluate these potential betterments during relicensing with respect to their engineering and economic feasibility and the potential protection, mitigation, or enhancement measures that may be necessary to address potential effects on environmental and cultural resources. The specific Project betterments to be included in the License Application will be determined after reviewing the results of on-going engineering, economic, cultural, and environmental studies in relation to potential future license conditions.

HELL HOLE RESERVOIR SEASONAL STORAGE INCREASE

The purpose of this betterment would be to seasonally increase the storage capacity of Hell Hole Reservoir. The betterment would utilize a portion of the existing flood control pool, above the present normal maximum operating water level, to store additional water during the spring and summer after the peak of the runoff period. An approximate 9,750 ac-ft to 12,000 ac-ft increase in seasonal storage in the reservoir would be achieved by installing 8-10 foot high crest gates on the existing dam spillway. The crest gates would be raised when needed to increase reservoir storage. Operation of the crest gates would also seasonally increase the reservoir's inundation area within the existing flood pool by approximately 37 acres.



Installation of spillway gates on Hell Hole Reservoir will increase seasonal storage and power generation.

In years when either French Meadows or Hell Hole reservoirs would have spilled, this betterment would allow the MFP to capture additional water in storage in Hell Hole Reservoir which can later be used to increase net annual energy generation. In all but the driest years, the betterment would also allow the MFP to shift the timing of some generation from the spring run-off period to the summer peak energy demand period. While the shift in the timing of the generation will not increase total annual MFP generation, it will increase the benefit of the Project by increasing generation during the peak energy demand period. This betterment would require a new water right to allow for additional storage at Hell Hole Reservoir.

This betterment would require the following modifications to existing Project facilities:

- Hell Hole Dam Spillway - install 8-10 foot-high crest gates on the existing concrete spillway
- Hell Hole Dam - install 2 foot-high parapet walls on each end of the existing dam to maintain minimum freeboard requirements, if 10 foot-high crest gates are installed
- French Meadow Powerhouse - install 4 foot-high parapet wall at the powerhouse to avoid inundation from wave action when the reservoir is at its maximum water surface elevation
- Hell Hole - Middle Fork Tunnel Gatehouse - install 4 foot-high parapet wall around the gatehouse to avoid inundation from wave action
- South Fork Long Canyon Diversion Dam - install 3 foot-high crest gates on the diversion dam or a check valve at the drop inlet to avoid the backflow of water from the Hell Hole - Middle Fork Tunnel into South Fork Long Canyon Creek when Middle Fork Powerhouse is not operating

The betterment would also require construction of three new Project facilities including:

- Hell Hole Dam Spillway Crest Gates Control Building - construct a small control building adjacent to the spillway to provide power to operate the spillway crest gates
- Hell Hole Dam Spillway Crest Gates Control Building Powerline - construct a short spur line (approximately 525 feet) from the control building to an existing powerline to provide power for spillway crest gate operations
- South Fork Long Canyon Diversion Dam Generator Building - construct a control building with a generator to provide power to operate the crest gate

FRENCH MEADOWS POWERHOUSE CAPACITY UPGRADE

The purpose of this betterment would be to increase the generating capacity of the existing French Meadows Powerhouse from 15.3 MW to approximately 30 MW. Generating capacity would be increased by adding a second powerhouse immediately adjacent to the existing powerhouse. The existing French Meadows Powerhouse is only able to utilize approximately one-half of the maximum hydraulic capacity of the French Meadows - Hell Hole Tunnel. The addition



FRENCH MEADOWS POWERHOUSE

The addition of a second French Meadows Powerhouse will allow PCWA to increase peaking generation.

of a second unit would allow the maximum hydraulic capacity of the tunnel to be used to transport more water over a shorter period of time from French Meadows Reservoir to Hell Hole Reservoir, thereby increasing the MFP's peaking generation capabilities. This betterment would require a new water right to allow for an increase in the permitted direct diversion rate from French Meadows Reservoir to Hell Hole Reservoir.

The new powerhouse would also increase the capability of the MFP to supply electrical grid support services. The new generating unit could be operated simultaneously or independently of the existing generating unit. The existing PG&E 60-kV French Meadows - Middle Fork Transmission Line will be used to interconnect the new powerhouse with the PG&E transmission system.

This betterment would require the following modifications to existing Project facilities:

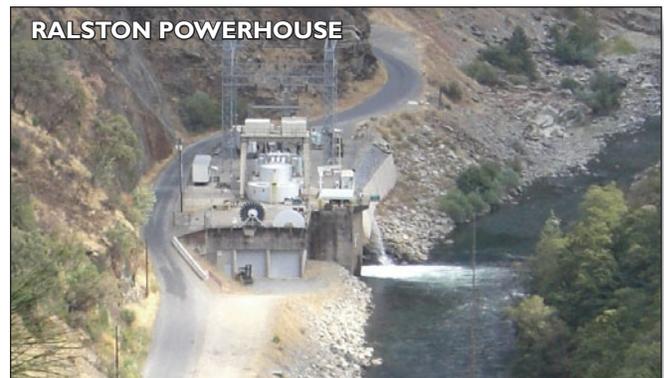
- French Meadows - Hell Hole Tunnel Intake Trash Rack - possible replacement of the existing cylindrical trash rack with a larger trash rack to reduce head losses and allow greater volume of water to flow into the tunnel
- French Meadows Powerhouse Switchyard - expand the existing switchyard to include additional buswork, transformers, and electrical switching equipment necessary to convey the additional power generated at the new powerhouse
- Middle Fork Powerhouse Upper Switchyard - upgrade the transformers and switchgear at the existing 60kV substation at Middle Fork Interbay to handle the additional power transfer

This betterment would also require construction of the following new Project facilities:

- French Meadows Powerhouse - construct a second powerhouse with installed generating capacity of approximately 15 MW immediately adjacent to existing powerhouse
- French Meadows Powerhouse Penstock - construct a second penstock, parallel to the existing penstock, to provide water to the new powerhouse
- Additional Surge Capacity Facility - develop additional surge capacity through construction of a surge shaft, surge shaft and tank, or surge pipeline located above the French Meadows - Hell Hole Tunnel Portal, or installation of a bypass valve in the new powerhouse
- French Meadows - Hell Hole Tunnel Surge Shaft or Pipeline Access Road - construct a new Project road from an existing Forest Service road to the surge shaft or pipeline and temporarily improve the existing Forest Service road

RALSTON POWERHOUSE CAPACITY UPGRADE

The purpose of this betterment is to improve the operating efficiency of the Middle Fork - Ralston system by increasing the hydraulic capacity of Ralston Powerhouse to match Middle Fork Powerhouse throughput, plus accretions at Middle Fork Interbay. This betterment would allow the MFP to maximize peaking generation during periods of high energy demand, thereby increasing the overall benefit of the MFP. This betterment would only require upgrades to electrical and mechanical equipment within the Ralston Powerhouse. This betterment may result in the ability of Ralston Powerhouse to utilize more than 1,000 cfs, in which case a new water right will be needed.

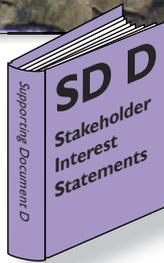


RALSTON POWERHOUSE

The Ralston Powerhouse upgrade will increase peaking generation opportunities.



Stakeholder Interests

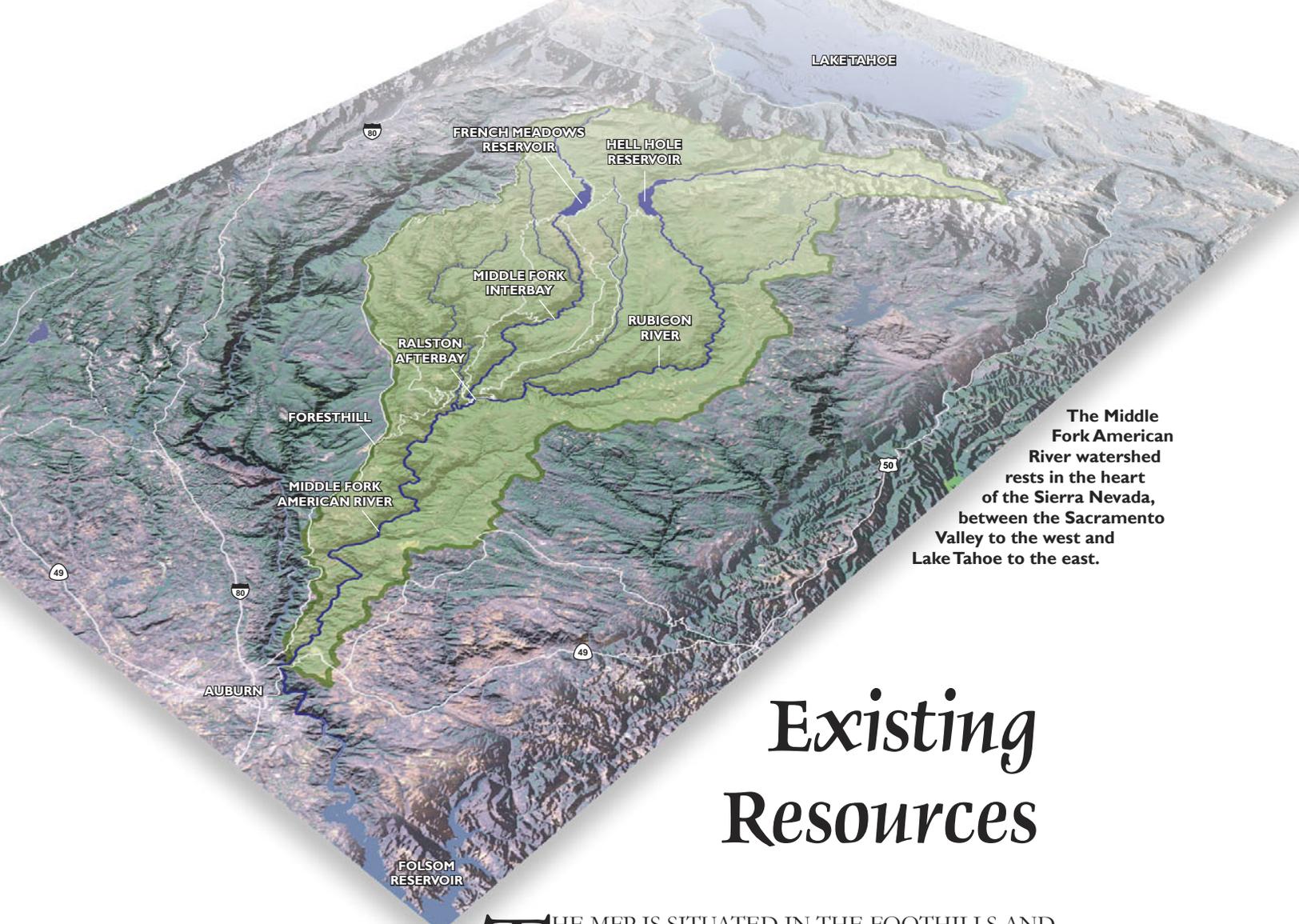


PCWA'S APPROACH TO THE RELICENSING OF THE MFP encourages open and collaborative communication of ideas and interests. To that end, in 2006, as part of early relicensing activities, PCWA solicited input from participating stakeholders regarding their resource interests which may be affected by relicensing of the MFP. Interest statements were submitted during Plenary and TWG meetings and by written correspondence. Fifteen stakeholders submitted interest statements, including representatives of state and federal resource agencies, local governmental agencies, Native American Tribes, non-governmental organizations, and the public. The stakeholders submitted these statements with the understanding that they would only be used for informational purposes to aid in early Project scoping and do not represent absolute or definitive opinions, policies, or positions of an individual, organization, or agency.

A wide diversity of resource interests was presented by the stakeholders ranging from Project-specific to the watershed level. All interest statements were accepted as legitimate regardless of competing interests between different stakeholders or applicability to FERC's jurisdiction in the MFP relicensing. The intent was to have an open exchange between the stakeholders to understand resource interests in the vicinity of the MFP and to facilitate the scoping of issues for study plan development.

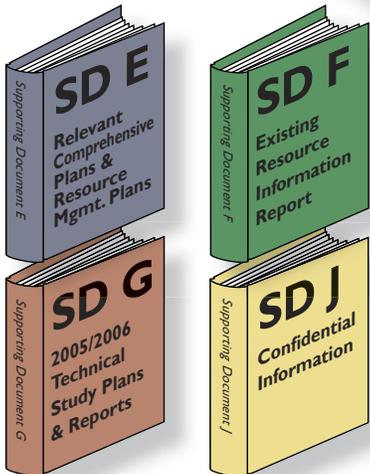
Synopsis of stakeholder interest statements

- ✓ Preserve the public benefits of MFP
- ✓ Protect biological resources
- ✓ Manage flow regimes for fish and aquatic resources
- ✓ Maintain sediment supply and transport in the watershed and manage sediment disposal activities
- ✓ Protect water quality and its beneficial uses
- ✓ Preserve and protect cultural resources
- ✓ Maintain or enhance recreation opportunities
- ✓ Implement vegetation management and fire management measures
- ✓ Maintain roads and trails
- ✓ Protect visual quality
- ✓ Enhance interpretative, public awareness, and public education programs
- ✓ Support watershed stewardship/partnership programs
- ✓ Ensure consistency with existing management plans
- ✓ Continue stakeholder collaboration/consultation



The Middle Fork American River watershed rests in the heart of the Sierra Nevada, between the Sacramento Valley to the west and Lake Tahoe to the east.

Existing Resources



THE MFP IS SITUATED IN THE FOOTHILLS AND mountainous uplands of the western slope of the Sierra Nevada range, northeast of Auburn, California. The surrounding Watershed (totaling 616 square miles) is characterized by hot, dry summers and mild, wet winters, with most of the precipitation falling between October and March. Precipitation primarily falls as rain in the lower elevations and snow at elevations greater than 5,000 feet above mean sea level (msl). Elevations higher than about 6,000 feet msl are typically covered by snow until May. Mean annual precipitation and runoff in the Watershed ranges from approximately 35 inches (308,500 ac-ft) in dry years to 94 inches (1,218,000 ac-ft) in wet years. Total MFP inflow has averaged approximately 375,000 ac-ft from 1967-2003 and ranged from approximately 62,000 ac-ft to more than 783,000 ac-ft.

The Watershed is heavily forested, rural, and sparsely populated. There are no residential or commercial developments in the immediate vicinity of the MFP. Several paved roads provide the primary access to the MFP. Access to more remote locations in the Watershed is possible using ancillary roads and trails associated with either the Forest Service Transportation System or the Auburn State Recreation Area (ASRA), located downstream of Ralston Afterbay.

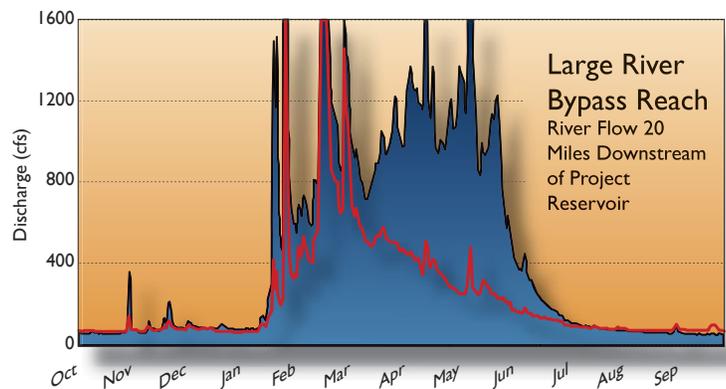
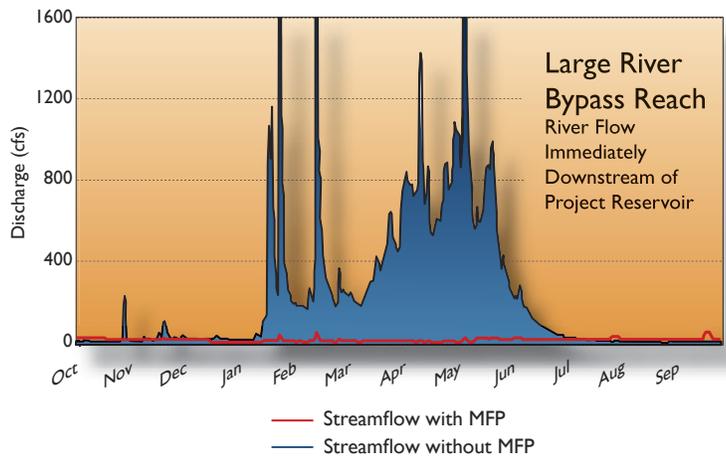
Water Use

Surface water uses in the Watershed include municipal, industrial, and agricultural, and non-consumptive use for hydroelectric generation and recreation. Other water projects in the Watershed include Sacramento Municipal Utility District's (SMUD's) Upper American River Project (UARP) (FERC Project No. 2101) and Georgetown Divide Public Utility District's (GDPUD's) Stumpy Meadows Project. The SMUD's UARP influences the Rubicon River upstream of Hell Hole Reservoir and the South Fork Rubicon River, a tributary to the Rubicon River entering downstream of Hell Hole Reservoir. GDPUD's Stumpy Meadows Project affects flows on Pilot Creek, a tributary to the Rubicon River entering downstream of Hell Hole Reservoir.

Hydrology

The MFP diverts water from the Middle Fork American River, Rubicon River, Duncan Creek and North and South Fork Long Canyon creeks for power generation and water supply. These diversions alter natural flows in the rivers and streams downstream of MFP facilities. Two categories of river reaches result from the operation of the MFP-bypass and peaking reaches. A bypass reach is a segment of a river or stream downstream of a diversion facility or reservoir where Project operations result in the diversion of a portion of the water from that reach. Bypass reaches associated with the MFP include: the Middle Fork American River between French Meadows Dam and Ralston Afterbay; the Rubicon River between Hell Hole Dam and Ralston Afterbay; Duncan Creek between the diversion dam and its confluence with the Middle Fork American River; and the North and South Forks of Long Canyon Creek and the mainstem of Long Canyon Creek from the diversion dams to the confluence with the Rubicon River.

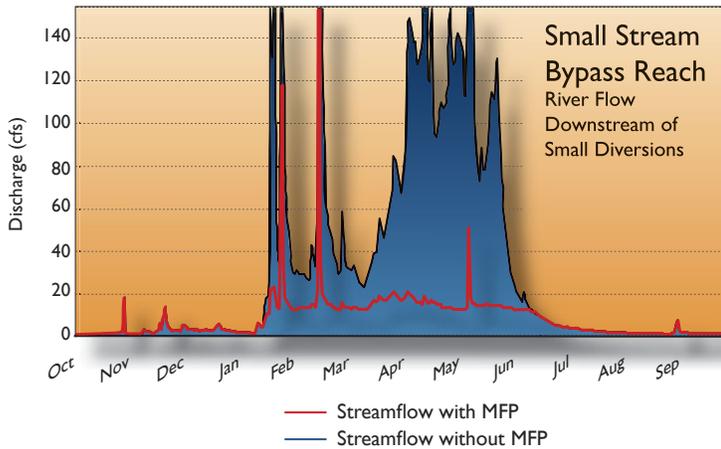
In the bypass reaches, operations of the MFP produce two general patterns of flow alteration from unimpaired (natural) patterns, depending on the size of the streams. In the large river bypass reaches (Middle Fork American River and Rubicon River) flows are altered all year long. Flows are typically reduced and more stable during the winter/spring season as water is diverted into storage or for power generation. High flows in the large river bypass reaches that naturally occurred during storm events and



Project diversions and reservoirs modify flows in the Middle Fork and Rubicon rivers. These effects are most evident immediately downstream of Project facilities.

during the spring runoff season are typically captured in the larger reservoirs (French Meadows and Hell Hole). Currently, high flows in these river reaches generally only occur when the reservoirs are spilling. Under current MFP operations these high flows primarily occur in the wettest years and are of shorter duration and magnitude than natural flows. However, during the summer and fall season, flows in these rivers are typically equal to or slightly higher than under natural conditions as water is released from storage to meet minimum instream flow requirements mandated in the FERC License.

In the smaller stream bypass reaches (Duncan, North and South Fork Long Canyon, and Long Canyon creeks) flows typically are altered only during the winter/spring season. During these seasons, a portion of the flow is diverted for storage and power generation during most water year types. Therefore, flows in the streams are typically much lower and more stable (less variation in flow volume) than natural flows. The exception occurs during wet water years, when high flows during winter storm events or spring runoff often exceed the capacity

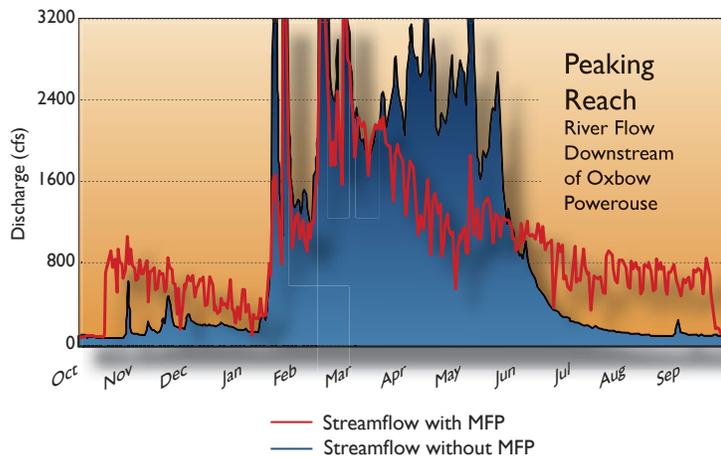


Diversions at Duncan Creek and North and South Fork Long Canyon creeks are operated seasonally and primarily reduce spring flows.

of the diversion facilities, which result in a large portion of the flow passing downstream. During the summer/fall season, the diversions are not operated because of low inflow. Therefore, natural flow entering the diversion facilities are passed downstream into the bypass reaches.

The MFP has a single peaking reach, which extends from Oxbow Powerhouse to the high-water mark of Folsom Reservoir. In this reach, flows fluctuate substantially to meet power demands or to support whitewater recreation.

Operations of the MFP also result in considerable daily fluctuations in flow in the peaking reach between the minimum flow requirement (75 cfs) and the capacity of the Oxbow Powerhouse (approximately 1,080 cfs). The powerhouse is typically operated to follow daily power



Peaking operations at Oxbow Powerhouse may result in substantial fluctuations in daily flows in the lower Middle Fork American River.

demand and is not operated 24 hours per day (except in the wettest of water years) leading to considerable daily and within-daily flow fluctuations in the reach.

Water Quality

MFP operations have also altered the temperature regimes in the large bypass and peaking reaches, especially during the summer and early fall. In particular, the storage of cool water in French Meadows and Hell Hole reservoirs during the spring runoff period and its subsequent release from low-level outlets throughout the summer and fall have substantially reduced water temperatures in the upper reaches of the Middle Fork American and Rubicon rivers by as much as 22-25°F (from low 70's to high 40's). Although substantial thermal warming occurs in these bypass reaches during the summer as a result of high ambient temperatures and low flows, the magnitude of warming is similar to pre-Project conditions since minimum instream flow releases are currently equal to or slightly higher than under unimpaired conditions. Mean daily water temperatures in the lower portions of these bypass reaches currently exceed 72-77°F during the warmest part of the year. Stream temperatures in the smaller bypass reaches during the summer and fall are unaffected by the MFP, because water is not diverted during this time period.

MFP operations also cause summer and fall instream temperature in the upper portions of the Middle Fork American River below Middle Fork Interbay and in the peaking reach downstream of Ralston Afterbay (Oxbow Powerhouse) to be substantially cooler than natural conditions. This temperature reduction is caused by the release of water into these reaches from Project facilities (Middle Fork Interbay and Ralston Afterbay via Oxbow Powerhouse) that receive the majority of water from the cool depths of Hell Hole Reservoir.

While limited water quality information is available for waters directly affected by the MFP, the existing data does not identify any widespread, persistent water quality issues. The Watershed does not contain any urban areas or landfills that are often the source of water quality degradation. Although historical mining has occurred in the Watershed, no related water quality issues have been identified.

Geomorphology

The majority of rivers associated with the MFP flow through steep, deeply incised, rugged V-shaped canyons. Only the upper portions of the Long Canyon Creek (including the North and South Forks) and Rubicon River are found within wider U-shaped valleys. These wider valleys were formed by local glaciers. Stream channel gradients are mostly steep (> 2%), which is typical of mountain streams. More moderate gradient (<2% to 1/2%) sections of stream occur in the Middle Fork American River downstream of Ralston Afterbay.

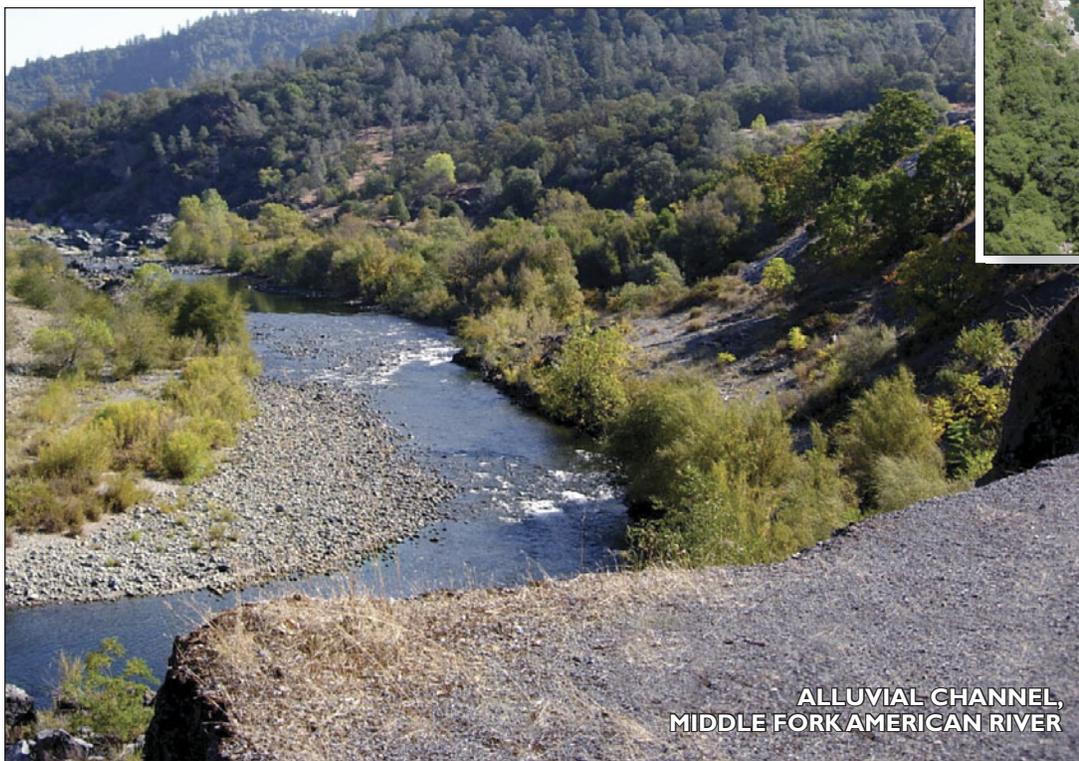
The majority of the streams and rivers consist of mixed bedrock-alluvial channels. These channels have frequent bedrock and boulder exposures, usually containing boulder-dominated steps and riffles interspersed with shorter areas where smaller alluvial materials (cobble and gravel) collect. Most of the streams have limited amounts of alluvium stored in the river channel (i.e., as bars) or on the valley bottom (i.e., terraces). The one exception is the Middle Fork American River downstream of Ralston Afterbay where large alluvial bars are present along the river reach. Throughout most of the streams and rivers associated with the MFP, the channel bed materials are

most frequently comprised of boulders and cobble. However, gravel is plentiful at pool tailouts, and is often co-dominant with cobbles and boulders.

Aquatic Resources

A limited amount of aquatic sampling (fish and macroinvertebrates) has been conducted in the reservoirs, rivers, and streams associated with the MFP. The existing information primarily includes trout abundance data, historical stocking records, and macroinvertebrate monitoring data at select locations.

The fish species typically found in the large bypass rivers (Middle Fork American River and Rubicon River) upstream of Ralston Afterbay include rainbow trout, brown trout, hardhead, Sacramento sucker, and Sacramento pikeminnow. In the peaking reach downstream of Ralston Afterbay, Sacramento hitch, riffle sculpins, smallmouth bass, brown bullhead and green sunfish (the latter three being non-native warmwater species) are also present. In the smaller stream bypass reaches



The majority of the streams and rivers in the vicinity of the MFP are classified as mixed bedrock-alluvial channels.



HARDHEAD

©TOM TAYLOR

Several “special” fish species occur in the vicinity of the MFP including hardhead, a designated Sensitive Species; and rainbow and brown trout, designated Management Indicator Species.



BROWN TROUT

©TOM TAYLOR



RAINBOW TROUT

(Duncan, North and South Fork Long Canyon, and Long Canyon creeks) only trout are present.

Aquatic resource management in the vicinity of the MFP has focused on establishing and maintaining populations of coldwater sportfish for recreation. The California Department of Fish and Game (CDFG) regularly stocks French Meadows and Hell Hole reservoir with game fish, including rainbow trout and brown trout. Kokanee, land-locked sockeye salmon, are also stocked by CDFG into Hell Hole Reservoir. In addition, the Rubicon River from Hell Hole Dam to Ralston Afterbay is designated by the California Fish and Game Commission as a Wild Trout Stream.

Three special-status fish species are known to occur in the Watershed including hardhead (Forest Service Sensitive Species and California Species of Special Concern), brown trout (Forest Service Management Indicator Species) and rainbow trout (Forest Service Management Indicator Species). No fish species

listed under the Federal Endangered Species Act or California Endangered Species Act are known to occur in the Watershed. Three native anadromous species (winter steelhead, Pacific lamprey, and Chinook salmon) that historically migrated into the Watershed are currently excluded from the region by Nimbus and Folsom dams on the lower American River.

One special-status amphibian, foothill yellow-legged frog (Forest Service Sensitive Species and California Species of Special Concern), is known to occur in the vicinity of the MFP. Recent surveys (2006-2007) have documented the occurrence of foothill yellow-legged frogs in the Rubicon River and the Middle Fork American River including several tributaries entering the Middle Fork American River below Oxbow Powerhouse (peaking reach).

California red-legged frog, a federally threatened species and California Species of Concern, is also known to occur within the Watershed. This species typically breeds in off-channel ponds with extensive emergent vegetation. A large population of this species (>50 individuals) is known to occur approximately 2.5 miles northeast of Ralston Afterbay. One adult female was also observed in a small pond approximately 1.5 miles east of Ralston Powerhouse. The MFP is not located within United States Fish and Wildlife Service (USFWS) designated critical habitat, but is located within the Sierra Nevada Foothills and Central Valley Recovery Unit.



PHOTO COURTESY OF U.S. FISH AND WILDLIFE SERVICE

Foothill yellow-legged frog—a special-status amphibian—is known to occur in the Rubicon River and the Middle Fork American River.

Riparian Resources

Alders and willows are the most prevalent riparian species present in the bypass and peaking reaches. Cottonwoods are co-dominant within the riparian community in a few locations along the Middle Fork American River in the peaking reach, in Long Canyon Creek, and in the Rubicon River downstream of the South Fork Rubicon River where relatively flat, wide depositional areas are present. Douglas fir, Ponderosa pine, and/or incense cedar often overhang the riparian zone.

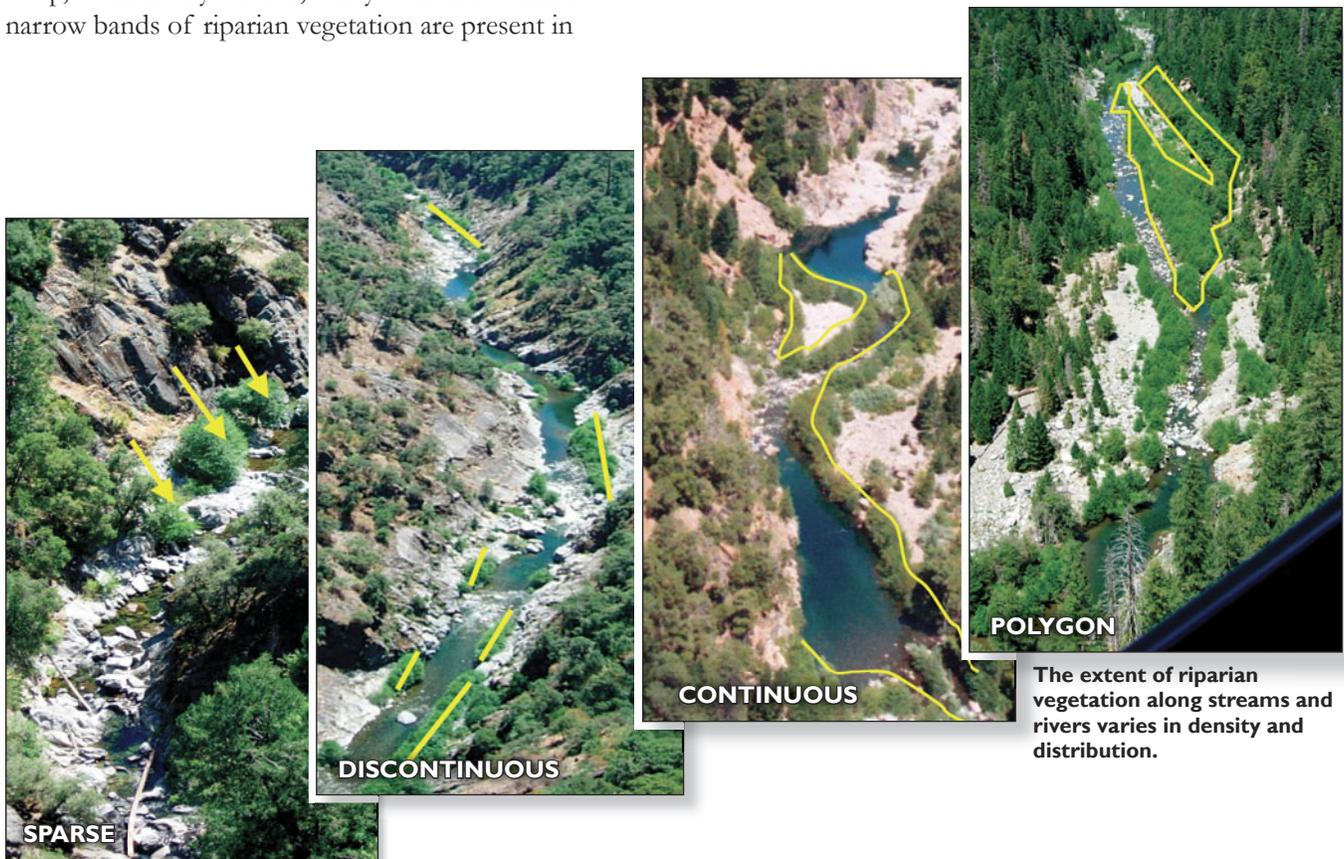
The distribution and extent of riparian vegetation in the bypass and peaking reaches is limited due to the morphology of the streams and rivers. These steep, entrenched mountain streams which are confined within narrow V-shaped valleys have very small and poorly developed floodplain areas for development of riparian vegetation. The one exception is in the Middle Fork American River downstream of Ralston Afterbay, where large depositional bars are present.

Generally, riparian vegetation is absent or sparse in the confined bedrock and boulder reaches with steep, often nearly vertical, valley walls. Discontinuous narrow bands of riparian vegetation are present in

reaches where localized sediment inputs from hill slope or upstream sources in combination with the stream and valley morphology allow relatively small deposits of sediments to accumulate intermittently along the stream margins. Wide and continuous bands of riparian vegetation generally are associated with areas containing long bars or along alluvial reaches, such as those occurring along a considerable proportion of the North Fork and South Fork Long Canyon Creek, Long Canyon Creek, Rubicon River, and the Middle Fork American River downstream of Ralston Afterbay.

Botanical and Wildlife Resources

Vegetation communities in the vicinity of the MFP vary with elevation. At higher elevations around French Meadows and Hell Hole reservoirs, two mixed conifer communities are present - one dominated by fir species (white fir) and the other dominated by pine species (sugar pine and Jeffrey pine). These mixed conifer communities transition into stands of Ponderosa pine and Douglas fir at intermediate elevations near Middle Fork Interbay.



Approximately 3 miles northeast of Middle Fork Interbay, a unique stand of old-growth giant sequoia trees is present at the Placer Big Trees Grove. This stand of giant sequoia represents the northern most limit of the species. At the lowest Project facilities (Ralston Afterbay and Oxbow Powerhouse), the surrounding vegetation is dominated by canyon live oak woodland community.

These vegetation communities represent habitats that potentially support a variety of special-status plant and wildlife species. Limited surveys have been conducted in the vicinity of the MFP to clearly document the distribution of most special-status species. Based on limited surveys, four special-status plant species are known to occur in the immediate vicinity of the MFP including Pleasant Valley mariposa lily, Red Hills soaproot, yellow bur navarretia, and Stebbins' phacelia.

Conversely, extensive surveys have documented California spotted owl and northern goshawk nesting habitat and home range areas near several Project facilities. The Forest Service has designated these areas as Protected Activity Centers and Home Range Core Areas, which are afforded special protection.

Spotted owl and northern goshawk —special-status species —are known to nest in the vicinity of the MFP.

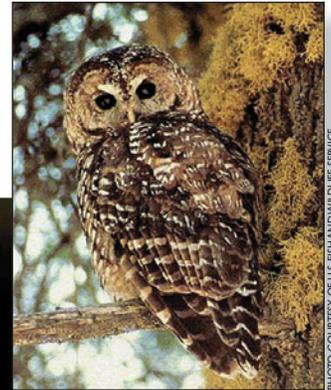


PHOTO COURTESY OF U.S. FISH AND WILDLIFE SERVICE



© DON GETTY

Twenty five noxious weed species have been documented in the Project vicinity. These species are undesirable because they grow rapidly, displace native plant species, may be harmful to wildlife, and are difficult to eradicate.

Nineteen game species are present in the Watershed as classified by the CDFG. These include seven resident and migratory game birds, seven mammals, and five furbearing species. A state game refuge, developed primarily to protect a key mule deer fawning area, surrounds French Meadows Reservoir.

Recreation Resources

A wide variety of land and water-based recreational opportunities are available in the Watershed. Popular recreation activities include camping, hiking, equestrian use, sightseeing, swimming, picnicking, hunting, flat water boating, whitewater boating, fishing, dredging, gold panning, cross-country skiing, snowmobiling, and off-highway vehicle (OHV) riding. These activities are supported by a variety of developed recreation facilities located throughout the Watershed primarily in the TNF, ENF, and ASRA. Developed recreation



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Red Hills Soaproot—a special status plant—is a member of the lily family used as soap by Native Americans. Few people ever see this rare plant in flower—it only blooms at dusk.



PHOTO COURTESY OF KING COUNTY NOXIOUS WEED CONTROL PROGRAM

Yellow Starthistle—a noxious weed—is known to reduce access to recreational areas, compromise wildlife habitat and forage, and decrease native plant and animal diversity.

facilities in the Watershed include campgrounds, day-use and picnic areas, boat ramps, scenic vistas, hiking and equestrian trails, OHV staging areas and trails, river access for whitewater boating, and snowmobile and cross-county snow trails.

The MFP includes 21 Project recreation facilities which enhance recreation access and opportunities. These Project recreation facilities are concentrated near Project reservoirs and diversion pools. At higher elevations near French Meadows and Hell Hole reservoirs, Project facilities provide opportunities for: single and group overnight camping; reservoir-based recreation including fishing, swimming, boating, picnicking; and viewing scenery. Overnight camping is also provided for large groups near the South Fork Long Canyon Diversion Pool. Snow typically limits access to these facilities during the winter.

At lower elevations, Project facilities at Ralston Afterbay provide for picnicking along the Middle Fork American River as well as reservoir-based recreation including fishing, swimming, and boating. The Indian Bar Rafting Access and Parking area near Oxbow Powerhouse supports whitewater boating in the Middle Fork American River as well as localized stream-based recreation such as fishing and picnicking.

PCWA currently coordinates with the DPR and a designated commercial whitewater boating representative to schedule MFP operations during the summer and early fall to accommodate whitewater recreation in the Middle Fork American River below Oxbow Powerhouse. Whitewater boating releases are scheduled on a voluntary basis such that they do not compromise power production, maintenance activities, or consumptive water deliveries.

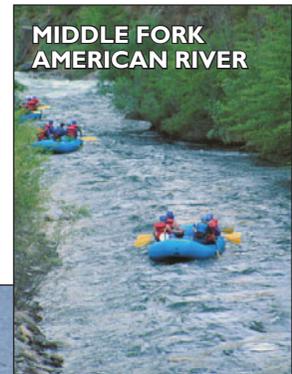
Land Resources

Land use within the FERC Project Boundary is focused on hydropower generation and recreation. Land use outside the FERC Project Boundary is managed mainly for recreation, timber harvest, grazing, natural resource protection, and to a lesser extent mining. Natural events and historical land uses have affected environmental resources in the vicinity of the Project, including large fires, such as the recent Star

Fire (2001) and Ralston Ridge Fire (2006); the Hell Hole Dam failure (1964); periodic flood events; and historic commercial mining in streams and rivers in the Watershed from the mid-1800's to the early 1900's.

Several specially designated areas that are afforded special protection by state and/or federal agencies are present in the Watershed. Several river reaches were found to be eligible or suitable for inclusion in the Wild and Scenic River System by either the USBR or the Forest Service. These include: the Middle Fork American River from Ralston Afterbay Dam to the North Fork American River confluence; the North Fork American River from the Middle Fork American River confluence (and segments upstream) to the Auburn Dam Diversion Tunnel; and the Rubicon River from Hell Hole Dam to Ralston Afterbay. Although Congress has not formally designated these river reaches as Wild and Scenic, state and federal resource agencies manage these segments and the area within ¼ mile of the river to protect their inherent values.

The Rubicon River from Hell Hole Dam to Ralston Afterbay is designated by the California Fish and Game Commission as a Wild Trout Stream. Accordingly, the CDFG manages this section of the Rubicon River to



protect the aquatic environment; perpetuate a naturally sustained, balanced population of rainbow trout; and provide a quality backcountry angling experience characterized by a naturally scenic streamside environment.

A National Recreation Trail, the Western States Trail, traverses the Watershed. The Western States Trail originated as a Native American track, and in the mid-1800s was used by early settlers and gold miners as the principal foot and pack stock route between the silver fields of Nevada and the gold fields of California. It remains the most intact historic trans-Sierra crossing. Accordingly, a portion of the Western States Trail, from Last Chance to Michigan Bluff has also been listed in the National Register of Historic Places. Where the trail crosses the North Fork American River, the Mountain

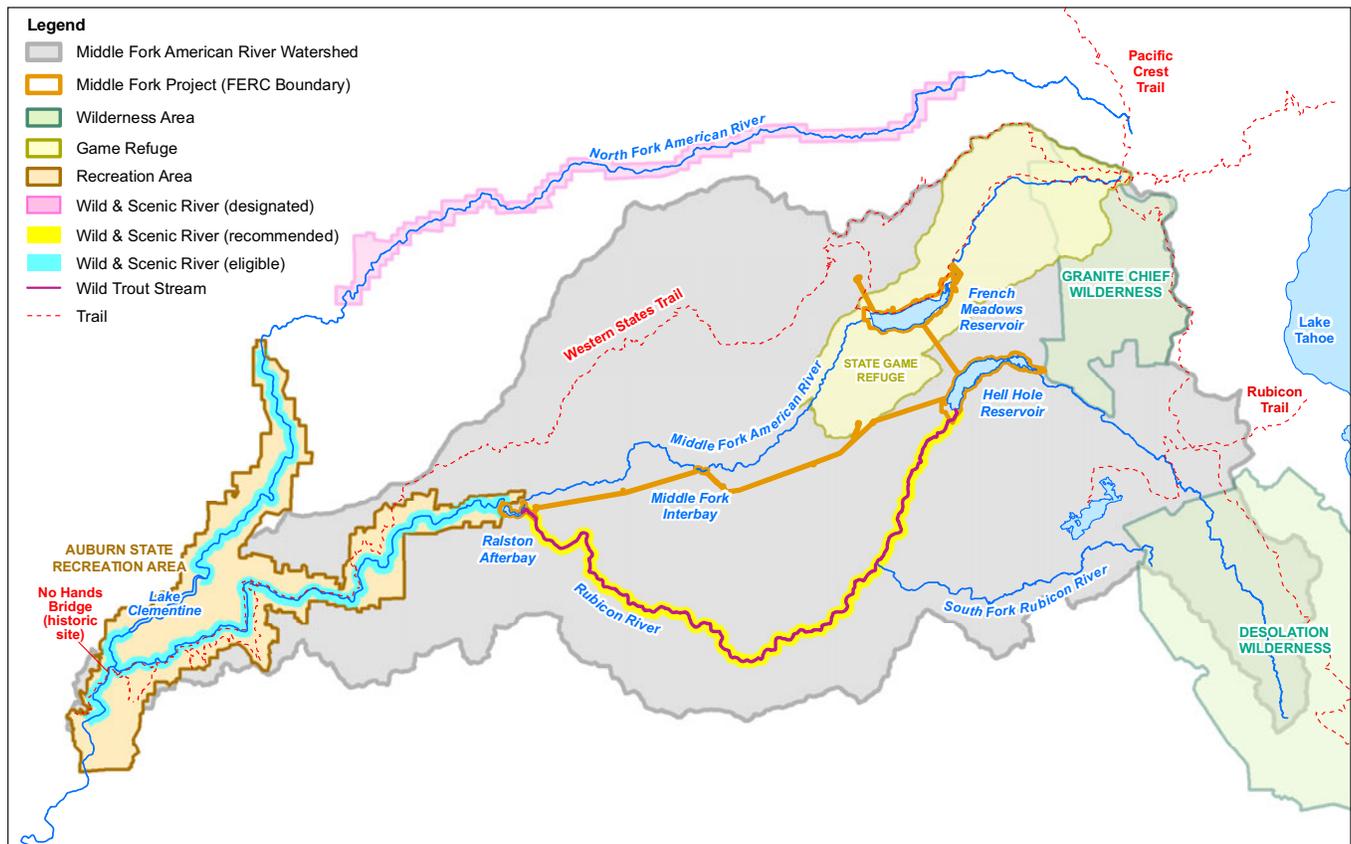


Quarries Railroad Bridge, also known as “No Hands Bridge”, has also been listed in the National Register of Historic Places. In 2007, both the Placer County Board of Supervisors and PCWA adopted resolutions supporting designation of the Western States Trail as a National Historic and Scenic Trail.

In the vicinity of the Project, the Western States Trail crosses Duncan Creek upstream of the Duncan Creek Diversion Dam. From there, the trail continues along the northern boundary of the Watershed and eventually crosses the Middle Fork American River about 14.5 miles downstream

of Oxbow Powerhouse, in the ASRA. The trail then parallels the south side of the Middle Fork American River to the confluence with the North Fork American River, where it crosses near No Hands Bridge.

Several special designated areas, trails, and historical sites are located in the Middle Fork American River Watershed.



The Western States Trail is currently used as the primary route for the world famous Western States 100 Mile Endurance Run and the Tevis Cup Equestrian race, which typically occur annually in June and July, respectively. During the races, operations of Oxbow Powerhouse are modified as much as practicable to facilitate downstream river crossings.

Other important trails in the Watershed include the Pacific Crest Trail, a designated National Scenic Trail, and the Rubicon Trail, a world-renowned 4-wheel drive route. The Pacific Crest Trail traverses the upper portions of the Watershed and, at its nearest point to the MFP, is located about 5 miles southeast of Hell Hole Reservoir. The Rubicon Trail extends over the crest of the Sierra from Georgetown to Lake Tahoe. At its nearest point to the MFP, the trail is located about 4 miles southeast of Hell Hole Reservoir.

Regionally important recreation areas in the vicinity of the MFP include the ASRA, which is located downstream of Oxbow Powerhouse. The ASRA includes approximately 42,000 acres along 40 miles of the North and Middle Fork American rivers. The area offers a wide variety of recreation opportunities to an average of 979,279 visitors a year.

Two Congressionally-designated Wilderness Areas are located in the uppermost portions of the Watershed, the Granite Chief Wilderness and the Desolation Wilderness. Granite Chief Wilderness is located east of French Meadows and Hell Hole reservoirs. Desolation Wilderness is located southeast of Hell Hole Reservoir.

Other protected areas include a State Game Refuge that extends roughly north and east from the North and South Fork Long Canyon Creek diversions encompassing French Meadows Reservoir and the northwest portion of the Granite Chief Wilderness Area. Although the designation is intended primarily to protect habitat used by the Blue Canyon mule deer herd, California state law prohibits hunting of any species within a State Game Refuge.

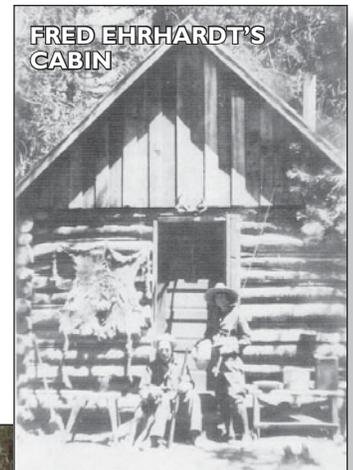
Cultural Resources

A complete inventory of cultural resources within the FERC Project Boundary has not been performed. However, cultural resource inventories in the Project vicinity have identified prehistoric and historic archaeological sites and artifacts, as well as remnants of historic gold mining.

The Middle Fork American River and Rubicon River canyons are situated in a vastly varied topographical area where resources were sought and procured by two major Native American Tribes, the Foothill Nisenan (Maidu) and the Washoe. Both groups used the river corridors and divides for travel to procure botanical and wildlife resources and for trade. There are no named ethnographic villages in the immediate MFP vicinity. This is not unexpected because known ethnographic Nisenan village locations tend to be located out of steep river canyons and typically occur on benches along the canyon walls or on the summits of the divides between the rivers. Areas immediately adjacent to rivers seem to have been used seasonally.

Historically, Native Americans served as guides for fur traders and pioneer emigrants of the 1830's and 1840's. The major trading route over the Sierra between the Nisenan of Placer County and the Washoe of Tahoe/Carson Valley area traversed the Middle Fork American River, generally following the path along Mosquito Ridge.

John Marshall's discovery of gold at Sutter's Mill in January, 1848 had repercussions that dramatically transformed the Project vicinity. The Middle Fork American River was the most productive of all the branches of the American River. Gold miners at Rector's Bar and Stony Bar (immediately upstream from Ralston Afterbay) were operating on the



Historical and archeological resources are present in the vicinity of the MFP.



Middle Fork American River in 1848. While not much placer gold was found in the higher mountain areas, prospectors searched diligently in the early 1850's.

Horseshoe Bend, located on the Middle Fork American River just downstream of the confluence with the North Fork of the Middle Fork American River, proved to be one of the most productive placer mining regions in California. By the fall of 1849, \$10 million in gold had been mined in the area. The Middle Fork "stampede" of 1850 brought thousands of miners to the area, not only in the Horseshoe Bend region but up-river as well. At Horseshoe Bend, as well as at numerous other locations within the peaking reach, the river course was altered to expose gold-bearing gravels within the river bed. All the mining activities, but particularly hydraulic mining, caused large-scale changes to the river and surrounding environment, including widespread channel aggradation and floodplain storage. The changes were not solely limited to the river channel. Many hillsides and bars were denuded to supply lumber to build the flumes and other structures needed to support the mining activities. Entire towns for the miners were established and abandoned on the bars along the peaking reach. The Foresthill Divide area was one of the most prosperous and densely inhabited in California in the 1850's, so much so that the Democratic Convention was held there in 1857.

Gold continues to be mined in the vicinity of the MFP. Suction dredging, authorized under a CDFG permit, continues to occur along the bypass and peaking reaches, particularly on the Rubicon and Middle Fork American rivers.

Tribal Resources

No federally recognized tribal lands are within or near the FERC Project Boundary. However, members of Native American Tribes have indicated that archaeological sites with Native American artifacts, deposits and features, and certain plant and animal resources in the MFP vicinity may be of cultural significance. To date, specific resources of tribal interest in the Project vicinity have not been identified but these interests will be identified through on-going consultation.

Eight Native American Tribes have expressed interest in the relicensing of the MFP

Federally Recognized Tribes

- Shingle Springs Rancheria
- United Auburn Indian Community
- Washoe Tribe of California and Nevada

Other Tribes

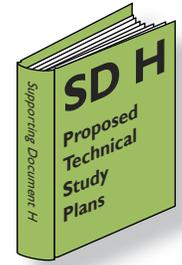
- Colfax-Todd Valley Consolidated Tribe
- El Dorado County Indian Council
- Todd Valley Miwok-Maidu Cultural Foundation
- Tsi-Akim Maidu
- Miwok Tribe of the El Dorado Rancheria



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PHOTO COURTESY OF PHOEBE A. HEARST MUSEUM OF ANTHROPOLOGY



Preliminary Issues and Potential Impacts

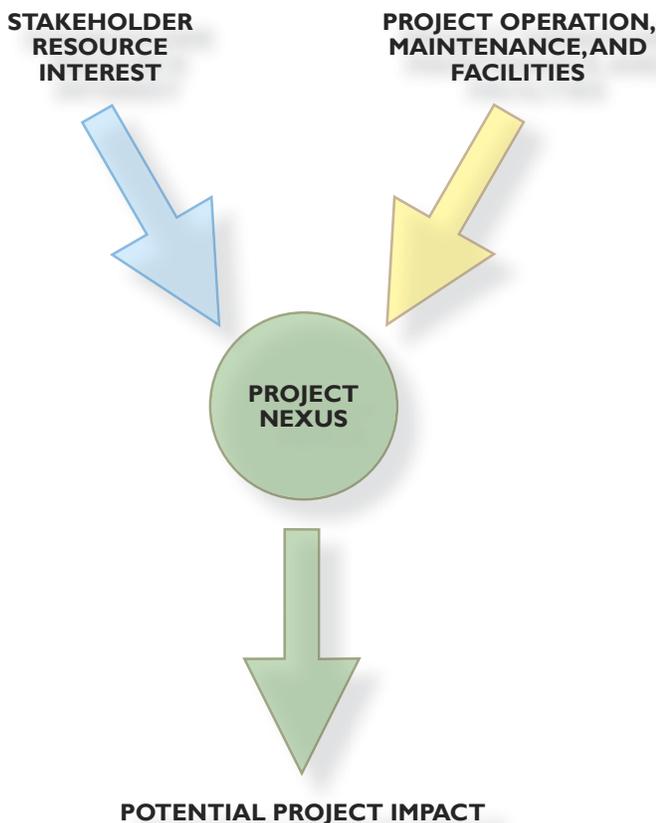
Project operations modify flow regimes in streams, potentially affecting aquatic species, riparian vegetation, sediment conditions, and recreation opportunities.

AN IMPORTANT STEP IN THE RELICENSING OF A hydroelectric project is the identification of the information required to evaluate project impacts and alternative license conditions across multiple resources. This information should focus on potential resource issues related to on-going operations and maintenance of the project, rather than broad-scale watershed issues. Stakeholder resource interests, which were previously described, often incorporated resource issues at a watershed level rather than at a Project level. These interests were refined to a Project-specific level through the identification of areas where resource interests and MFP facilities, operations, or maintenance activities overlap. These areas of overlap are referred to as a Project Nexus. Potential MFP impacts were identified if resources in the areas of overlap could directly or indirectly be affected by the Project. Potential impacts associated with the MFP are described below, organized into three categories – operation, maintenance, and facilities.

Potential Impacts from Project Operations

Operation of the MFP can potentially affect resources by modifying the timing, duration, or magnitude of the flow regime in Project bypass and peaking reaches or by fluctuating water surface elevations/storage in Project reservoirs. Changes in flow regimes have the potential to affect geomorphic processes, water quality, and aquatic and riparian habitat in the bypass and peaking reaches. These flow-related physical changes may result in direct or indirect impacts to aquatic species (i.e., fish, amphibians, reptiles, macroinvertebrates, and mollusks) or riparian vegetation along the stream margins. Stream-based recreation opportunities (i.e., whitewater boating, angling, swimming, and mining) and user satisfaction may also be impacted. Changes in flow regimes may also affect trail users (i.e., equestrians and hikers) at river crossings. However, these flow modifications (resulting from the diversion, storage, or releases of water at Project facilities) provide for power generation and consumptive water deliveries.

Water surface elevations/storage fluctuations in Project reservoirs have the potential to affect the duration of shoreline inundation, rates of shoreline erosion, water quality, and aquatic and riparian habitat. These changes may result in direct or indirect impacts to aquatic species



Potential impacts may occur when Project operations, maintenance activities, or facilities directly or indirectly affect environmental or cultural resources of interest.

(i.e., fish and western pond turtles), riparian vegetation along the shoreline and at tributary confluences, cultural resources (i.e., prehistoric archaeological sites and artifacts), and terrestrial resources along the shoreline (i.e., special-status plant and wildlife species). Seasonal changes in water surface elevation/storage may also affect reservoir-based recreation opportunities and user satisfaction including boating, angling, and swimming. However, the ability to fluctuate the water surface elevation and storage in Project reservoirs is essential for power generation and consumptive water deliveries.

Potential Impacts from Maintenance Activities

Potential resource impacts may also occur during routine maintenance of the MFP as a result of vegetation management around Project facilities, surface treatment and runoff management on Project roads and trails, pest control at Project facilities, and replacement of communication or powerline poles. Potential resource impacts from these activities include loss of special-status plants, disturbance or removal of special-status wildlife or their habitats, introduction or spread of noxious weed, and loss or damage of pre-historic and historic archeological sites and artifacts.

Routine maintenance activities may also result in potential resource impacts from the lowering of Project reservoirs and flow modifications during Project outages. Resource impacts from modification of flow regimes and water surface elevation are described above. Sediment and large woody debris management at Project reservoirs and diversion pools, which often require the use of heavy equipment, may also result in resource impacts. These potential impacts include the

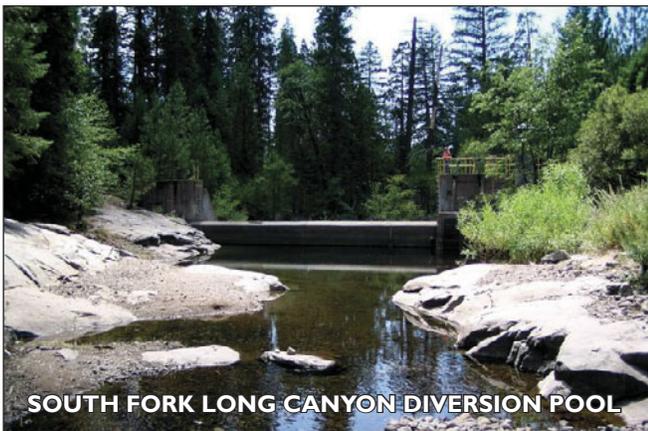


PENSTOCK TO FRENCH MEADOWS POWERHOUSE

reduction in downstream sediment and large woody debris supply, disturbance of special-status wildlife and aquatic species, and disruption of the traffic flow. However, Project maintenance activities are necessary to allow for continued reliable Project operation (power generation and consumptive water deliveries), provide public and worker safety, and reduce fire risk.

Potential Impacts from Project Facilities

The presence of MFP facilities modifies the environment and land use. Potential resource impacts include disruption of aquatic species migration at Project dams, entrainment of fish at Project intakes, bird mortality from collision with Project communication lines and powerlines, reduction in downstream sediment and large woody debris supply, and changes in the viewscape. Conversely, some of the Project facilities provide recreation opportunities and provide potential roosting opportunities for special-status bats. In addition, some facilities may also be considered historic resources.



SOUTH FORK LONG CANYON DIVERSION POOL

“TECHNICAL STUDY PLAN BRIDGE”

EXISTING INFORMATION

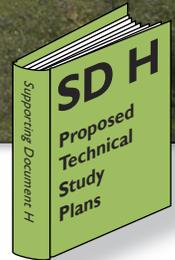
NEW DATA GATHERING

Potential
Project Impact

Data Gap

Development of
New License
Conditions

FORESTHILL BRIDGE



Proposed Studies

Twenty eight technical study plans were developed in collaboration with stakeholders to obtain information necessary to evaluate potential Project impacts.

FOLLOWING IDENTIFICATION OF POTENTIAL RESOURCE issues and Project impacts, technical study plans were developed for inclusion in the PAD. A total of 28 detailed stakeholder-approved Technical Study Plans are contained in the PAD, organized into five major resource areas – Aquatic, Terrestrial, Recreation, Land, and Cultural. The study plans were developed in collaboration with representatives of Federal and state resource agencies, Indian Tribes, local governments, non-governmental organizations, and members of the public. Consensus on the technical study plans was first reached by the TWGs, followed by approval by the Plenary.

The overall objective of the technical studies contained in the PAD is to develop sufficient information to evaluate potential Project impacts and to develop new license conditions that reasonably balance multiple resource interests. The stakeholder-approved studies will be implemented in 2007-2009 with all data collection methods and results provided in draft reports for review and comment by the stakeholders. Comments provided by stakeholders will be addressed and incorporated into final reports. Specific timelines for completion of the draft and final reports are provided in each study plan, with the overall goal of providing stakeholders with timely information as studies are completed. Draft or final reports for all the studies will be provided to the stakeholders by mid-2009, with all final reports completed by January 2010.

Middle Fork Project Stakeholder-Approved Technical Study Plans

Aquatic Resources

- AQ 1 – Instream Flow Technical Study Plan
- AQ 2 – Fish Population Technical Study Plan
- AQ 3 – Macroinvertebrates and Aquatic Mollusk Technical Study Plan
- AQ 4 – Water Temperature Modeling Technical Study Plan
- AQ 5 – Bioenergetics Technical Study Plan
- AQ 6 – Fish Passage Technical Study Plan
- AQ 7 – Entrainment Technical Study Plan
- AQ 8 – Reservoir Fish Habitat Technical Study Plan
- AQ 9 – Geomorphology Technical Study Plan
- AQ 10 – Riparian Resources Technical Study Plan
- AQ 11 – Water Quality Technical Study Plan
- AQ 12 – Special-Status Amphibian and Aquatic Reptiles Technical Study Plan

Cultural Resources

- CUL 1 – Cultural Resources Technical Study Plan

Land Management

- LAND 1 – Transportation System Technical Study Plan
- LAND 2 – Fire Prevention and Response Technical Study Plan
- LAND 3 – Emergency Action and Public Safety Technical Study Plan
- LAND 4 – FERC Boundary and Authorization Technical Study Plan

Recreational

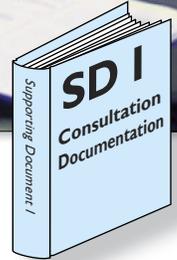
- REC 1 – Recreation Use and Facilities Assessment Technical Study Plan
- REC 2 – Recreation Visitor Surveys Technical Study Plan
- REC 3 – Reservoir Recreation Opportunities Technical Study Plan
- REC 4 – Stream-based Recreation Opportunities Technical Study Plan
- REC 5 – Visual Quality Assessment Technical Study Plan

Terrestrial Resources

- TERR 1 – Vegetation Communities and Wildlife Habitat Technical Study Plan
- TERR 2 – Special-Status Plants Technical Study Plan
- TERR 3 – Noxious Weeds Technical Study Plan
- TERR 4 – Special-Status Wildlife Technical Study Plan
- TERR 5 – Bald Eagle Technical Study Plan
- TERR 6 – Special-Status Bats Technical Study Plan



PLENARY MEETING, APRIL 25, 2006



Consultation

FROM AUGUST 2004 - MARCH 2006, PCWA initiated early outreach activities with Federal and state resource agencies and Native American Tribes to discuss the upcoming MFP relicensing, identify potential stakeholders, solicit existing resource data, and collaborate on approaches for establishing an open and transparent forum that promotes a free exchange of ideas and sharing of information among the participants. In addition, PCWA conducted several site visits with resource agencies and Tribes to provide an overview of the MFP. This collaboration resulted in the development and implementation of early environmental and cultural studies.

Beginning in April 2006, PCWA invited potential stakeholders (including resource agencies, Tribes, non-government organizations, local agencies, and members of the public) into the MFP relicensing to participate in open collaborative meetings in support of preparation of PAD. During these meetings, PCWA and stakeholders have collaboratively developed Communication and Participation Protocols and detailed Technical Study Plans for inclusion in the PAD. The true spirit of collaboration has been demonstrated by all parties participating in the MFP relicensing process. PCWA is highly committed to provide an open forum for continued collaboration during future phases of the relicensing process.



HELL HOLE RESERVOIR SPILLING ABOUT 1500 CFS, MAY 2005

The entire Pre-Application Document can be accessed at <http://relicensing.pcwa.net/>

PAD Content

Executive Summary

Supporting Documents:

- SD A. Relicensing Process Plan
- SD B. Detailed Existing Project Description
- SD C. Proposed Project Betterments/Improvements
- SD D. Stakeholder Interest Statements
- SD E. Relevant Comprehensive Plans and Resource Management Plans
- SD F. Existing Resource Information Report
- SD G. 2005/2006 Technical Study Plans and Reports
- SD H. Proposed Technical Study Plans
- SD I. Consultation Documentation
- SD J. Confidential Information



Placer County Water Agency

144 Ferguson Road | P.O. Box 6570
Auburn, CA 95603 | Auburn, CA 95604

Telephone: (530) 823-4889
<http://relicensing.pcwa.net/>