

**Battle Creek Salmon and Steelhead  
Restoration Project  
Final Environmental Impact Statement/  
Environmental Impact Report**

**Volume II: Appendices**

*Prepared for:*

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**Cover**

Background photograph: View of North Fork Battle Creek in the fall

Inset photographs, clockwise, starting from the top: Baldwin Creek entering the mainstem of Battle Creek; migrating Chinook salmon; springs near Eagle Canyon Diversion Dam; steelhead pair among spawning gravels; Coleman Diversion Dam and Canal

(Background photograph taken by Kathleen Bishop with the Battle Creek Watershed Conservancy)

**Tabs**

Background photograph: View of North Fork Battle Creek in the spring

Inset photograph: View of North Fork Battle Creek downstream of Wildcat Diversion Dam

(Background photograph taken by Kathleen Bishop with the Battle Creek Watershed Conservancy)

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# Acronyms and Abbreviations

AADT	annual average daily traffic
ACHP	Advisory Council on Historic Preservation
ACID	Anderson-Cottonwood Irrigation District
Adaptive Management Plan	Battle Creek Salmon and Steelhead Restoration Project Adaptive Management Plan
ADT	Average Daily Trip
af	acre-feet
af/yr	acre-feet per year
AFRP	Anadromous Fish Restoration Program
AMF	Adaptive Management Fund
AMP	Adaptive Management Plan
AMTT	adaptive management technical team
APE	area of potential effect
APWRA	Altamont Pass Wind Resource Area
ASIP	Action Specific Implementation Plan
BA	biological assessment
Basin Plan	Central Valley Regional Water Quality Control Board's Region 5A/5B (Sacramento and San Joaquin River Basins) Basin Plan
Bay-Delta	San Francisco Bay/Sacramento–San Joaquin Delta
BCWC	Battle Creek Watershed Conservancy
BCWG	Battle Creek Working Group
BLM	U.S. Department of the Interior, Bureau of Land Management
BMPs	best management practices
BO	biological opinion
CAAA	Clean Air Act Amendments of 1990
CAAQS	California Ambient Air Quality Standards

CalEPA	California Environmental Protection Agency
CALFED Program	CALFED Bay-Delta Program
CALFED Programmatic EIS/EIR	CALFED Bay-Delta Program Final Programmatic EIS/EIR
CalPX	California Power Exchange
Caltrans	California Department of Transportation
CAMP	Comprehensive Assessment Monitoring Program
CARB	California Air Resources Board
CBDA	California Bay-Delta Authority
CCR	California Code of Regulations
CDF	California Department of Forestry and Fire Protection
CDP	census designated places
CEC	California Energy Commission
cents/kWh	cents per kilowatt hour
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHRC	California Hydropower Reform Coalition
CIWMB	California Integrated Waste Management Board
CMARP	Comprehensive Monitoring, Assessment, and Research Program
CMP	corrugated metal pipe
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNFH	Coleman National Fish Hatchery
CNPS	California Native Plant Society
CO	carbon monoxide
Coleman Science Panel	Coleman National Fish Hatchery Science Panel

Communications Protocol	Communications Protocol for Preparing NEPA/CEQA Documents, the FERC License Amendment Application, and Other Related Documents for the Battle Creek Salmon and Steelhead Restoration Project, Battle Creek Hydroelectric Project, FERC Project No. 1121
Corps	U.S. Army Corps of Engineers
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CT	census tracts
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVRWQCB	Regional Water Quality Control Board, Central Valley Region
CWA	Clean Water Act
dB	decibels
dBA	A-weighted sound pressure levels, or decibels
DDT	dichlorodiphenyltrichloroethane
Delta	Sacramento–San Joaquin River Delta
DFG	California Department of Fish and Game
DWR	California Department of Water Resources
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EIS/EIR	Environmental Impact Statement and Environmental Impact Report
EMT	emergency medical technician
EPA	U.S. Environmental Protection Agency
ERP	Ecosystem Restoration Program
ERPP	Ecosystem Restoration Program Plan
ESA	federal Endangered Species Act
ESU	evolutionarily significant unit
feet msl	feet above mean sea level
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission

FHWA	Federal Highway Administration
FIRMS	Flood Insurance Rate Maps
FPA	Federal Power Act
FPPA	Farmland Protection Policy Act
FR	Federal Register
FWCA	Fish and Wildlife Coordination Act
GBCWWG	Greater Battle Creek Watershed Working Group
GCID	Glenn-Colusa Irrigation District
General Permit	National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activities
gpm	gallons per minute
GPS	global positioning system
GWh	Gigawatt hours
HAER	Historic American Engineering Record
Hydroelectric Project	Battle Creek Hydroelectric Project
Hz	cycles per second
IFIM	Instream Flow Incremental Methodology
IHN	infectious hematopoietic necrosis
ISB	CBDA Independent Science Board
ISO	Independent System Operator
k.a.	thousand years ago
KRIS	Klamath Resource information System
kV	kilovolts
kW	kilowatts
kWh	kilowatt-hour
$L_{dn}$	day-night noise level
$L_{eq}$	equivalent sound level
$L_{max}$	maximum noise output level
LOP	Letter of Permission
m.a.	million years ago
MBTA	Migratory Bird Treaty Act
MLTF	Mount Lassen Trout Farm
MOA	memorandum of agreement



MOU	memorandum of understanding
MPR	market price referent
MSCS	Multi-Species Conservation Strategy
MSDS	material safety data sheets
msl	mean sea level
MW	megawatts
MWD	The Metropolitan Water District of Southern California
MWh	megawatt hours
NAAQS	National Ambient Air Quality Standards
NCCP	Natural Community Conservation Plan
NCCPA	California Natural Community Conservation Planning Act
NCCPs	natural community conservation plans
NCPC	Northern California Power Company
NEIC	Northeast Information Center
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NO <sub>2</sub>	nitrogen dioxide
NOA	notice of availability
NOAA Fisheries	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NOD	Notice of Determination
NOI	Notice of Intent
NOP	Notice of Preparation
NO <sub>x</sub>	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPV	net-present value
NR	natural resources and recreation zone
NRHP	National Register of Historic Places
NTUs	nephelometric turbidity units
OCAP	Operating Criteria and Plan
OSHA	Occupational Safety and Health Administration

p.u.	power units
PCBs	polychlorinated biphenyls
PG&E	Pacific Gas and Electric Company
PHABSIM	Physical Habitat Simulation
PIT	passive integrated transponder
PL	Public Law
PM10	particulate matter 10 microns in mean diameter or less
PM2.5	particulate matter 2.5 microns in mean diameter or less
PMT	Battle Creek Project Management Team
PPE	personal protective equipment
ppm	parts per million
ppv	peak particle velocity
PRC	Public Resources Code
Programmatic NCCP Determination	DFG's Natural Community Conservation Planning Act Approval of the CALFED Bay-Delta Program Multiple Species Conservation Strategy
psi	pounds per square inch
Qal	Quaternary Alluvium
Qb1	Quaternary Basalt Unit 1
Qb2	Quaternary Basalt Unit 2
Qb3	Quaternary Basalt Unit 3
Qc	Quaternary Colluvium
QCIP	quality control and inspection program
QF	Qualifying Facility
Qrs	Quaternary Reservoir Sediment
RBDD	Red Bluff Diversion Dam
RCC	roller-compacted concrete
Reclamation	U.S. Department of Interior, Bureau of Reclamation
Restoration Project	Battle Salmon and Steelhead Restoration Project
Restoration Project ASIP	Battle Creek Salmon and Steelhead Restoration Project Draft Action Specific Implementation Plan
RM	River Mile
RMR	reliability must run

ROD	Record of Decision
ROG	reactive organic gases
RPS	Renewable Portfolio Standards
RWQCB	Regional Water Quality Control Board
SB	California Senate Bill
SCAQMD	Shasta County Air Quality Management District
SEL	sound exposure level
SGPWRA	San Geronio Pass Wind Resource Area
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SNTEMP	stream network temperature model
SO <sub>2</sub>	sulfur dioxide
SOP	specific operating procedures
SPCP	Spill Prevention and Countermeasure Plan
SR	State Route
Standards	Reclamation Safety and Health Standards
State Water Board	California State Water Resources Control Board
Summary Report	Biological Survey Summary Report for the Battle Creek Salmon and Steelhead Restoration Project
SVAB	Sacramento Valley Air Basin
SWP	State Water Project
SWPPP	stormwater pollution prevention plan
TAC	Technical Advisory Committee
TCAPCD	Tehama County Air Pollution Control District
TCCA	Tehama-Colusa Canal Authority
TCMs	traffic control measures
TNC	The Nature Conservancy
tpd	tons per day
TPWRA	Tehachapi Pass Wind Resource Area
TPZ	timber preserve zone
TRP	technical review panel
TRP Report	Technical Review Panel Report for the Battle Creek Salmon and Steelhead Restoration Project
TSS	total suspended solids
Ttd	Unit D of the Tuscan formation

UBC	Uniform Building Code
USBM	U.S. Department of this Interior, Bureau of Mines
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VELB	valley elderberry longhorn beetle
WAF	Water Acquisition Fund
WUA	Weighted Usable Area
WY	Water Year
yd <sup>3</sup>	cubic yards

Appendix A

**Memorandum of Understanding by and among  
Bureau of Reclamation,  
National Marine Fisheries Service,  
U.S. Fish and Wildlife Service,  
California Department of Fish and Game, and  
Pacific Gas and Electric Company**

**MEMORANDUM OF UNDERSTANDING**

**by and among**

**NATIONAL MARINE FISHERIES SERVICE**

**U.S. BUREAU OF RECLAMATION**

**U.S. FISH AND WILDLIFE SERVICE**

**CALIFORNIA DEPARTMENT OF FISH AND GAME and**

**PACIFIC GAS AND ELECTRIC COMPANY**

**TO MEMORIALIZE THE AGREEMENT REGARDING THE PROPOSED BATTLE CREEK CHINOOK SALMON AND STEELHEAD RESTORATION PROJECT, LOCATED IN THE BATTLE CREEK WATERSHED IN TEHAMA AND SHASTA COUNTIES, CALIFORNIA.**

This Memorandum of Understanding (MOU), by and among the NATIONAL MARINE FISHERIES SERVICE (NMFS), UNITED STATES BUREAU OF RECLAMATION (USBR), UNITED STATES FISH AND WILDLIFE SERVICE (USFWS), CALIFORNIA DEPARTMENT OF FISH AND GAME (CDFG), and PACIFIC GAS AND ELECTRIC COMPANY (PG&E), hereinafter collectively called the “Parties,” defines the Parties’ roles and responsibilities regarding actions that will be undertaken as part of the proposed Battle Creek Chinook Salmon and Steelhead Restoration Project (Restoration Project) and commitments regarding costs for and implementation of the Restoration Project.

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## **1.0 RECITALS**

This MOU is entered into with the following understandings:

- 1.1** Battle Creek is a tributary of the Sacramento River located in Tehama and Shasta Counties. This cold, spring-fed stream has exceptionally high flows during the dry season, making it important habitat for anadromous fish. Battle Creek may be the only remaining stream other than the main stem of the Sacramento River that can successfully sustain breeding populations of steelhead and all four runs of chinook salmon. Battle Creek is also unique and biologically important because it provides habitat opportunities during drought years for winter-run chinook salmon.
- 1.2** PG&E owns and operates several diversion facilities on the North and South Forks of Battle Creek, including Coleman Diversion Dam, Inskip Diversion Dam, South Diversion Dam, Wildcat Diversion Dam, Eagle Canyon Diversion Dam, and North Battle Creek Feeder Diversion Dam, and dams on Ripley Creek, Soap Creek and Baldwin Creek, and controls the majority of the flows in the anadromous fish reaches of the Battle Creek watershed.
- 1.3** In 1997, in response to opportunities to apply for federal and state fish and wildlife resource restoration funds, the Battle Creek Working Group (BCWG), made up of representatives from the state and federal resource agencies and fishery, environmental, local, agricultural, power, and urban stakeholder communities, was formed to accelerate chinook salmon and steelhead restoration in the Battle Creek watershed. The BCWG provided technical advice for a plan developed under a CALFED Category III grant.
- 1.4** By participating in a cooperative process to restore Battle Creek, which avoids the conventional, adversarial, regulatory process, the Parties expect to realize the following benefits:
  - A.** Restoration of self-sustaining populations of chinook salmon and steelhead and their habitat in the Battle Creek watershed through a voluntary partnership with state and federal agencies, a third party donor(s), and PG&E;



- B.** Up-front certainty regarding specific restoration components, including Resource Agency prescribed instream flow releases, selected decommissioning of dams at key locations in the watershed, dedication of water diversion rights for instream purposes at decommissioned sites, construction of tailrace connectors, and installation of Fail-Safe Fish Screens and Fish Ladders;
  - C.** Timely implementation and completion of restoration activities; and
  - D.** Joint development and implementation of a long-term Adaptive Management Plan with dedicated funding sources to ensure the continued success of restoration efforts under this partnership.
- 1.5** A negotiating team comprised of management representatives from CDFG, NMFS, PG&E, USBR, and USFWS, met in the fall of 1998 and in early 1999 to pursue an agreement regarding a proposal for Battle Creek restoration actions. An Agreement in Principle among the Parties was entered into in February, 1999 (see Attachment 1).
- 1.6** Other actions to restore and enhance fish habitat are being implemented in the Battle Creek watershed that are not directly related to hydroelectric project operations (e.g., Coleman National Fish Hatchery actions and meadow restoration upstream of the natural barrier falls which preclude anadromous passage). These actions are outside the scope of the Restoration Project, but are considered important to the overall success of restoring anadromous fishery resources in the Battle Creek watershed.
- 1.7** Implementation of the Restoration Project will be consistent with the following restoration directives and programs:
  - Central Valley Project Improvement Act (Public Law 102-575 Section 3401 et seq. (CVPIA)) Anadromous Fish Restoration Program;

- State Salmon, Steelhead Trout, and Anadromous Fisheries Program Act (State Senate Bill 2261, 1990) Central Valley Salmon and Steelhead Restoration and Enhancement Plan;
- National Marine Fisheries Service Recovery Plan for Sacramento River Winter-run Chinook Salmon;
- CALFED Ecosystem Restoration Program;
- Upper Sacramento River Fisheries and Riparian Habitat Management Plan (State Senate Bill 1086, 1989);
- Restoring Central Valley Streams – A Plan for Action (1993); and
- Steelhead Restoration and Management Plan for California (1996).

One specific goal of both the CVPIA and State Senate Bill 2261 is doubling natural production of anadromous fish. Battle Creek has been identified as one of the Sacramento River tributaries where restoration activities have the potential to contribute materially to these goals.

**1.8** The Parties are proposing a series of measures, described in this MOU as the Restoration Project, to establish a restoration program for chinook salmon and steelhead habitat in the reaches of Battle Creek below the natural water falls on the forks of Battle Creek that act as absolute barriers to fish passage (see Section 2.19). The Total Project Cost of the Restoration Project is estimated to be \$50,709,000. Individual restoration actions under the Restoration Project will be based upon the best scientific and commercial information available. The Parties intend to implement the Restoration Project in the most efficient and cost effective manner consistent with achieving the benefits and goals articulated in Sections 1.4 and 1.7.

**1.9** The Parties recognize the unique characteristics of Battle Creek regarding its importance in the restoration of chinook salmon and steelhead in the Sacramento River watershed. The Parties also acknowledge the current availability of public funding for anadromous fish restoration projects in

the Central Valley, which funding has not been readily available in the past and may not be in the future. Based on this unique set of circumstances, the Parties recognize that all actions cooperatively pursued under the Restoration Project, including dam removal and public funding, will not set a precedent for future restoration actions in other watersheds.

- 1.10** USFWS is participating in the Restoration Project pursuant to the CVPIA, the Endangered Species Act (16 U.S.C. Sections 1531-1544, as amended (ESA)), Fish and Wildlife Coordination Act, Federal Power Act and the Fishery Conservation and Management Act (16 U.S.C. Sections 1801-1882).
- 1.11** NMFS is participating in the Restoration Project pursuant to the ESA.
- 1.12** USBR is participating in the Restoration Project pursuant to the CVPIA and the California Bay-Delta Environmental Enhancement Act (P.L. 104-333).
- 1.13** CDFG is participating in the Restoration Project based on its responsibilities as trustee agency for the fish and wildlife resources of California (Fish and Game Code Section 711.7(a)) and its jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Fish and Game Code Section 1802), and other applicable state and federal laws.
- 1.14** PG&E is participating in the Restoration Project as owner and operator of the Battle Creek Hydroelectric Project (Federal Energy Regulatory Commission (FERC) Project No. 1121).

**THEREFORE**, the Parties hereby understand and agree as follows:

## **2.0 DEFINITIONS**

The terms “CDFG”, “CVPIA”, “ESA”, “MOU”, “NMFS”, “Parties”, “Restoration Project”, “USBR”, and “USFWS” have the meanings set forth above.

For the purposes of this MOU, the following terms have the meanings set forth below:

- 2.1** "Adaptive Management" means an approach, as more specifically described in Section 9.0, that allows for changes to the Restoration Project that may be necessary in light of new scientific information regarding the biological effectiveness of the restoration measures.
- 2.2** "Adaptive Management Fund" means the Fund described in Section 9.2 B.
- 2.3** "Agencies" means CDFG, NMFS, USBR, and USFWS.
- 2.4** "Battle Creek Hydroelectric Project, FERC Project No. 1121" or "FERC Project No. 1121" means the hydroelectric development as described in the license issued by FERC on August 13, 1976 and as subsequently amended.
- 2.5** "CALFED" means the entity formed in 1995 by the cooperative effort among state and federal agencies and California's environmental, urban, and agricultural communities to address environmental and water management problems associated with an intricate web of waterways created at the junction of the San Francisco Bay and the Sacramento and San Joaquin rivers and the watersheds that feed them and comprise CALFED's solution area for the Bay-Delta system.
- 2.6** "CAMP" means the Comprehensive Assessment and Monitoring Program which has been established pursuant to Section 3406(b)(16) of the CVPIA.
- 2.7** "Consensus" means the unanimous agreement among the Parties.
- 2.8** "CPUC" means the California Public Utilities Commission.
- 2.9** "Decommission" means to fully remove all applicable facilities and return a site to an approximation of pre-existing conditions, subject to FERC approval. Decommissioning activities include, but are not limited to, developing a decommissioning plan, performing pre- and post-removal environmental studies, facility removal, environmental mitigation and restoration, erosion control, re-vegetation, environmental monitoring, and reporting.

- 2.10** “Fail-Safe Fish Ladder” means features inherent in the design of the ladder that ensure the structure will continue to operate to facilitate the safe passage of fish under the same performance criteria as designed under anticipated possible sources of failure.
- 2.11** “Fail-Safe Fish Screen” means a fish screen that is designed to automatically shut off the water diversion whenever the fish screen fails to meet design or performance criteria until the fish screen is functioning again.
- 2.12** “FERC” means the Federal Energy Regulatory Commission, the entity charged with implementing the Federal Power Act (16 U.S.C. 791 (a) et seq.) and the licensing of non-federal hydropower projects in jurisdictional waters of the United States.
- 2.13** “Final FERC Order” means a final order issued by FERC pursuant to an application filed by PG&E to amend the license for FERC Project No. 1121 to implement the applicable measures of this Restoration Project, after exhaustion of any administrative or judicial remedy.
- 2.14** “PG&E” means the Pacific Gas and Electric Company, and any lessee or successor owner of the Battle Creek Hydroelectric Project (FERC Project No. 1121).
- 2.15** “Purchased Water Cost” means the identified financial value of the prescribed instream flow releases provided by the Restoration Project in excess of the required flows stated in the license for FERC Project No. 1121 as of March 1, 1999.
- 2.16** "Ramping Rates" means moderating the rate of change of stream stage decrease in Battle Creek resulting from the operation of FERC Project No. 1121.
- 2.17** “Resource Agencies” means CDFG, NMFS, and USFWS.
- 2.18** "Restoration Project" means all measures set forth in the underlying Agreement in Principle (Attachment 1) as further developed in this MOU and having the purpose of restoring chinook salmon and steelhead habitat

associated with FERC Project No. 1121, within the Restoration Project Area.

**2.19** “Restoration Project Area” means the areas in and around the following PG&E facilities: Coleman Diversion Dam, Inskip Diversion Dam, South Diversion Dam, Wildcat Diversion Dam, Eagle Canyon Diversion Dam, North Battle Creek Feeder Diversion Dam, and Asbury Pump Diversion Dam; Battle Creek, North Fork Battle Creek and South Fork Battle Creek, up to the natural barriers at 14 miles and 19 miles above the confluence, respectively; and Eagle Canyon Springs, Soap Creek (and Bluff Springs), Baldwin Creek, and Lower Ripley Creek and each of their adjacent water bodies.

**2.20** "Total Project Cost" means all costs necessary to implement the Restoration Project, including but not limited to: planning; permitting; performing environmental and decommissioning studies; preparing a FERC license amendment application; designing, constructing, operating, maintaining and making periodic replacements for various facility additions (i.e., fish screens, fish ladders, connectors and appurtenant facilities) to FERC Project No. 1121; facility decommissioning, removal, and environmental restoration; facility and biological and environmental monitoring and reporting; Purchased Water Cost; and Adaptive Management planning, monitoring, and implementation costs.

**2.21** "Water Acquisition Fund" means the Fund described in Section 9.2 A.

### **3.0 PURPOSES**

The purposes of this MOU are:

**3.1** To identify the series of measures comprising the proposed Restoration Project to be addressed in the NEPA/CEQA/ESA and other applicable environmental compliance and permitting processes;

**3.2** To identify the roles and responsibilities of each of the Parties;

**3.3** To identify contingencies and limitations of the Parties; and

- 3.4** To identify the scope of proposed FERC license terms and conditions for preparation of a separate license amendment application to be subsequently submitted to FERC to implement the proposed Restoration Project.

#### **4.0 PROPOSED BATTLE CREEK CHINOOK SALMON AND STEELHEAD RESTORATION PROJECT**

The Parties understand and agree that all engineering and design work for facility modifications described in Section 4.1 below, including installation of fish screens and fish ladders, decommissioning dams and associated facilities, and installation of any connections between powerhouses and water conveyance facilities on the South Fork of Battle Creek, shall meet applicable CDFG, FERC, NMFS, PG&E, USBR, and USFWS standards.

The proposed Restoration Project includes the following:

##### **4.1 Facility Modifications**

###### **A. Coleman Diversion Dam:**

- Install a tailrace connector from Inskip Powerhouse to Coleman Canal and a water bypass facility around Inskip Powerhouse to Coleman Canal. The Inskip Powerhouse bypass facility will be the most economical alternative that still provides the functional equivalent of the existing Inskip Powerhouse bypass system and will deliver that system's design flow of water to the Coleman Canal.
- Decommission the dam and appurtenant facilities.

###### **B. Inskip Diversion Dam:**

- Install a NMFS/CDFG approved Fail-Safe Fish Screen.
- Install a NMFS/CDFG approved Fail-Safe Fish Ladder.
- Install a tailrace connector from South Powerhouse to Inskip Canal concurrent with, or prior to, the Inskip Diversion Dam fish screen.

- C.** South Diversion Dam:
- Decommission the dam, related water conveyance and appurtenant facilities.
- D.** Wildcat Diversion Dam:
- Decommission the dam, related water conveyance and appurtenant facilities.
- E.** Eagle Canyon Diversion Dam:
- Install a NMFS/CDFG approved Fail-Safe Fish Screen.
  - Install a NMFS/CDFG approved Fail-Safe Fish Ladder.
  - Decommission spring collection facilities as identified in Table 1 of Attachment 1.
- F.** North Battle Creek Feeder Diversion Dam:
- Install a NMFS/CDFG approved Fail-Safe Fish Screen.
  - Retrofit the existing fish ladder or install a new ladder, either which meet NMFS/CDFG approved design for Fail-Safe operation.
- G.** Soap Creek:
- Decommission the dam, related water conveyance and appurtenant facilities.
- H.** Lower Ripley Creek:
- Decommission the dam, related water conveyance and appurtenant facilities.



**I.** Baldwin Creek:

- Provide a means for releasing a maximum instream flow of 5 cfs from Asbury Pump Diversion.

**J.** Various Locations:

- Install/modify gauges at appropriate locations required to monitor implementation of the Restoration Project.

While the above list of facilities to be decommissioned shall not be reduced, the Parties may reach Consensus on less than full removal of any specific facility or appurtenant feature in order to reduce overall Restoration Project costs, where objectives of the Restoration Project, including unimpeded fish passage, will be met while at the same time minimizing PG&E liability.

#### **4.2 Prescribed Instream Flow Releases**

The Parties agree that another component of the Restoration Project is an increase of prescribed instream flow releases which will benefit fish and wildlife resources. PG&E will provide the prescribed instream flow releases specified in Tables 1 and 2 of Attachment 1 or the natural flow, whichever is less, and the Ramping Rates specified in Attachment 2. For those dams that are being decommissioned, PG&E will transfer the associated water diversion rights to CDFG, as more fully described in Section 6.1 E.

At the discretion of the Resource Agencies, the prescribed instream flow releases will be initiated and maintained commencing January 1, 2001, or upon issuance of the Final FERC Order, whichever occurs later. Should any such prescribed instream flow releases not commence on January 1, 2001, the associated foregone power generation payment specified in Section 10.2 shall be reduced in proportion to the time at which power generation is actually foregone.

### **4.3 Water Acquisition Fund**

This component of the proposed Restoration Project is described in Section 9.2 A.

### **4.4 Adaptive Management Plan**

This component of the proposed Restoration Project is described in Section 9.1.

### **4.5 Adaptive Management Fund**

This component of the proposed Restoration Project is described in Section 9.2 B.

## **5.0 CONTINGENCIES AND LIMITATIONS**

This MOU does not commit the Parties to activities beyond the scope of their respective missions, funding and authorities. Except for the federal portion of the Restoration Project funding provided for in Section 10.1, it is recognized that any federal funding needed to carry out any federal agency responsibilities under this MOU shall be subject to the availability of appropriated funds pursuant to the Anti-Deficiency Act (31 U.S.C. Section 1341). A lack of funding to meet the Agencies' respective responsibilities shall not result in the transfer of such responsibilities or funding obligations to PG&E. In recognition that final designs and detailed cost estimates will be further refined through the process described in Section 8.0, the Parties agree that if sufficient funding is not available to accommodate the final estimates, they will jointly pursue additional funding.

**5.1** The Agencies recognize that USBR will be the Agency that will receive the federal funding for the construction component of the Restoration Project. Thus, USBR, and not the Resource Agencies, will be responsible for any construction and decommissioning cost overruns, as provided in Section 10.2.

**5.2** This MOU is of no force and effect until signed by all Parties. Any work initiated prior to the approval date is done at each Party's own risk.

- 5.3** The Parties understand and agree that the implementation of any and all activities by CDFG, NMFS, USBR, and USFWS, pursuant to this MOU, with the exception of initial consultations and planning activities, are contingent upon compliance with NEPA and CEQA. The Parties anticipate that activities described in this MOU will be identified in any NEPA/CEQA document as an alternative, but also acknowledge that other alternatives will be considered in the NEPA/CEQA process prior to the time that a final decision or an irreversible commitment of resources or funds is made toward any one alternative.
- 5.4** The Parties understand and agree that certain undertakings of PG&E pursuant to this MOU are subject to approval by FERC and CPUC. In the event that the Final FERC Order amending the license for FERC Project No. 1121 and/or any necessary CPUC approval is materially different from the terms and conditions of the license amendment application, then this MOU may be amended as provided in Section 13.0 or terminated as provided in Section 16.0.
- 5.5** The Parties understand and agree that no permanent changes to facilities or operations are required pursuant to this MOU prior to issuance of a Final FERC Order, as defined in Section 2.13 above. The Parties also understand and agree that certain preliminary tasks must be performed to support the proposed license amendment application to FERC prior to the Final FERC Order, in order to assist in accomplishing the Restoration Project. Within sixty (60) days of the effective date of this MOU, PG&E and CDFG will begin consultations and develop a process with the State Water Resources Control Board (SWRCB) with respect to the petition specified in Section 6.1 E. CDFG and PG&E will work diligently with the Resource Agencies and SWRCB to finalize the dedication process after issuance of the Final FERC Order.
- 5.6** Nothing in this MOU, whether or not incorporated into the terms of the license for FERC Project No. 1121, is intended or shall be construed as a precedent or other basis for any argument that the Parties have waived or compromised any rights which may be available under state or federal law. In addition, nothing in this MOU shall establish a precedent regarding hydroelectric jurisdictional issues.

**5.7** The Resource Agencies assert that the current and proposed facilities of FERC Project No. 1121, including those outlined in this MOU, are operating, and will continue to operate, in habitat occupied by Sacramento River winter-run chinook salmon, spring-run chinook salmon, Central Valley steelhead and other species listed under the ESA and the California Endangered Species Act. Nothing in this MOU is intended to bind or prejudice the Resource Agencies, or otherwise limit their respective authorities, in the performance of their responsibilities under these Acts and other applicable federal and state laws.

**5.8** If there is any dispute regarding provisions of this MOU and the Agreement in Principle included as Attachment 1, the provisions of this MOU shall govern.

## **6.0 ROLES AND RESPONSIBILITIES**

### **6.1 PG&E**

**A.** As more fully described below, PG&E has agreed to a number of physical and operational changes and additions to FERC Project No. 1121, as well as the assumption of a number of future costs, which cumulatively are estimated to have a value of approximately \$20,550,900 of the Total Project Cost during the term of this MOU. PG&E, however, recognizes that these costs may exceed those estimates and agrees it is responsible for all cost overruns for Restoration Project components which are identified as funded by PG&E in Table 3 of Attachment 1. This amount includes PG&E's participation in a portion of the biological and environmental monitoring more fully described in Section 7.3. PG&E's financial participation in this Restoration Project will consist of: (a) providing 90% of the prescribed instream flow releases listed in Attachment 1 without monetary compensation; (b) assumption of 100% of any increased operation and maintenance costs due to facility and operational changes resulting from the Restoration Project; (c) absorption of the loss of foregone power as a consequence of Ramping Rate requirements described in Attachment 2; and (d) assumption of the cost of screen and ladder repairs and replacements due to normal wear and tear, catastrophic

damage, and any other damage. In the event of exhaustion of the Water Acquisition Fund and Adaptive Management Fund, PG&E acknowledges and agrees that it will pay for authorized modifications to FERC Project No. 1121 facilities or operations which are determined to be necessary under Adaptive Management or pursuant to applicable state or federal law.

- B.** PG&E will pay all of its internal costs associated with the FERC license amendment required to implement the Restoration Project. PG&E will engage in a collaborative license amendment process to develop the license amendment application for submittal to FERC. PG&E will include in its amendment application pertinent environmental compliance documents prepared by USBR as described in Section 6.2. PG&E will also participate in and provide limited internal technical and fishery expertise, at its expense, to assist with the biological and environmental monitoring efforts described in Section 7.3 and will cooperate/work with the Resource Agencies conducting analyses, reviewing results, and identifying potential Adaptive Management actions for the Restoration Project.
- C.** The Parties will work in concert to develop a license amendment application for FERC Project No. 1121. PG&E will file an amendment to its license for FERC Project No. 1121 to implement those actions under FERC's authority, consistent with the pertinent provisions of this MOU, necessary to implement the Restoration Project. Unless otherwise provided in this MOU, PG&E will fund preparation of the license amendment application, including preparation of the application sections which describe the current and proposed facilities and operation, FERC Project No. 1121 economics, and also modify the existing License Exhibit drawings to reflect the proposed changes to FERC Project No. 1121. PG&E will also be responsible for preparing responses to any additional information requests issued by FERC regarding the responsibilities enumerated in this Section.

- D.** PG&E will provide the prescribed instream flow releases and Ramping Rates identified in Attachments 1 and 2, and any agreed-upon future changes to these prescribed instream flow releases or Ramping Rates resulting from the Adaptive Management Plan described in Section 9.1, until the end of the current FERC license and any subsequent annual licenses. The Parties acknowledge that this commitment to provide the prescribed instream flow releases and Ramping Rates is subject to change by FERC in the license amendment process and at the expiration of the current license term in 2026. PG&E and the Resource Agencies (subject to applicable state and federal laws) agree to support the continuation of such prescribed instream flow releases and Ramping Rates, and any agreed upon future changes, in the next relicensing proceeding for FERC Project No. 1121.
- E.** PG&E's water diversion rights associated with all dams to be decommissioned (see Section 4.1) in the Restoration Project Area shall be transferred to CDFG. For example, when the rights for Soap Creek Diversion are transferred, all rights associated with that diversion will be transferred, including but not limited to, PG&E's Bluff Springs rights, which are subject to an agreement regarding senior water rights for Hazen Ditch, (Bluff Springs - Hazen Ditch Water Users Agreement, dated May 31, 1988). PG&E shall execute deeds or other mutually agreed upon documents to transfer these water diversion rights. PG&E will execute and deliver such deeds or other mutually agreed upon documents at the time of PG&E's receipt of those associated portions of the \$2,137,100 specified in Section 10.2. CDFG agrees that the water rights transferred by PG&E to CDFG shall not be used by CDFG or any successor in interest, assignee, or designee to increase prescribed instream flow releases above the amounts specified in Attachment 1, or developed pursuant to the Adaptive Management Plan, nor shall they be used adversely against remaining FERC Project No. 1121 upstream or downstream diversions, until such time as the FERC license is abandoned, whereupon the limitation regarding transferred water rights will no longer apply.

PG&E agrees that its riparian rights associated with lands within the Restoration Project Area shall not be used by PG&E or any successor in interest, assignee, or designee to decrease prescribed instream flow releases below the amounts specified in Attachment 1, or developed pursuant to the Adaptive Management Plan. PG&E agrees that any deed transferring such riparian land or rights shall contain the above restriction in use of the riparian rights.

PG&E and CDFG shall jointly file a petition with the State Water Resources Control Board (SWRCB) pursuant to Water Code Section 1707 to dedicate the water diversion rights associated with all decommissioned dam sites in the Restoration Project Area to instream uses. The Agencies agree to support the petition.

- F.** The prescribed instream flow releases described in Attachment 1 for all those dams remaining in FERC Project No. 1121 will be included in the FERC license amendment application to be filed by PG&E.
- G.** PG&E is responsible for the operation, maintenance, and replacement of all physical modifications to its facilities under this MOU on Battle Creek due to normal wear and tear, catastrophic damage, and any other type of damage, and will ensure that the new fish screen and ladder facilities meet the Fail-Safe criteria. Installation costs of facilities installed under the Adaptive Management Fund protocols are excepted. PG&E's responsibilities under this section begin once the facility start-up and acceptance testing is successfully completed by USBR and PG&E. At that point PG&E shall accept and take over the facilities.
- H.** PG&E is responsible for assisting in design data collection activities for all facilities, as determined under the cooperative design processes established through the Project Management Team and Technical Team, as described in Section 8.2.

- I.** PG&E, as a member of the Project Management Team established under Section 8.2, is jointly responsible along with the other Parties for review of and concurrence in all designs, engineering, specifications, facility modifications, decommissioning procedures, facility removal, and other activities associated with planning, permitting, and construction. PG&E will have lead responsibility for real estate requirements and transactions, including access authorization for Agency personnel to accomplish their responsibilities under this MOU. Real estate actions will be subject to review and carried out in a cooperative process through the Project Management Team and Technical Team as established in Section 8.2. PG&E shall also be responsible along with the other Parties for the development, review, and concurrence of site restoration plans and designs subject to any requirements established through the permitting process. While USBR will be responsible for obtaining permits as described in Section 6.2, such permitting actions will be done in full cooperation with the Parties to ensure input from PG&E related to the content and conditions established in the permitting process. The technical efforts associated with the activities described in this paragraph will be performed on a reimbursable basis from federal funding provided through USBR as described in Section 10.2.
- J.** While USBR retains lead responsibility for all design, procurement, and construction associated with the Restoration Project, situations may arise in which it would be safer and more efficient for PG&E construction crews to perform the construction or removal of some facilities. PG&E may perform construction work associated with the Restoration Project as coordinated through the framework of the Project Management Team as described in Section 8.2. Such cooperative decisions related to construction responsibilities will be completed by the end of the conceptual design phase. Such construction work will be performed on a reimbursable basis from federal funding provided through USBR as described in Section 10.2.



- K.** Contracts will be awarded in accordance with applicable state and federal laws. For contracts awarded by USBR, USBR will confer with PG&E regarding the selection of contractors or other entities for any portion of the work to be performed as part of the Restoration Project. For any contract awarded by USBR that is not a conventional sealed bid, a representative from PG&E will be a member of the team reviewing and recommending the award of these contracts to the USBR Contracting Officer. The final decision on contract award will be made by USBR's Contracting Officer. If USBR decides that it does not intend to follow PG&E recommendations regarding contractor selection, USBR will provide a written statement to PG&E explaining why USBR chose not to follow the PG&E recommendations.
- L.** PG&E may elect to conduct its own inspection of construction work performed by others as part of the Restoration Project. Any findings or deficiencies identified by PG&E will be immediately reported to the USBR Construction Engineer. USBR will review and respond to PG&E on any findings of deficiencies including how they will be addressed. Any disagreements will be subject to a dispute resolution process developed by USBR and PG&E. Such inspection services will be performed on a reimbursable basis from federal funding provided through USBR as described in Section 10.2.
- M.** PG&E shall be responsible for all monitoring required by FERC through the FERC license amendment for FERC Project No. 1121. PG&E will also participate in and provide limited internal technical and fishery expertise, at its expense, to assist with the biological and environmental monitoring efforts described in Section 7.3, which are the responsibility of the Resource Agencies. PG&E shall be responsible for all of the facility monitoring more particularly described in Section 7.2.
- N.** PG&E shall assume the role of applicant for hydropower project operation compliance with Section 404 of the Clean Water Act, certification under Section 401 of the Clean Water Act, and other applicable state and federal laws.

- O.** To the extent permissible under the provisions of its existing easements with private property owners, PG&E will provide access to Agency representatives engaged in the performance of their respective responsibilities under this Restoration Project. Protocols for Agency exercise of this access permission will be developed and will address: (1) property owner concerns; (2) PG&E notification; (3) liability issues and any other pertinent matters associated with the specific locations; and (4) property owner notification.

## **6.2 USBR**

- A.** USBR, along with the Resource Agencies, has applied to CALFED for public funding for the Restoration Project and will continue to support that application, consistent with the terms of this MOU.
- B.** USBR shall assume the role of lead agency for purposes of regulatory compliance for construction activities associated with the Restoration Project, including the National Environmental Policy Act (42 U.S.C. 4321 et seq. (NEPA)), Section 106 of the National Historic Preservation Act, and the Fish and Wildlife Coordination Act (16 U.S.C. 661-666(c)). USBR shall also act as the federal action agency under Section 7 of the ESA for the construction aspects of the Restoration Project in a joint consultation with FERC acting as lead agency for operation of FERC Project No. 1121. In addition, USBR shall assume the role of applicant for purposes of construction compliance of the Restoration Project with Section 404 of the Clean Water Act, certification under Section 401 of the Clean Water Act and other applicable regulatory permitting required by state and federal laws.
- C.** USBR shall assume the role of lead agency, and in consultation with PG&E, arrange for all final engineering design documents and specifications, construction, start-up and acceptance testing, and implementation of mitigation and monitoring for the construction activities associated with the Restoration Project, as defined in Section 4.1. USBR shall be responsible for the production of the required environmental documents and the

detailed decommissioning plan, with all the supporting engineering, biological, and other technical studies, and preparation of the design drawings needed for the license amendment. Funding for responses to any subsequent additional information requests issued by FERC regarding the responsibilities enumerated in this Section will be borne by USBR.

- D.** USBR will participate in the construction monitoring for the Restoration Project as described in Section 7.1.

### **6.3 NMFS**

- A.** The Parties acknowledge and agree that NMFS has made no determination, and is giving the Parties no assurances, regarding compliance of the Restoration Project or PG&E's operation of its FERC Project No. 1121 with the ESA.
- B.** NMFS agrees to do the following, to the extent NMFS determines that these provisions are consistent with the biological opinion rendered for the proposed Restoration Project and its responsibilities under the ESA to conserve threatened and endangered species and their habitats:
  - 1.** Support a petition to the SWRCB for the instream dedication of that amount of water diversion rights transferred by PG&E to CDFG as more fully described in Section 6.1 E;
  - 2.** Support the amendment of the license of FERC Project No. 1121, described in Section 6.1 C, that incorporates the facility modifications described in Section 4.1, the prescribed instream flow increases described in Tables 1 and 2 of Attachment 1, the Ramping Rates described in Attachment 2, and further support the position that FERC focus the license amendment on the fishery restoration actions described in this MOU in order to facilitate the process for a FERC decision allowing the Restoration Project to go forward in a timely manner; and

- 3.** In the next relicensing proceeding for FERC Project No. 1121, support the continuation of the prescribed instream flow releases described in Attachment 1 and Ramping Rates described in Attachment 2, and any changes to those prescribed instream flow releases or Ramping Rates resulting from Adaptive Management, subject to applicable law.
- C.** Regarding the biological and environmental monitoring described in Section 7.3, NMFS agrees to support incorporating Battle Creek monitoring needs into appropriate CVPIA, CALFED, and other monitoring programs.
- D.** As approving and implementing various activities described in the MOU will result in a major federal construction activity affecting listed salmonids under NMFS' jurisdiction, NMFS will conduct the requisite Section 7 consultation for species under its authority. The above measures will require FERC to exercise its federal discretionary authority in approving an amendment of the license for FERC Project No. 1121 prior to implementation. This action, as well as FERC's continuing oversight over FERC Project No. 1121 operations, constitutes a Federal Action for the purposes of Section 7 of the ESA. Therefore, FERC will be designated Lead Federal Agency. The referenced Section 7 consultation will also encompass various planning and construction-related activities to be undertaken by USBR and therefore, will be conducted jointly with FERC and USBR. NMFS will consult with FERC and USBR under Section 7 of the ESA to ensure the proposed changes to the facilities and operation of FERC Project No. 1121 comply with the ESA.

#### **6.4 USFWS**

- A.** The Parties acknowledge and agree that USFWS has made no determination, and is giving the Parties no assurances, regarding compliance of the Restoration Project or PG&E's operation of its FERC Project No. 1121 with the ESA.

- B.** USFWS agrees to do the following:
- 1.** Support a petition to the SWRCB for the instream dedication of that amount of water diversion rights transferred by PG&E to CDFG as more fully described in Section 6.1 E;
  - 2.** Support the amendment of the license of FERC Project No. 1121, described in Section 6.1 C, that incorporates the facility modifications described in Section 4.1, the prescribed instream flow releases described in Tables 1 and 2 of Attachment 1, the Ramping Rates described in Attachment 2, and further support the position that FERC focus the license amendment on the fishery restoration actions described in this MOU in order to facilitate the process for a FERC decision allowing the Restoration Project to go forward in a timely manner; and
  - 3.** In the next relicensing proceeding for FERC Project No. 1121, support the continuation of the prescribed instream flow releases described in Attachment 1 and Ramping Rates described in Attachment 2, and any changes to those prescribed instream flow releases or Ramping Rates resulting from Adaptive Management, subject to applicable law.
- C.** Regarding the biological and environmental monitoring described in Section 7.3, USFWS agrees to support incorporating Battle Creek monitoring needs into appropriate CVPIA, CALFED, and other monitoring programs.
- D.** As approving and implementing various activities described in the MOU will result in a major federal construction activity that may affect species under USFWS jurisdiction, USFWS will conduct the requisite Section 7 consultation for species under its authority. The above measures will require FERC to exercise its federal discretionary authority in approving an amendment of the license for FERC Project No. 1121 prior to implementation. This action,

as well as FERC's continuing oversight over FERC Project No. 1121 operations, constitutes a Federal Action for the purposes of Section 7 of the ESA. Therefore, FERC will be designated Lead Federal Agency. The referenced Section 7 consultation will also encompass various planning and construction related activities to be undertaken by USBR and therefore, will be conducted jointly with FERC and USBR. USFWS will consult with FERC and USBR under Section 7 of the ESA to ensure the proposed changes to the facilities and operation of FERC Project No. 1121 comply with the ESA.

## **6.5 CDFG**

- A.** The Parties acknowledge and agree that CDFG has made no determination, and is giving the Parties no assurances, regarding compliance of the Restoration Project or PG&E's operation of its FERC Project No. 1121 with applicable state law.
- B.** The Parties acknowledge and agree that CDFG is not responsible for funding any component of the Restoration Project, including any cost overruns.
- C.** CDFG agrees to do the following:
  - 1.** CDFG and PG&E shall jointly file a petition with the State Water Resources Control Board (SWRCB) pursuant to Water Code Section 1707 to dedicate the water diversion rights associated with the decommissioned dam sites in the Restoration Project Area to instream uses;
  - 2.** Support the amendment of the license of FERC Project No. 1121, described in Section 6.1 C, that incorporates the facility modifications described in Section 4.1, the prescribed instream flow releases described in Tables 1 and 2 of Attachment 1, the Ramping Rates described in Attachment 2, and further support the position that FERC focus the license amendment on the fishery restoration actions described in this MOU in order to facilitate the

process for a FERC decision allowing the Restoration Project to go forward in a timely manner; and

3. In the next relicensing proceeding for FERC Project No. 1121, support the continuation of the prescribed instream flow releases described in Attachment 1 and Ramping Rates described in Attachment 2, and any changes to those prescribed instream flow releases or Ramping Rates resulting from Adaptive Management, subject to applicable law.
- D. Regarding the biological and environmental monitoring described in Section 7.3, CDFG agrees to support incorporating Battle Creek monitoring needs into appropriate CVPIA, CALFED, and other monitoring programs.

## **7.0 MONITORING AND REPORTING**

### **7.1 Construction Monitoring, Start-up, and Acceptance Testing**

- A. USBR agrees to perform all construction monitoring and reporting required as part of construction of the Restoration Project as described in Sections 6.2 and 8.4. Funding for the construction monitoring will be derived only from the federal funding as identified in Section 10.2, and USBR does not agree to spend any additional, federal money to perform such construction monitoring. Construction monitoring includes those parameters required by the permits developed pursuant to the Clean Water Act, and mitigation actions adopted pursuant to CEQA, NEPA, ESA, and related FERC requirements.
- B. USBR agrees to perform all start-up and acceptance testing, and prepare the necessary documents and reports, up to and until PG&E and USBR jointly determine that the constructed facilities' operation meets the design criteria. Completion inspections for each construction contract will be performed by both USBR and PG&E and certifications of approval will be issued jointly by USBR and PG&E. If construction of a particular Restoration

Project feature does not meet with the satisfaction of either party, a checklist of needed work prior to the certification of completion will be prepared and agreed to by both parties. Upon mutual agreement of the parties, a completed portion of the construction contract or a Restoration Project feature may be turned over to PG&E for operation and maintenance.

Start-up and acceptance testing for both screens and ladders will include, but is not limited to, measurements of velocity and flow collected from each component of the structure at several stage heights to evaluate actual hydraulic performance and reliability over the full range of operating conditions as compared to the design specifications.

## **7.2 Facility Monitoring**

PG&E, in consultation with the Agencies, shall prepare a detailed facility monitoring plan to be submitted to FERC as part of the license amendment application. PG&E shall perform and assume the costs for the following facility monitoring:

- A.** At the various outlet and spillway works for North Battle Creek Feeder, Eagle Canyon, Inskip, and Asbury Pump (Baldwin Creek) Diversion Dams, operate properly calibrated remote sensing devices that continuously measure and record total flow and the fluctuation of stage immediately below each dam during all operations for the purpose of verification of FERC license compliance. All flow and stage recording methodologies shall be approved by FERC;
- B.** At the fish ladders at North Battle Creek Feeder, Eagle Canyon, and Inskip Diversion Dams, operate properly calibrated remote sensing devices that continuously monitor water surface elevations at the top and bottom of the ladder to identify debris problems. In addition, continuously operate a calibrated automated fish counter or an underwater video camera to document fish movement through the ladder during the initial three-year period of operation, or as otherwise agreed upon by the Parties; and



- C. At the fish screens at North Battle Creek Feeder, Eagle Canyon, and Inskip Diversion Dams, operate properly calibrated remote sensing devices that continuously monitor water surface elevation differences on the inlet and outlet side of screens to identify plugging.

### **7.3 Biological and Environmental Monitoring**

The biological and environmental monitoring described below will address the overall status of anadromous fish populations and related ecosystem health in the Battle Creek watershed which includes the Restoration Project Area. The Parties understand and agree that biological and environmental monitoring in the watershed and Restoration Project Area will be performed by USFWS and/or CDFG, or their designated representatives, using available funding from Central Valley fishery restoration funding sources, including but not limited to, the \$1,000,000 federal funding allocation for the Restoration Project described in Section 10.2; and CALFED's Comprehensive Monitoring Assessment Research Program; and CVPIA's CAMP. The Parties understand and agree that if sufficient funding is not available through the above sources they will jointly pursue other appropriate funding sources.

The Parties will jointly prepare the Agencies' detailed biological and environmental monitoring component of the Adaptive Management Plan described in Section 9.1 A 2 (b). The biological and environmental monitoring will include, but is not limited to:

- A. Estimates of the number and species of upstream migrant salmonids entering upper Battle Creek via the fish ladder at Coleman National Fish Hatchery Barrier Weir, using underwater video or automated fish counters and intermittent use of a fish trapping facility to sample individual fish for species/run identification;
- B. Estimates of the relative abundance and distribution and immigration timing of adults in the Battle Creek watershed, using the most efficient and safe method for the particular stream reach, including underwater observation, carcass, redd and/or aerial

surveys;

- C. Estimates of the relative abundance, distribution, and out-migration timing of juveniles, using downstream migrant trap installations in the Battle Creek watershed;
- D. Characterization of the temperature regime in the Battle Creek watershed by continuously measuring and recording water temperatures and meteorological conditions during the appropriate periods; and
- E. Examination of fish passage conditions at natural obstacles that change in the stream canyon areas over time, such as clusters of debris and boulders, by observing these areas during other fish survey activities and more detailed analysis at sites that undergo major reconfiguration.

The biological and environmental monitoring described above is beyond the scope of PG&E's facility monitoring described in Section 7.2.

#### **7.4 Other Monitoring**

The Parties agree that any monitoring of Restoration Project actions, other than the monitoring described in Sections 7.1 and 7.3 which may be required pursuant to the license for FERC Project No. 1121 will be done by PG&E at its sole cost.

#### **7.5 Reporting and Notice Requirements**

PG&E will make available all facility monitoring reports to the Resources Agencies and CALFED upon specific request. The fish use records at the fish ladders shall be made available on a monthly basis to the Resource Agencies during the initial three-year period of operation, or as otherwise agreed upon by the Parties. Upon discovery of any occurrence of operation of a screen, ladder, or water release mechanism outside of the requisite specifications, notification will be made by PG&E to NMFS and CDFG as soon as possible, but no later than the next day of operation. The notification shall include a description of the deviation, any necessary

corrective measures taken or proposed, and an implementation schedule if the situation has not been corrected.

All biological and environmental monitoring results and analyses described in Section 7.3 will be presented by the Resource Agency performing the monitoring in annual reports to the Parties and FERC and will be made available to CALFED and other interested persons upon request.

## **8.0 PLANNING, PERMITTING, AND CONSTRUCTION ACTIVITIES**

### **8.1 Schedule**

The Parties agree to use their best efforts to implement the Restoration Project according to the schedule in Attachment 3. The Parties shall use their best efforts to complete the planning and construction activities on the South Fork on a priority basis, related to biological criteria.

### **8.2 Organizational Structure and Responsibilities**

Planning, permitting and construction of the Restoration Project will be implemented through a cooperative effort of the Project Management Team (PMT), Project Manager, and Technical Team (TT).

#### **A. Project Management Team**

The PMT is a management level group that will make all final decisions regarding planning, permitting, and construction activities of the Restoration Project through the Consensus process. Members of the PMT include representative(s) from each of the Parties, California Department of Water Resources (DWR) and SWRCB. For purposes of determining Consensus, each of Parties to this MOU as well as DWR and SWRCB will be afforded one vote. If Consensus is not achieved, disputes will be resolved through the dispute resolution process described in Section 14.0. The PMT shall address, but shall not be limited to, issues related to the planning, permitting, and construction of the Restoration Project, including issues related to: policy; design; plans and

specifications; scheduling; real property and relocation requirements; real property acquisition; contract awards and modifications; contract costs; cost projections; final inspection of the entire Restoration Project or functional portions of the Restoration Project; preparation of the proposed operation, maintenance, repair, replacement, and rehabilitation manual; anticipated requirements and needed capabilities for performance of operation, maintenance, repair, replacement, and rehabilitation of the Restoration Project; and any other related matters. The PMT shall direct and manage the TT and resolve any disputes that have been elevated to the PMT by the TT. In addition, the PMT may make recommendations to the TT through the Project Manager that it deems warranted on matters that the PMT generally oversees, including suggestions to avoid potential sources of dispute.

Funding for the administrative, clerical, and support facilities for the PMT will be provided by federal funding described in Section 10.2. The Chair of the PMT will be a USBR representative.

**B. Project Manager**

The Project Manager is an employee of USBR and will be responsible for coordinating the implementation of activities among the Parties, with other appropriate interested persons, and with all state and federal agencies with jurisdiction over some aspect of the Restoration Project. The Project Manager is a member of the PMT and, after the effective date of this MOU, will meet at appropriate frequency with the TT to assess Restoration Project status and to facilitate coordination.

**C. Technical Team**

The TT is a cooperative group established to address technical issues arising as a result of implementing the Restoration Project. The TT will be responsible for the necessary day-to-day actions required to implement the planning, design, and construction decisions of the PMT. Members of the TT include representative(s) from each of the Parties, DWR and the SWRCB

with appropriate training and experience to effectively address the technical aspects of implementing the Restoration Project. Disciplines within the responsibility of the TT include, but are not limited to, environmental compliance, construction monitoring, planning activities, engineering and design, permitting, real estate actions, public involvement, and construction. All unresolved technical issues will be referred to Project Manager for resolution or elevation to the PMT.

Funding for the administrative, clerical, and support facilities for the TT will be provided by federal funding described in Section 10.2. The Chair of the TT will be the Project Manager.

### **8.3 Planning Activities**

Planning includes all activities associated with NEPA/CEQA compliance, permitting actions, design data collection, conceptual designs, final designs, specification preparation, real estate acquisition, public involvement, quality control, and procurement processes leading to construction.

### **8.4 Construction Activities**

**A.** Construction implementation will be carried out by USBR unless otherwise determined cooperatively between USBR and PG&E. The following schedules will be submitted by the responsible construction agency to the Parties upon request:

- 1.** A master work schedule showing the construction work to be performed or caused to be performed by USBR under this MOU, including total estimated costs for work accomplishments each Fiscal Year (October 1 to September 30);
- 2.** A detailed schedule for the initial construction quarter consistent with the master work schedule specifying the work to be performed during the construction quarter, including the amount of funds required during that quarter

for the work scheduled and including sums expended for the preparation of designs and specifications, engineer's estimates, other pre-construction activities required to initiate construction and construction activities; and

3. Subsequent detailed quarterly work schedules consistent with the master work schedule specifying the work proposed to be performed or initiated during each quarter of the construction period other than the initial quarter, including the amount of funds required during each quarter.
- B.** The party responsible for construction at a particular site, whether it be USBR or PG&E, will provide each other written progress reports on a weekly basis or such other time period as mutually agreed to by the PMT. Construction activities undertaken by a party pursuant to this MOU shall be open and subject to inspection by the other party or their representative at all times during the progress thereof and upon completion. Should either party determine that any such construction work is not being performed, or has not been completed, in accordance with applicable schedules, plans, designs and specifications, or any other requirement of this MOU, then that party shall give written notice thereof to the other party within 30 days after inspection. This notice shall specify the corrective actions which must be taken and the schedule for their completion. USBR and PG&E agree to provide each other with copies of claims, change orders, and correspondence involving major cost or design changes between themselves and third party contractors performing any of the construction or decommissioning activities.
- C.** USBR and PG&E also agree to provide each other with a summary of costs incurred in the performance of this MOU on a quarterly basis. At the conclusion of construction of the improvements, USBR and PG&E shall furnish each other with an accounting of the final costs of their respective contributions to the completed improvements.

- D. All work shall be performed in accordance with USBR Safety and Health Standards, any applicable PG&E standards, and OSHA and Cal-OSHA regulations. In the event of any conflicts, the most stringent requirements shall apply.

## **8.5 Public Participation**

All PMT and TT meetings will be open to any interested persons. Additional opportunities for public participation will be afforded in the NEPA/CEQA and FERC license amendment processes.

## **9.0 ADAPTIVE MANAGEMENT**

The Parties agree that Adaptive Management is an integral component of the Restoration Project. Adaptive Management is a process that: (1) uses monitoring and research to identify and define problems; (2) examines various alternative strategies and actions for meeting measurable biological goals and objectives; and (3) if necessary, makes timely adjustments to strategies and actions based upon best scientific and commercial information available.

The primary reason for using an Adaptive Management process is to allow for changes in the restoration strategies or actions that may be necessary to achieve the long-term goals and/or biological objectives of the Restoration Project and to ensure the likelihood of the survival and recovery of naturally-spawning chinook salmon and steelhead. Using Adaptive Management, restoration activities conducted under the Restoration Project will be monitored and analyzed to determine if they are producing the desired results (i.e., properly functioning habitats).

As implementation of the Restoration Project proceeds, results will be monitored and assessed. If the anticipated goals and objectives are not being achieved, then adjustments in the restoration strategy or actions will be considered through the Adaptive Management Plan, which will be developed consistent with the relevant CALFED guidelines. The Water Acquisition Fund and Adaptive Management Fund are elements of Adaptive Management which will provide funding for potential changes to Restoration Project actions that result from application of the Adaptive Management Plan (AMP).

## **9.1 Adaptive Management Plan**

The AMP will be submitted by PG&E to FERC at the time that PG&E files its license amendment application pursuant to this MOU. The Parties acknowledge that implementation of the AMP could later involve proposals for changes in operations, project facilities, and possible decommissioning of some additional FERC Project No. 1121 facilities to improve biological effectiveness and habitat values for chinook salmon or steelhead.

Subject to Section 6.1 D, the Parties agree that for the term of the existing FERC license, and any subsequent annual licenses, the instream flows developed by the AMP will not be lower than the prescribed instream flow releases specified in Attachment 1, unless agreed to by the Resource Agencies, and submitted to FERC for approval. The Parties acknowledge that the Resource Agencies cannot waive their responsibilities under federal and state law, and specifically reserve their jurisdiction under the ESA and other federal and state laws.

If prescribed instream flow releases are reduced below those specified in Attachment 1, and later determined to be insufficient, any later increase of prescribed instream flow releases up to the amounts described in Attachment 1 shall not be compensated by funds provided in Sections 9.2 A and 9.2 B. However, any increase of prescribed instream flow releases above those set forth in Attachment 1 shall be compensated through the AMP.

In order to ensure timely implementation of Adaptive Management measures, the AMP will identify the range of possible Restoration Project adjustments that may be implemented due to new information, risk, uncertainty, or opportunity. The intent of this provision is to enable FERC to approve the range of future adjustments that may be undertaken pursuant to this license amendment.

### **A. AMP Development**

The AMP will include: a statement of the Restoration Project goals and objectives; a monitoring component; protocols for



assessing information and formulation of recommended changes; general procedures for prioritizing expenditures from the Adaptive Management Fund (see Section 9.2 B) and Water Acquisition Fund (see Section 9.2 A); procedures for modifying management approaches using best scientific and commercial information available; public participation; and an outline of the agreed-upon scope of adjustments to the Restoration Project. The AMP will be developed by the Resource Agencies and PG&E through the Consensus process prior to filing the license amendment application with FERC. The AMP will include milestones, timelines, and trigger points for consideration of changes.

The term of the AMP will coincide with the duration of this MOU and will include milestones that are reviewed at scheduled intervals.

## **1. Participants**

The AMP will be developed through the Consensus process by the Resource Agencies and PG&E. Interested persons may attend any meeting, contribute to discussions, and provide suggestions regarding development of the AMP. Specific notice, in addition to any general notice, of any such meetings will be sent to: (1) the Battle Creek Watershed Conservancy; (2) CALFED; and (3) any person requesting such notification.

## **2. Elements**

### **(a) Goals and Objectives**

Biological goals are the broad guiding principles for the AMP and are the rationale behind the minimization and mitigation strategies and/or actions. Specific biological objectives are the measurable targets for achieving the biological goals. The goal of the AMP is to implement specific actions to protect, restore, enhance, and

monitor salmonid habitat at FERC Project No. 1121 to guard against false attraction of adult migrants and ensure that chinook salmon and steelhead are able to fully access and utilize available habitat in a manner that benefits all life stages and thereby maximizes natural production, fully utilizing ecosystem carrying capacity.

The provisions of the AMP will include measurable biological objectives. Those biological goals and objectives must be based on the best scientific and commercial data available and reflect the realistic potential of the Restoration Project to restore anadromous fish in Battle Creek. The biological goals and objectives of the AMP will integrate habitat and multispecies-specific needs.

**(b) Monitoring**

The monitoring component of the AMP will be designed to ensure proper data collection and analysis in order to guide appropriate adjustments to the Restoration Project. The monitoring component also will provide the information necessary to assess compliance, achievement of Restoration Project results, and verification of progress toward the established biological goals and objectives. Specific reporting requirements will be an integral part of the monitoring component to assure appropriate dissemination of data collected. The frequency, organization, and content of reports that differ from Section 7.5 will be determined through Consensus in the development of the AMP.

The monitoring component will be flexible to allow modification, as necessary, based on the need for additional information or to assess unanticipated outcomes. The monitored parameters will reflect

the biological objective's measurable units (e.g., if the biological objective is stated in terms number of chinook salmon, the monitoring component should describe the procedures for measuring the estimated number of chinook salmon). The monitoring component will be based on the best scientific and commercial information available and use established surveying methods and techniques, and other protocols. The monitoring component will also clearly designate responsibility for the various aspects of monitoring based on the provisions of Sections 7.2 and 7.3, and will identify the measures the Resource Agencies and PG&E will take to ensure adequate funding for their respective future monitoring responsibilities.

**(c) Assessment**

The information obtained through monitoring will be analyzed and evaluated according to protocols identified in Section 9.1 B to assess the results of restoration actions relative to established goals and objectives. Information acquired will be used to determine the need for adjusting goals, altering the monitoring program to obtain additional data, or developing recommended modifications to restoration actions already in place. For instance, the Ramping Rates and threshold flow levels will be monitored to ascertain their effectiveness to avoid stranding and/or isolating anadromous fish. If the monitoring results indicate adjustment to the Ramping Rates or threshold flow values are warranted, then recommendations will be formulated and submitted to the Adaptive Management Policy Team for consideration.

## **B. Implementation**

Adaptive Management is an integral part of the post-construction implementation of the Restoration Project. The basic organizational structure of the Adaptive Management effort will consist of an Adaptive Management Policy Team (AMPT), and Adaptive Management Technical Team (AMTT).

### **1. Adaptive Management Policy Team**

The AMPT is a management level cooperative group that will make all final decisions regarding the implementation of the Adaptive Management component of the Restoration Project. The AMPT will have a representative from each of the Resource Agencies and PG&E. The members of the AMPT will be familiar with Adaptive Management methodologies adopted by CALFED. Interested persons may attend any AMPT meeting and contribute to discussions. Specific notice, in addition to any general notice, of any such meetings will be sent to: (1) the Battle Creek Watershed Conservancy; (2) CALFED; and (3) any person requesting such notification.

The AMPT shall provide policy direction and resolve any disputes forwarded by the AMTT by Consensus. In the event that the AMPT is unable to reach Consensus within thirty (30) days, dispute resolution procedures, described in Section 14.0, shall be followed.

The Chair of the AMPT will rotate regularly as agreed upon by the AMPT.

### **2. Adaptive Management Technical Team**

The members of the AMTT will include a representative from each of the Resource Agencies and PG&E with appropriate training and experience to effectively address the technical aspects of implementing the AMP. Interested

persons may attend any AMTT meeting and contribute to discussions. Specific notice, in addition to any general notice, of AMTT meetings will be sent to: (1) the Battle Creek Watershed Conservancy and (2) any interested person requesting such notification.

The AMTT will develop the AMP for approval by the AMPT and implement the Adaptive Management component of the Restoration Project upon approval by FERC. The Chair of the AMTT will rotate regularly as agreed upon by the AMTT.

## **9.2 Adaptive Management Implementation Means**

### **A. Water Acquisition Fund (WAF)**

#### **1. Purpose of WAF**

An important component of the Restoration Project will be a WAF. The purpose of the WAF is to establish a ready source of money which may be needed for future purchases of additional instream flow releases in Battle Creek which may be recommended under the AMP during the ten (10) year period following the initiation of prescribed instream flow releases listed in Attachment 1. The WAF shall be used solely for purposes of purchasing additional environmentally-beneficial instream flow releases pursuant to the protocols developed by the Resource Agencies and PG&E. The Parties acknowledge that if additional instream flow releases are determined by the Resource Agencies to be required pursuant to the protocols described in Section 9.2 A 3, the ESA, or other applicable law, and (1) the ten (10) year period described above has elapsed and/or (2) there are not sufficient funds in the WAF or the Adaptive Management Fund to pay for such additional instream flow releases, then PG&E shall be responsible for the cost of such instream flow releases.

## **2. Independent WAF Account**

The WAF account will be funded with federal funds described in Section 10.2 and administered by the Resource Agencies following consultation with appropriate interested parties. USBR shall commit \$3,000,000 of such funds to an account or subaccount for the WAF within four months of CALFED approval of federal funds described in Section 10.2. Account disbursement instructions will be developed jointly by the Agencies and PG&E. USFWS shall request disbursements from the WAF in writing, based on the account disbursement instructions.

## **3. WAF Administrative Protocols**

Protocols will be developed by the AMTT to identify environmentally beneficial flow changes for anadromous fish under the AMP to be funded from the WAF.

If Consensus regarding flow changes is not achieved by the AMTT or AMPT, PG&E and the Resource Agencies (collectively), each will choose a person, and together those two persons will choose a single third party who will act as mediator. Each Party shall make its choice within fourteen (14) days from the date of any determination that Consensus has not been achieved, and the third party mediator shall be chosen by those parties no later than forty-five (45) days from such date of determination that Consensus has not been achieved. These times may be extended by mutual agreement of the Resources Agencies and PG&E. If Consensus through mediation is still not achieved, the Resource Agencies and PG&E reserve their right to petition FERC to resolve the subject action. Resource Agencies and PG&E will be responsible for assuming their respective costs for any FERC process.

However, in the interim, instream flow releases determined to be necessary by the Resource Agencies through the

aforementioned protocols will be provided by PG&E until there is either Consensus or FERC approval of the additional instream flow releases. WAF moneys shall be used to implement consensually agreed to or FERC approved actions, and interim actions which have been taken pending FERC action.

#### **4. Payment of WAF Moneys**

During the ten-year effective period of the WAF, payment to PG&E for consensually agreed to or FERC approved increased flow releases, and interim instream flow releases which have been taken pending FERC action, will be made in arrears annually. After January 1 following the expiration of the WAF, all uncommitted funds will revert to CALFED, or as otherwise provided by law. During the last year of the WAF, and to the extent that adequate moneys remain in the WAF, funds for agreed to prescribed instream flow releases which will be delivered after expiration of the WAF will be paid to PG&E in one lump-sum based on the net present value of foregone energy for the period inclusive of the realized increased prescribed instream flow releases and expiration date of the current FERC license.

The method of valuation of any additional environmentally beneficial prescribed instream flow releases for the purpose of compensation from the WAF shall be similar to that used for estimating the net present value of foregone power in Attachment 1. The annual in arrears payments described above will be calculated by computing the additional energy foregone on a daily basis over the prior year due to increased prescribed instream flow releases multiplied by the weighted daily energy price published by the California Power Exchange. The lump-sum payment described above will be determined based on the average annual additional foregone energy associated with increased prescribed instream flow releases for a typical water year (e.g. water year 1989). The net present value payment will be based

on the appropriate power values, escalation factor, and discount rate.

## **B. Adaptive Management Fund (AMF)**

### **1. Purpose of AMF**

Another component of the Restoration Project will be an Adaptive Management Fund (AMF) to implement actions developed under the AMP. The Parties agree that the purpose of the AMF is to provide a readily available source of money to be used for possible future changes in the Restoration Project. The AMF shall be used only for Restoration Project purposes directly associated with FERC Project No. 1121 including compensation for prescribed instream flow release increases after the exhaustion or termination of the WAF. The AMF shall be administered pursuant to the AMF protocols. The AMF shall be used to fund unforeseen changes, including changes in the design of the fish screen and/or ladders built as a part of the Restoration Project to improve biological effectiveness and which meet NMFS' adopted criteria. The AMF shall not be used to fund monitoring or construction cost overruns.

### **2. Independent AMF Account**

The AMF, in the amount of \$3,000,000, will be made available to PG&E and the Resource Agencies by a third party donor(s), to fund those actions developed pursuant to the AMP. The third party donor(s) shall deposit the \$3,000,000 in an interest-bearing account pursuant to a separate agreement to be developed jointly by the Resource Agencies, PG&E, and a third party donor(s) after execution of this MOU. This interest-bearing account shall be established no later than six (6) months after execution of this MOU unless otherwise agreed to by the Parties. Account disbursement instructions will be developed



jointly by the Resource Agencies, the third party donor(s) and PG&E.

The Parties agree that: (1) interest on the moneys in the AMF will accrue to the account at a rate to be determined in the agreement and shall be applied to changes in the Restoration Project adopted pursuant to the Adaptive Management protocols; and (2) all uncommitted funds in the AMF will revert to the third party donor(s) or its designee at the end of the current term of the license for FERC Project No. 1121. USFWS shall request disbursements from the AMF in writing, based on the protocols identified below.

### **3. AMF Administrative Protocols**

Protocols will be developed by the AMTT to designate environmentally beneficial Adaptive Management actions to be funded from the AMF pursuant to the AMP.

For funding prescribed instream flow increases, the protocols will be the same as for the WAF described in Section 9.2 A 3. For funding facility modifications, the protocols will be the same as that described in Section 9.2 A 3, with two exceptions: (1) no interim action will be implemented prior to any required FERC approval of a license amendment or other necessary action by FERC; and (2) for all actions resolved by FERC, in which PG&E is in the minority opinion (opposing a proposed action expenditure), the AMF will contribute sixty percent (60%) of any resulting facility modification cost; in the case of PG&E being in the majority opinion (in support of a proposed action expenditure), the AMF will contribute one hundred percent (100%) of any resulting facility modification cost.

## 10.0 FUNDING

**10.1** The total cost of the Restoration Project is currently estimated to be \$50,709,000. USBR has applied to CALFED for the allocation of federal funding in the amount of \$27,158,100. To date, CALFED has tentatively agreed to fund the Restoration Project in that amount, pending execution of this MOU. The balance of \$23,550,900 will include PG&E commitments estimated to be \$20,550,900 and a third party donor(s) contribution of \$3,000,000.

Federal	\$27,158,100
PG&E	\$20,550,900
Third Party Donor(s)	<u>\$3,000,000</u>
	\$50,709,000

### 10.2 Federal Cost Sharing

The federal portion of the Restoration Project funding will be derived from appropriations authorized under the California Bay-Delta Environmental Enhancement Act (P.L. 104-333). The federal funding is appropriated as “no-year” funds that can be carried forward from one federal fiscal year to the next until it is expended. From the appropriated amount, the Department of the Interior, through USBR, will authorize disbursements for full financing of the federal portion of the Restoration Project as approved in the CALFED process.

Subject to the provisions of Section 5.0, federal cost sharing includes: (1) funding for the construction of all fish screens and fish ladders described in Section 4.1; (2) payment for the construction of connectors and bypasses at South and Inskip Powerhouses; (3) payment for decommissioning studies for Wildcat, Coleman, Soap Creek, Lower Ripley Creek and South Diversion Dams, and Eagle Canyon spring collection facilities as identified in Table 1 of Attachment 1; (4) payment of all costs associated with decommissioning Wildcat, Coleman, Soap Creek, Lower Ripley Creek, and South Diversion Dams, and Eagle Canyon spring collection facilities as identified in Table 1 of Attachment 1, and affected related water conveyance facilities; (5) start-up and acceptance testing of new facilities prior to transfer of operation and

maintenance responsibilities to PG&E; (6) any construction and decommissioning cost overruns; (7) any environmental permitting and documentation necessary for the Restoration Project, including any additional decommissioning studies that might be required by FERC; (8) \$1,000,000 toward payment for the biological and environmental monitoring described in Section 7.3, except that PG&E will participate in such monitoring by contributing limited internal technical and fishery expertise; (9) all required new or modified monitoring and record keeping equipment and facilities and stream gauging facilities needed to demonstrate compliance of the Restoration Project with FERC license conditions or needed for Adaptive Management purposes; (10) assistance in developing the AMP more particularly described in Section 9.1; (11) deposit of \$3,000,000 into the WAF more particularly described in Section 9.2 A; and (12) deposits to an escrow account solely administered by PG&E in a total amount of \$2,137,100 as compensation for 10% of the prescribed instream flow releases listed in Attachment 1 and estimated cost of foregone power during construction. Instructions will be developed by the Parties identifying the timing of such deposits of funds based upon loss of generation due to scheduling for construction outages, decommissioning of facilities, commencement of prescribed instream flow releases, or execution of deeds or other mutually agreed upon documents for transfer of water rights pursuant to Section 6.1 E. PG&E will withdraw funds from this escrow account after the CPUC determines the market valuation for the FERC Project No. 1121.

### **10.3 PG&E Cost Sharing**

PG&E's participation in the Restoration Project is an estimated \$20,550,900 toward the Total Project Cost. This amount includes: (1) assumption of ninety percent (90%) of the foregone energy production resulting from the prescribed instream flow releases listed in Attachment 1; (2) assumption of all costs due to increased operation and maintenance at remaining hydropower facilities; (3) assumption of all incremental losses due to Ramping Rate requirements listed in Attachment 2; (4) assumption of all costs for screen and ladder repairs and replacements due to normal wear and tear, catastrophic damage, and any other damage; (5) assumption of costs for facility monitoring described in Section 7.2; (6) assumption of all internal costs associated with any FERC license

amendment necessary to implement the Restoration Project; (7) assumption of internal costs associated with providing limited technical and fishery expertise in developing and implementing the biological and environmental monitoring described in Section 7.3; and (8) assumption of all internal costs associated with the joint petition described in Section 6.1 E.

#### **10.4 Third Party Donor(s) Funding**

A third party donor(s) will provide a one-time lump sum payment of \$3,000,000 to establish the AMF. As described in Section 9.2 B, the third party donor(s) will place these funds in an interest-bearing account and make provision for payments from the account for recommended actions based on the AMP and the AMF protocols, referenced herein, in a separate agreement to be developed by the Parties and the third party donor(s).

#### **11.0 LEASES OR SALE OF FERC PROJECT NO. 1121**

PG&E agrees that any legal instrument conveying some or all of its interest in FERC Project No. 1121 to a successor in interest will include an obligation to assume PG&E's responsibilities and obligations under this MOU. PG&E further agrees that such obligations will run with the FERC Project No. 1121 and be binding on all subsequent owners.

#### **12.0 ENVIRONMENTAL LIABILITIES**

Investigations conducted during the design phase will include such surveys as determined necessary and appropriate by the TT (described in Section 8.2 C) to identify any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (hereinafter "CERCLA"), 42 U.S.C. Sections 9601-9675, that may exist in, on, or under lands, easements, and rights-of-way that are determined to be required for the construction, operation, and maintenance of the Restoration Project. In the event it is discovered through any investigation, construction activity, or other means that hazardous substances regulated under CERCLA exist at levels designated as hazardous waste in, on, or under any lands, easements, or rights-of-way to be required for the construction, operation, or maintenance of FERC Project No.

1121, PG&E and USBR shall notify each other and the other Parties, and work shall not proceed until all Parties agree that activities should continue.

If a structure, system, or component of FERC Project No. 1121 does not currently constitute a hazardous waste, but becomes one as a result of Restoration Project decommissioning activities, the costs associated with that liability will be considered included in the federal share of the Total Project Cost. For example, piping in service not considered a hazardous liability under CERCLA may become a liability under CERCLA upon removal. Consequently, such costs for proper disposal shall be included in the federal portion of the Total Project Cost. Conversely, a concrete pad which has been previously contaminated by a hazardous waste requiring special handling or disposal resulting in increased costs shall not be included in the federal share of the Total Project Cost.

Notwithstanding any potential liability of PG&E, or any other potentially responsible party, for hazardous wastes regulated under CERCLA, the PMT may agree to include certain costs related to such hazardous wastes in the Total Project Cost.

The Parties, through the PMT (described in Section 8.2 A), shall determine whether to initiate construction of that Restoration Project feature, or if already in construction, whether to continue with such work, suspend future performance under this MOU, or terminate this MOU, in any case where hazardous substances regulated under CERCLA are found to exist. Should the Parties determine to initiate or continue with construction after considering any liability that may arise under CERCLA, PG&E, the landowner, or any other potentially responsible party shall be responsible for the costs of any studies and investigations necessary to determine an appropriate response to the contamination. Such costs shall not be considered a part of Total Project Costs.

PG&E and the Parties shall consult with each other in accordance with other provisions of this MOU in an effort to ensure that responsible parties bear any necessary cleanup and response costs as defined in CERCLA. Any decision made pursuant to this Section shall not relieve any third party from any liability that may arise under CERCLA. PG&E shall be considered the operator of this Restoration Project for purposes of CERCLA liability. To the maximum extent practicable, PG&E shall operate, maintain, repair, replace, and rehabilitate the

Restoration Project in a manner that will not cause liability to arise under CERCLA.

### **13.0 AMENDMENT PROCESS**

No amendment or modification of this MOU, nor waiver of any provision of this MOU, shall be effective unless set forth in a written instrument or instruments executed by duly designated and authorized representatives of the Parties with the same formality of this MOU.

### **14.0 DISPUTE RESOLUTION**

In the event any one of the Parties to this MOU believes there is an issue regarding the interpretation of, or compliance with, any provision of this MOU, other than an issue involving determining protocols for funding prescribed instream flow release increases utilizing the Water Acquisition Fund or the Adaptive Management Fund, that Party shall provide written notice of that issue to each of the other Parties. The Parties will then meet within thirty (30) days of the written notice, or at a later date by mutual agreement, in an effort to resolve the issue. If resolution is not achieved, PG&E and the Agencies (collectively) will each choose a person, and together those two persons will choose a single third party who will act as mediator. PG&E and the Agencies shall make their respective choice within fourteen (14) days from the date of any determination that resolution has not been achieved, and the third party mediator shall be chosen no later than forty-five (45) days from such date of determination that resolution has not been achieved. These times may be extended by mutual agreement of the Agencies and PG&E. If resolution through non-binding mediation is still not achieved, the Agencies and PG&E shall petition FERC to resolve the subject dispute for those actions within FERC's jurisdiction. Any such petition shall include the administrative record of the mediation process. Agencies and PG&E will be responsible for assuming their respective costs for any such FERC process. For those issues falling outside the scope of FERC's jurisdiction, where any one of the Parties fails to achieve resolution through the dispute resolution process described above, then any one of the Parties may seek any available appropriate administrative and/or judicial remedies.

## **15.0 TERM**

This MOU shall be effective upon the last date of execution indicated in Section 17.0 and will continue in effect until the expiration of the license for FERC Project No. 1121, or July 31, 2026, whichever is earlier except as otherwise provided in the MOU.

## **16.0 TERMINATION**

**16.1** Except as provided in Section 16.2, no Party may withdraw from or terminate its participation in this MOU prior to the issuance of a Final FERC Order except by Consensus.

**16.2** PG&E or the Agencies may elect to withdraw from the MOU, after providing written notice to the other Parties and making a good faith effort to resolve concerns related to the following occurrences:

- Public and third party donor(s) funding, either from CALFED, CVPIA, CAMP, or other sources, is not adequate to fund all Agencies' commitments;
- Third party donor(s) fund is not established pursuant to Sections 9.2 B and 10.4;
- The Agencies do not support the FERC license amendment application developed from the terms of this MOU;
- FERC approval of the license amendment application is not granted;
- The Final FERC Order, as defined in Section 2.13, is materially different from the terms and conditions of the MOU;
- Any necessary CPUC approval is not granted;
- Any necessary CPUC action contains terms that are materially different from the terms and conditions of this MOU; or
- PG&E abandons the license for FERC Project No. 1121.

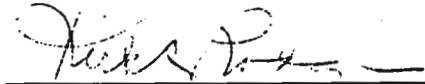
**17.0 SIGNATURES**

This MOU may be executed in counterparts. A copy with all original executed signatures attached will be retained by USBR. USBR will distribute copies of the MOU with executed signature pages to all Parties to this MOU. Each Party hereby represents and warrants that the person executing this MOU on behalf of such Party has been duly authorized to do so.

IN WITNESS WHEREOF, the Parties have caused this MOU to be executed as of the last date written below:

**Signatory**

**Date**



6/10/99

Kirk C. Rodgers, Acting Regional Director  
U.S. Bureau of Reclamation



6/8/99

Wayne S. White, Field Supervisor  
U.S. Fish and Wildlife Service

\_\_\_\_\_  
Rodney R. McInnis, Acting Regional Administrator,  
Southwest Region  
National Marine Fisheries Service

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Robert Hight, Director  
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E. James Macias, Senior Vice President  
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National Marine Fisheries Service

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6-14-99

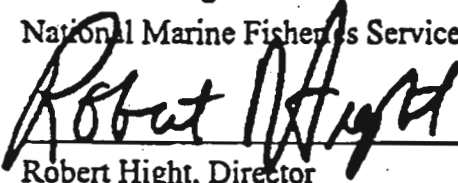
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_____  Robert Hight, Director California Department of Fish and Game	_____ 6-9-91
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**Signatory**

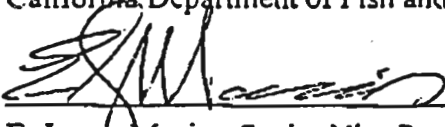
**Date**

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Kirk C. Rodgers, Acting Regional Director  
U.S. Bureau of Reclamation

\_\_\_\_\_  
Wayne S. White, Field Supervisor  
U.S. Fish and Wildlife Service

\_\_\_\_\_  
Rodney R. McInnis, Acting Regional Administrator,  
Southwest Region  
National Marine Fisheries Service

\_\_\_\_\_  
Robert Hight, Director  
California Department of Fish and Game

  
\_\_\_\_\_  
E. James Macias, Senior Vice President  
Pacific Gas and Electric Company

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6/11/99

Approved as to Form



\_\_\_\_\_  
Attorney

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**FINAL AGREEMENT IN PRINCIPLE:**

**BATTLE CREEK SALMON  
AND STEELHEAD RESTORATION PROJECT**

The signatories below agree that the following table entitled, FINAL AGREEMENT IN PRINCIPLE: BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT, accurately describes the consensus proposal negotiated on January 26, 1999.

Negotiator

Date

Mark Stopher  
Mark Stopher,  
California Department of Fish and Game

2/9/99

Jim Bybee  
Jim Bybee,  
National Marine Fisheries Service

2-9-99

Terry Morford  
Terry Morford,  
Pacific Gas and Electric Company

2-16-99

Brent Walthall  
Brent Walthall,  
US Bureau of Reclamation

2/9/99

Wayne White  
Wayne White,  
US Fish and Wildlife Service

2/11/99

**FINAL AGREEMENT IN PRINCIPLE**

**BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT**

**1/26/99 Consensus Proposal, subject to PG&E Management Approval, FERC license amendment, and Resource Agency/PG&E MOU Supporting All Facility and Instream Flow Changes Outlined Below**

<p><b>Facilities</b></p>	<p>Decommission Wildcat, Coleman, Soap Creek, Lower Ripley and South Diversion Dams and associated water conveyance facilities that will no longer be in service; screen and ladder N. Battle Creek Feeder, Inskip and Eagle Canyon Diversion Dams; install tailrace connectors and water bypass facilities at Inskip and South Powerhouses. PG&amp;E, or its successor(s) (Project Owner) agrees to support installation of the connector at South Powerhouse concurrent with, or prior to, the Inskip Diversion Dam Fish Screen.</p>
<p><b>Flows</b></p>	<p>See attached Tables 1 and 2 which list "Prescribed Instream Flow Releases." The Resource Agencies will meet and confer with Project Owner before determining flow ramping provisions for returning facilities to service following shutdowns.</p>
<p><b>Economic Variables</b></p>	<p>Adopt 12/98 CEC energy forecast &amp; revise discount rate to 9.17%. Include all costs of proposal: O&amp;M impacts, license amendment, all study costs associated with decommissioning, Facility Monitoring<sup>1</sup> and Biological/Environmental Monitoring<sup>2</sup>, a \$3 million Water Acquisition Fund, and a \$3 million Adaptive Management Fund (See Table 3 "Total Project Cost" and Table 4 "Summary of Assumptions").</p>
<p><b>Water Acquisition Fund Protocol</b></p>	<p>Water Acquisition Fund administered by Resource Agencies following consultation with appropriate interested parties. Water Acquisition Fund shall be placed in an escrow account and used solely for purposes of purchasing additional flows if the Resource Agencies determine such flows are necessary during the first 10 years of initiation of instream flow changes listed in Tables 1 and 2. During this first ten year period, payment to the Project Owner for agreed-upon instream flow changes will be made annually. After the first January 1<sup>st</sup> following the expiration of the first 10 years of instream flow changes listed in Tables 1 and 2, all uncommitted funds would revert to CALFED; funds for instream flow changes agreed upon before the subject January 1<sup>st</sup> which remain in effect after the subject January 1<sup>st</sup> will be paid to the Project Owner in one lump-sum payment based on the net present value of foregone energy for the period inclusive of the realized increased flows and expiration date of the current FERC license. Protocols to determine appropriate flow changes for anadromous fish to be funded with the \$3 million Water Acquisition Fund will be developed in which both Resource Agencies and Project Owner make the determination through a consensus process. If consensus is not achieved, Project Owner and Resource Agencies (collectively) will each choose a person, and together those two persons will choose a single third party who will act as mediator. Each party shall make its choice within 14 days from the date of any determination that consensus has not been achieved, and the third party mediator shall be chosen by those parties no later than 45 days from such date of determination that consensus has not been achieved. These times may be extended by mutual agreement of the Resource Agencies and Project Owner. If consensus through mediation is still not achieved, the Resource Agencies and Project Owner reserve their right to petition FERC to resolve the subject action. Resource Agencies and Project Owner will be responsible for assuming their respective costs for FERC process. Interim flows will be provided by Project Owner until there is either consensus or FERC approval of the additional flows determined to be necessary by Resource Agencies. Water Acquisition Funds shall be used to implement consensually-agreed to or the FERC-approved actions, and interim actions which have been taken pending FERC action.</p>

<sup>1</sup> FACILITY MONITORING includes verification that agreed-upon instream flows including ramping limitations are met, verify and document fish screen and ladder facilities continue to function as designed, i.e., report to FERC of screen and ladder outages, alarms, reasons for operational deviations, verify no gaps exceeding design criteria exist in the fish screen structure, perform periodic inspections to verify screen is being properly maintained and site conditions have not significantly changed, having the Owner's operator note any fish stacking below the fish ladders and fish passing up the ladder.

<sup>2</sup> BIOLOGICAL/ENVIRONMENTAL MONITORING includes anadromous fish survey (i.e., abundance, distribution and timing of adult and juvenile fish), water quality/meteorology, barrier formation, long-term fish passage at fish passage facilities.  
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**FINAL AGREEMENT IN PRINCIPLE**

**BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT**

**1/26/99 Consensus Proposal, subject to PG&E Management Approval, FERC license amendment, and Resource Agency/PG&E MOU Supporting All Facility and Instream Flow Changes Outlined Below**

<p><b>Adaptive Management Fund Protocol</b></p>	<p>Adaptive Management Fund administered by Resource Agencies following consultation with appropriate interested parties<sup>3</sup>. Adaptive Management Fund shall be placed in an escrow account and used solely for Battle Creek salmon and steelhead restoration purposes directly associated with the facilities and operations of FERC Project No. 1121, i.e., instream flow changes (after exhaustion or termination of the Water Acquisition Fund), and facility modifications; all uncommitted funds will revert to the third party at the end of the current FERC license term.                  Protocols to determine appropriate actions that benefit anadromous fish to be funded with the \$3 million Adaptive Management Fund will be developed in which both Agencies and Project Owner make the determination through a consensus process. For funding instream flow changes, the protocol would be the same as for the Water Acquisition Fund discussed above. For funding facility modifications, the protocol would be the same as for the Water Acquisition Fund discussed above with 2 exceptions: 1) no interim actions would be implemented prior to FERC action; and 2) for all FERC resolved actions, the Adaptive Management Fund would contribute a maximum of 60 percent of any resulting facility modification cost. In other words, for actions related to facility modifications, funds from the Adaptive Management Fund shall be used to implement 100% of the costs of consensually-agreed to actions but only 60% of the costs of actions submitted to FERC for resolution, the remaining 40% to be borne by the Project Owner in the latter case.</p>
<p><b>Total Cost Payment to Project Owner</b></p>	<p>\$50.7 million (includes \$1 million CALFED-funded monitoring; additional monitoring funding to be provided by others i.e., CVPIA, CAMP, etc.)                  \$2.1 million</p>
<p><b>Resource Agency Cost Sharing</b></p>	<p>Public funding for: all screens, ladders, connectors, decommissioning, decommissioning studies, start-up and acceptance testing prior to transferring ownership and operations and maintenance responsibilities to Project Owner, construction and decommissioning over-runs, environmental permitting (i.e., all necessary environmental permitting (e.g., NEPA/CEQA), including additional FERC-required decommissioning studies), all Biological/environmental monitoring (except for Owner's limited participation and use of internal technical and fishery expertise to jointly develop Agencies' monitoring plan, assist in analyses, review results and identify potential adaptive management measures), and Water Acquisition Fund; 10% of Purchased Water Costs.</p>
<p><b>Resource Agency Contribution</b></p>	<p>\$27.2 million = 54%. Includes portion of Biological/Environmental Monitoring<sup>2</sup>; other governmental funding sources (CVPIA, CAMP) will be used for monitoring.</p>
<p><b>Third Party Cost Sharing</b></p>	<p>Third Party funding for \$3 million Adaptive Management Fund</p>
<p><b>Third Party</b></p>	<p>\$3 million = 6%</p>

<sup>3</sup> An Adaptive Management Plan will be developed to contribute to the sustainability of naturally spawned anadromous salmonids and the associated ecosystem of Battle Creek affected by FERC Project No. 1121 facilities or operations. The Adaptive Management Plan will be developed by consensus. The Adaptive Management Plan will develop a broadly applicable and flexible framework for an adaptive management program specific to impacts resulting from FERC Project No. 1121 facilities or operations and will include: establishing objectives; planning for unanticipated outcomes; recognizing appropriate time frames for resource management and recovery; defining the role of assessment monitoring; developing general procedures for prioritizing expenditures of Adaptive Management Funds; and developing general procedures for modifying management approaches using new scientific data. The Adaptive Management Plan will implement specific actions to protect, restore, enhance, and monitor salmonids and salmonid habitat, at FERC Project No. 1121, to guard against straying and to ensure that salmon and steelhead fully access and utilize available habitat in a manner that benefits all life stages and thereby maximizes natural production, fully utilizing ecosystem carrying capacity. The Adaptive Management Plan may also include measures to minimize impacts of Project operations upon life stages of salmon and steelhead.

**FINAL AGREEMENT IN PRINCIPLE  
BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT  
1/26/99 Consensus Proposal, subject to PG&E Management Approval, FERC license amendment, and Resource  
Agency/PG&E MOU Supporting All Facility and Instream Flow Changes Outlined Below**

<b>Feature</b>	
<b>Contribution</b>	<p>Project Owner funding for: 90% of Purchased Water Costs; 100% of increased O&amp;M, foregone power due to ramping rate requirements and periodic screen and ladder repairs, and replacements due to normal wear-and-tear and catastrophic damage. Screen and ladder modifications and replacements due to changes in design to improve biological effectiveness which meet NMFS adopted criteria will be paid from the Adaptive Management Fund; Facility Monitoring<sup>1</sup> to verify flows are provided as agreed, and screens and ladders continue to function as designed. Project Owner pays all internal costs associated with FERC license amendment and Facility Monitoring<sup>1</sup> (Biological/Environmental Monitoring<sup>2</sup> including overall effectiveness of modifications, fish population and distribution monitoring which is beyond Project Owner Facility Monitoring<sup>1</sup> requirements will be paid by CALFED. Owner shall participate in and provide limited internal technical and fishery expertise to the Agencies' Biological/Environmental Monitoring<sup>2</sup> program at its own cost.)</p>
<b>Project Owner Contribution</b>	<p>\$20.6 million = 40% Includes limited portion of Biological/Environmental Monitoring<sup>2</sup></p>
<b>Assurances and Requirements (to be stipulated in MOU and provided through ESA permits and FERC license)</b>	<p>Project Owner will voluntarily reopen its FERC license through the license amendment process to enhance the Battle Creek fishery as described in the MOU and related agreements. The Resource Agencies agree to: 1) support project owner's FERC license amendment to incorporate the restoration actions described herein into FERC License No. 1121, and 2) support the position that FERC focus this license amendment on the restoration actions described herein in order to streamline the process for a FERC decision to allow Battle Creek restoration to go forward in a timely manner.</p> <p>No ESA assurances.</p> <p>Water Acquisition Fund provided by CALFED and administered by Agencies to pay for any additional future flow changes for salmon and steelhead restoration purposes directly associated with the facilities and operations of FERC Project No. 1121 pursuant to the above-mentioned protocols.</p> <p>Adaptive Management Fund provided by Third Party and administered by Agencies to pay for any additional future salmon and steelhead restoration purposes directly associated with the facilities and operations of FERC Project No. 1121 pursuant to the above-mentioned protocols.</p> <p>Water diversion rights associated with all dams to be decommissioned will be transferred to the appropriate party (CDFG, NMFS, USFWS). Based on the assumption that all PG&amp;E water rights on the South Fork of Battle Creek have an equal priority, water rights transferred to Agencies will not be used by the Agencies to increase bypass flows above the amounts specified in the MOU, or developed pursuant to the Adaptive Management Program. If FERC License No 1121 is abandoned, then the limitation regarding transferred water rights would no longer apply. Project Owner and the Resource Agencies, or their designee, will file a Petition with the SWRCB pursuant to Water Code 1707 to preserve and enhance instream flows.</p> <p>Project Owner and the Resource Agencies, or their designee, agrees to support such a petition.</p> <p>Water associated with meeting the prescribed flow schedules below all dams screened and laddered plus Baldwin Creek will be included in the FERC license amendment in order to maintain fish and wildlife resources. Additionally, Project Owner and the Resource Agencies will execute an agreement ensuring that the currently agreed-upon bypass and ramping flows at each remaining dam, and any agreed-upon future changes to those flows, resulting from the adaptive management program developed in the MOU, will be provided by Project Owner until the end of the current FERC license and any subsequent annual licenses. This commitment to provide bypass and ramping flows may be subject to change by FERC at the expiration of the current license term in 2026. Project Owner and Resource Agencies (subject to State and Federal laws) agree to support the continuation of such bypass and ramping flows, resulting from the adaptive management program developed in the MOU, and any agreed upon future changes to those flows, in any relicensing proceeding for FERC License No. 1121.</p> <p>The Parties agree that for the term of the license, and any subsequent annual licenses, the flows developed by the Adaptive Management Program will not be lower than those flows specified in attached Tables 1 and 2 (to be incorporated in MOU) unless agreed to by the Resource Agencies.</p>

**FINAL AGREEMENT IN PRINCIPLE  
BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT**

**1/26/99 Consensus Proposal, subject to PG&E Management Approval, FERC license amendment, and Resource Agency/PG&E MOU Supporting All Facility and Instream Flow Changes Outlined Below**

**Feature**

**Screening and Laddering Requirements for N. Battle Creek Feeder, Inskip and Eagle Canyon diversions.**

Diversion dams would need to be equipped with NMFS/CDFG approved "fail-safe" fish screens and ladders. The diversions would require full closure during screen failure and year-round remote sensing and inspection to monitor performance.



**FINAL AGREEMENT IN PRINCIPLE**  
**BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT**  
**1/26/99 Consensus Proposal, subject to PG&E Management Approval, FERC license amendment, and Resource Agency/PG&E MOU Supporting All Facility and Instream Flow Changes Outlined Below**

Table 1. Summary of prescribed instream flow releases from dams in the anadromous reaches of the North and South forks of Battle Creek based on modeled biological optimums determined by the Battle Creek Working Group Biological Team

Dam	Fork	Monthly Minimum Flow (cfs) To Be Released From Dam														
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Keswick	North	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>	3 <sup>A</sup>
NBCF	North	88 <sup>F</sup>	88 <sup>F</sup>	88 <sup>F</sup>	67 <sup>F</sup>	47 <sup>F</sup>	47 <sup>F</sup>	47 <sup>F</sup>	47 <sup>F</sup>	47 <sup>F</sup>	47 <sup>F</sup>	47 <sup>F</sup>	47 <sup>F</sup>	47 <sup>F</sup>	47 <sup>F</sup>	88 <sup>F</sup>
Eagle	North	46 <sup>S</sup>	46 <sup>S</sup>	46 <sup>S</sup>	46 <sup>S</sup>	35 <sup>S</sup>	35 <sup>S</sup>	35 <sup>S</sup>	35 <sup>S</sup>	35 <sup>S</sup>	35 <sup>S</sup>	35 <sup>S</sup>	35 <sup>S</sup>	35 <sup>S</sup>	35 <sup>S</sup>	46 <sup>S</sup>
Wildcat	North	(Facility decommissioned; no instream flow requirement)														
South	South	(Facility decommissioned; no instream flow requirement)														
Inskip	South	86 <sup>P1</sup>	86 <sup>P1</sup>	86 <sup>P1</sup>	61 <sup>P1</sup>	40 <sup>P1</sup>	40 <sup>P1</sup>	40 <sup>P1</sup>	40 <sup>P1</sup>	40 <sup>P1</sup>	40 <sup>P1</sup>	40 <sup>P1</sup>	40 <sup>P1</sup>	40 <sup>P1</sup>	40 <sup>P1</sup>	86 <sup>P1</sup>
Coleman	South	(Facility decommissioned; no instream flow requirement)														

A = Accretion flows downstream of the Keswick Dam can exceed 100% of maximum WUA for steelhead spawning in the portion of the Keswick reach available to anadromous fish and can exceed the predictive capability of the IFIM model. Accretion flows downstream of the Keswick Dam provide >90% of maximum WUA for steelhead rearing in the portion of the Keswick reach available to anadromous fish.

F = On occasion the release is not attainable due to the quantity of inflow reaching North Battle Creek Feeder Diversion. Additional inflows to the North Battle Creek Feeder reach are occasionally received from the junction box of the Volta 2 Powerhouse tailrace and Cross-County Canal a short distance downstream.

S = Eagle Canyon Dam releases reported in this table include releases from Eagle Canyon Springs (those springs located downstream of Eagle Canyon Dam that were included in the "interim flow agreement" between PG&E and USBR; USBR 1998a).

P1 = The prescribed instream flow will be the total available inflow in the South Fork upstream of the South Powerhouse at times when the available inflow is less than the prescribed flow.

**FINAL AGREEMENT IN PRINCIPLE**  
**BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT**

**Feature**      **1/26/99 Consensus Proposal, subject to PG&E Management Approval, FERC license amendment, and Resource Agency/PG&E MOU Supporting All Facility and Instream Flow Changes Outlined Below**

**Table 2.** Summary of prescribed instream flow releases from diversions in tributaries affecting the anadromous reaches of Battle Creek and tributaries based on best available information by the Battle Creek Working Group Biological Team.

Diversion	Monthly Minimum Flow (cfs) To Be Released From Tributary Diversions											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Eagle Canyon Spring	All <sup>p</sup>	All <sup>p</sup>	All <sup>p</sup>	All <sup>p</sup>	All <sup>p</sup>	All <sup>p</sup>	All <sup>p</sup>	All <sup>p</sup>	All <sup>p</sup>	All <sup>p</sup>	All <sup>p</sup>	All <sup>p</sup>
Soap Creek	(Facility decommissioned; no instream flow requirement)											
Lower Ripley Creek	(Facility decommissioned; no instream flow requirement)											
Baldwin Creek	5 <sup>c</sup>	5 <sup>c</sup>	5 <sup>c</sup>	5 <sup>c</sup>	5 <sup>c</sup>	5 <sup>c</sup>	5 <sup>c</sup>	5 <sup>c</sup>	5 <sup>c</sup>	5 <sup>c</sup>	5 <sup>c</sup>	5 <sup>c</sup>

D = Flow from Eagle Canyon Springs enters Battle Creek in the vicinity of Eagle Canyon Dam and is included in Eagle Canyon Dam releases shown on Table 1. These Springs are limited to those that were included in the "interim flow agreement" between PG&E and USBR will be released to maximize cooling of Battle Creek.

C = The flow value reported for Baldwin Creek represents the maximum instream flow release.

**BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT**  
**1/26/99 Consensus Proposal**

**Table 3 - Total Project Cost**

	Total Cost	CALFED/ Agencies Share	PG&E Share	Third Party Share
<b>Capital Costs</b>				
North Battle Creek Feeder Diversion Dam				
Fish Screen (55 cfs)	\$585,000	\$585,000	\$0	\$0
Fish Ladder	\$630,000	\$630,000	\$0	\$0
Eagle Canyon Diversion Dam				
Fish Screen (70 cfs)	\$1,098,000	\$1,098,000	\$0	\$0
Fish Ladder	\$1,028,000	\$1,028,000	\$0	\$0
Wildcat Diversion Dam				
Decommission	\$3,000,000	\$3,000,000	\$0	\$0
Soap Creek Feeder				
Decommission	\$200,000	\$200,000	\$0	\$0
Lower Ripley Creek Feeder				
Decommission	\$100,000	\$100,000	\$0	\$0
South Diversion Dam				
Decommission	\$3,300,000	\$3,300,000	\$0	\$0
Inskip Diversion Dam				
Fish Screen (220 cfs)	\$1,500,000	\$1,500,000	\$0	\$0
New Fish Ladder	\$1,050,000	\$1,050,000	\$0	\$0
Tailrace Connector from South PH to Inskip Canal (Includes South PH Bypass)	\$4,000,000	\$4,000,000	\$0	\$0
Coleman Diversion Dam				
Tailrace Connector from Inskip PH to Coleman Canal (300 cfs)	\$2,600,000	\$2,600,000	\$0	\$0
Inskip PH Bypass (Preliminary estimate, value engineering analysis required.)	\$1,000,000	\$1,000,000	\$0	\$0
Decommission	\$930,000	\$930,000	\$0	\$0
<b>Total Capital Costs<sup>1</sup></b>	\$21,021,000	\$21,021,000	\$0	\$0
<b>Environmental Permitting and Monitoring Costs<sup>2</sup></b>	\$1,500,000	\$1,000,000	\$500,000	\$0
<b>Water Acquisition Fund<sup>3</sup></b>	\$3,000,000	\$3,000,000	\$0	\$0
<b>Adaptive Management Fund<sup>4</sup></b>	\$3,000,000	\$0	\$0	\$3,000,000
<b>Net Present Value of O&amp;M Impacts<sup>5</sup></b>	\$817,000	\$0	\$817,000	\$0
<b>Cost of Foregone Power During Construction<sup>6</sup></b>	\$544,000	\$54,400	\$489,600	\$0
<b>Net Present Value of Annual Foregone Power<sup>7</sup></b>	\$20,827,000	\$2,082,700	\$18,744,300	\$0
<b>TOTAL PROJECT COST<sup>8</sup></b>	<b>\$50,709,000</b>	<b>\$27,158,100</b>	<b>\$20,550,900</b>	<b>\$3,000,000</b>

**Cost Share** 54% 40% 6%

<sup>1</sup> The Resource Agencies are responsible for the costs of all screens, ladders, connectors and decommissioning. The Resource Agencies are responsible for any construction costs in excess of those noted in this budget. Any funds budgeted for capital costs that are not expended will be returned to CALFED at the completion of all construction.

<sup>2</sup> The Resource Agencies assume responsibility for completion of environmental permitting (e.g., NEPA/CEQA), including additional decommissioning studies, and for continued environmental monitoring. PG&E will maintain responsibility for Facility monitoring and internal FERC license amendment costs. Additional costs associated with this ongoing activity will be borne by the Resource Agencies through other funding sources (CVPIA, CAMP, etc...)

<sup>3</sup> The Resource Agencies will place \$3 million in an escrow fund that can be used for the purchase of additional stream flows, in the event that an adaptive management review determines that additional flows are required for anadromous fish recovery. These funds may also be used to fund any necessary studies that determine the adequacy of flows. They may not be used for any capital costs (i.e., facility repair). The escrow fund will remain in place through 2011, at which time any uncommitted funds will be returned to CALFED.

<sup>4</sup> A \$3 million Adaptive Management Fund will be established by a third party. This money will be held in an escrow account that will remain in place until the expiration of the current FERC license (2026), at which time any unused funds will be returned to the third party benefactor.

<sup>5</sup> PG&E is responsible for all future O&M and periodic screen and ladder repair and replacement.

<sup>6</sup> Responsibility for the cost of foregone power during construction are split with PG&E (90%) and the Resource Agencies (10%).

<sup>7</sup> Responsibility for the cost of foregone power are split with PG&E (90%) and the Resource Agencies (10%).

<sup>8</sup> The Resource Agencies' share of the total project cost is \$27.2 million (54%). PG&E's share of the total project cost is \$20.6 million (40%). Third party share of the total project cost is \$3.0 million (6%).

### Flow Ramping Criteria

When returning the water conveyance facilities listed below to service, following forced or scheduled outages where the available diversion flow has been released to the natural stream channel, the following criteria will govern the maximum rate at which water is diverted from the stream channel back into the conveyance system:

Season	Ramping Rate*
Year Round	0.10 ft./hour

- \* Modification of method described in "Hydropower Flow Fluctuations and Salmonids: A Review of the Biological Effects, Mechanical Causes, and Options for Mitigation" by Mark A. Hunter, State of Washington Department of Fisheries, September 1992."

It may be feasible to establish a threshold criteria of flow and stage above which ramping will not be required. An analysis of existing instream flow methodology data, stream cross-section information, and field observations will be conducted and recommendations made for initial threshold criteria within 90 days of the effective date of this MOU.

Monitoring of stream stage for ramping purposes will be at a confined, (i.e., narrow) stream transect immediately below the diversion point for the conveyance facility being returned to service, or at another appropriate location at the facility if a suitable transect is not available immediately below the diversion point.

Water conveyance facilities covered by these provisions are:

North Battle Creek Feeder  
 Cross-Country Canal  
 Eagle Canyon Canal  
 Inskip Canal  
 Coleman Canal

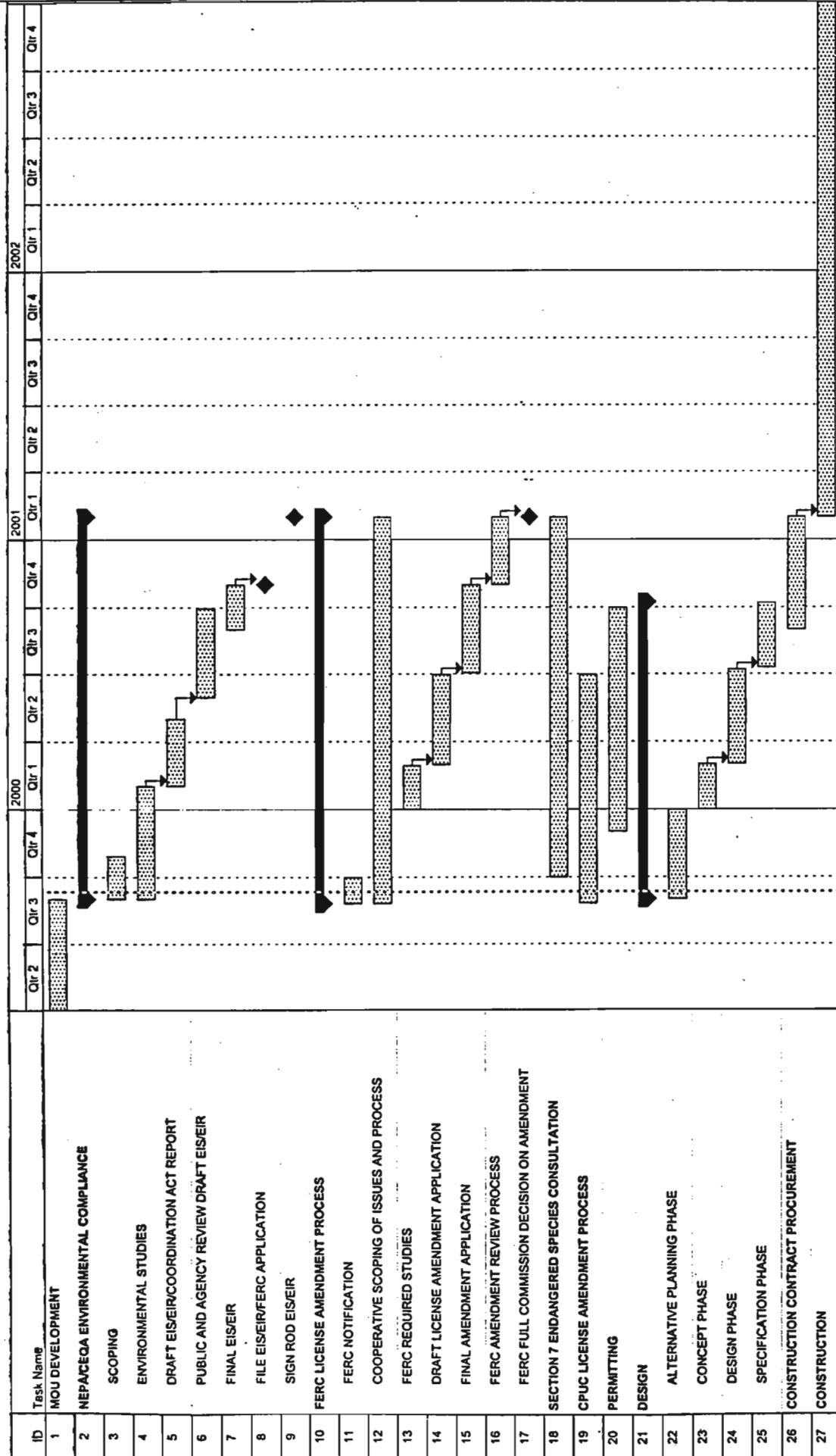
Planned maintenance requiring dewatering of these conveyance facilities will be scheduled during the period of February 1 through April 30 in order to minimize potential effects on anticipated anadromous fishery life stages that may be present in the affected stream reaches. Duration of the actual outages will be that necessary to complete the work associated with the conveyance facility itself.

**BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT**  
**1/26/99 Consensus Proposal**

**Table 4 - Summary of Assumptions**

1	"Prescribed Instream Flow Releases" are used (See Attached Tables 1 and 2)
2	Soap Creek Feeder is decommissioned.
3	Lower Ripley Creek Feeder is decommissioned.
4	Wildcat Diversion and Canal are decommissioned.
5	Eagle Canyon Diversion is screened and laddered.
6	South Diversion and Canal are decommissioned.
7	Coleman Diversion is decommissioned with a tailrace connector from Inskip PH and water bypass facility.
8	A tailrace connector and water bypass are constructed between South PH and Inskip Canal that also allows up to 220 cfs intake from the South Fork, when such flows are available (see "Prescribed Instream Flow Releases" listed on Attached Tables 1 and 2).
9	Generation foregone due to construction is estimated based on PG&E estimates.
10	Capital costs are assumed to be borne at the time of occurrence. Thus, those costs are shown in 1999 dollars, but may increase due to inflation at the time of construction.
11	The current 10-year market clearing price forecast developed by the CEC in December 1998 was used to estimate foregone power costs. Annual escalation of 2.8% was assumed starting in 2009.
12	Transmission delivery losses are estimated at 2.0% of generation.
13	Maintenance and forced outage losses are estimated at 3.0% of full generation potential.
14	It is assumed that 100% of generation (adjusted for losses) is dispatched into the market.
15	Annual operation and maintenance (O&M) costs are currently estimated by PG&E.
16	The period of analysis is from 1/1/01 through 12/31/26.
17	A 2.5% inflation rate is assumed for O&M costs.
18	The discount rate used is 9.17%, and is intended to reflect a rate consistent with PG&E's weighted average cost of capital.

BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT ESTIMATED SCHEDULE



Task Milestone External Tasks Project Summary

Split Summary Rolled Up Milestone Rolled Up Progress

Progress Rolled Up Task

Project: Battle Creek Restoration Proj  
 Date: Thu 6/10/99

Appendix B

**Documentation Associated with the  
Battle Creek Working Group and the  
Battle Creek Watershed Conservancy**

# Documentation Associated with the Battle Creek Working Group and the Battle Creek Watershed Conservancy

Various local groups working in the Battle Creek Watershed have provided input on the Battle Creek Salmon and Steelhead Restoration Project (Restoration Project). The Battle Creek Working Group (BCWG), which has evolved to become the Greater Battle Creek Watershed Working Group, has served as a catalyst to explore various actions to carry forth the Restoration Project. The Battle Creek Watershed Conservancy (BCWC) has also focused on restoration from a watershed approach. Based on a collaborative effort between the community and the 1999 memorandum of understanding signatories (including the U.S. Department of the Interior, Bureau of Reclamation; U.S. Fish and Wildlife Service; National Marine Fisheries Service; California Department of Fish and Game; and Pacific Gas and Electric Company), many of the concerns expressed by the community relating to the Restoration Project have been addressed.

This appendix presents the correspondence documenting the BCWG's and BCWC's concerns about the Restoration Project and how the MOU signatories have resolved their concerns. These documents are:

- *Battle Creek Watershed Community Strategy* (June 2000);
- *The Battle Creek Watershed Conservancy Position on the Battle Creek Salmon and Steelhead Restoration Program and Related Activities* (July 24, 2000);
- *Battle Creek Watershed Conservancy Task List (DRAFT)* (August 31, 2000);
- *Managing Risk to Facilitate the Success of the Battle Creek Salmon and Steelhead Restoration Project* (January 29, 2001);
- letter on the Battle Creek Watershed Conservancy position on the Restoration Project (June 11, 2001);
- *Draft Greater Battle Creek Watershed Adaptive Management Framework and Organization* (September 2001);
- letter from four agencies to the Battle Creek Watershed Conservancy proposing a problem-solving approach for local issues (September 20, 2001);



- correspondence from Battle Creek Watershed Conservancy to CALFED on status of resolving local issues (October 25, 2002);
- *Greater Battle Creek Watershed Working Group Memorandum of Understanding* (February 16, 2004);
- *Four Proposed Agency Actions for Securing Conservancy Support for the Battle Creek Salmon and Steelhead Restoration Project* (February 23, 2004);
- letter indicating nonsupport from the Battle Creek Watershed Conservancy for the Eight Dam Removal Alternative, Alternative B (April 5, 2004); and
- letter from the Battle Creek Watershed Conservancy expressing support for the Battle Creek Restoration Project (June 8, 2005).

**Battle Creek Watershed Community Strategy**  
**June 2000**

## INTRODUCTION

Battle Creek, among other habitats in the Central Valley, was once home to a large population of salmon and steelhead. Little now remains of the historic habitat for these fish; present Battle Creek is degraded, primarily due to a lack of instream flow caused by hydroelectric generation (USFWS 1995). Now, Californians are seeking every opportunity to restore Central Valley salmon and steelhead runs.

Battle Creek is considered to be the watershed with the highest potential for restoring salmon and steelhead in the Sacramento River Watershed for a number of reasons, including: historic and current land uses, private stewardship of much of the land, and the minimal development of most of the watershed. The rural landscape, which is highly valued by the residents of the watershed, includes ranches owned by generations of the same family, timberlands, and higher alpine areas, which are economically and historically valuable.

In 1997, a stakeholder-based Battle Creek Working Group (BCWG) was formed to accelerate salmon and steelhead restoration in the watershed based on the AFRP. The BCWG includes stakeholder representatives from the State and federal resource agencies, and fishery, environmental, local, agricultural, power, and urban stakeholders communities. Also in 1997, the Battle Creek Watershed Conservancy (BCWC) was formed to provide representation for landowners, stakeholders, and residents of the watershed. Its purpose was to look beyond efforts to simply “fix” the creek, but to consider the long-term health of the entire watershed.

An opportunity exists for the landowners and residents of the Battle Creek watershed to retain their rural landscape and lifestyle while at the same time working to restore Battle Creek and its surroundings to a healthy environment for both fish and other wildlife. Preserving the rural lifestyle, agricultural heritage, and existing land uses of the Battle Creek watershed is recognized as essential for the resurgence of the anadromous fish populations. It is becoming widely recognized and accepted that maintaining farmland saves wildlife, including anadromous fish. The intent of this document is to provide watershed residents with the framework for continued responsible stewardship through effective management practices.

## STRATEGY SUMMARY

The Battle Creek Watershed Community Strategy is the framework for future watershed restoration and education activities in the Battle Creek Watershed. It was developed in response to the Anadromous Fish Restoration Program (AFRP) led by the U.S. Fish & Wildlife Service, which saw an opportunity to increase natural production of anadromous fish by augmenting and assisting restoration efforts presently conducted by local watershed workgroups. The program emphasizes strategies and actions to support the restoration of large runs of chinook salmon to Battle Creek and the continuation of a healthy, fully functioning watershed. Recognizing the stewardship responsibilities all landowners assume within the watershed, the strategies emphasize on-the-ground actions and best management practices to ensure the future continued health of the watershed.

The most significant part of this document consists of thirteen strategies and related recommendations to achieve the goal of the Battle Creek Watershed Conservancy: "To preserve the environmental and economic resources of the Battle Creek watershed through responsible stewardship, liaison, cooperation, and education."

The strategy was developed with information gathered during numerous community meetings held throughout the watershed during the past two years (1997-1999). Many of the meetings were sponsored by the Battle Creek Watershed Conservancy, or were jointly sponsored by both the Conservancy and the Battle Creek Watershed Project. The Conservancy also sponsored a series of six meetings from March-April 1999 to provide residents of the watershed communities with the opportunity to review the strategy document draft and to make comments and recommendations. The resulting document reflects the input received from stakeholders at the community meetings.

This community strategy is a living and adaptive management document and planning guide that will reflect new resource management issues, and also guide implementation priorities. It provides us with the framework for continued responsible stewardship through effective management practices.

We look forward to working with our many stakeholders to provide the improvements necessary to protect and enhance our watershed, one of the most unique in California.

## **Detailed Battle Creek Watershed Community Strategy**

- I. **Strategy: Work to restore and maintain suitable habitat conditions for Chinook salmon, steelhead and other aquatic resources of the Battle Creek watershed.**

**Action items:**

- A. Continue to help resolve stream flow and fish passage issues in Battle Creek through active participation in the Battle Creek Working Group (BCWG).
- B. Encourage and support restoration programs determined by the BCWG and supported by the BCWC as best for the fish and in cooperation with property owners.
- C. Encourage on-going monitoring of restoration areas (reaches) to evaluate in-stream flow conditions.
- D. Encourage on-going monitoring of restoration areas (reaches) to evaluate and ensure proper operating efficiency of fish ladders and screens at water diversions and appropriate/necessary controls at diversion outflows.
- E. Seek funding for watershed-wide assessment of existing conditions to identify impacts on anadromous fish restoration efforts.
- F. Plan strategies to address assessment findings which impact the health of the watershed and restoration activities.
- G. Seek funding for implementation of actions based on assessment recommendations.
- H. Facilitate educational opportunities for landowners to address their own stewardship needs.
- I. Encourage public agencies to resolve impacts identified on public lands.
- K. Request funding to continue the Battle Creek Working Group, to foster agency/stakeholder coordination and additional restoration work in the Battle Creek watershed.

**II. Strategy: Seek to identify and protect critical holding, spawning and rearing habitats and anadromous fish resources.**

**Action items:**

- A. Encourage California Department of Fish and Game maintain sufficient staff for the protection of the anadromous fishery resources, and encourage staff activities and on-the-ground monitoring.
- B. Work to ensure that all monitoring activities respect landowner's rights.
- C. Consider forming a Stream Watch program on Battle Creek, similar to a Neighborhood Watch, to monitor activities on the creek in coordination with CDF&G, the regulatory authority.
- D. Provide educational forums to help individuals understand the significance of critical habitats and life cycle needs of anadromous fish.
- E. Work to ensure that human disturbances do not create negative impacts on the fishery restoration efforts.
- F. Encourage support of federal monitoring efforts. Examples of such efforts are: In 1999 and 2000 the Fish and Wildlife Service (FWS) operated two rotary screw traps to estimate production of juvenile salmon and steelhead in Battle Creek. For about the past five years, California department of Fish and Game has conducted the carcass/redd surveys in the lower six miles of Battle Creek.

**III. Strategy: Improve and maintain water quality throughout the Battle Creek watershed.**

**Action items:**

- A. Encourage private and public landowners/operators to develop ranch and farm plans to ensure Best Management Practices on all watershed lands. Best Management Practices (BMPs) are a combination of management, cultural, and structural practices that agricultural scientists, the government, or some other planning agency decide to be the most effective and economical way of controlling problems without disturbing the quality of the environment.
- B. Encourage private and public landowners/operators to support forest management practices to maintain optimum water quality.
- C. Facilitate educational opportunities for landowners /operators in support of the their stewardship actions.
- D. Support development of appropriate monitoring protocols to assess water quality of the watershed.
- E. Facilitate educational opportunities for landowners to receive information on available financial support programs which address their own responsible stewardship needs.

**IV. Strategy: Seek to delineate, improve and maintain riparian corridors along Battle Creek and its tributaries.**

**Action items:**

- A. Work to ensure continued connectivity of riparian corridors throughout the watershed.
- B. Coordinate the assessment of and the eradication of non-native (noxious) plant species in riparian areas.
- C. Seek funding for actions to ensure healthy riparian corridors into the future.
- D. Encourage documentation of current resource management protections already provided throughout the systems' riparian corridors, demonstrating no need for either National Wild and Scenic designation, or for designation under the State of California Wild and Scenic program.



**V. Strategy: Support Best Management Practices (BMPs) in the continuation of existing upland land uses, such as livestock grazing, farming, wildlife habitats, open space, and other uses in support of local sustainable economies.**

**Action items:**

- A. Encourage private and public landowners/operators to develop ranch/farm plans, including grazing strategies and monitoring plans to support and accomplish their own stewardship actions.
- B. Encourage landowners/operators to include plans for management of multiple species of plants and animals in their ranch/farm plans.
- C. Develop an invasive weed management strategy for the watershed for the control of noxious weed species.
- E. Work with cooperators to reduce the spread and quantity of noxious weeds immediately.
- F. Develop protocols to identify and determine species, location, control methods, monitoring, citizen involvement, education, coordination with agencies and governmental entities, and impact of invasive weeds.
- G. Seek funding for a weed management strategy, partnering with all appropriate agencies, groups and landowners.
- H. Implement a weed management strategy for the Battle Creek watershed.
- I. Encourage landowners/operators to support sustainable oak woodlands with the assistance of the Hardwood Advisory Committee in Tehama County, and by understanding and following the Shasta County Oak Woodland Management Guidelines, (Board of Supervisors, Resolution No. 95-157)
- J. Facilitate dispersal of information about potential funding for landowner assistance for resolution of impacts identified on private lands.
- K. Support regulations and economic activities which will increase the viability of ranching as a long-term contributor to the economic base and lifestyle of the area.

**VI. Strategy: Support forestland management practices which sustain healthy forestlands in the upper watershed and which, in turn, support local sustainable communities.**

**Action items:**

- A. Encourage landowners to utilize sustained yield forest management to provide for the long-term economic health of the watershed community.
- B. Encourage landowners to use forest management activities that provide healthy vigorous forests, which create habitat for a diversity of species, reduce forest fuel loads that create conditions for catastrophic wildfires, and increase groundwater availability by reducing the transpiration rate.
- C. Encourage landowners to use resource management tools such as logging, prescribed fire, and biomass chipping to create and maintain shaded fuel breaks and defensible fuel profile zones, which also maintains a diversity of healthy wildlife habitat.
- D. Encourage USFS and private landowners to survey road systems within the watershed for erosion and other problems that impact water quality and other aspects of the watershed.
- E. Encourage the correction of problem areas and the maintenance of the road infrastructure to facilitate fire suppression, forest management and recreational activities. Close roads in sensitive areas, and discontinue roads that, because of poor road design, cannot be corrected and have a negative impact on water quality .

**VII. Strategy: Encourage prefire management prescriptions to reduce wildfire impacts to natural resources and assets.**

**Action items:**

- A. Encourage the use of VMP (Vegetation Management Plans) for both wildlife habitat improvements and a prefire management prescription to reduce the threat of wild fire.
- B. Encourage the use of shaded fuel breaks for wildfire protections. Implement, plan, and encourage strategic fuel breaks throughout the watershed.
- C. Continue to use controlled fire as a management tool to improve wildlife habitat and forage for domestic animals, for vegetation controls, including noxious weeds, and as a tool for wildfire protections.
- D. Seek cooperation among regulatory agencies to ensure the continued use of fire as a management tool until appropriate and economically viable alternatives for fuel management become available.
- E. Seek sources of funding for vegetation management plans and shaded fuel breaks with interested landowners.

**VIII. Strategy: Support land use planning that supports sustainable communities and land uses throughout the Battle Creek Watershed.**

**Action items:**

- A. Assess land use and zoning plans for the Battle Creek watershed as described in the Tehama County General Plan and the Shasta County General Plan.
- B. Encourage any expansion of new development within community spheres of influence.
- C. Encourage adoption of reasonable community growth boundaries to meet projected demands.
- D. Promote land use planning that supports the agriculturally based economy and open space throughout the watershed.
- E. Support mitigation of land use conflicts between watershed neighbors.
- F. Ask the Board of Supervisors and Planning Departments of each county to accept the BCWC Strategy as community input into future planning activities.

- IX. Strategy: Seek to protect in-basin water rights and support appropriate beneficial water use policies.**

**Action item:**

- A. Monitor planning activities of organizations, agencies and legislation that might impact any water rights in the watershed.

- X. Strategy: Strive to maintain and restore natural processes and functions throughout the watershed**

**Action items:**

- A. Protect meadow functions, riparian habitats, wildlife habitats and all interrelated natural processes, as well as stream flows.
- B. Protect the hydrology and geological functions of the area – specifically the aquifers - from disturbances, such as drilling and mining, to the ancient stream channels buried by lava flows (lava tubes)
- C. Develop opportunities for interested landowners to coordinate restoration projects, utilizing the assistance of experts familiar with the Battle Creek watershed.
- D. Set standards and monitor those standards.

- XI. Strategy: Encourage commercial outdoor recreational opportunities which support local sustainable economies and which operate within the constraints of adequate resource management protections.**

**Action items:**

- A. Encourage interested private landowners to provide a variety of viable recreational opportunities throughout the watershed.
- B. Seek appropriate lands for public access in the mid-range of the watershed to provide a broader range of available recreational opportunities, utilizing, whenever possible, existing public-owned lands.

**XII. Strategy: Promote land and water stewardship through outreach and education.**

**Action items:**

- A. Encourage landowners to seek ways to maintain the integrity of their ranch lands for future generations.
- B. Promote land and water stewardship through school education programs.
- C. Work with local schools to develop curriculum regarding the watershed.
- D. Promote land and water stewardship through community education programs
- E. Create a liaison between schools and the communities to encourage an open exchange of information and educational programs regarding the watershed.
- F. Seek to include more natural spawning, habitat and life cycle needs of salmon and steelhead in the Battle Creek watershed at the Return of the Salmon Festival.
- G. Continue producing a newsletter to inform local residents about watershed activities.

**XIII. Strategy: Monitor plans and activities of organizations outside the watershed and evaluate proposed policies with regards to their local effects and implications.**

**Action items:**

- A. Partner with local organizations with similar interests and concerns.
- B. Publish results of monitoring and research in the BCWC newsletter.

## CONCLUSION

Community commitment to restoring the Battle Creek Watershed to a healthy, functioning state is high. The opportunity is here at the end of the 20<sup>th</sup> century, to make alterations to man's past actions and once again enable Battle Creek to be home to vast runs of chinook salmon and steelhead trout. It is an opportunity to use our best science to make the hydroelectric system more compatible with the habitat requirements of the fisheries and to ensure the naturally functioning processes of the watershed. This is an opportunity to accommodate both the needs and desires of mankind for development and economic growth with the essential requirements for a productive fishery and a healthy functioning watershed.

It is clear from the many public meetings that have been held by the Conservancy that local residents are interested in the health and well-being of their environment—in the appearance of the land, the health of the streams and forests, the health of the natural and hatchery produced fish populations, the health of the local economy—and that they would like to participate in the decisions which will affect the future of the area. Over and over the comment was voiced, “We like our way of life and would like to retain it for our children and our children’s children.” How to maintain the current “way of life” and ensure its survival in the future is the real issue for local people.

Battle Creek is about to undergo a major transformation to become one of the state's most important salmon and steelhead streams. As this transformation occurs, it is the goal of the Battle Creek Watershed Conservancy to listen to and represent the people of its watershed by being actively involved in the decision making process of the Battle Creek Restoration Project. It is only through active participation in the restoration process and the education of the citizenry of the watershed concerning the process that the Conservancy can achieve its mission, which is “to preserve the environmental and economic resources of the watershed.” This community strategy, then, is one step towards the achievement of this goal, one that will benefit the entire watershed.

**The Battle Creek Watershed Conservancy  
Position on the Battle Creek Salmon and  
Steelhead Restoration Program  
and Related Activities  
July 24, 2000**



## **The Battle Creek Watershed Conservancy Position on the Battle Creek Salmon and Steelhead Restoration Program and related activities**

The purpose of this document is to outline the concerns which have led the Conservancy to consider withdrawing its support for the Battle Creek Salmon and Steelhead Restoration Program, the CNFH Barrier Weir improvement program, and the CNFH intake screening program.

This document outlines the issues which have led the Conservancy to feel that it has not been effective in communicating local issues to the agencies, and it suggests some actions which we believe will help the Restoration Program over the long term as well as secure the support of a large segment of the local community.

In providing this draft to the agencies we seek suggestions for actions by the agencies and the Conservancy which will help us achieve our goals. We want to keep the lines of communication open as long as possible, but since the Program implementation will be soon upon us the Conservancy must act now.

***If the agencies treat this document as a target, and “prove” that the Conservancy positions and suggestions are “wrong” or “impractical” then we shall have accomplished nothing. We need to seek positive solutions to the problem, solutions which will help the community as well as provide the critical support necessary for the long-term success of the Restoration Program.***

### **1. Introduction**

When we began our public meetings in the watershed, in response to the advent of the Restoration Program, we learned that the following two concerns summarized the feelings of most of the residents toward the Program:

- A fear that the presence of endangered salmonids in the watershed would bring increased environmental regulation and enforcement to the area, with potentially serious effects upon local economic activities and even upon ordinary living conditions;
- A fear that local water rights would be adversely affected by the Restoration Program.

On the positive side, we learned that the most commonly expressed desire of the local residents was to keep the area more or less like it is now, with the scenic values associated with large ranches and wide-open spaces.

For three and one half years we have worked closely with the agencies, at great cost in energy and volunteer time, in an attempt to minimize the probability of the two negative effects cited, and to see if the Restoration Program could not somehow be used to help preserve the scenic values cited as important to the residents. The key to preserving the scenic values was thought to be conservation easements, which would preserve ranching as a viable economic activity in the watershed, and would thus help protect the fish as well as local scenic values.

Now that the Restoration Program is nearing its implementation phase, we can look back and see that all our work has had little or no impact:

- The Restoration Program has been focused very narrowly upon water acquisition and water management in the PG&E reaches of Battle Creek;
- Because of this narrow focus, issues which were important to the Conservancy and the citizens have been by and large rejected as outside the scope of the Program;
- As the cost of the program has continued to escalate, it has become clear that the agencies are so wrapped up in the implementation of the program that they have no time for or interest in local issues.

If we have had an effect upon the project it has been through our program of bringing information to the public, and bringing back issues to the agencies. Our many public meetings have helped calm down the watershed residents, and have thus provided an appearance of support for the entire program, which has no doubt helped the agencies to get funding for it.

But this appearance of “public support” is deceptive. After recent public meetings we hear people say that the meetings are a waste of time, that the agencies are not responsive to our concerns, and that the sources for funding to address our concerns will dry up once the concrete is poured. Based upon the history of this area, this suggests a future of increasing local mistrust of agency activities, increased poaching and vandalism, and sporadic fights over land development and other economic activities.

The Conservancy does not look forward to such a future any more than the agencies do, but this is the future in store for us if the Restoration Program is not well planned and well executed. What do we mean by this?

The Memorandum of Understanding (MOU) which defines the Restoration Program was developed between PG&E and the resource agencies. This agreement sets out the costs and benefits to PG&E and to the agencies; each signatory to the MOU can look at these costs and benefits and decide whether its participation is justified. PG&E made this decision, giving up some generation capacity in exchange for very significant capital improvements and important regulatory certainty for the future.

There was no such MOU for the local citizens, who also have costs and potential benefits from this program. The costs are environmental regulations and agency intrusion in the watershed; the benefits are uncertain – we had hoped for compensation for affected landowners in the form of conservation easements, a lacing together of Project and watershed residents’ interests, and so on. Now we find that the potential benefits are fading away while the costs to the residents are becoming increasingly clear.

So we have a big agency program, on the order of \$100 million, which has failed to consider real and perceived costs to the community. This failure jeopardizes the long-term success of the Restoration Program, because without public support and involvement none of us can hope to preserve the fish and the environment of the Battle Creek watershed over the long haul.

***We cannot support this program in its present form. If you are going to implement this program, do it right: integrate the plan with other watershed activities, be responsive to local concerns, and protect this massive investment over the long term by providing meaningful environmental assistance to the watershed community.***

It simply doesn't make sense to spend this amount of money without thinking about the future, and without thinking about the rest of Battle Creek, including its human inhabitants. We want the agencies to treat us as they have PG&E – we want our costs to be addressed, we want our benefits to be in proportion to our costs. If the balance sheet remains negative for our community, we have every right to refuse to cooperate. Furthermore, we then have the duty to refuse to support the program, because it would be a waste of the taxpayer's money for a project which will ultimately fail through lack of community involvement and support.

## **2. Issues which have helped to create a lack of faith in the agency activities**

The negative feeling of the community toward the Restoration Program has not appeared out of nowhere – it is the result of the cumulative impact of many small events, brought to a crisis by the fact that the Restoration Program is in the last months of the design phase, and that Project implementation seems inevitable. Some of these problems result from the fact that the community is not very effective in bringing its concerns to the agencies, and the agencies haven't the faintest idea of how to talk to "folks." Whatever the causes, the following are some of the issues which are important:

- The Conservancy has worked hard for several years to bring information about the program to the community, and to bring back public concerns to the agencies. In the process we have the support of nearly one hundred dues-paying members, a rather remarkable number for our sparsely-populated area. But these members are expecting results – they have brought their problems to us, and if we can't help them then the membership will fade away, along with the apparent goodwill of the community toward the salmon. The fact is that when we look at the last three-plus years of work, we have not been successful. We don't have much to show the community, especially for the long term.
- As a result the feeling right now is clearly that the bottom line for the Restoration Program is a net negative impact upon community.
- The agencies do not seem to recognize or have any empathy for this negative impact. Perhaps this is the fault of the Conservancy, for not voicing our concerns loudly enough or often enough, but the public perception of agency apathy is clear.
- There is a distinct feeling that the various sources for funding our watershed community organizing, watershed assessment, etc. will go away as soon as Restoration Program construction is implemented. Residents will then be left with the burden of living and working with endangered species in the area. The agencies can promise PG&E that all will be well in the future – and the PG&E/agencies MOU does precisely that – but the local residents can be given no such assurances.
- We have been urging a watershed-wide, unified approach to planning for Battle Creek for at least two years now. It is clear that this will not happen under the current plan.
- The agencies have not been responsive to community concerns raised at public meetings. For example, the Restoration Program "scoping" meeting in January 2000 raised a long list of questions and issues, none of which have been addressed six months later.

- Many in the community feel that some agency personnel have not been responsive during public meetings, and that local speakers have been “put down” on several occasions.
- It is clear from some agency actions that “scenic impact” is not a consideration for project design, despite the fact “scenic values” has long been identified as a prime community concern.
- It is clear to the Conservancy and many local citizens, even if it is not clear to the agencies, that the activities at Coleman National Fish Hatchery are a critical part of the salmon problem of Battle Creek. The Conservancy is hoping that some of the management alternatives for CNFH raised during the recent “re-evaluation” will help separate the operations at the hatchery from the creek. But it now seems clear that the evaluation of these alternatives will not be complete when the concrete is poured for the Restoration Program. This does not make sense: the hatchery problems must be resolved as part of the planning for the Restoration Program. Don’t spend another \$50 million before you know whether it will work. This is a prime example of a complete absence of planning on the watershed scale.

### **3. The proposed solution**

How do we respond to the concerns of the community in a meaningful way, without unduly delaying the Restoration Program? Our proposal must address the immediate problems, which mainly concern program planning, as well as the long-term needs of the community.

- For the short term, the agencies can fix what is in their power to fix right now – the items listed below in Section 4, and perhaps something from Section 5.
- The long term is more difficult, for the community will face the negative effects of the Restoration Program over the foreseeable future. We thus need to provide continuing help for the community over an indefinite time span. Our proposed solution is to create the Battle Creek Endowment, with funds from foundations and other private sources, acquired through the help of the agencies – with a goal of providing future funding to help local citizens and groups cope with the side effects of the Restoration Program. The Endowment is described in Sections 6 and 7.

### **4. Issues which need to be addressed by the agencies**

Most of the time when a community concern is voiced it turns out that the agencies feel that the concern is “outside the scope of the Restoration Program.” The reason for this is the attempt by PG&E and the MOU agencies to keep the Program simple and concise, to make it easier to gain NEPA/CEQA and FERC compliance through the acquiescence of all five MOU agencies.

But the fact that the agencies have a reason for not responding to community concerns does not do the residents any good – somebody needs to respond, or the project is not good for the community.

The following list of issues sets forth only those issues which the agencies can fix. They may not want to fix them in all cases, but we want them to, and they have the power to do so.

- When planning the Restoration Program **look at Battle Creek as a whole**, including the upper watershed and the residents, to identify other actions that need to be taken to ensure the success of the Program. Create a top-level watershed-wide plan for the Restoration Program which does not ignore tough issues simply because it would offend another agency.
- Work hard to find a way of separating operations at CNFH from Battle Creek. Alternatives are available and they need to be tried. If it doesn't work out, and you can't fix it – move the hatchery, or much of its production. It doesn't make sense to have 100,000 hatchery salmon dying in Battle Creek without spawning, crowding out the wild fish, when there is unused spawning habitat in the Sacramento River.
- Don't even think of increasing the water diversion capacity of CNFH. We need to be thinking about reducing operations at CNFH, and moving some or all of their production elsewhere – not of increasing production. Reduce the scope of the "intake screening" program to just that – intake screening. Don't turn it into a \$5 million hatchery expansion plan.
- Short of blasting out the CNFH weir, at least install an inflatable weir, so that the hatchery presents the minimum obstruction to the wild fish for the maximum amount of the year.
- Help local trout hatcheries protect themselves from pathogens brought up Battle Creek by the wild fish.
- Find a way to plant trout in the PG&E canals after they are screened. Lots of folks fish in these canals. One way to do this would be to set up a bit of public land on a canal for a park, so CDF&G would be able to plant there.
- Don't be so cavalier about cost overruns on the Restoration Program. The managers throw around \$5 million here and \$5 million there, just assuming that CALFED will pick up the bill, when no one seems to have any money for conservation easements or other projects to help the community. The large program costs have themselves become an issue in the community.
- Put scenic values back into the design equation, with an architect involved. Often a bit of texture, or color, or a small design change can greatly reduce the visual impact of the Pharaonic amounts of concrete which the Restoration Program will pour. We don't need ugly gauging stations at our most scenic spots, or massively ugly concrete, or miles of chain link fence. We note that the ugliest building in the watershed was built by an agency. The watershed has survived over 100 years of ranching quite nicely, but we are concerned that its appearance may not withstand the "restoration" program.
- Give us some spots where the locals can see the salmon without bothering them. Otherwise these will be mythical fish, as all of Battle Creek from CNFH to Mineral or Shingletown is in private hands. If we are putting up with assorted environmental regulations because of these fish, we should at least be able to verify that they exist.

- Fund and build restoration structures in proportion to their need and usefulness for the project; do not spend massive amounts on structures which will be rarely used, when a much simpler, less costly, and less obtrusive solution would suffice.
- Identify roles for the community in the Restoration Program's adaptive management program. As things now stand there is no significant role for the community in gathering or analyzing the data which will measure the Program's success or problems, nor in deciding upon actions to take in response to the data – despite the fact that a community role could help get community involvement and “buy in.”

### **5. Other issues which may require other outside help in addition to agency assistance**

The following issues are important both from the point of view of protecting the investment in the Battle Creek Salmon and Steelhead Restoration program, and in gaining public support for the program – but these issues may require foundation assistance in addition to support from the agencies:

- Number one is a funded program for conservation easements to compensate the owners of riparian land for being good to the fish and giving up their development rights. It would cost roughly \$10 million over a decade to put the most important (willing) ranches into such agreements. This investment is critical for the long-term survival of Battle Creek as a prime salmonid creek.
- A fear of future environmental regulatory actions is a major stumbling block to public acceptance of the Restoration Program. The best solution for this problem would be regulatory relief of the sort provided to PG&E by the MOU, but this does not seem feasible since we can't define precisely the situations where it would be needed. But perhaps the agencies can suggest ways in which possible future regulatory activities can be better defined, so that the residents have a better idea of their future prospects.
- Public projects are a tried and true way to gain the hearts and minds of the people – politicians have been doing this for thousands of years. In the case of Battle Creek, public projects which both protect the salmonids in the creek and provide a visible public benefit are obvious winners – such projects protect the huge investment represented by the Restoration Program, and compensate the local residents for the future uncertainties of environmental regulation. A number of such projects have been studied by the Conservancy and other local groups:
  - How about a local park for the middle reaches of Battle Creek? There is no public access to the local creeks between CNFH and Mineral or Shingletown, and the folks need access to a tributary where they could have some fun without hurting the salmon, so that they won't spend so much time trespassing in Battle Creek and spearing salmon for the barbecue. An integrated plan has been developed for a park which would address a number of significant local issues, while providing a venue for continued environmental education.

- All areas of the watershed can benefit from additional shaded fuel breaks. CALFED provided the Conservancy with \$11,000 for an initial fuel break in the Manton area, and public appreciation for this work has been high.
- A few dozen 10,000 gallon fire water tanks dispersed throughout the area would mean that a significant percentage of fire starts would be stopped locally. For example, the Rock fire of last year, which caused extensive evacuations in the Manton area, could have been stopped near its origin had such a tank been nearby.
- Improved recreational facilities would help the community while reducing the impact of local kids on Battle Creek.

## **6. The Battle Creek Endowment**

The purpose of the Battle Creek Endowment is to provide modest funding, over an extended period of time, for local initiatives supportive of the Restoration Program and the environmental and economic needs of the community as expressed in the Battle Creek Watershed Strategy.

The local residents will have to live with endangered salmonids for the foreseeable future. Their needs for support and assistance will not stop with the completion of the Restoration Program infrastructure in the next three or four years. The Endowment is designed to provide this assistance over an indefinite term, at an expense of perhaps one-tenth of the Program cost.

- The Endowment fund is to be raised from foundations and other private sources with the help of the agencies involved in the Restoration Program (federal and state funds cannot be used for this purpose because of the indefinite nature of the endowment).
- A funding level of \$10 million is suggested, based roughly upon the funds required to create conservation easements on the most important riparian lands, though the fund would leverage, not fully fund, such easements.
- The Endowment would be held by a reputable NGO (perhaps The Nature Conservancy or some such responsible entity).
- The Endowment would spend about 5% of the current value of the endowment annually. This should give a long life to the Endowment, depending upon interest rates.
- The Endowment is intended to support projects with long-term value.
- Endowment funds would be disbursed with the advice of the agencies and the trustee NGO, which parties might have seats on the Endowment Board.
- The Endowment would be run by a Board, which could be related to BCWC, or could be independent.
- The Endowment would support proposals developed within the watershed, by local groups, individual landowners, etc., which support environmental efforts related to the Restoration Program or its side effects.
- The Endowment funds would revert to the trustee NGO in the event the local management of the Endowment disbanded.

- The Endowment could be extended with gifts, bequests and additional grants.

## **7. The potential uses of the Battle Creek Endowment**

The purpose of the Endowment is to assist community groups and individual landowners to pursue actions supportive of the Restoration Project and in overcoming the negative impacts of endangered-species and other environmental regulation upon their economic or other activities (ranching, farming, aquaculture, and so on). Some of the potential uses for Endowment funds are the following:

- Matching funds for partial funding of conservation easements. The Endowment would not have the level of funding required to support conservation easements on its own – the matching percentage would be limited by the Endowment bylaws.
- Funding to support continuing analysis of the watershed to identify situations where remedial action may be required to achieve environmental goals.
- Modest amounts to help individuals and groups implement projects required to help them comply with the environmental consequences of the Restoration Program.
- Funds to help groups and individuals prepare applications for grants to support larger projects related to compliance with the environmental consequences of the Restoration Program.
- Matching funds for group or individual projects for work related to the environmental consequences of the Restoration Program.
- Funds to help provide technical expertise for groups or individuals for work related to the environmental consequences of the Restoration Program.
- Modest base funds to help watershed-interested groups stay active. This is not intended to fully fund groups such as the Conservancy, but rather to keep community groups alive until they can find other funding.
- Modest funds to assist in supporting social or educational programs which help the community adapt to the needs of the Restoration Program.
- Modest funds for the maintenance of public access and park areas.
- Modest funds for fencing, fuel breaks, and other activities in situations where they will be beneficial to the Restoration Program.

## **8. Risks of this approach**

This action by the Conservancy clearly has its risks. Through our hard work for the community we have built up considerable respect, both locally and with agency personnel. We risk “blowing” this credibility by what some may take as impulsive, irresponsible action.

On the other hand, we should consider our credibility as our working capital, and we should be willing to risk it if the benefits are worth it. There is no point in being above the fray if we are unable to help the community achieve reasonable goals in exchange for



their support of the Restoration Program, and there is nothing to be gained by letting our community be damaged by a program which we cannot support in its current form.

The risk is worth taking if the goals – benefits for the community and long-term benefits for the Restoration Program – are worth it, and if the probability of success is sufficient.

- If the agencies are unwilling or unable to help us achieve this proposed solution, the BCWC will lose its credibility with its membership and, thereby, become ineffective in dealing with the agencies.
- If this approach is not successful the BCWC will probably lose support from the local residents, because we will have failed to bring a positive value to the community from the Restoration Program.
- This approach risks delaying the Restoration Program. However, a year's delay in the program is less important than making it a successful program over the long term.

If we are successful in convincing the agencies to adopt our comprehensive approach to restoration then we believe that the Program will benefit along with the community.

## 9. Summary

We believe that the watershed community will support the Restoration Program over the long term, and will endure the inevitable regulatory problems, provided that the program is well designed, and that a suitable provision is made to help the community comply with reasonable and needed environmental regulations. In order to achieve that better program design and those stronger program ties with the community it is necessary to bring to the agencies' attention the fact that the BCWC is prepared to publicly oppose the present form of the Restoration Program because of its institutional inadequacies.

***Implement a well integrated program, provide for the residents, and everybody wins. Concentrate on the Restoration infrastructure without considering the impact upon the community, and you sow the seeds for a contentious future and failure of the Program.***

**Battle Creek Watershed Conservancy Task List  
(DRAFT)  
August 31, 2000**

## **Battle Creek Watershed Conservancy Task List (DRAFT)**

The purpose of this document is to provide a defined list of tasks which together implement the short-term (10 year) vision of the Conservancy for the Battle Creek watershed fishery. By identifying specific tasks for the Conservancy, and tasks the Conservancy thinks appropriate for the agencies and other organizations involved in Battle Creek, we hope to clarify our vision by exposing it for detailed examination, comment, and suggestions by all concerned. The list will be revised as the issues are examined by all involved.

Obviously the Conservancy cannot dictate programs to the agencies or to other stakeholders. What we can do is to seek opportunities to enhance the environmental aspects of the watershed, and to examine alternatives proposed by others, and to determine what actions seem to make sense to us in terms of our goals, especially those goals expressed in the Battle Creek Watershed Community Strategy, a document which summarizes the concerns and interests of the local community as expressed in a long series of public meetings. When we have found actions which seem to meet our requirements, we will support these actions for funding and implementation. Where we find that actions are planned by others which do not seem to make sense, or are not well coordinated with other activities in the watershed, we will express this opinion wherever appropriate.

It may just be possible that the Conservancy and other stakeholders can reach something like consensus on most of the issues presented in this document, and then this list can become the basis of a partnership of mutual support among the stakeholders and agencies. If this can be achieved then the restoration of Battle Creek can go forward with strong momentum.

In that spirit we solicit ideas, criticisms, suggestions for new entries, etc. The tables provide space for the positive and negative aspects of each task, as well as required links with other tasks or agencies.

It may be useful to articulate in draft form a set of goals for the watershed, as seen from the Conservancy's point of view. These goals, which we believe are consistent with the Action Plan for Fishery Resources and Aquatic Ecosystems (USFWS, 1994) and similar goals of CDFG and NMFS, as well as the Battle Creek Watershed Community Strategy, may be categorized into long-term and short-term goals.

### **Long term goals:**

- To provide habitat for natural production of the five anadromous races in Battle Creek from the Sacramento River to the natural limits of fish passage;
- To ensure that this habitat has substantially the maximum extent, quality, and fish passage possible given the natural physical properties of Battle Creek;

- To ensure that that natural production and habitat is not seriously encumbered by PG&E facilities and operations;
- To ensure that that natural production and habitat is not seriously encumbered by CNFH facilities and operations;
- To ensure that that natural production and habitat is not seriously encumbered by landowner facilities and operations;
- To ensure that these goals are accomplished without placing undue burdens upon local landowners and communities;
- To ensure that these goals are accomplished with the support of the local communities and other stakeholders involved;
- To ensure that the net benefit/cost ratio of the overall program for the local communities is positive;
- To ensure that these goals are protected over the long term through conservation easements, education, communication, and other means;
- To ensure that adequate supplemental hatchery production can continue as long as required;
- To ensure that the Battle Creek Working Group is maintained as a forum for planning and coordinating environmental activities on Battle Creek;
- To achieve these goals as much as possible through a partnership involving the Conservancy, other individual and commercial stakeholders, and the many resource and other state and federal agencies whose efforts are important to Battle Creek.

**Short-term implementation goals:**

- To ensure that the Restoration Program and other Battle Creek projects are implemented in a coordinated manner;
- To ensure that all Battle Creek projects are designed with due consideration to the watershed as a total system;
- To ensure that the Restoration Program and other Battle Creek projects are well designed, are appropriate for the functions served, have minimum visual impact upon the watershed, and are cost effective;
- To ensure that the Restoration Program and other Battle Creek projects are designed with open access for stakeholder input;
- To ensure that the needs and concerns of the community are communicated well to the agencies, and that the agencies are in turn responsive to these needs and concerns;
- To ensure, through a long-term educational program, that the local community members are well informed about their environment and their relationship with that environment;
- To encourage, through education and workshops, best-management practices for agriculture and ranching, good forest management practices, and good watershed stewardship;

- To ensure, through the provision of recreational access to the watershed, that the local community members can enjoy and relate to the unique Battle Creek watershed environment;
- To ensure, through the development of a watershed assessment, that the Conservancy is fully aware of the environmental needs in the watershed;
- To ensure that the needs of the local community for environmental assistance in the face of regulatory requirements can be met over the long term, through an endowment;
- To ensure that the local community is involved in agency activities on Battle Creek to the maximum extent possible;
- To provide visible benefits to the local community to offset to some degree the risks of future environmental regulation.

- **Tasks to be carried out primarily by the Battle Creek Watershed Conservancy**

<b>Task Name</b>	<b>Descriptions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Externals</b>
Top-level watershed vision	Look at the watershed as a single system, and encourage the agencies to do likewise, making maximum use of the BCWG	Better coordination among the many Battle Creek programs; create a long-term vision for salmonids in the watershed	Time and staff requirements	Cooperate with the agencies as well as other stakeholders (sport and commercial fishermen, CVPWA, landowners, etc.)
Endowment	Seek private funding for the Battle Creek endowment	Provides, over the long term, support for technical assistance to local landowners with environmental problems, modest funding for small restoration programs; provides insurance that the community will not be left without resources to comply with regulatory actions over the long term	Difficult to raise private funds of this type	Cooperate with TNC or other NGO to hold funds and provide backup in case BCWC goes away
Watershed assessment	Seek funding for and develop a watershed assessment	Defines areas/situations in the watershed potentially requiring assistance/remediation; can help BCWC get ahead of agencies on environmental violations; can help BCWC provide useful services to the watershed community	Time and staff requirements; funding	Learn from neighboring watershed assessments
Education	Continue the extensive educational program of the Conservancy, and reach out to parts of the community not yet heard from	Provides education on watershed issues for most of the community and helps ensure public support for the Restoration Program	Time and staff requirements; funding	Helps gain public support for the Restoration Program; cooperate with agencies to get "expert" assistance in educational programs
Park	Develop a local park site	Provides a visible public benefit; potential educational component; takes pressure off of Battle Creek riparian areas; improves public acceptance of Restoration Program	Cost, level of effort, long term support required; liability issues	Cooperate with many agencies to realize; Helps gain public support for the Restoration Program

Recreation	Provide local recreational opportunities with an educational component	Allows residents to experience the special values of the watershed; visible public benefit; helps gain public support for the Restoration Program	Funding; liability issues	Cooperate with PG&E, BLM, and other agencies to achieve this goal
Conservation easements	Cooperate with TNC and other organizations to seek willing sellers and funding	Conservation easements are the most important long-term protection available to the watershed; avoids future land use controversies; compensates ranchers for loss of development rights; makes ranching viable in the face of development pressure	Many landowners are reluctant to enter into these agreements; funding	Supports Strategy goal for scenic values and rural atmosphere
Newsletter	Provide general information to the public about the progress of the many programs on Battle Creek	Public information is badly needed, and it can "short circuit" the local rumor mills; considerable educational component; keeps people aware of the continuing need for environmental action	Time	Seek agency inputs for articles
Regulatory certainty	Cooperate with DFG and RWQCB to provide updates to the community on regulatory actions	Public information and workshops on these issues are quite important to the community; avoids "surprises" to local landowners	Time and staff requirements	Helps keep public support for the Restoration Program
Coordination	Coordinate the provision of technical and financial assistance to local landowners with environmental problems	The BCWC can provide a user-friendly interface between shy local landowners and the agencies whose help they need. The Endowment can be used to assist these landowners with technical assistance or modest funding.	Time and staff requirements	Coordination with many agencies required

Liaison	Continue close liaison with the agencies, the BCWG, and the public	Public concerns need to be brought to the attention of the agencies at the earliest opportunity	Time and staff requirements	Coordinate with neighboring watershed groups
GIS	Seek funding to extend the KRIS-Battle Creek GIS system to include additional layers and information, and make it available to schools and on the Internet	The KRIS-Battle information system can be used by the BCWC, BCWG, the agencies, and the public to support educational and planning activities relating to the watershed environment	Cost	Seek GIS layer contributions from several agencies
Adaptive management program	Help develop a significant role for the BCWC in the adaptive management program	Provides some local control over monitoring; provides local input into the adaptive management process; provides local involvement with the Restoration Program	Time and staff requirements; difficult to find meaningful role for local residents and students	Cooperate with USBR, PG&E, USFWS, DFG
CNFH re-evaluation	Provide substantial input during the development of the re-evaluation study	Stakeholder concerns can be made part of the investigation at an early stage	Time and staff requirements	Seek stakeholder input
Gover Ditch proposal	Help coordinate the development of a proposal to evaluate the Gover Ditch as an alternative connection between CNFH and the Sacramento River	Potential to provide substantial separation between CNFH operations and Battle Creek; could be highly beneficial for natural populations in BC	Questions have been raised about whether enough salmon will use the ditch; Close cooperation with ditch owners required	Need to coordinate with CNFH and the re-evaluation program
Fuels management	Seek funding for and implement a program of fuels reduction and other measures (tanks, etc.)	Provides a visible benefit to the community; provides reduction in wild fire hazard for the watershed	Funding	Helps gain public support for the Restoration Program; cooperate with CDF, LNF, SPI, etc.
Liaison with other watershed groups	Liaison with other Sacramento River area watershed groups	Learn from the success/failure of other groups to minimize re-inventing the wheel	Time and staff requirements	Proposed Battle Creek activities affect upper Sacramento



**Tasks to be carried out primarily by CDF&G**

<b>Task Name</b>	<b>Descriptions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Externals</b>
Water purchase	Purchase all or part of 13 cfs right from willing seller and dedicate to environmental uses	Reduces water and screening requirements at CNFH; adds dedicated water to Battle Creek	Cost (but net cost may be small, when reduction in CNFH screening cost is taken into account)	Coordinate with CNFH intake design
Effluent use on wetland	Direct all or part of CNFH effluent onto DFG wetland	Reduces pollution in Battle Creek; potential beneficial effects on wetland growth	Minor costs	Must be coordinated with Gover Ditch operations
Lower Battle Creek riparian improvements	Re-form riparian areas on lower Battle Creek where the creek has become channelized	Improves riparian habitat;	Cost	Need to coordinate with local landowners
Gover Ditch proposal	Coordinate the development of a proposal to evaluate by experiment the Gover Ditch as an alternative connection between CNFH and the Sacramento River	Potential to provide substantial separation between CNFH operations and Battle Creek; could be highly beneficial for natural populations in BC	Questions have been raised about whether enough salmon will use the ditch; Close cooperation with ditch owners required	Need to coordinate with CNFH and the re-evaluation program
CNFH re-evaluation	Provide substantial input during the development of the re-evaluation study	DFG concerns can be made part of the investigation at an early stage	Time and staff requirements	
Pathogens	Consider using certified stock for planting local creeks	Better protection for local hatchery operations	Cost	Coordinate with Mt. Lassen Trout, CNFH, Darrah Springs
Canal stocking	Work with the BCWC to find a way to stock some PG&E canals	Important for local sports and commercial fishing	Cost; need to stock at public sites	Coordinate with PG&E
Viewing sites	Cooperate with USBR to provide their Battle Creek viewing sites with educational components	Gives the public a chance to see the creek, and perhaps the fish, in a situation where they are not likely to harm the fish; provides educational opportunities	Cost; liability issues	Coordinate with USBR

Adaptive management program	Help develop a significant role for the BCWC in the adaptive management program	Provides some local control over monitoring; provides local input into the adaptive management process; provides local involvement with the Restoration Program	Time and staff requirements; coordination required	Cooperate with USBR, PG&E, USFWS
Park	Consider the possibility of assisting the BCWC in their park project, particularly regarding the educational component	Visible asset to the community; possible educational aspects	Capital cost; operating cost; liability issues	
Conservation easements	Consider cooperating with BCWC to seek willing sellers and funding	Conservation easements are the most important long-term protection available to the watershed	Cost; many landowners not willing at this time; staff time	Coordinate with TNC and other NGOs
Fishing regulations	Continue cooperation with the BCWC to keep the public informed of probable future policies	Public information on this issue is important for the residents, to avoid surprises; get stakeholder involvement in regulation process	Staff time	
GIS	Cooperate with BCWC to add GIS layers to the KRIS-Battle information system	The KRIS-Battle information system can be used by the BCWC, BCWG, the agencies, and the public to support educational and planning activities relating to the watershed environment	Cost	

**Tasks to be carried out primarily by USFWS**

<b>Task Name</b>	<b>Descriptions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Externals</b>
Barrier weir	Take likely hatchery management alternatives into account during design, to optimize natural production	Allows minimum inflatable dam; no change required in fish ladder; cost savings	Possible delay	Enhances natural production
Intake design	Re-evaluate options for lower-cost design, based upon 109-cfs water right	Cost savings; puts to rest public concern over CNFH water right	Some delay in construction; possible delay in funding	
Move late-fall production (potential)	Transfer all or part of CNFH late-fall production to Livingston Stone facility	Reduces water requirements at CNFH; reduces time barrier weir needs to be closed; takes advantage of unused habitat in upper Sacramento; takes advantage of trap infrastructure at Keswick and gravel program; imprints late-fall on Sacramento; in-kind, in-place mitigation	May require expansion of Livingston Stone; further divides CNFH staff; cost	May reduce screening requirement at CNFH; allows lower-density raising of fall run at CNFH
Move steelhead production (potential)	Transfer all or part of CNFH steelhead production to Livingston Stone facility	Reduces water requirements at CNFH; reduces time barrier weir needs to be closed; takes advantage of unused habitat in upper Sacramento; takes advantage of trap infrastructure at Keswick and gravel program; imprints steelhead on Sacramento; imprints late-fall on Sacramento; in-kind, in-place mitigation	May require expansion of Livingston Stone; further divides CNFH staff; cost	May reduce screening requirement at CNFH; allows lower-density raising of fall run at CNFH
Viewing sites	Cooperate with USBR to provide their Battle Creek viewing sites with educational components	Gives the public a chance to see the creek, and perhaps the fish, in a situation where they are not likely to harm the fish; provides educational opportunities; improves public acceptance of Restoration Program	Cost; liability issues	Coordinate with USBR, BCWC

Adaptive management program	Help develop a significant role for the BCWC in the adaptive management program	Provides some local control over monitoring; provides local input into the adaptive management process; provides local involvement with the Restoration Program	Time and staff requirements	Cooperate with USBR, PG&E, DFG
Gover Ditch proposal	Cooperate in the development of a proposal to evaluate the Gover Ditch as an alternative connection between CNFH and the Sacramento River	Potential to provide substantial separation between CNFH operations and Battle Creek; could be highly beneficial for natural populations in BC; could reduce limits on CNFH production caused by need to protect natural spawning population	Questions have been raised about whether enough salmon will use the ditch; Close cooperation with ditch owners required	Need to coordinate with DFG and BCWC
Park	Consider the possibility of assisting the BCWC in their park project, particularly regarding the educational component	Visible asset to the community; possible educational aspects	Cost; liability issues	
Conservation easements	Consider cooperating with BCWC to seek willing sellers and funding	Conservation easements are the most important long-term protection available to the watershed	Cost; many landowners not willing at this time; staff time	Coordinate with TNC and other NGOs
Water requirements	Settle the matter of water requirements through the intake design	Puts contentious issue to rest; reduces cost of intake project	Possible loss of flexibility	
GIS	Cooperate with BCWC to add GIS layers to the KRIS-Battle information system	The KRIS-Battle information system can be used by the BCWC, BCWG, the agencies, and the public to support educational and planning activities relating to the watershed environment	Cost	

**Tasks to be carried out primarily by USBR**

<b>Task Name</b>	<b>Descriptions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Externals</b>
Restoration Program visual impact	With the aid of a landscape architect and computer models, evaluate and minimize the visual impact of Restoration Program features	Better public acceptance of the Restoration Program; less impact upon the watershed	Small increase in cost	Coordinate with stakeholders
Restoration program costs	Verify the cost-benefit ratio of low-usage infrastructure	Shows the public that the planning was cost sensitive	Cost, time	Use BCWG as much as possible
Restoration Program EIS/EIR	Extend EIS/EIR to include cumulative impacts	Brings related but out-of-scope issues out in the open for full discussion	Cost	Coordinate with stakeholders to identify issues
Restoration Program concurrency	Resolve Restoration Program and CNFH issues concurrently prior to final EIS/EIRs	Concurrent resolution allows global planning	Possible delay	Requires considerable coordination, which is facilitated by the fact that USBR is the contracting agency for CNFH activities as well as the Restoration Program
Viewing sites (1)	Install some viewing sites for Battle Creek	Gives the public a chance to see the creek, and perhaps the fish, in a situation where they are not likely to harm the fish; provides educational opportunities	Cost; liability issues	Cooperate with USFWS and DFG
Viewing sites (2)	Consider developing with PG&E a public viewing site at a PG&E facility (Coleman dam site?)	Visible asset to the community; potential educational component	Access; liability issues	Cooperate with PG&E and the BCWC
Pathogens	Develop protection measures for local hatchery operations, and partially fund using cost shares	Protects and important local industry; improves public perception of the Restoration Program	Cost	Coordinate with Mt. Lassen Trout Farms, DFG
Park	Consider the possibility of assisting the BCWC in their park project	Visible asset to the community; possible educational aspects	Cost; liability issues	

Conservation easements	Consider cooperating with BCWC to seek willing sellers and funding	Conservation easements are the most important long-term protection available to the watershed	Cost	
CNFH issues forum	Address issues of controversy in open forum	Brings concerns into open discussion		Cooperate with other agencies
Watershed assessment	Assist BCWC in funding a watershed assessment	Defines areas/situations in the watershed potentially requiring assistance/remediation; can help BCWC get ahead of agencies on environmental violations; can help BCWC provide useful services to the watershed community	Cost	Use BCWG as much as possible
Barrier weir project	Take into account the likely CNFH operations in the design, and minimize the weir impact on the creek; try to resolve some re-evaluation issues early to avoid delay	Probable cost reduction due to operation of the weir only during fall-run passage; no need for new ladder		Coordinate with stakeholders
Intake project	Take into account the likely CNFH operations in the design, and minimize the weir impact on the creek; try to resolve some re-evaluation issues early to avoid delay	Probable cost reduction due to reduced flow requirements and alternative design	Possible delay; additional costs due to re-design requirement	Coordinate with stakeholders
GIS	Cooperate with BCWC to add GIS layers to the KRIS-Battle information system	The KRIS-Battle information system can be used by the BCWC, BCWG, the agencies, and the public to support educational and planning activities relating to the watershed environment	Cost	

### Tasks to be carried out primarily by the Pacific Gas & Electric Company

<b>Task Name</b>	<b>Descriptions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Externals</b>
Education	Cooperate with the BCWC in their "your watershed at work" program for the hydropower portion	Gives students a better picture of the role of hydropower in the community and the environment	None	Involve adults as much as possible
Park	Consider the possibility of assisting the BCWC in their park project	Visible asset to the community; possible educational aspects; helps gain support for the Restoration Program	Cost; liability issues	Coordination required
Recreation	Consider cooperating with the BCWC in providing additional recreational facilities at PG&E sites	Visible asset to the community; helps gain support for the Restoration Program; possible educational aspects	Cost; liability issues	Coordination required
Viewing site	Consider developing with USBR a public viewing site at a PG&E facility (Coleman dam site?)	Visible asset to the community; potential educational component	Access; liability issues	Coordination required

**Tasks to be carried out primarily by The Nature Conservancy**

<b>Task Name</b>	<b>Descriptions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Externals</b>
Conservation easements	Continue cooperating with BCWC to seek willing sellers and funding	Conservation easements are the most important long-term protection available to the watershed	Cost; many landowners are not yet willing to enter into these agreements; long-term program required	Coordination with other agencies for funding
Education	Cooperate with BCWC to provide education regarding conservation easements as well as environmental and ranching issues	Critical part of conservation easement program; opportunity for educational programs on ranch issues	Time	
Park	Consider the possibility of assisting the BCWC in their park project	Visible asset to the community; possible educational aspects; excellent chance to gain local support for the Restoration Program	Cost; liability issues	Coordination with other agencies will be required
Endowment	Assist the BCWC in the search for private funding; provide long-term backup as holder of funds	Important long-term insurance for community against unknown future regulatory activity	Difficult to find such funding; program will have to be long term	



### Tasks to be carried out primarily by the Bureau of Land Management

<b>Task Name</b>	<b>Descriptions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Externals</b>
Conservation easements	Consider cooperating with BCWC to seek willing sellers and funding	Conservation easements are the most important long-term protection available to the watershed	Cost; a long-term program is required, as many landowners are not ready to enter into such agreements	
Park	Consider the possibility of assisting the BCWC in their park project, possibly as holder of property title	Visible asset to the community; possible educational aspects; helps gain public support for the Restoration Program	Cost; liability issues	Requires coordination with other agencies
Noxious weeds	Consider the possibility of assisting the BCWC in their noxious weeds project	Potential cooperation important to restore working relationship between BLM and BCWC		Coordination with ranchers required
Land holdings	Consider land trades or sales to reduce number of small or included parcels in ranching area	Important action for the viability of ranching; possible BLM purchase of non-ranching lands of riparian importance		
GIS	Cooperate with BCWC to add GIS layers to the KRIS-Battle information system	The KRIS-Battle information system can be used by the BCWC, BCWG, the agencies, and the public to support educational and planning activities relating to the watershed environment	Cost	

**Tasks to be carried out primarily by the Battle Creek Working Group**

<b>Task Name</b>	<b>Descriptions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Externals</b>
Coordination	Continue serving as the public forum for Battle Creek environmental issues, expanding from the Restoration Program to the creek as a whole system	The right mix of stakeholders and agency personnel are already available in the Working Group	Time, though meetings would become less frequent as the Restoration Program moves from implementation to the adaptive management phase	
Adaptive management	Take a leadership role for the non-MOU stakeholders in overseeing the adaptive management program	The Working Group includes the MOU agencies as well as the non-MOU stakeholders, so it is the ideal platform to maintain oversight over the adaptive management program	The MOU agencies have the legal obligation to manage the adaptive management program, so non-MOU stakeholders have only an informal advisory role. This may keep some stakeholders from participating.	Coordinate with out-of-area agencies to extend the scope of consideration to a broader range of stakeholders

### Tasks to be carried out primarily by the Regional Water Quality Control Board

<b>Task Name</b>	<b>Descriptions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Externals</b>
GIS	Provide funding to the BCWC to add GIS layers to the KRIS-Battle information system and to make that system available in local schools and on the Internet	The KRIS-Battle information system can be used by the BCWC, BCWG, the agencies, and the public to support educational and planning activities relating to the watershed environment	Cost	
Non-point-source pollution	Cooperate with The BCWC to provide local workshops in the watershed to inform the ranching, aquaculture, and agricultural community of regulations and remedies for pollution problems	Non-point-source pollution is considered by many in the community to be a potential threat, and educational programs can do much to convert this fear into reasonable compliance actions; technical information on compliance is an important part of this education	Time and staff requirements	Coordinate with ranchers and other affected stakeholders
Education	Provide funding to the BCWC for educational programs	Education to acquaint the students with the environmental characteristics and needs of their community is one of the best long-term strategies available for protecting the watershed	Cost	

**Tasks to be carried out primarily by California Division of Forestry**

<b>Task Name</b>	<b>Descriptions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Externals</b>
Fuels (1)	Continue the fuel management practices in the Manton area (shaded fuel break); seek funding for other fuels management programs in all areas of the watershed	Fuels management is seen as an excellent public benefit by the local residents; gains acceptance for the Restoration Program; reduces the probability of wildfire in the watershed, and thus provides some protection for the salmonids	Costs	
Fuels (2)	Consider seeking funding for a "fire safe" program in the Manton area	The "fire safe" program has been quite successful in the Shingletown area	Costs	
GIS	Cooperate with BCWC to add GIS layers to the KRIS-Battle information system	The KRIS-Battle information system can be used by the BCWC, BCWG, the agencies, and the public to support educational and planning activities relating to the watershed environment	Cost	

**Tasks to be carried out primarily by Lassen National Forest**

<b>Task Name</b>	<b>Descriptions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Externals</b>
Fuels (1)	Continue the fuels inventory study now in progress on the LNF portions of the Battle Creek watershed	The result of this inventory can be used to seek funding for fuels-management work	None (already funded)	
Fuels (2)	Seek funding for fuels management activities suggested by the fuels (1) study above	Fuels management is seen as an excellent public benefit by the local residents; gains acceptance for the Restoration Program; reduces the probability of wildfire in the watershed, and thus provides some protection for the salmonids		
GIS	Cooperate with BCWC to add GIS layers to the KRIS-Battle information system	The KRIS-Battle information system can be used by the BCWC, BCWG, the agencies, and the public to support educational and planning activities relating to the watershed environment	Cost	

**Tasks to be carried out primarily by the National Marine Fisheries Service**

<b>Task Name</b>	<b>Descriptions</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Externals</b>

**Managing Risk to Facilitate the Success of the  
Battle Creek Salmon and Steelhead  
Restoration Project  
January 29, 2001**

# **Managing Risk to Facilitate the Success of the Battle Creek Salmon and Steelhead Restoration Project**

***A proposal for protecting the public investment in the Battle Creek Salmon and Steelhead Restoration Project, and for improving local public acceptance of the Project, by independently evaluating potential risks to the Project and by shaping appropriate science-based responses to them***

*prepared by the*

## **Battle Creek Watershed Conservancy**

A Non-Profit, Public Benefit Corporation  
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**January 29, 2001**



**B a t t l e C r e e k W a t e r s h e d  
C o n s e r v a n c y**

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*Post Office Box 606, Manton, California, 96059*



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## 1. BACKGROUND

The Battle Creek Salmon and Steelhead Restoration Project is the Federal-State (CalFed) Central Valley Ecosystem Restoration Program's best opportunity to restore naturally-spawning runs of winter-run, spring-run, and late-fall-run chinook salmon and steelhead to the San Francisco Bay-Delta watershed. The project, currently in advanced planning stages at the U.S. Bureau of Reclamation's Sacramento offices, will remove five Pacific Gas and Electric Company (PG&E) dams from, and will restore flows and access for salmon, to over 42 miles of stream habitat in Battle Creek, a tributary to the Sacramento River rising in Shasta and Tehama counties. The project is being funded by the CalFed program (\$27 million); PG&E (\$20+ million) and the David and Lucile Packard Foundation (\$3 million).

A number of highly-regarded CalFed ecosystem restoration proposals in other watersheds have run headlong into fatal landowner opposition. The landowners and other interested parties in the Battle Creek watershed have taken a different approach, forming a non-profit corporation (The Battle Creek Watershed Conservancy) to engage with the agencies in the planning process, hoping to help shape the Project into one that could benefit (or at least not harm) the local economy. After all, the same environment which can support the salmon (low-density rural atmosphere, large parcel sizes devoted primarily to cattle ranching) also provides the scenic values which attracted many of the residents.

After four years of work, dozens of public meetings, countless agency meetings, and significant educational outreach programs by the Conservancy, many of the fears of the local community have been laid to rest through the process of investigation, cooperation, and compromise. But a fundamental skepticism about the Restoration Project remains unaddressed throughout the community.

This skepticism is grounded on the large amount of money being spent on the fish, and on the fact that the Restoration Project focuses narrowly on the PG&E hydropower project. Local residents recall how abundant the spring-run salmon were in the area, as recently as 1980 and some 80 years after the hydropower dams were installed – and then how the salmon disappeared when the fish ladders on the dams were closed to “protect” the water supply of Coleman National Fish Hatchery (CNFH). Rightly or wrongly, many in the community have come to associate the reduction in the natural salmon population with CNFH, especially with the adverse effects of the hatchery's barrier weir and closure of the fish ladders.

Whether or not this perception is correct, all parties agree that local support is critical for the success of the Restoration Project: after all, the local residents will be the de-facto trustees of the ESA-listed and other anadromous fish in their backyards. Unless the residents are convinced that all reasonable measures are being taken to reduce the risk of failure of the Restoration Project, they are very unlikely to support the Project. Should the project fail many residents fear that the resource agencies will look toward curbing land uses and water rights in their attempts to rescue an endangered species. The biological risks to the Restoration Project that the landowners perceive from their knowledge of the stream and its fish are, therefore, turning into a political risk that threatens landowner support for the Restoration Project.

The resolution of this local concern requires a serious response, and the Conservancy has argued for some years that the planning of the Restoration Project should include a full analysis of the potential impact of the hatchery upon the natural production of the five anadromous runs to be restored in Battle Creek, as part of an overall watershed analysis.

A part of the solution to this problem will be provided by the CNFH re-evaluation program currently underway. Several hatchery management alternatives, which could mitigate potential impacts of artificial propagation upon natural production in Battle Creek, will be examined during the coming year.

The Conservancy is participating vigorously in the re-evaluation program, but due to the number of management alternatives being reviewed by the CNFH subcontractor (Harza Inc.), and the limited funds available, we feel that some of the issues most critical to the local community may be overlooked, and will require further study before the potential risks to the Restoration Project can be properly evaluated.

What is needed to supplement the ongoing work at CNFH is an objective, science-based analysis of the potential risks to the Restoration Project posed by the operation of a very large hatchery on a relatively small stream critical for natural production. To avoid assumptions of bias by local residents, this analysis needs a clearly-visible independence from the hatchery operators.

We propose that the issues be evaluated by qualified outside experts, who will consult closely with the Battle Creek-interested agencies and communities, including Harza Inc., and then submit their findings to an open symposium to be organized by the Conservancy and to involve additional scientific authorities on other pertinent subjects.

By means of the thoroughness with which the issues will be evaluated and the openness with which the research results will be reviewed at the symposium, the Conservancy hopes that mid-course corrections based upon the best available science can be made in Battle Creek restoration efforts so that the watershed community's flagging confidence in the Restoration Project can be restored.

Should the research prove that the hatchery poses no significant risk to the planned restoration, then the community will know that this result has been verified independently by the researchers cooperating with the Conservancy. On the other hand, should significant risks be predicted by the investigation, appropriate changes will be suggested to improve the success of the Restoration Project.

The landowners share with other stakeholders and the resource agencies the goal of restoring the productivity of Battle Creek. They, perhaps more than any of the other parties, want the Restoration Project to succeed. The work proposed here should contribute substantially to that goal.

## 2. SCOPE OF WORK

While the focus of this project is to address the concerns of the local community, these concerns about potential risks to the Restoration Project are also shared by other Battle Creek stakeholders, including sport and commercial salmon fishermen and Central Valley-Delta water users. These three groups – the landowners, fishermen, and water users – together with PG&E and the resource agencies formed the Battle Creek Working Group in early 1997. It was the Working Group that produced the 1999 Battle Creek Salmon and Steelhead Plan (Ward and Kier, 1999a) that defined the current Restoration Project.

A second Working Group product, Maximizing Compatibility Between Coleman National Fish Hatchery Operations, Management of Lower Battle Creek, and Salmon and Steelhead (“Compatibility Report”, Ward and Kier, 1999b) drew on the stakeholders’ knowledge of local conditions and upon consultations with fisheries and hatchery experts throughout California and the Pacific Northwest to identify a number of concerns that CNFH’s operations on lower Battle Creek raise relative to efforts to restore naturally-reproducing salmon and steelhead populations in the watershed.

The issues raised in the Compatibility Report have not been addressed in the planning of the Restoration Project, since this planning was confined to the reach of Battle Creek above Coleman National Fish Hatchery. The focus of this proposal is to supplement the ongoing work of the hatchery re-evaluation program through the development of an objective, independent analysis of the risks posed by the hatchery to the Battle Creek salmon and steelhead restoration effort, to enable the development and evaluation of science-based measures for reducing or eliminating any risks found to be significant.

Because many of the proposed tasks are supplementary to the ongoing CNFH re-evaluation program, being implemented at Harza Inc., it is important that those performing the analyses maintain close contact with Harza personnel, in order to avoid duplication of effort and to have a maximum exchange of ideas and interpretations.

The members of the project team are highly-qualified individuals who are, for the most part, from outside the project area and who can approach Battle Creek problems and solutions with a degree of independence impossible for those of us who have worked so long on the Restoration Project.

The proposed project tasks are listed in the table below and in the narrative that follows:

### **1.0 Risks posed by summer and fall production at CNFH**

- 1.1 Impact of the CNFH barrier weir on natural production
- 1.2 Impacts of CNFH water use and intakes on natural production
- 1.3 Impacts of hatchery steelhead production
- 1.4 Assessment of the benefits and costs of relocating CNFH warm-season production
- 1.5 The effects of juvenile release sites on the Sacramento River fishery

### **2.0 Risks posed by fall-run chinook production at CNFH**

- 2.1 The impact of superimposed redds on natural production
- 2.2 Impact of waste loading of Battle Creek by fall-run carcasses
- 2.3 Disease risk to natural production due to hatchery production

2.4 Evaluation of means to isolate CNFH from Battle Creek

**3.0 Planning and execution of a symposium for project reporting**

**4.0 Public outreach to make the results of the project available to the community**

Note that for tasks 1 and 2 the draft findings and recommendations should be suitable for distribution and discussion at the symposium (Task 3) on Battle Creek salmon and steelhead conservation to be convened by the Battle Creek Watershed Conservancy.

### **3. Task 1. Evaluate the risks of dry-season production of late-fall-run chinook salmon and steelhead at the Coleman National Fish Hatchery to both the Restoration Project and upper Sacramento River salmon and steelhead populations**

Dry-season production at Coleman National Fish Hatchery is limited to the culture of late-fall chinook salmon and steelhead. This production begins with broodstock collection of late-fall chinook and steelhead from November through March, and continues with juvenile rearing which spans the dry season (July through September). Such production requires roughly half the summer flow of Battle Creek, and necessitates the operation of a barrier weir to collect late-fall chinook and steelhead during the period of November-March.

CNFH previously attempted to culture winter-run chinook, a species now protected under the federal Endangered Species Act, but high hatchery water temperatures precluded optimal production, and after a campaign by the Working Group, production was moved in 1998 to Livingston-Stone Hatchery at Shasta Dam. Production at this site has proven highly successful.

Should the work done under this project find that dry-season production at CNFH poses a significant risk for the Restoration Project, the Conservancy and other stakeholders have suggested that the same remedy – moving dry-season production to Livingston-Stone Hatchery – should be seriously considered. Such a move would populate 29 miles of excellent, under-utilized habitat in the upper Sacramento River with steelhead and late-fall chinook, taking advantage of a \$500 million public investment (Shasta Dam temperature control device, Iron Mountain mine runoff mitigation, spawning gravel program, Keswick fish trap improvements) to restore this river reach.

#### **Task 1.1: Impact of the CNFH barrier weir operations from November through March**

The hatchery's barrier weir across Battle Creek, operated to capture salmon and steelhead for hatchery use, impedes the upstream migration of salmon and steelhead to about 90 percent of the Battle Creek watershed, including the Restoration Project area. The practice of blocking fish with this small dam, and holding migrating adult fish in hatchery ponds, has caused mortalities of adult steelhead of 25 to 40 percent. Such mortalities, were they allowed to continue, would severely hamper the restoration of natural runs of steelhead to upper Battle Creek.

To accomplish this task we propose to perform the following subtasks:

- Consult with CNFH personnel and others;
- Collect and analyze information concerning pre-spawning mortality of steelhead and other runs blocked by the hatchery barrier weir;
- Collect and analyze information concerning the impact of the barrier weir operation upon the passage of juvenile populations;
- Review plans for continued operation of the weir;

- Evaluate the impact of continued weir operations on plans for the restoration of anadromous fish upstream of the weir;
- Prepare and issue draft findings and recommendations for reducing negative impacts, if any, of weir operation on upstream anadromous fish restoration efforts.

### **Task 1.2: Impacts of CNFH water use and intakes on natural production**

The hatchery requires approximately 50% of the dry-season flow of Battle Creek, and maintaining the current production mix will require extensive improvements to the hatchery water intake system while decreasing the amount of water available for salmonid rearing and migration from the Restoration Project area. This task addresses the potential impacts of hatchery water use, and the possible benefits which could accrue from transferring dry-season production to Livingston-Stone Hatchery.

To accomplish this task we propose to perform the following subtasks:

- Consult with CNFH personnel and others;
- Collect and analyze information concerning CNFH's dry-season water requirements;
- Evaluate the water use costs and the benefits, if any, of transferring juvenile steelhead and late-fall-run chinook salmon production from CNFH to Livingston Stone Hatchery;
- Evaluate fisheries management/restoration costs and the benefits, if any, of transferring juvenile steelhead and late-fall-run chinook salmon production from CNFH to Livingston Stone Hatchery;
- Evaluate the benefits, if any, of reducing CNFH diversions from Battle Creek;
- Evaluate CNFH's current plans for upgrading its water intake system and recommend measures for lessening the impact, if any, of such plans on the Battle Creek ecosystem;
- Issue draft findings and recommendations for reducing negative impacts, if any, to the Restoration Project of continued dry-season water withdrawals from Battle Creek to CNFH, and of the benefits to Sacramento River natural production, if any, of transferring juvenile steelhead and late-fall-run chinook salmon production from CNFH to Livingston Stone.

### **Task 1.3: Impacts of hatchery steelhead production**

The hatchery produces about 1 million steelhead juveniles each year. Concerns have been raised about possible genetic and ecological effects of this production upon the natural production expected in Battle Creek following the Restoration Project.

To accomplish this task we propose to perform the following subtasks:

- Consult with CNFH personnel and others;
- Collect and analyze information concerning the impact of CNFH steelhead production, to the extent that it can be determined, on the growth, survival, and

- genetic stability of steelhead that will be produced naturally in the Restoration Project reaches of Battle Creek;
- Issue draft findings and recommendations for minimizing the adverse impacts, if any, of continued CNFH steelhead production on the success of steelhead restoration in upper Battle Creek

#### **Task 1.4: Assessment of the benefits and costs of relocating CNFH dry-season production**

Should it be determined that CNFH dry-season operations have a significant impact upon natural production and thus pose a risk to the success of the Restoration Project, the costs, benefits, and risks of alternatives need to be considered. The alternative suggested by the Conservancy and other stakeholders involves moving dry-season CNFH production to an expanded Livingston-Stone Hatchery at Shasta Dam. This task considers this alternative in some detail.

To accomplish this task we propose to perform the following subtasks:

- Consult with CNFH and USBR personnel and others;
- Estimate the costs of transferring CNFH juvenile steelhead and late-fall-run chinook salmon production to Livingston Stone Hatchery in terms, at minimum, of constructing and outfitting additional Livingston Stone Hatchery capacity, loss of power generation at Shasta Dam, and reduced efficiency of CNFH operations;
- Estimate the benefits, if any, on natural production, sports fishing, and commercial fishing due to the increased natural populations of late-fall chinook and steelhead in the upper Sacramento River;
- Determine the benefits, if any, of reduced dry-season power consumption at CNFH attributable to transferring CNFH juvenile steelhead and late-fall-run to Livingston Stone;
- Issue draft findings and recommendations concerning proposals for transferring CNFH's juvenile steelhead and late-fall-run to Livingston Stone.

#### **Task 1.5: The effects of juvenile release sites on the Sacramento River fishery**

One potential consequence of the alternative hatchery site studied in Task 1.4 is that hatchery late-fall chinook and steelhead could be released at sites along the Sacramento River. Releases at a site in the Redding area could potentially populate the upper 29 miles of the Sacramento River above Battle Creek with late-fall chinook and steelhead, with potential natural production by those fish not needed for hatchery production. This reach of the river has been the subject of extensive restoration, and there are large amounts of excellent-quality underutilized habitat.

To accomplish this task we propose to perform the following subtasks:

- Consult with U.S. Fish and Wildlife Service, California Department of Fish and Game personnel and others;
- Identify the likely advantages and disadvantages, if any, of releasing juvenile salmon and steelhead from sites on the Sacramento River as opposed to the



- CNFH release sites, in terms of sports and commercial fishing opportunity and the utilization of upper Sacramento River restoration investment;
- Issue draft findings and recommendations concerning the advantages and disadvantages of releasing juvenile salmon and steelhead from the alternative sites.

#### **4. Task 2. Evaluate the risks of the production of fall-run chinook salmon at CNFH to the Restoration Project**

Coleman National Fish hatchery annually produces about 10 million juvenile fall-run chinook salmon, for release on Battle Creek. About 100,000 of these fish return each year to the hatchery as adults. About 90% of these returning fish die in Battle Creek without spawning, overloading the 3 miles of spawning habitat below the hatchery, and leaving a huge, decaying biomass in the creek.

The hatchery returnees not only disrupt natural spawning below the hatchery by superimposition of redds, but most of these fish carry various pathogens, including IHN and whirling disease, the latter spread through worm hosts which may feed on the salmon carcasses.

The Conservancy and other stakeholders have proposed an alternative connection between the hatchery and the Sacramento River which could potentially minimize any such risks, if analysis shows them to be significant.

The purpose of this task is to assess the risk posed to natural production and the Restoration Project through the presence of the large numbers of fall-run hatchery chinook in Battle Creek, and through the management of the barrier weir which is used to block fall-run chinook, and at limited times the threatened spring-run chinook, from upper Battle Creek. The merits of an alternative management strategy which could minimize any such risks would also be evaluated.

##### **Task 2.1: The impact of superimposed redds on natural production**

The large numbers of returning fall-run hatchery chinook are approximately twenty times the number which the habitat in Battle Creek below the hatchery can support, even when the number required for hatchery spawning is removed. These fish generally attempt to spawn in the creek, but such spawning is generally unsuccessful, due to the repeated destruction of redds by other fish trying to use the same space. The purpose of this task is to evaluate the risk to natural production in lower Battle Creek due to redd superimposition (the stacking of spawning redds or re-use of the same areas).

To accomplish this task we propose to perform the following subtasks:

- Consult with U.S. Fish and Wildlife Service and California Department of Fish and Game personnel and others;
- Estimate the extent of the super-imposition of salmon redds in lower Battle Creek and the effect of such super-imposition on the natural production of anadromous fish in the stream;
- Issue draft findings and recommendations concerning the crowding of salmon below the CNFH barrier weir and the impact of the super-imposition of redds on natural production in the lower creek and prospects for salmonid restoration in upper Battle Creek.

**Task 2.2: Impact of waste loading of Battle Creek by fall-run carcasses**

The large mass (hundreds of tons) of dead fall-run hatchery chinook in lower Battle Creek poses a potential water-quality issue, apart from its impact upon natural production. The purpose of this task is to evaluate the risk the carcass biomass poses to water quality.

To accomplish this task we propose to perform the following subtasks:

- Consult with the California Regional Water Quality Control Board, Central Valley Region, California Department of Fish and Game, and others;
- Estimate the impact on lower Battle Creek water quality caused by the deposition of salmon carcasses downstream of the CNFH barrier weir;
- Evaluate the lower Battle Creek salmon carcass situation in terms of State and federal water quality anti-degradation policies;
- Issue draft findings and recommendations concerning the salmon carcass and water quality situation below the CNFH barrier weir.

**Task 2.3: Disease risk to natural salmonid populations due to hatchery production**

Most of the returning hatchery adults carry various pathogens, such as IHN (Infectious Hematopoietic Necrosis) virus. The presence of these pathogens in the live fish and in the decaying carcasses may pose a significant threat to anadromous fish using lower Battle Creek, including outmigrating juveniles. The purpose of this task is to evaluate the risk posed by the presence of large numbers of diseased hatchery adults to natural populations in Battle Creek.

To accomplish this task we propose to perform the following subtasks:

- Consult with CNFH and California Department of Fish and Game personnel and others;
- Determine the extent of fish disease transmission among hatchery salmon and between hatchery- and non-hatchery salmon that is likely occurring as a result of the deposition of salmon carcasses and other hatchery-related effluvia in lower Battle Creek;
- Issue draft findings and recommendations concerning disease transmission attributable to carcass deposition and other CNFH production-caused impacts on Battle Creek salmon.

**Task 2.4: Evaluation of means to isolate CNFH from Battle Creek**

The Conservancy and other stakeholders have suggested that an alternative means to connect CNFH to the Sacramento River be investigated. This alternative uses an existing agricultural ditch, which begins near the hatchery and ends at the river. This ditch has historically had problems with in-migrating salmon, so it is known to be attractive to the fish, and it is large enough to support the 12,000 or so fall-run returns required for hatchery operation. The purpose of this task is to evaluate the potential for this

alternative to function, and to estimate the advantages and disadvantages of such operation.

To accomplish this task we propose to perform the following subtasks:

- Consult with affected land and water owners and others;
- Investigate the costs and benefits of isolating CNFH from lower Battle Creek (and thereby reducing CNFH-attributable risks to the creek's ecology) through, among other things, routing adult salmon returning to the hatchery, and juvenile salmon leaving the hatchery, through the nearby Gover Ranch irrigation ditch (Gover Ditch);
- Identify the engineering features, if any, that would have to be added to the Gover Ditch to support such an isolation strategy, together with preliminary estimates of their costs;
- Identify any water rights issues that might arise from using hatchery effluent, rather than Battle Creek withdrawals, to operate the Gover Ditch for irrigation and CNFH connectivity;
- Investigate the potential for routing CNFH effluent through the California Department of Fish and Game's wetland restoration project, which adjoins the Gover Ditch, as a means of obtaining a higher level of wastewater remediation than either CNFH's present discharge to Battle Creek, or simple re-routing of CNFH effluent via the Gover Ditch directly to the Sacramento River;
- Evaluate the water quality benefits to Battle Creek of such isolation strategies. Identify the adverse impacts, if any, on Sacramento River water quality. Identify the effects such isolation measures might have on the efficacy of juvenile hatchery salmon release strategies: e.g., on imprinting and potential straying. Identify the costs and benefits that such isolation measures would likely have on the collection of surplus fish for rendering;
- Evaluate the hatchery barrier weir requirements at CNFH if an isolation plan were implemented. Identify the costs and benefits of alternative barrier weir configurations;
- Issue draft findings and recommendations concerning the potential isolation of CNFH from Battle Creek through the use of the Gover Ditch; the engineering requirements of such a dual-use ditch; the water quality impacts and benefits of such an isolation scheme, with and without DFG wetlands connectivity; the impact such an alternative hatchery release strategy might have on salmon straying and on spawning in the Sacramento River; and how such an isolation strategy would influence CNFH barrier weir requirements.

**5. Task 3. Organize and conduct a workshop to ensure full consideration by both the scientific community and the general public of the findings and recommendations resulting from the proposed project**

The Conservancy will organize a one or two-day symposium, most likely in Red Bluff, to enable full and frank discussion of the findings and recommendations arising from the project's analyses. The symposium will follow the formats used by the American Fisheries Society and other professional fish-science organizations. It will be open to all interested parties.

The investigation team's draft work products will be widely circulated to interested parties, including additional independent experts, in advance of the symposium.

The purpose of the symposium is to bring the expertise of the wider fisheries-science community to bear upon the results of the studies funded by this project, and to ensure that the final fish cultural and structural alternatives to be recommended for the Restoration Project represent the best current knowledge.

**6. Task 4. Public outreach to ensure that the project efforts and outcomes are brought to the attention of the local community, and that community concerns are effectively brought to the attention of the resource agencies**

Many in the local community are skeptical of the Restoration Project, partly on the basis of widely-held suspicions that the Project is at risk due to activities at Coleman National Fish Hatchery. Public acceptance of the Restoration Project is critical to its success, as the local residents will be the de-facto trustees of the anadromous fish in their backyards.

The purpose of this task is to ensure that the local watershed community is fully aware of the results of the science-based risk assessments to be produced by this program, which are focused directly on the issue of local concern, CNFH operations. Public acceptance will come only when the community is convinced that their concerns about the hatchery have been fully and independently assessed, and that any significant issues of risk have been addressed.

The Conservancy, through watershed coordinator Sharon Paquin-Gilmore and consultant Dr. Michael Black, will conduct an outreach effort using the Conservancy newsletter, the region's print and television news media, and public meetings. Dr. Black is the author of "Shasta Salmon Salvage Efforts: Coleman National Fish Hatchery on Battle Creek, 1895-1992."

The outreach effort will include publicity for the symposium (Task 3), to ensure that a significant number of members of the local community participate.

## 7. Deliverables and schedule

The proposed program will result in the following deliverables being provided to the sponsors, as well as to the agencies and stakeholders involved in the Battle Creek Salmon and Steelhead Restoration Project:

- One interim progress report indicating the progress to date and any changes in the detailed task definitions, issued 120 days into the project.
- Draft scientific reports for each of the subtasks identified in this proposal, issued 60 days prior to the symposium.
- Final scientific reports for each subtask, after draft review by the interested agencies and stakeholders, issued following the symposium.
- An open public symposium for the discussion of the scientific results in the broader fisheries and stakeholder community, convened near the end of the program.
- A refereed proceedings of the symposium, tentatively planned to be issued through the American Fisheries Society.
- Extensive public-outreach materials intended for distribution in the media, at public meetings, and through the Battle Creek Watershed Conservancy newsletter.

It is intended that these deliverables reach the widest possible audience of interested parties and stakeholders, both to make the scientific results generally available, and to facilitate comment on the scientific results by a broad community of interests.

It is proposed that a one-year program is appropriate for the scientific work and the symposium. It is of course to be expected that not all the significant questions addressed by the studies will be resolved in one year, but it is important that the results of the independent studies be available in time to support the Restoration Project, both through the scientific results themselves, and through the improved public support which will accrue from the independent study.

## 8. PROJECT PERSONNEL

Richard Grost is an independent fisheries scientist who has worked for government and industry clients throughout the Pacific Northwest, including the Klamath River basin in Northern California. He has not worked in the Sacramento River Basin. Mr. Grost, who has an M.S. in zoology and physiology and a B.S. in fisheries biology and management, will manage the technical aspects of the project, will lead data acquisition and scientific analysis of fisheries issues, and assist with outreach and symposium presentations.

Thomas Quinn, Ph.D. is a professor of fisheries at the School of Aquatic and Fisheries Science at the University of Washington. Dr. Quinn will direct analyses of issues concerning fish behavior, genetics, ecology, and competition among and between species.

Fran Borcalli is a Sacramento-based civil engineer who has substantial experience with the analysis of barriers to salmon and steelhead migration and with the design and construction of fish screens and other fish-passage facilities in the Sacramento Valley. He designed and supervised construction of the CalFed project dam removals and modifications on Butte Creek. Mr. Borcalli will provide analysis and recommendations concerning hatchery barrier weir and hatchery water intake alternatives.

Kenneth Ferjancic is a Puget Sound-based fisheries engineer whose firm has worked extensively with agencies and tribes in the development of hatchery facilities. Much of Mr. Ferjancic's recent work has involved the creation of small-scale fish cultural facilities to ensure the conservation of species at risk of extinction. He has worked with Mr. Borcalli in the design and construction of northern California fish facilities. Mr. Ferjancic will provide analysis and recommendations concerning fish hatchery design alternatives.

Daniel Frost is a Redding-based attorney with extensive experience in ranch management and water rights. Mr. Frost's firm has for many years provided legal services to the Gover Ranch on Battle Creek. Mr. Frost will provide analysis of legal issues and remedies concerning Battle Creek water use alternatives.

Sharon Paquin-Gilmore, a Battle Creek landowner and resident long interested in environmental issues, is the Battle Creek Watershed Conservancy's watershed coordinator. Before assuming her BCWC duties, Ms. Paquin-Gilmore taught English at California State University, Chico for 13 years and at Shasta College for four. Ms. Paquin-Gilmore will provide administrative management for the proposed project.

Michael Black, Ph.D. is a San-Francisco-based environmental historian and policy analyst. His history of Coleman National Fish Hatchery is forthcoming in the California Department of Fish and Game's Fish Bulletin, and he is working on a history of salmon on the Sacramento River for the University of California Press. He is a Visiting Associate Professor of Political Science at Harvey Mudd College. Dr. Black will assist the Conservancy Watershed Coordinator in providing public dialog, education, and outreach in the local community.

Additional expertise will be solicited as necessary to enhance the strength and value of specific analyses. Such experts may include fisheries researchers associated with universities and institutions throughout the Northwest.



## 9. REFERENCES

- Black, Michael. 1998. Shasta Salmon Salvage Efforts: Coleman National Fish Hatchery on Battle Creek, 1895-1992.
- Ward, M. B. and W. M. Kier. 1999a. Battle Creek Salmon and Steelhead Restoration Plan. Prepared for the Battle Creek Working Group by Kier Associates.
- Ward, M. B. and W. M. Kier. 1999b. Maximizing compatibility between Coleman National Fish Hatchery operations and salmon and steelhead restoration in Battle Creek. Prepared for the Battle Creek Working Group by Kier Associates.

**10. PROJECT BUDGET SUMMARY**

<b>Task</b>	<b>Task subject</b>	<b>Professional services</b>	<b>Direct costs</b>	<b>Indirect costs</b>	<b>Task total</b>
1.1	Impact of the CNFH barrier weir during dry-season production	16000	3000	1900	20900
1.2	Impacts of CNFH water use and intakes on natural production	19000	2800	2180	23980
1.3	Impacts of hatchery steelhead production	9000	2500	1150	12650
1.4	Assessment of the benefits and costs of relocating CNFH dry-season production	24000	3500	2750	30250
1.5	The effects of juvenile release sites on the Sacramento River fishery	4400	2000	640	7040
2.1	The impact of superimposed redds on natural production	5500	2000	750	8250
2.2	Impacts of waste loading of Battle Creek by fall-run carcasses	3100	2500	560	6160
2.3	Disease risk to natural salmonid populations due to hatchery production	7500	2500	1000	11000
2.4	Evaluation of means to isolate CNFH from Battle Creek	36000	3000	3900	42900
3.1	Organize and conduct a workshop to ensure full consideration by both the scientific community and the general public of the findings and recommendations resulting from the proposed project	9500	35000	4450	48950
4.1	Public outreach to ensure that the project efforts and outcomes are brought to the attention of the local community, and that community concerns are effectively brought to the attention of the resource agencies	9200	2500	1170	12870
-	Additional expert opinion as required	9000	5000	1400	15400
-	Project accounting services	2100	250	235	2585
-	Project legal review services	4600	250	485	5335
-	BCWC project coordination	11000	1000	1200	13200
	<b>Subtotals</b>	<b>169900</b>	<b>67800</b>	<b>23770</b>	<b>261470</b>

**Letter on the Battle Creek Watershed  
Conservancy Position on the Restoration Project  
June 11, 2001**



## Battle Creek Watershed Conservancy

*Post Office Box 606, Manton, California, 96059*

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June 11, 2001

Mr. Patrick Wright  
Director, CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

Mr. Wayne White  
Sacramento Fish and Wildlife Office  
2800 Cottage Way, Suite W-2605  
Sacramento, CA 95825

Mr. Donald B. Koch  
State of California - The Resources Agency  
Department of Fish & Game  
601 Locust Street  
Redding, CA 96001

Mr. Mike Aceituno  
National Marine Fisheries Service  
650 Capitol Mall  
Sacramento, CA 95814

Mr. Kirk Rodgers  
Acting Regional Director  
US Bureau of Reclamation  
2800 Cottage Way  
Sacramento, CA 95825

**Subject: Battle Creek Watershed Conservancy position on the Restoration Program**

As you are well aware, the Battle Creek Watershed Conservancy has been energetically attempting to bring local concerns to the attention of the several agencies developing the Battle Creek Salmon and Steelhead Restoration Project for over four years. Now that this Project is moving from the design phase to the implementation phase, we have been forced to realize that our concerns will not be addressed.

For the last three years the Conservancy has repeatedly called for the issues on Battle Creek to be addressed in a systematic way, looking at the entire watershed as a connected system.

The agencies, however, have preferred to concentrate on a program narrowly focused upon the PG&E facilities, telling us that increasing the scope would complicate the project to the point where it might collapse.

The Conservancy and some of the other NGO stakeholders have felt frustrated during this process because all decision-making authority was clearly in the hands of the MOU parties – PG&E and the trustee agencies – and the rules of the “collaborative process” have consistently been used to prevent dialog between the stakeholders and the agencies.

The result of our inability to make significant progress with the agencies has been an increase in local opposition to the Restoration Project, after a long period where opposition had died down while the Conservancy membership felt that the Conservancy was “on top of things.” This increasing frustration culminated in a very well attended Annual Meeting of the Conservancy, where the following resolution was passed overwhelmingly by the membership on May 16<sup>th</sup>:

**A resolution to oppose the Battle Creek Salmon and Steelhead Restoration Project in its current form**

The Battle Creek Watershed Conservancy opposes in its present form the Battle Creek Salmon and Steelhead Restoration Project. We believe that potential problems for natural production in Battle Creek due to the operations at Coleman National Fish Hatchery have not been properly taken into account in the planning for the Project, and that there is a substantial probability that the Project will fail as a result. If the project fails the agencies will try all means to save the \$50 million investment, with the likely result that local residents and economic activities will suffer serious restrictions. We take this action reluctantly, as our membership is as concerned for the health of Battle Creek as the agencies, but we would rather see the Restoration Project implemented well, or not at all.

This opposition will continue until the Conservancy Board is satisfied that all possible steps will be taken to protect natural production in Battle Creek, without curtailing hatchery production for the mitigation of the presence of Shasta Dam.

The Board is directed to make the appropriate agencies, including CalFed, aware of its position.

This motion was designed to make the urgency of the situation felt, while still leaving room for a solution.

Obviously it is not enough just to express our frustration. The purpose of this letter is to identify a series of steps which the Conservancy Board feels will adequately ensure that the concerns of our members will eventually be addressed. While there have been many issues important to our constituents, the limited time available clearly shows the need to focus upon the most critical of our concerns, the potential negative effects of the operations at Coleman National Fish Hatchery upon natural production in Battle Creek.

Some of these issues are being belatedly examined in a cursory way in the current CNFH re-evaluation program. We feel that this review is valuable, but quite inadequate considering the complexity of the problems. Let me summarize the key problems which must be addressed to reach a real solution to our problem:

- The Restoration Project design and implementation, including the Adaptive Management Plan, is narrowly focused upon the PG&E facilities. As a result the Project environmental review will not address issues critical to the Conservancy.
- The Project, including the Adaptive Management Plan, is under the control of the MOU agencies and PG&E, with little NGO stakeholder input. While the agencies have politely listened to us for years, in over 100 meetings, they cannot identify any substantive steps taken to address issues of concern to the Conservancy.

- Substantial distrust exists between the Conservancy and the USFWS, to the point where the membership will not trust science coming out of USFWS programs, and USFWS personnel seem to feel that the Conservancy is attempting to put CNFH out of business.
- While many local residents support the idea of the Restoration Project, there is very serious local concern that the Restoration Project could fail due to activities at CNFH. Local opinion associates project failure with inevitable restrictions on land uses, water rights, and economic activities.

To overcome these problems it seems clear to us that the solution must contain the following elements:

- The uncertainties behind the disagreement among the agencies regarding the likely impacts of CNFH upon a restored Battle Creek need to be resolved through an extensive and well planned science program considering Battle Creek and the upper Sacramento River as a complete system.
- The Conservancy and other NGO stakeholders need to play a leading role in this science program, to establish the independence of the work to the satisfaction of the local community, and to help make the community an active part of the Restoration Project.
- Such a science program will take years. A way needs to be found to ensure that the concerns of the community will be addressed in the future, so that the community can withdraw its opposition to the Restoration Project in time to prevent serious delays in the program.
- Pending the resolution of the issues through the science program, major activities at the hatchery which could be affected by the science, such as the barrier weir replacement, should be delayed. The intakes screening project should be limited to screening the present diversions.
- The agencies involved must somehow convince the Conservancy that they are committed to this scientific process, and that any significant problems uncovered will produce appropriate remedial actions by the agencies.

It is the opinion of the Conservancy Board that each of these elements is necessary, and that the five together will be sufficient to allow us to withdraw our opposition.

The following summary describes one possible approach to the problem which meets the requirements just mentioned.

### **The proposed science program**

The science program would study in some depth the issues of competition, genetics, predation, water quality, habitat quality, and pathogens, as affected by the presence of CNFH and as potentially mitigated by various changes in operations – the subjects of a current proposal from the Conservancy to the Packard Foundation.

In addition the program would consider two related issues – the scientific rationale behind CNFH goals (which seem ad hoc to us and are not clear even to the CNFH contractor for the re-evaluation), and the various approaches to re-establishing the anadromous stocks in Battle Creek (it seems strange to us that a \$50 million program is about to be implemented without a trace of a plan for the fish).

Many of these issues involve the upper Sacramento River as well as Battle Creek, so the science program must have a broad perspective.

The science program would include on-the-ground work as well as demonstration projects, so that environmental monitoring could provide data to the scientists, and the scientists in turn could guide monitoring and demonstration efforts.

There would be at least one AFS-sanctioned public symposium during the program, to get the science results out to the scientific community, and to facilitate thorough discussion of the issues. In addition, there would be a significant public outreach program, to bring the results of the program to the general public.

### **Organization of the program**

The task force leading the science program should consist of the NGO stakeholder groups, including the Conservancy (representing local residents, ranchers, timber interests, agricultural interests, and sports fishing interests), the Central Valley Project Water Association (representing agricultural water users), the Pacific Coast Federation of Fishermen's Associations (representing commercial fishing), and The Nature Conservancy (with several local Battle Creek projects).

We suggest that this task force enlist the services of an advisory group to provide advice regarding planning and direction of the science work. This group would include USFWS, NMFS, CDFG, USBR, and possibly DWR and CRWQCB.

The task force would seek review of its activities and advice from the CalFed science panel.

The program would be financed by a combination of public and private funding.

### **Community buy-in**

The science program would take several years. The Conservancy understands the need for urgency in the development of the Restoration Project, so the Conservancy Board is willing to put its faith in science and support the Restoration Project, provided that the science program is under way and the agencies truly support it. We believe that good science will eventually drive reasonable decisions by the agencies in the future. This may not be easy for our constituents to understand, but we see no other way to get reasonable assurance that our concerns will be addressed, without delaying the project for years.

In conclusion, we would like to be able to support the Restoration Project, and we hope that our actions will help make the Project more successful by resolving issues not considered in the initial design. Public support is critical for the success of the Restoration Project, since our local members will be the de-facto trustees of the fish living in our backyards – but this public support cannot be won without a fundamental shift in agency policies, combined with a first-rate, Conservancy-led science program. We are ready to do our part, and invite your cooperation.

Sincerely,

Robert Lee, Secretary  
Battle Creek Watershed Conservancy

**Draft Greater Battle Creek Watershed Adaptive  
Management Framework and Organization  
September 2001**



# **Draft Greater Battle Creek Watershed Adaptive Management Framework and Organization– Developed by the Stakeholders of BCWG**

Serge Birk, Sharon Paquin Gilmore, Zeke Grader, Larry Lucas, Peggy McNutt

The following summary and proposed adaptive management framework and organization has been prepared by NGO stakeholders as comments for consideration for inclusion in the:

- PG&E Battle Creek Hydroelectric Project FERC No. 1121 Project License Amendment process.
- Battle Creek Salmon and Steelhead Restoration Project Adaptive Management Plan.
- Programmatic EIS/EIR PG&E MOU Restoration Project.
- Coleman National Fish Hatchery (CNFH) evaluation project HARZA
- CNFH “Steelhead Supplementation Program”
- CVPIA (B)(3) Water Acquisition Program

## **Executive Summary**

It is the opinion of the stakeholders that unless a landscape scale watershed adaptive management framework and organization is developed and integrated into all components currently in place or proposed for the greater Battle Creek watershed, the ability to learn from success and failures and to meet goals and objectives of funded programs is compromised. Without this type strategy which links actions to one another, it is unlikely that the goals of CNFH, CVPIA, CALFED, ESA and FERC are to be met. Simply stated we do not endorse an incremental restoration strategy but rather suggest a process which evaluates and directs restoration actions which are compatible and synergistic.

## **Historical Context**

Since the establishment of the Battle Creek Working Group (BCWG) in 1997, the NGO stakeholders of BCWG have been instrumental in promoting restoration opportunities in the Battle Creek watershed. As part of this process, the NGO stakeholders have advocated a collaborative approach and encouraged the development of a landscape scale watershed approach to identify and solve problems in the watershed that may have contributed to the decline in anadromous fish population and ecosystem health. Central to this approach is having open dialogue with all interested parties, stakeholders and agencies engaged with planning, funding and implementation of restoration actions and projects in the Battle Creek watershed. For the purposes of this document, the greater Battle Creek watershed refers to the entire Battle Creek watershed from its confluence to the headwaters and major tributaries as well as the upper Sacramento River to the extent that the Livingston Stone Fish Hatchery is connected to the Battle Creek hatchery program.

## **Funding Linkages:**

Restoration in the Battle Creek Watershed has been underwritten in part by CALFED Category III, CVPIA B3 funds for water acquisition, CVPIA funds for rehabilitation of CNFH and CALFED ERP direct funding of other actions (PG&E MOU) and numerous other public and private funders.

Funding has been provided to numerous state and federal agencies to prepare and conduct planning and environmental documentation required for promulgation of the Record of Decision (ROD) for the Restoration Project (PG&E), development of watershed plan (USFWS /Kier Report), interim water acquisition program (USBR) as well as funding to NGO partners e.g. CALFED /AFRP Battle Creek Watershed Conservancy Upper Watershed Plan and CVPIA/WCB/private funding for conservation easement acquisition and restoration projects initiated by TNC.

Because of these apparent funding and programmatic linkages, it is incumbent of all recipients, government agencies and NGO stakeholders to demonstrate how implementation of proposed actions and projects meet the goals and objectives of program funding actions in the greater Battle Creek watershed under the auspices of CALFED ERP and CVPIA AFRP goals and FERC amendment commitments.

### **Fundamental Principle**

Science-based **adaptive management** is a decision process and a tool which involves the development of conceptual models, testable hypotheses and evaluation of experiments. A critical component of adaptive management is experimentation and assessment of resource management alternatives and actions. These experiments are designed to clarify and remove scientific uncertainties and risk associated with current and future management actions and alternatives and can lead to more efficacious restoration opportunities. For example, by confirming with experiments and guided by testable hypotheses, that recommended management actions and alternatives fail to meet explicit goals and objectives, managers will be able to alter future actions and alternatives appropriately to make prudent management decisions.

### **Stakeholder Issues**

**A landscape scale watershed adaptive management organization and framework must be established to provide the needed forum and process to facilitate effective planning, implementation and progress in the greater Battle Creek watershed.**

Hypothesis based actions must disclose explicit indicators, measures of success and cause and effects relationships associated with restoration actions and respective conceptual models must be developed. Furthermore, linkages of proposed programs must be apparent, disclosed and evaluated in total not as separate, incremental solutions as currently proposed within the context of CNFH reevaluation and Restoration Project (PG&E MOU), for example.

Unfortunately, NGO stakeholder participation in this type of meaningful dialogue has not been institutionalized in either of the restoration programs mentioned above. Of equal concern, proposed approaches being disclosed in draft documents for both the CNFH and PG&E projects suggest that, at best, NGO stakeholder input is likely to be marginalized in the future.

In addition, PG&E, a major stakeholder of the Restoration Program, has suggested to FERC that the proposed AMP has been reviewed and received acceptance by all stakeholders to date. Unfortunately, verbal comments articulated by stakeholders at workshops have not always been accurately recorded, detailed or made part of the institutional record. We feel it is important that NGO stakeholder comments are recorded in sufficient detail to accurately reflect our positions.

We also support the comments made by Dr. Healy regarding the Adaptive Management Plan and hope to understand how his comments are incorporated into the proposed AMP.

## **INSTITUTIONAL CONSTRAINTS AND ISSUES**

### **Restoration Project PG&E MOU**

An adaptive management organizational structure is proposed under the existing MOU and current Adaptive Management Plan (AMP) component of the MOU. However, the structure does not include meaningful participation of many stakeholders in the watershed and specifically participant NGO stakeholders of the Battle Creek Working Group. Also, under the proposed AMP the role of independent peer review is not identified or addressed. Furthermore, linkages to CVPIA and CALFED goals are not apparent for the greater Battle Creek watershed.

### **CNFH Reevaluation**

A reevaluation of CNFH operations is currently in progress by Harza, contractor to USFWS. NGO stakeholders have consistently stated that the reevaluation is too narrow in scope and tends to focus on current operations instead of operation of CNFH under restored conditions. Stakeholders have pointed out that it is unlikely that the current reevaluation adequately addresses linkages and potential impacts to overall CALFED, CVPIA and ESA restoration and recovery goals as well as other watershed projects. Stakeholders have also recommended that in order to meet the objectives of the intended unbiased assessment of alternatives and reevaluation of operations of CNFH, an independent peer review be instituted in a timely fashion and prior to finalization.

It is our understanding that since 1995, operators of CNFH have included supplementation (passage of hatchery steelhead above CNFH) as a restoration tool for Battle Creek watershed. This supplementation strategy appears inconsistent with the CALFED and CVPIA Record of Decision (ROD) for implementation of PL 102-575 CVPIA specifically AFRP, and the CALFED Ecosystem Restoration Program.

This supplementation action also warrants management and policy review to determine if “supplementation of federally listed species” is an acceptable restoration tool and policy. Furthermore, technical and policy review is warranted to determine if supplementation is consistent with CVPIA and CALFED restoration goals and objectives.

It is important to note that a current Biological Opinion from NMFS has not been promulgated on the topic of supplementation as an acceptable tool for restoration of federally listed steelhead in the Battle Creek Watershed and at CNFH. It is incumbent that NMFS prepare a BO which addresses the supplementation issue.

The BO should also provide a credible risk assessment in order to allow policy makers to determine if current CNFH supplementation actions are compatible with CVPIA AFRP goals to at least double “natural populations” and CALFED ERP goals and objectives to restore habitat to restore naturally produced salmonids in Battle Creek.

## **USBR Interim Flow Agreement**

USBR and USFWS have secured funding for an interim flow agreement for the past three years. It is unclear what monitoring and assessment protocols or indicators and measures of success were used during this period to evaluate the efficacy of the interim flow agreement.

Furthermore, without development of peer review and disclosure of monitoring, research and assessment tools proposed to be used in the future, it is unlikely that a true active adaptive management program can be implemented in the greater Battle Creek watershed.

The NGO stakeholders also need a better understanding of the “no conservation value” declaration.

## **CONCLUSION**

Restoration of the greater Battle Creek watershed is a comprehensive effort involving numerous funding sources with multiple goals and objectives, numerous potential government and non-government partners and stakeholders. Success can only be achieved with active participation of all stakeholders in the overall process and in all relevant forums affecting watershed or landscape management.

As a result of both the lack of adequate avenues for stakeholder input and lack of linkages between major programmatic actions within the greater Battle Creek watershed, the NGO stakeholders recommend the following:

1. An inclusive adaptive management framework for the greater Battle Creek watershed must be established.
2. Stakeholder involvement should be inclusive and formalized.

Planning and implementation of all fisheries and restoration actions in the watershed and appropriate adaptive management processes should be discussed and approved through the auspices of a formal advisory group similar to, if not the Battle Creek Working Group (BCWG). This type of broad, inclusive forum can contribute to advancing progress for ESA recovery, CVPIA doubling goals of naturally produced salmonids pursuant to AFRP and CALFED ecosystem restoration goals to restore habitat, ecosystem functions and processes. Furthermore, this adaptive management framework and organization would be valuable to landowners and stakeholders throughout the watershed and other parties associated with planning concerned with other relevant issues in the watershed including CNFH operations, PGE, CDFG, TNC, BCWC, etc.

We ask that these comments be incorporated into the draft EIS and be considered comments for other documents as well.

As we continue to move forward with the myriad of greater Battle Creek watershed projects, we also look forward to establishing a process within the Battle Creek Working Group to discuss and further develop these ideas.

# **Proposed Battle Creek Organization and Framework For Adaptive Management Greater Battle Creek Watershed**

## **Battle Creek Goals and Objectives**

**Are derived from an agreed upon**

Comprehensive watershed plan (Similar to Kier approach) which

**Incorporates CVPIA, CALFED, ESA, CNFH, FERC and CONSERVANCY**

### **Goals and Objectives**

- 1. ESA goals: population recovery and habitat protection**
- 2. CVPIA: goals 2x natural populations, habitat restoration**
- 3. CALFED goals: restore ecosystem functions processes, habitat and MSCS protective measures**
- 4. FERC goals : Project License Amendment Process**
- 5. Conservancy goals: Program compatibility with Greater Battle Creek Watershed**

### **Program success, failures measured by:**

- ESA based populations factors, habitat indicators, fish screen criteria, genetic robustness**
- CVPIA performance guidelines based on performance pursuant to and population responses (cohort recruitment, survival rates and habitat restoration (quality and quantity)**
- CALFED goals and objectives based on ecosystem processes and functions responses and scientific experiments which address uncertainty.**
- FERC goals may be measured with the selection of the preferred alternative pursuant to the PG&E MOU**
- CONSERVANCY goals include reduced risk to landowners of Upper Battle Creek and recognition as partner in the restoration process.**

**Current Battle Creek Organization and Framework  
Battle Creek Goals and Objectives**

(No agreed on overall watershed strategy or comprehensive plan for greater watershed)  
Lack of landscape indicators or measures of success

**CVPIA and CALFED Goals and Objectives**

ESA goals: population recovery and habitat protection  
CVPIA: goals 2x natural populations, habitat restoration  
CALFED goals: restore ecosystem functions processes, habitat and MSCS protective measures

**Funding Sources: (CVPIA Restoration Funds, CALFED ERP and Private Sources)**  
**Funding Oversight:** CVPIA Restoration Roundtable, CALFED Ecosystem Roundtable Successor and Other Private Sources

**Restoration Programs**

<b>CVPIA</b>	<b>CNFH</b>	<b>ESA</b>	<b>CALFED</b>
AFRP 2x plan AFSP B3 Water Acquisition CAMP	CVP Mitigation Supplementation CVPIA B11 IEP CWT Program	Population Recovery Critical Habitat CNFH BO Genetics	Ecosystem Attributes MSCS Habitat/Land Acquisition Watershed Partnering Science Program

**Current and Proposed Restoration Actions**

TNC Land acquisition Habitat Restoration	CNFH Harza Evaluation Supplementation Intake Screening Barrier Weir LSFH	PG&E MOU Restoration Project Interim Water Acquisition FERC Project License Amendment Process Adaptive Management	CONSERVANCY Education Partnerships Facilitation Public Affairs Watershed Assessment
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**Missing Links**

No apparent linkage or role for BCWG or NGO's  
Lack Overall Program Synergy  
Lack of Adaptive Management Strategy  
Lack of Program Connectivity  
Lack of Peer Review  
Lack of Indicator Development  
Lack of Comprehensive Monitoring  
Lack of Stakeholder Buy in or Consensus

## Greater Battle Creek Watershed Programmatic Linkages and Proposed Organization

### Greater Battle Creek Watershed Plan Goals and Objectives

#### Funding Sources

**USBR/USFWS  
CVPIA Restoration  
Roundtable**

**CALFED Management Group  
CALFED Ecosystem Roundtable  
Successor Group**

**Private Partners**

#### Restoration Programs

**CVPIA**

AFRP 2x plan  
AFSP  
B3 Water Acquisition  
CAMP

**CNFH**

CVP Mitigation  
Supplementation  
CVPIA B11  
IEP CWT Program  
LSFH

**ESA**

Population Recovery  
Critical Habitat  
CNFH BO  
Genetics

**CALFED**

Ecosystem Attributes  
MSCS  
Habitat/Land Acquisition  
Watershed Partnering  
Science Program

### Greater Battle Creek Working Group (Formalized Working Group including stakeholders)

**This group shall provide a forum to:**

- Consensus for partnering and collaboration.**
- Discuss and identify linkages of current and proposed restoration actions.**
- Review technical merit of proposed actions**
- Review conceptual models, hypotheses and adaptive management experiments.**
- Review indicators and measures of success to evaluate program performance.**
- Serve as facilitator.**
- Recommend projects for funding.**

#### Current and Proposed Restoration Actions

**TNC**  
Land acquisition  
Habitat  
Restoration

**CNFH**  
Harza Evaluation  
Supplementation  
Intake Screening  
Barrier Weir  
LSFH

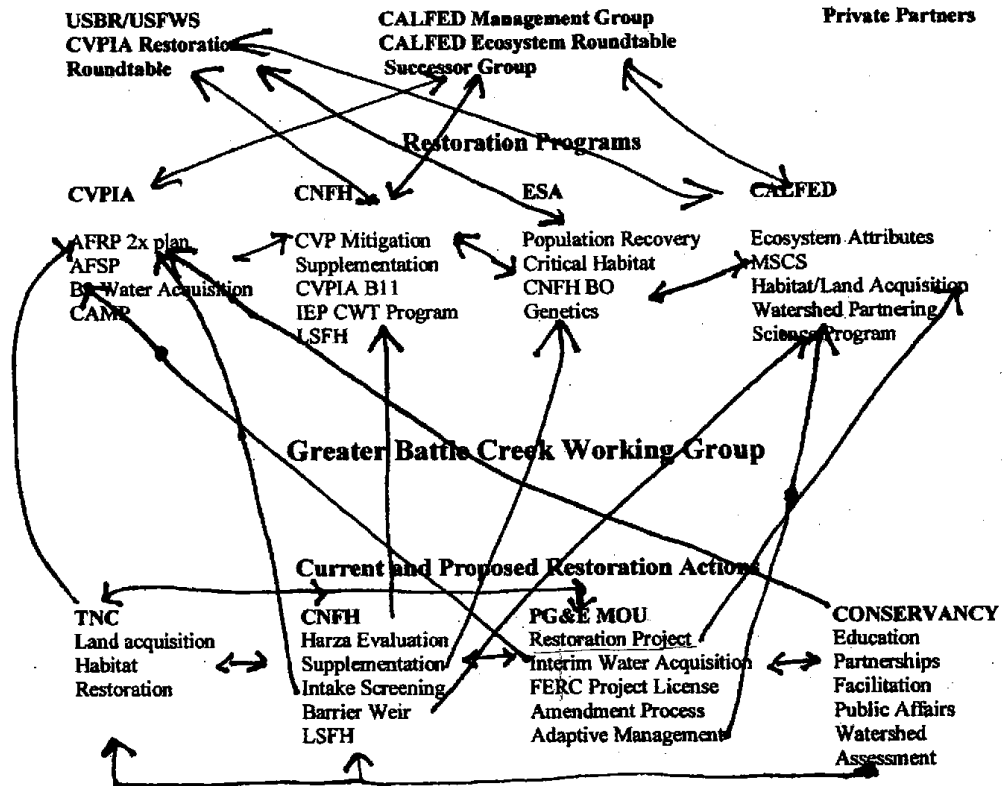
**PG&E MOU**  
Restoration Project  
Interim Water Acquisition  
FERC Project License  
Amendment Process  
Adaptive Management

**CONSERVANCY**  
Education  
Partnerships  
Facilitation  
Public Affairs  
Watershed  
Assessment

# Proposed Greater Battle Creek Watershed Organization and Framework

## GBW Watershed Plan Goals and Objectives

### Funding Sources





**Letter from Four Agencies to the Battle Creek  
Watershed Conservancy Proposing a Problem-  
Solving Approach for Local Issues  
September 20, 2001**

# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825



IN REPLY REFER TO:

September 20, 2001

Mr. Leland Davis, President  
Battle Creek Watershed Conservancy  
Post Office Box 606  
Manton, CA 96059

Dear Mr. Davis:

We would like to propose a problem solving approach to address concerns the local community has voiced through the Battle Creek Conservancy (Conservancy) over some of the activities of government agencies (Agencies) in the Battle Creek watershed. These concerns relate to the Battle Creek Salmon and Steelhead Restoration Project (Restoration Project), that is presently going through the environmental review process, as well as operations of the Coleman National Fish Hatchery (Hatchery), that are now going through consultations under the Endangered Species Act (ESA) and a voluntary reevaluation process. The Conservancy has expressed a vote of opposition to the Restoration Project conditioned on defining a way forward on several issues relating to the future operation of the Hatchery (Conservancy Resolution dated May 16, 2001 described in June 11, 2001 Conservancy letter). The Conservancy concerns are important to the agencies. We have been exploring ways to resolve these issues through a process that will provide meaningful input by all parties including the Conservancy and CALFED. Our collective goal is to restore the salmon and steelhead habitats of the Battle Creek watershed, upstream to its waterfall barriers to maximize naturally reproducing runs, with a priority on the listed species (winter-run chinook, spring-run chinook, and steelhead).

The primary issues as we understand them from your correspondence and subsequent discussions are:

- 1) There are concerns regarding potential impacts of the Hatchery on the anadromous fisheries of Battle Creek, both now and as the Restoration Project is implemented. The need is to ensure the operations of the Hatchery contribute to the recovery of species listed under the ESA in the Sacramento River system. Some of the operations of concern include the Hatchery's water supply and brood stock collection systems.
- 2) The focus of the Adaptive Management Plan for the Restoration Project is narrow and needs to operate at the watershed level using a community-based approach.
- 3) There is a need to provide a long-term way to work with the community at the watershed level such that implementation of the wide array of land and water use decisions in the watershed will address stakeholder input; especially with respect to potential regulatory issues of local concern.

Our analysis of these issues and proposed solution strategies for your consideration are:

Coleman National Fish Hatchery:

- The U S Fish and Wildlife Service (USFWS) in consultation with the National Marine Fisheries Service (NMFS) is bound by the Federal ESA to ensure that federal operations of the Hatchery will not jeopardize the future existence of listed species (winter-run chinook salmon, spring-run chinook salmon, and steelhead). The USFWS has attempted to minimize impacts on listed stocks since 1993 in consultation with the NMFS under the ESA. Under this process, all previous operations have complied with the ESA. A formal consultation is now being conducted on the current operations of the Hatchery under present conditions in Battle Creek. The current Biological Opinion considers existing habitat conditions in Battle Creek that include extremely poor stream flow, high water temperatures, and reduced passage conditions associated with hydroelectric dams above the hatchery. As the Restoration Project improves habitat conditions and thus increases salmonid populations, the USFWS and NMFS will complete further consultations to ensure hatchery operations are consistent with conservation of listed species.
- The USFWS is a resource conservation agency devoted to the restoration of all salmon and steelhead and their habitats in California. The USFWS is striving not only to minimize its impacts on listed species, but to improve their situation through the conservation and restoration of those species in Battle Creek. In working towards the implementation of the Restoration Program and looking forward to having restored habitat conditions in Battle Creek above the hatchery, the USFWS is voluntarily completing a Hatchery Reevaluation, which includes suggestions of the Conservancy. The Agencies support the Conservancy becoming a more active participant in independent scientific review of the Hatchery Reevaluation done in concert with the independent CALFED Science Program. We also recognize that some of the new alternatives being evaluated have a high degree of uncertainty that will require further scientific analysis.
- The USFWS will complete the engineering and environmental evaluations for the Hatchery's water supply and barrier weir facilities using the open processes that have been in place, including all alternatives suggested by the Conservancy. Furthermore, the USFWS commits to not increasing Hatchery water diversions from Battle Creek above the current legal water rights including the water that is required to be passed to non-Hatchery landowners downstream.
- While the environmental process for the permanent water supply project is underway, the USFWS will continue to find ways to minimize diverting juvenile fish into the hatchery. Interim modifications that have been put into place to reduce entrainment include placing a temporary flat plate fish screen at intake 3, installing the flap gate on intake 2 and precluding adult fish to enter the Coleman Powerhouse tail race. In addition juvenile fish are trapped out of the hatchery canal and returned to Battle Creek. Each of the Hatchery intakes have different levels of risk ranging from no risk at the main intake at Coleman Powerhouse, to some risk at the outdated screened intake on the creek, to high but infrequently occurring risk with use of the emergency intake.
- The Coleman barrier weir will be managed and operated to maximize passage for salmon and steelhead populations targeted for restoration in Battle Creek.

Because of its location and purpose, the barrier weir is a useful fishery management tool that may be useful in preventing overcrowding in upstream restored habitats as well as for monitoring fish populations. The environmental process to improve the Coleman Hatchery Barrier Weir is underway and the USFWS will continue to adaptively manage the ladders at the weir to support the Restoration Project. This includes monitoring of the fish populations and keeping hatchery populations from over-crowding the habitat upstream of the weir. In recent years the fish ladder at the weir has been opened more during the summer period based upon monitoring results.

#### Adaptive Management:

- The Agencies have committed to an Adaptive Management Plan having an open decision-making process with many criteria, including one requiring that community acceptance be considered when making modifications in the PG&E project area. We recognize that the Draft Adaptive Management Plan for the Restoration Project has a narrow focus on the PG&E hydroelectric project. However, this is a necessary constraint due to the dedicated budget for adaptive management of structures and properties licensed under Federal Energy Regulatory Commission.
- The Agencies commit to work with the Conservancy on the development of a broader framework that can coordinate the community-based restoration actions in the watershed with the Restoration Project, and actions at the Coleman Hatchery; especially if, or when, management actions are subjected to adaptive management. The Environmental Document for the Restoration Project being prepared by the Agencies will include our belief that the different projects that are occurring in the watershed have to be closely coordinated to ensure the full success of the restoration project. It would appear that the Battle Creek Working Group and/or the Battle Creek Conservancy are both good candidates for taking on a long-term role in coordinating the various activities in the watershed. We support Stakeholder leadership and involvement in this broader forum, with the understanding that the Federal and state agencies cannot abrogate their statutory decision making authorities and responsibilities.

#### Community-based Implementation:

- We are currently seeking to hire a coordinator to assist the Agencies and the Conservancy in working together to develop a broader science and community-based framework for completing projects throughout the watershed, not just the Restoration Project area. The Agencies and the Conservancy share the goals for restoring Battle Creek as expressed in our respective strategy documents (The Conservancy's "Battle Creek Watershed Community Strategy" dated March 1999 and the Agencies efforts beginning with "Sacramento River Fisheries and Habitat Management Plan" dated 1989, "Final Restoration Plan for the Anadromous Fish Restoration Program" dated January 23, 2001", USFWS's April 3, 1998 position paper on Battle Creek watershed and in the CALFED Watershed and Ecosystem Restoration Programs Record of Decision - August 2000).
- We continue to support the Conservancy's leadership role on land and water management issues in the watershed outside of the PG&E Hydroelectric Project license amendment process. Currently the Conservancy has the lead in addressing watershed issues through the CALFED/CVPIA grant process.

- We invite the Conservancy to pursue their interests in examining Battle Creek fishery management issues within the regional context of the Upper Sacramento River basin. We suggest the use of the CALFED Watershed and Ecosystem Restoration Program in association with the CALFED Science Program for this regional approach. The goals of these programs are to provide financial and technical assistance for watershed activities that help achieve fisheries restoration goals, and to promote collaboration and integration among existing and future local watershed programs.
- We would like to work with the local landowners on evaluating the risk they believe exist if the Restoration Project fails to meet its long-term objective of maintaining viable populations of anadromous fish in the creek. We understand the local landowners believe that in the event of such a failure they may somehow be made to assume the burden to restore the fish through restrictions on land uses, water rights and/or other economic activities. The objective of the Restoration Project is based on using the bed and banks of Battle Creek in their existing condition and providing needed water and passage through modification of the PG&E project. We believe that the current land use practices and activities within the Battle Creek watershed have maintained the bed and bank of the creek in good condition, especially considering the type of low flow conditions in the creek, due to the hydroelectric project. In terms of water use for the project, we have determined that over the past decades PG&E and their predecessors have collected all the water rights needed for reallocation to the Restoration Project, thus providing the basis for the MOU with PG&E.
- We support measures to assist landowners to continue their current land uses, such as conservation easements consistent with the "Battle Creek Watershed Community Strategy". Because we cannot predict the future, we must recognize the possibility that major changes in land use practices may occur that are not compatible with laws on keeping the water clean or the bed and bank of the stream in adequate condition. The public entrusts the resource Agencies to monitor the fish and wildlife resources, properly review proposals for new projects under environmental decision making processes, recommend mitigation, and conserve habitat and salmon and steelhead. We will follow our conservation mandates, while at the same time working cooperatively with all parties, including the local landowners, to conserve these resources.
- The agencies feel strongly that the Restoration Project move forward on schedule. We believe that we can implement the Restoration Project using the established environmental decision making processes that are based upon providing full disclosure and addressing the concerns of the stakeholders and the public. We intend to address the main issues of concern that the Conservancy has expressed within the environmental document, since they are related to the Restoration Project. However, it is not practical to wait for all the related projects to be fully developed prior to implementing the Restoration Project. For instance, many of the Coleman Hatchery issues and future decisions may depend upon the full effects of the Restoration Project and the expected recovery of the listed species above the Hatchery.

We would like to meet with the Conservancy to further clarify the main issues of concern so together we can develop a framework that will scientifically address all the details within a community-based decision making process. Through this effort we can set a time line for resolution of the issues. As we go down this path, the agencies will improve the effectiveness of our efforts to involve the public and disseminate information. Perhaps the best forum to accomplish this is through the Battle Creek Working Group. We appreciate your good

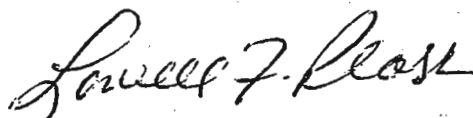
stewardship and interest in conservation and restoration of the salmon and steelhead fisheries of the upper Sacramento River and Battle Creek.

If you have any questions regarding this information or the goals of the restoration program please contact any of the following signatories to this letter.

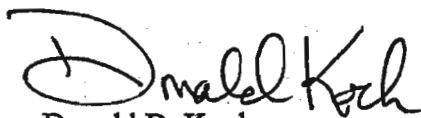
Sincerely,



Wayne S. White  
Field Supervisor  
U.S. Fish and Wildlife Service  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825  
(916) 414-6700



Lowell F. Ploss  
Deputy Regional Director  
U.S. Bureau of Reclamation  
2800 Cottage Way, Room E-1604  
Sacramento, CA 95825  
(916) 978-5010



Donald B. Koch  
Regional Manager  
California Department of Fish and Game  
601 Locust Street  
Redding, California 96001  
(530) 225-2363



Michael Aceituno  
Sacramento Area Office Supervisor  
National Marine Fisheries Service  
650 Capitol Mall, Suite 8-300  
Sacramento, California 95814-4706  
(916) 930-3600

**Correspondence from Battle Creek Watershed  
Conservancy to CALFED on  
Status of Resolving Local Issues  
October 25, 2002**

October 25, 2002

Mr. Patrick Wright  
Director, CALFED Bay-Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

Dear Mr. Wright,

On behalf of the Battle Creek Watershed Conservancy Board, I am pleased to report that significant progress is being made to resolve local concerns regarding the Battle Creek Salmon and Steelhead Restoration Project (Restoration Project). We understand that one of the factors cited by CALFED for not approving additional funding for the Restoration Project has been lack of local support. The purpose of this letter is to provide an update on this issue and to outline issues that need to be addressed to facilitate local support for the Restoration Project as we move forward.

#### Background

As you know, at the 2001 Annual Meeting of the Battle Creek Watershed Conservancy, the membership voted to oppose the Restoration Project "in its present form." The resolution also stated that opposition would continue until the Conservancy Board was satisfied that "all possible steps will be taken to protect natural production in Battle Creek, without curtailing hatchery production for the mitigation of the presence of Shasta Dam." One of the Conservancy's main concerns has been that Coleman National Fish Hatchery (CNFH) operations could jeopardize natural production of Battle Creek salmon populations once the Restoration Project is implemented. Although the Board still has reservations and concerns regarding some of the issues it has expressed to the Battle Creek Working Group and CALFED regarding CNFH operations and its impact on the success of the Restoration Project, the Board is actively seeking ways to move forward that will maintain local support.

#### Gaining Local Support for the Restoration Project

We have seen substantial progress in resolving issues with the formation of the Greater Battle Creek Working Group and the signing of the MOU. Additionally, the participation of the CALFED Science Program in setting up a science symposium on lower Battle Creek will help to resolve many of the issues connected to the success of the Restoration Project. We look forward to establishing a base of independent science which can be used to help evaluate future actions on Battle Creek.



Since no member of our group has the scientific expertise or credentials to participate in the science process, we need to find funding to continue the services of Mike Ward of Terraqua. As you may know, Mike played a key role in developing technical recommendations that were developed to support the negotiations for the Restoration Project. He is well respected both in the local community and with the signatories of the Restoration Project MOU. We anticipate the cost of these services to be \$60,000 a year for five years. Twenty percent of the funding would go to overhead and administrative support, and eighty percent would be used for Mike's time and expenses. The five year funding would allow Mike to participate, on behalf of the Conservancy, through the construction phase of the Restoration Project, the next CNFH Biological Assessment, and, hopefully, into the adaptive management phase of the Restoration Project. Looking at the economic picture, \$300,000 over five years is a very small percentage of money that will be spent on Battle Creek, but it will assure that the local residents are part of the process.

The one remaining issue of concern to the BCWC Board is the exposure of Mount Lassen Trout Farms (MLTF) to contamination of three of its facilities by the Restoration Project. The construction of the ozone system at CNFH, and the evaluation of Bill Cox, a disease pathologist with California Department of Fish and Game, indicate that there is significant risk.

MLTF is one of the largest primary sector employers in the watershed. Several large ranches in the area rely on the cash flow provided by MLTF leases to stay economically viable when cattle ranching won't support them. The loss of this revenue could cause environmental problems in the watershed if those creek front ranches are sold or divided.

We understand that there is insufficient time to resolve the exposure problem at the threatened MLTF hatchery facilities, but if the environmental documents contain full disclosure of the problem, along with a commitment to solve the problem in a timely manner, we can move forward.

Given the progress made, if the BCWC Board of Directors can see a timeline and a format for the science symposium, a source of funding to hire a technical advisor, and an environmental recognition and commitment to solve the Mount Lassen exposure problem, we will issue a provisional approval of the Restoration Project pending a meeting of the membership. We would fully expect the membership to concur with our decision.

Thank you for your consideration.

Sincerely,

Larry Lucas  
Secretary, BCWC Board

**Greater Battle Creek Watershed Working Group  
Memorandum of Understanding  
February 16, 2004**

# GREATER BATTLE CREEK WATERSHED WORKING GROUP

## MEMORANDUM OF UNDERSTANDING

### VISION

The signatories of this Memorandum of Understanding (MOU) recognize the value of coordinating the planning, implementation, and evaluation of all fisheries, restoration and watershed projects among public agencies, nonprofit organizations and private landowners within the Greater Battle Creek Watershed in order to maximize restoration of all naturally produced anadromous fish and maintain, and restore, as necessary, a healthy watershed and landscape. They seek to formalize the previously established Greater Battle Creek Watershed Working Group (GBCWWG or Working Group) that:

- Identifies proactive approaches to resource management on an ecosystem basis using principles of adaptive management;
- Utilizes sound scientific information and full consideration of public input in order to maintain and restore a healthy watershed and landscape that provides for robust, sustainable populations of naturally produced anadromous fish, including steelhead, fall-run, late fall-run, spring-run and winter-run Chinook salmon;
- Recognizes the federal mandates and commitments to: 1) restore naturally produced salmon and steelhead in the Battle Creek Watershed, 2) mitigate for anadromous fish habitat lost above Shasta Dam, 3) rebuild depleted anadromous fish populations and 4) maximize the compatibility of the Coleman National Fish Hatchery (CNFH) and the Livingston Stone National Fish Hatchery (LSNFH) with other watershed projects including the Battle Creek Restoration Project;
- Commits to extensive communication and education programs;
- Considers local economic and societal impacts of proposed actions; and
- Supports traditional land uses that contribute to the maintenance and enhancement of the watershed and its native species.

### PURPOSE

The purpose of this MOU is to formalize a previously established forum for identifying, reviewing and coordinating various watershed activities in the Greater Battle Creek Watershed and evaluating the activities' consistency with a Greater Battle Creek Watershed strategy. The signatories seek to encourage projects that are consistent with a community- and science-based greater watershed strategy and that (1) incorporate the principles of adaptive management to be adopted by the Working Group and (2) establish programmatic linkages between the major actions in the watershed, on the stream course and with CNFH and LSNFH. Working Group members will provide advice and recommendations on plans or projects reviewed by the Working Group on behalf of the MOU signatory represented by the member, including public agencies and nonprofit organizations. Signatories also support implementation of the Multi-Species Conservation Strategy; Central Valley Project Improvement Act (CVPIA) doubling goals of naturally produced salmonids pursuant to the Anadromous Fish Restoration Project (AFRP); Federal Energy Regulatory Commission (FERC) policy regarding hydroelectric project compatibility with comprehensive plans; CALFED ecosystem restoration goals to restore and enhance habitat, ecosystem functions and processes; and Battle Creek Watershed Conservancy (BCWC) community strategy goals. The goals and objectives of these programs are summarized in Appendix A, attached and incorporated herein by this reference.

For the purposes of this document, Greater Battle Creek Watershed means the entire Battle Creek watershed from its confluence with the Sacramento River to its headwaters and its major tributaries and associated riparian and upland areas as well as the upper Sacramento River to the extent that the LSNFH is connected to the Battle Creek hatchery program.

## **OBJECTIVES**

- Provide a transparent, balanced, collaborative, respectful and inclusive forum for communication that coordinates activities within the watershed, and ensures that goals, objectives and evaluative processes of agencies and organizations are coordinated.
- Take necessary steps to develop a comprehensive greater watershed strategy to ensure that fisheries, habitat restoration or watershed projects support and make important contributions to the recovery of, and has no long term adverse effect on, listed species (winter-run and spring-run Chinook salmon and steelhead), the restoration of non-listed naturally produced runs (fall-run and late fall-run Chinook salmon), production of Chinook salmon for sport and commercial uses, production of steelhead for in-river sport uses as well as continued health of the riparian and upland habitat.
- Identify specific needs for new projects based on the comprehensive greater watershed strategy and current or planned activities within the watershed.
- Adopt and apply principles of science and, as appropriate, adaptive management processes to actions considered and undertaken in the comprehensive greater watershed strategy.
- Engage agencies, organizations and the public to provide information on the comprehensive greater watershed strategy and adaptive management processes, identify and communicate issues and proposed projects, and maximize compatibility of activities of the CNFH, LSNFH, the Battle Creek Restoration Project and other agencies, private industries and nonprofit organizations operating within the Greater Battle Creek Watershed.
- Establish and implement a review process for fisheries, restoration and watershed projects undertaken within the Greater Battle Creek Watershed that may result in endorsement by members of the Working Group.
- Formalize administrative processes to guide the Working Group in accomplishing its objectives effectively and efficiently.
- Review and propose communication and education programs for the Battle Creek community.

## **ORGANIZATIONAL STRUCTURE**

**1. General.** The Working Group meetings are open to participation by the general public, and by any agency, organization or individual involved in the Greater Battle Creek Watershed. All Greater Battle Creek Watershed Working Group meeting notices will be made available to the general public and the meeting agendas will include a time for the general public to provide comment on issues before the Working Group for consideration or that relate directly to the purposes of the Working Group.

**2. Greater Battle Creek Watershed Working Group Membership.** To accomplish the objectives of this MOU, there will initially be no more than 16 signatory members of the Greater Battle Creek Watershed Working Group to be comprised of no more than 8 public agencies and no more than 8 non-public entities, all of whom shall be signatories to the MOU. Initial signatories include:

Non-Public Entities:

Battle Creek Watershed Conservancy  
Pacific Gas and Electric Company  
The Nature Conservancy  
Central Valley Project Water Association  
Pacific Coast Federation of  
Fishermen's Associations  
Nor-Cal Fishing Guides and  
Sportsmen's Association  
Friends of the River

Public Agencies:

U.S. Fish & Wildlife Service  
CA Department of Fish and Game  
U.S. Bureau of Reclamation  
National Marine Fisheries Service  
CA Department of Water Resources  
U.S. Forest Service  
U.S. Bureau of Land Management

The initial signatories shall each appoint one primary representative and at least one alternate to the Working Group. An entity or public agency wishing to become a signatory member of the Working Group subsequent to the Working Group's initial formation shall submit a letter of commitment to the Working Group that describes the organization's commitment to ongoing involvement in the Working Group and discusses the organization's consistent and significant involvement and knowledge of Battle Creek issues and of the Working Group in the previous four consecutive meetings. If attendance records show consistent attendance and involvement for the previous four consecutive meetings and upon submission of the letter, the entity or agency may become a provisional member of the Working Group for the ensuing four consecutive meetings. If the provisional member regularly attends meetings and is consistently involved in the Working Group for the four meeting period, the provisional member may become a signatory member. Because the Working Group signatory members strive to achieve balance between the public agency and non-public entity representation, at no time shall the number of public agency signatory members or the number of non-public entity signatory members total more than one additional member than the other group.

Signatory members are expected to regularly attend meetings of the Working Group. The signatory members shall annually review attendance and if a signatory member has missed meetings for four consecutive meetings, the signatory member shall become a provisional member and is subject to the provisional membership provisions described above. A signatory member may withdraw as a member of the Working Group at any time, and for any reason, by submitting a written letter to the Working Group expressing the desire to no longer be a member. A withdrawing signatory member shall incur no liability to the Working Group or its other signatory members as a result of such withdrawal. If such a withdrawal creates an imbalance between the number of public agency and non-public entity members, the Working Group shall seek another signatory member to rebalance the membership, or if no additional signatory member is available, the Working Group shall maintain the imbalance until another signatory member is available to reestablish the balance.

No later than twenty (20) working days after the final execution of this MOU, each initial signatory shall notify the other signatories of the names, addresses, email addresses, telephone numbers and facsimile numbers of that signatory's primary and alternate representative. Signatories shall notify the other signatories of any changes in their representatives.

At the first meeting of the Working Group under this MOU, signatory members shall nominate and elect a chairperson, vice chairperson and secretary for a one-year term. Future communications regarding Working Group meetings shall be addressed to the primary and alternate representatives, as well as through the public notice described above. The signatory members will determine how information will be disseminated in the future. For the chairperson or the vice chairperson positions, one shall be from a non-public entity and one shall be from a public agency which is not a federal agency. The Working Group shall hold an annual meeting. Additional meetings may occur, as the Working Group deems necessary.

The signatory members of the Working Group may revise, as necessary, the vision, purpose, objectives and organizational structure for the Greater Battle Creek Watershed. In addition, the signatory members shall:

- a. Provide a forum for discussing current and proposed projects that impact the Greater Battle Creek Watershed.
- b. Identify linkages for current and proposed fisheries and restoration actions and ensure that current and proposed actions appropriately coordinate activities with agencies and organizations based on the linkages.
- c. Review and comment on current and proposed actions by signatory members regarding their consistency with the greater watershed strategy.
- d. Review and comment on conceptual models, hypotheses, and adaptive management experiments for proposed actions based on the greater watershed strategy and sound scientific principles.
- e. Review and evaluate indicators and measures of success regarding program performance for implemented actions in regard to the greater watershed strategy.
- f. Develop proactive responses to address regulatory requirements.
- g. Determine how best to accomplish the administrative activities of the Working Group.

**3. Project Review.** The signatories to this MOU agree that the Working Group will review and discuss Battle Creek projects of signatory members for consistency with the greater watershed strategy prior to a signatory member submitting a project proposal for public funding to any federal, state or local government agency. The Working Group shall prepare a written statement providing a synopsis of all comments on the project by the signatory members and the proposing signatory member shall respond to all the comments. Comments from provisional members or members of the public shall be summarized in the statement. No comment by the members of the Working Group can require any signatory to violate any laws, license agreements or adopted agency policies and procedures. The signatory recommending a project for review by the Working Group agrees to provide a copy of the Working Group's comments and the signatory's response to such comments, along with any proposal the signatory submits for public funding from a federal, state or local government agency.

**4. Committees.** The Working Group may establish such committees as are necessary to assist in fulfilling the objectives of this MOU.

## **OPERATING PRINCIPLES**

1. Members of the Working Group shall respect the viewpoints of others, and expect that their viewpoints will be respectfully heard and considered. They understand that they each are responsible for maintaining an atmosphere where ideas and positions can be freely exchanged and discussed. They refrain from personal attacks on others, avoid hidden agendas, and conduct themselves in a manner that fosters group building.

2. This MOU is a dynamic document; it may, through a written document, be amended, repealed or altered by a unanimous decision of all the signatory members attending any duly organized Working Group meeting provided that notice of the proposed change(s) is included in the meeting notice and agenda prior to the meeting.
3. Nothing in this MOU may be the basis of any third party challenges or appeals. Nothing in this MOU may be the basis of any legal challenges, causes of actions or appeals.
4. Nothing in this MOU is intended to expand or limit the legal authority or obligation of any signatory, agency, entity or organization.
5. In establishing meeting schedules, the Working Group shall try to accommodate all members' schedules.
6. No Member or Delegate to the Congress, Resident Commissioner, or official of the United States shall benefit from this agreement or receive any benefit other than as a landowner or member of a corporation in the same manner as other landowners and general beneficiaries.

## **FUNDING**

1. Each signatory of this MOU and any participant of the Working Group is responsible for costs associated with their participation in meetings resulting from this MOU. Additionally, each Federal signatory or participant shall provide funds or in kind support for the Working Group meetings only as is necessary for its own participation in the activities of the Working Group. A Federal signatory or participant can still provide funds to an individual signatory for restoration projects in the Battle Creek watershed.
2. Participation in the Working Group and performance of activities by any non-federal participant of the Working Group is subject to customary appropriations or allotment of funds. No liability shall accrue to the non-federal participant, or his/her agency, in the event funds are not appropriated or allotted.
3. Implementation of this agreement by the signatory federal agencies is subject to the Anti-Deficiency Act, 31 U.S.C. Section 1341, and the availability of appropriated funds. This agreement is not intended and will not be construed to require the obligation, appropriation, or expenditure of any money from the U.S. Treasury. The signatories acknowledge that the federal signatories will not be required under this agreement to expend any federal agencies' appropriated funds unless and until an authorized official of that agency affirmatively acts to commit such expenditures as evidenced in writing.

## APPENDIX A

### REFERENCES

#### **Introduction**

This appendix is meant to present the goals and objective statements of some of the public agencies, non-government organizations and other interested entities engaged in planning and implementing federally and state mandated restoration programs and community based conservation programs in the Greater Battle Creek Watershed which are likely to advance natural fish and wildlife populations, habitat health, and ecosystem functions while at the same time acknowledging resource and economic constraints.

**The Battle Creek Watershed Conservancy Community Strategy** goal is to preserve the environmental and economic resources of the Battle Creek watershed through responsible stewardship, liaison, cooperation and education.

**CALFED ecosystem restoration goals** for the North Sacramento Valley are to restore important fishery, wildlife and plant communities to a healthy condition. Comprehensive watershed management plans should be developed and implemented to restore important ecological processes that create and maintain habitats for fish, wildlife and plant communities. For Battle Creek specifically, objectives are to develop and implement a comprehensive watershed management plan, increase flows, improve the water supply to Coleman National Fish Hatchery, remove diversion dams or install new ladders, and install positive-barrier fish screens to protect juvenile Chinook salmon and steelhead. It is envisioned that Battle Creek will provide much-needed habitat for spring-run and winter-run Chinook and steelhead, in addition to maintaining its existing importance to fall- and late-fall Chinook.

**CVPIA's Anadromous Fish Restoration Program (AFRP)** is a set of actions developed by USFWS and USBR to help guide the Department of Interior to make all reasonable efforts to at least double the natural production of anadromous fish in Central Valley streams and rivers on a sustainable long-term basis. CVPIA Central Valley doubling goals are based on population averages for the baseline time period 1967-1991 for fall-run, late fall-run, winter-run, and spring-run Chinook salmon and steelhead. Production targets for Battle Creek and its tributaries are not available for all the runs because population estimates did not exist for 1967-1991 for each run. However fish population increase estimates were made in the AFRP Working Paper (USFWS 1995, adopted 2001). These estimates are based on the amount of potential spawning substrate in river reaches where salmon and steelhead spawn in the Battle Creek watershed. The anadromous fish population increase estimates are as follows: 4,500 for fall-run, 4,500 for late fall-run, 2,500 for winter-run, 2,500 for spring-run Chinook salmon and 5,700 for steelhead.

**The Multi-Species Conservation Strategy (MSCS)** for the CALFED Bay-Delta Program is an approach that entities implementing CALFED actions may use to fulfill the requirements of the federal Endangered Species Act, California Endangered Species Act and Natural Community Conservation Planning Act. The MSCS analyzes CALFED's effects on species and communities, identifies species and community goals and conservation measures to achieve the goals. The measures are incorporated into the CALFED Ecosystem Restoration Program Plan.

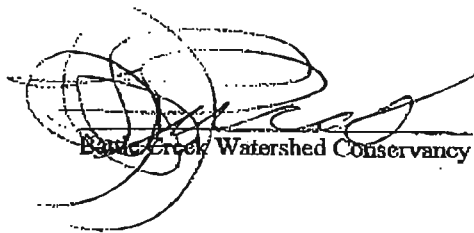
**FERC policy in section 10 of the Federal Power Act** concerns hydroelectric project compatibility with comprehensive plans. Licenses issued pursuant to section 10 require projects be part of a



comprehensive plan, some of the conditions of which include providing for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat) and for other beneficial public uses.

**For the purpose of this MOU, the signatories consider naturally produced fish or natural fish to be the offspring of naturally spawning parents.**

### SIGNATURES

  
Pacific Creek Watershed Conservancy

10/28/2004  
Date

  
U.S. Fish & Wildlife Service

4/14/04  
Date

  
Pacific Gas and Electric Company


4/8/04  
Date

  
CA Department of Fish & Game

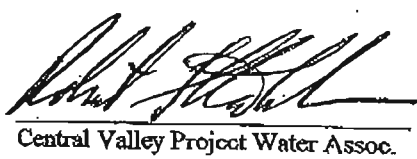
4/11/04  
Date

  
The Nature Conservancy

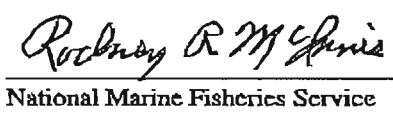
4/15/04  
Date

  
U.S. Bureau of Reclamation

4/16/04  
Date

  
Central Valley Project Water Assoc.


3/31/04  
Date

  
National Marine Fisheries Service

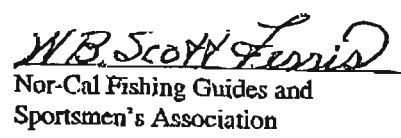
3-17-04  
Date

Pacific Coast Federation of Fishermen's Associations

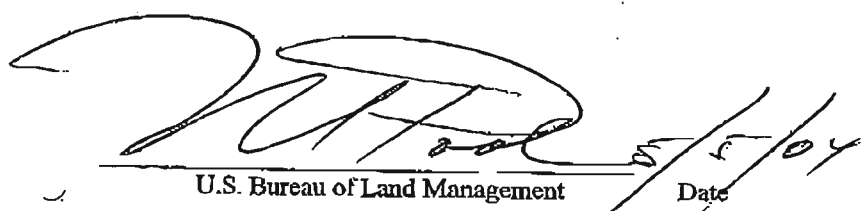
Date

  
Dwight P. Russell  
CA Department of Water Resources

4/16/04  
Date

  
Nor-Cal Fishing Guides and Sportsmen's Association

4-19-04  
Date

  
U.S. Bureau of Land Management

5/5/04  
Date

Friends of the River

Date

  
U.S. Forest Service  
Lassen National Forest

5-21-04  
Date

**Four Proposed Agency Actions for Securing  
Conservancy Support for the Battle Creek  
Salmon and Steelhead Restoration Project  
February 23, 2004**



B a t t l e C r e e k W a t e r s h e d C o n s e r v a n c y

*Post Office Box 606, Manton, California, 96059*

## **Four Proposed Agency Actions for Securing Conservancy Support for the Battle Creek Salmon and Steelhead Restoration Project**

On October 25, 2002, the Battle Creek Watershed Conservancy indicated that we would be able to support the Restoration Project if a CBDA-sponsored scientific symposium were held to address issues in lower Battle Creek, if we acquired the capacity to hire scientific expertise to better allow us to participate effectively in the project planning, and if the exposure of Mount Lassen Trout Farms to contamination of three of its facilities by the Restoration Project could be resolved. The purpose of this document is to thank CBDA, the Four-Agencies, and MWD for working with us on these issues and bringing the symposium to fruition, and to propose four tasks which the Conservancy considers necessary and sufficient to allow us to formalize our active support for the Restoration Project.

As we have stated publicly on several occasions, and in an earlier request for funding to sponsor what eventually turned out to be the October 2003 Workshop on Battle Creek, we pledged to abide by whatever recommendations were issued by the Technical Panel regarding CNFH and the Restoration Project. The extent of the findings of the CNFH Technical Panel, however, leave us in an awkward position because of their emphatic recommendation that “funding for restoration activities and proposed removal of dams, etc., should not be granted and should not proceed until a comprehensive document has been produced.” This recommendation, which is consistent with earlier positions by the Conservancy, implies a delay in the program which could seriously jeopardize implementation of the project, a delay which we would like to avoid if possible.

The Conservancy originally considered that specific agency actions were necessary to ensure the success of the restoration project and gain our support. With the prospect of the science symposium we were willing to reduce this to putting our faith in the science and the development of an open process for implementing the panel recommendations. Now even that seems to risk too much delay, so to expedite the project funding the Conservancy offers the following proposal.

We suggest that the agencies agree to implement four specific planning activities detailed below, three funded as part of the Restoration Project request to CBDA. In the opinion of the Conservancy these four planning activities will satisfy the science panel recommendations for a “comprehensive document,” though we

recognize that the document will not be available prior to a funding decision (as suggested by the panel). In trimming our requests from specific actions, first to plans for actions, and now to plans for plans for actions – and in accepting a delay between our support for funding the Restoration Project and the completion of the activities proposed – we have increasingly placed our faith in an open process with continual input from a variety of agencies and stakeholders. It will not be an easy task for the Conservancy Board to convince its membership that this faith is justified, but as we track the development of these proposals into their final form for the funding decision we hope to gain the confidence needed to support the project.

As described in the following pages, the four proposed tasks address the steelhead supplementation issue, Restoration Project objectives, reintroduction strategies, and the CNFH adaptive management plan. Each task is led by one of the Four-Agencies, but is developed through an inclusive process including the other agencies and stakeholders, through the BCWG. They include planning activities and funding requests which can be tracked and assessed by the Conservancy before the final funding request is submitted to the CBDA in April. We believe these tasks constitute the minimum adequate agency response to the science panel report and will give CBDA confidence that the project is going forward with stakeholder support, more extensive and consistent planning, and access to the best science available.

As an initial step, if the Four-Agencies can support this approach the Conservancy Board is ready to pass an appropriate measure of support in time for the Four-Agency draft response on 26 February 2004. This support would be conditioned only on the implementation of the measures agreed at the meeting on 23 February 2004 and the resolution of the Mount Lassen Trout Farms issue.

The key activities which need to be accomplished prior to the request for funding in April 2004 are the development of proposals for the proposed agency activities which need CBDA funding at the same time as the Restoration Project, clarification of the goals and objectives in all components of the final request for funding to CBDA, initial steps to reconvene the winter-run recovery team, and the steelhead workshop.

## Task 1: Steelhead Supplementation (USFWS)

### Request

The Conservancy asks that, as recommended by the Technical Panel, the USFWS convene and lead an emergency workshop to “revisit” the steelhead supplementation plan.

### Rationale

- The Technical Panel strongly recommended “that the current supplementation program for steelhead be revisited immediately in view of risk, uncertainties, alternative opportunities and compatibility with the comprehensive recovery plan.”
- The Conservancy, and perhaps other stakeholders, have requested but not yet received this plan. We need to be able to evaluate and discuss this plan with its authors and with the Technical Panel in order to be assured that this program will not threaten the possible success of the Restoration Project.

### Elements of this Request

- Make the existing draft version of the Steelhead Supplementation Plan, as presented at the October Workshop, available to the public at least two weeks prior to the Emergency Workshop. Make available upon request any data or analyses that were used to support the plan.
- Convene a one-day Emergency Workshop on steelhead supplementation in Battle Creek that includes the plan’s authors, agency representatives, stakeholder groups, interested members of the public, and members of the Technical Panel. The purpose of the Emergency Workshop would be to inform the audience of the contents and rationale of the plan, to allow the audience to explore in detail all aspects of the plan in open discussion, and to understand the fisheries management implications of the plan.
- In this workshop, the authors of the plan will describe the fishery management objectives and uncertainties under which the plan was written, compare these objectives with those of the Restoration Project, describe the scientific assumptions upon which the plan is founded, describe all alternatives that were analyzed, and describe the reasons that alternative actions were rejected in favor of the existing supplementation plan. Plan authors from any agency cooperating in the drafting of this plan should participate and be available to answer questions from the audience. In addition to open questions during the workshop, a comment period will be held at the end of the workshop so USFWS can gauge and understand any remaining fisheries management concerns regarding supplementation.
- The Technical Panel members with genetics qualifications or other strong concerns regarding “steelhead supplementation” should be encouraged and funded to attend so that Battle Creek stakeholders can determine if this Emergency Workshop adequately “revisits” this issue.
- The USFWS will prepare a “preliminary response” after the Emergency Workshop specifying how it intends to proceed with the steelhead supplementation and will consider comments made by the Conservancy and other stakeholders in their preliminary response.
- We realize that convening such a workshop on very short notice is not easy. The urgency for the immediate workshop is required in order that the “preliminary response” from USFWS be available at least a week prior to the time the final project funding request is submitted to CBDA in April. This will allow the Conservancy and other stakeholders time to consider whether the workshop process constitutes an adequate response to the issues raised by the science panel.
- Note that the Conservancy is not seeking a specific outcome on the steelhead supplementation issue, despite the fact that some Conservancy members have been outspoken on this topic. Rather the Conservancy will be judging whether the workshop demonstrates the implementation of a successful, open process for reaching a defensible course of action. If successful this will give confidence for the other issues addressed below.

## Task 2: Restoration Project Objectives (CDFG)

### Request

- The Conservancy asks that the CDFG reconsider the documented record and lead an effort to more clearly identify the goals, objectives, and priorities of the Restoration Project and make sure that those objectives are consistent with existing Restoration Project documentation, with CBDA's Programmatic Record of Decision, and that they are consistent throughout all elements of the final funding request to CBDA.

### Rationale

- The Technical Panel found the "goals and objectives" of the Restoration Project to be "ambiguous." Without clear goals and objectives, the Technical Panel found it difficult to analyze the potential impacts of CNFH and that "adaptive management process and accountability are also diminished."
- The BCWG's Battle Creek Salmon and Steelhead Restoration Plan specifically included restoration of all four runs of chinook salmon and steelhead.
- The Four-Agencies have signed an MOU with PG&E that specifically intends to restore "steelhead and all four runs of chinook salmon." This MOU is the basis for, and included in, PG&E's draft License Amendment Application.
- The AMP for the Restoration Project includes the restoration of fall and late fall within its objectives.
- The CBDA's Programmatic EIS provides for the restoration of fall-run and late-fall run chinook salmon.
- The AFRP identifies these fall and late-fall run as targets for restoration in Battle Creek; eventual restoration of fall and late-fall could contribute significantly to AFRP "doubling goals."
- Restoration of fall and late-fall is consistent with the Biological Principles that the Four-Agencies agreed to as a foundation of the Restoration Project.
- As the price for the project goes up, the expectations should not go down.

### Elements of this Request

- In addition to those necessary elements of "goals and objectives" that were specified by the Technical Panel, the restoration of fall-run and late-fall-run chinook salmon must be included within the objectives of the Restoration Project as described in the Battle Creek Restoration Plan (Kier Associates 1998), PG&E MOU, and AMP. Describing winter-run, spring-run and steelhead as "priority species" is consistent with the project's founding documentation and BCWG understanding, and should be maintained. The Conservancy believes that a phased (later) reintroduction of the fall and late-fall runs may be prudent in light of Technical Panel recommendations; however, the objective of restoring these runs should not be dropped from the Restoration Project at this point.
- CDFG should include, within future drafts of its Fisheries Management Strategy, a process for determining the appropriate time/procedures to reintroduce fall and late-fall chinook to Battle Creek upstream of CNFH.
- All documents to be submitted as part of the final funding request to CBDA, or in support of the final funding request, must be made consistent with the "goals and objectives" developed under these guidelines, including, but not limited to, the ASIP and AMP. Future restoration projects sponsored by the Four-Agencies (including revisions to the CNFH barrier weir and water intakes) should recognize the final "goals and objectives" of the Restoration Project.
- The "purpose and need statement" of the EIS/R should be made consistent with the "project description" and the fisheries chapter by including the fall and late-fall runs in the list of species, and point out that they are considered "candidates for listing" under ESA.

### Task 3: Reintroduction Strategies (NOAA Fisheries)

#### Request

- Reconvene the winter-run recovery team to complete the winter-run recovery plan or, at least, develop a stream-specific strategy for re-establishing a winter-run chinook salmon population in Battle Creek that can be implemented in anticipation of the Record of Decision for the Restoration Project.
- Develop like reintroduction strategies for other ESA-listed species (i.e. spring-run chinook and steelhead) in Battle Creek that can be implemented in anticipation of the ROD for the Restoration Project.

#### Rationale

- A critical component of the Technical Panel's proposed "comprehensive document" was the need to provide a "detailed description of the reintroduction strategies for anadromous salmonids in Battle Creek."
- NOAA Fisheries is the agency required to develop recovery plans for listed salmonids under the ESA and they have already prepared a draft recovery plan for winter-run chinook salmon.
- The timing of the current recovery planning process is well behind the need in Battle Creek to prepare for implementation of the Restoration Project. Additional funding is required to fast-track the recovery planning process.

#### Elements of this Request

- "Conduct a feasibility analysis of establishing viable, naturally self-sustaining populations in other rivers and creeks [Battle Creek] within the Sacramento River watershed" per the draft winter-run recovery plan.
- Conduct this feasibility analysis at a meeting to be convened by NOAA Fisheries in May 2004, after the final administrative draft EIS is released.
- Given that feasibility of recovery under the Restoration Project can be anticipated, hold a second meeting, in August 2004 after CBDA approves (we hope) the Restoration Project for funding, to initiate the process to "develop and implement recommendations for establishing supplemental populations" per the draft winter-run recovery plan.
- Include, within the final funding request to CBDA for the Restoration Project, a request for funds adequate to hire a contractor, or to support a NOAA Fisheries staff person, to complete the development of, at a minimum, stream-specific strategies for re-establishing populations of steelhead and winter-run and spring-run chinook salmon in Battle Creek.
- Develop recovery plans or, at a minimum, stream-specific strategies for re-establishing populations of steelhead and winter-run and spring-run chinook salmon in Battle Creek based on the draft winter-run recovery plan, including the provisions for "Safe Harbor" per the draft winter-run recovery plan.



## Task 4: Adaptive Management at CNFH (USBR)

### Request

- The Conservancy asks that the U.S. Bureau of Reclamation facilitate the development and implementation of an adaptive management plan for CNFH facilities and operations.

### Rationale

- The Technical Panel stated that an “adaptive management plan is essential” and that the “adaptive process should be capable of changing management policies including those at CNFH.”
- CBDA’s ASIP requirements for existing projects like Barrier Dam renovations and water intake improvements require development of adaptive management plans, so other requirements already exist for such a plan.
- The Conservancy recognizes that the other alternative – including the CNFH-AMP into the AMP specifically developed for the hydropower system – is not practical for multiple reasons.
- USBR should facilitate this project because it has the ultimate responsibility for the hatchery and its operations, and is the lead agency for the Restoration Project, for which purpose the CNFH-AMP is needed.

### Elements of this Request

- The USBR will include, within the final funding request to CBDA for the Restoration Project, a specific funding request sufficient to complete development of the CNFH-AMP within 18 months of the funding award.
- The USBR will contract the facilitation and development of the CNFH-AMP to a non-governmental entity (e.g. a private contractor or academic institution) that demonstrates adequate technical capabilities and can demonstrate that no actual or perceived conflict of interest exists.
- The contractor will be managed by the USBR, with the assistance of a Technical Advisory Committee which will be established among members of the BCWG and will include technical representatives from USFWS, CDFG, NOAA Fisheries and at least three NGO members. The USFWS, with demonstrated experience operating CNFH for USBR, may be asked to assist the contractor in development of key portions of the CNFH-AMP. The CNFH Technical Panel will be asked to reconvene and provide peer review of the CNFH-AMP.
- The funding request for development of CNFH-AMP shall include funds to hire the contractor, funds to support the participation of the Technical Advisory Committee, funds to support peer review by the Technical Panel, and funds for community outreach.
- The funding request for development of CNFH-AMP shall include a Hatchery Adaptive Management Fund of \$TBD million that could be used to implement diagnostic studies necessary for the development of the CNFH-AMP.
- The “goals and objectives” of the CNFH-AMP will include those of the Restoration Project in addition to legally-mandated hatchery-specific goals and objectives, including but not limited to those in the CBDA EIS.
- The CNFH-AMP must be compatible with, and as rigorous as, the Restoration Project AMP and needs to include, at a minimum, goals, objectives, conceptual models, uncertainties, monitoring and data assessment approaches, specification of focused studies, and all other elements of formal adaptive management. Operating procedures should mesh with Restoration Project AMP.
- The Conservancy asks that stakeholders be allowed to continue to comment on the development of this aspect of the final funding request to CBDA.

**Letter Indicating Nonsupport from the Battle  
Creek Watershed Conservancy for the Eight Dam  
Removal Alternative, Alternative B  
April 5, 2004**



**Battle Creek Watershed Conservancy**  
Post Office Box 606, Mantion, California, 96059

April 5, 2004

**To: Mary Marshall  
Bureau of Reclamation  
Mid-Pacific Region  
2800 Cottage Way, E-1604  
Sacramento, CA 95825-1898**

**Re: Battle Creek Restoration Project  
8 Dam Removal, Alternative B**

Dear Ms. Marshall:

I am writing on behalf of the Battle Creek Watershed Conservancy Board to inform you that we have discussed the Battle Creek Restoration Project 8 Dam Removal, Alternative B, both among ourselves and with members of our constituency, and we have not found support for the 8 Dam Removal Alternative. Thank you for your consideration.

Sincerely,



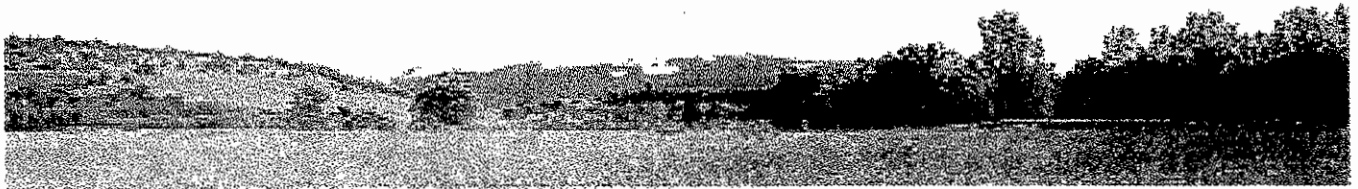
Larry Lucas  
BCWC Board Secretary

**Cc: Michael E. Aceituno  
NOAA Fisheries  
650 Capitol Mall, Suite 8-300  
Sacramento, CA 95814**

**Donald B. Koch  
California Department of Fish and Game  
601 Locust Street  
Redding, CA 96001**

**Wayne White  
U.S. Fish and Wildlife Service  
2800 Cottage Way, W-2605  
Sacramento, CA 95825-1846**

**Letter from the Battle Creek Watershed  
Conservancy Expressing Support for the Battle  
Creek Restoration Project  
June 8, 2005**



Battle Creek Watershed Conservancy

Post Office Box 250, Mantion, California, 96059

Tehama County Board of Supervisors  
PO Box 250  
Red Bluff, CA 96080

June 8, 2005

Dear Board of Supervisors:

On behalf of the Battle Creek Watershed Conservancy I am pleased to inform you that at the Conservancy's annual meeting held on May 23, 2005, the Conservancy membership voted unanimously to support the Battle Creek Restoration Project. As you know, at the 2001 BCWC Annual Meeting, the membership voted to oppose the Restoration Project "in its present form." The resolution also stated that opposition would continue until "all possible steps will be taken to protect natural production in Battle Creek."

On September 29, 2003, we wrote the Tehama County Board of Supervisors a letter addressing our concerns and requested that the Board incorporate them into a formal resolution. In an earlier letter we had explained that the Conservancy agreed with the five dam removal alternative, the Restoration Project proposed action; however, we believed that important issues needed to be addressed before a final decision on the Project could be made. We included a list of our concerns. The Board of Supervisors took action on October 7, 2003 and submitted comments which addressed many of our concerns on the Draft EIS/EIR for the Restoration Project.

Since that time a number of actions have been taken that have resulted in the satisfactory resolution or near resolution of Conservancy issues. Attached you will find two letters addressed to Patrick Wright, California Bay Delta Authority, which will provide you with background information and a current update on the Conservancy position. As a result of this progress and spirit of cooperation between the Project agencies, the Battle Creek Watershed Conservancy, and other stakeholder groups, the Conservancy Board was able to recommend full approval of the Restoration Project to its membership, which, in turn, fully supported the Board's recommendation.

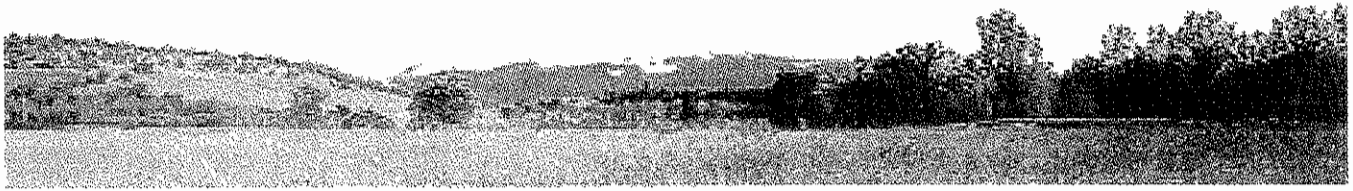
We believe that the Restoration Project, in addition to restoring 48 miles of fishery habitat and providing for recovery of three species of endangered or threatened salmon, will provide an economic benefit to the watershed with

potential construction spending of seventy million dollars. We also feel confident that there are clear intentions stated in the EIS/EIR document to protect local businesses from potential adverse effects caused by the Project. We have appreciated the Board of Supervisor's consideration in the past. We hope that the current position of the Battle Creek Watershed Conservancy in support of the Restoration Project will result in a formal Board of Supervisor's resolution stating its support of the Project as well.

Sincerely,

A handwritten signature in black ink that reads "Steve du Chesne". The signature is written in a cursive style with a large initial "S".

Steve du Chesne  
Secretary, BCWC Board of Directors



B a t t l e C r e e k W a t e r s h e d C o n s e r v a n c y

Post Office Box 4976, Manteca, California, 95059

Mr. Patrick Wright  
California Bay Delta Authority  
650 Capitol Mall, 5<sup>th</sup> Floor  
Sacramento, CA 95814

May 26, 2005

Dear Mr. Wright:

On behalf of the Battle Creek Watershed Conservancy I am pleased to inform you that at the Conservancy's Annual Meeting held on May 23, 2005, the Battle Creek Watershed Conservancy membership voted unanimously to support the Battle Creek Salmon and Steelhead Restoration Project. As you know, at the 2001 BCWC Annual Meeting, the membership voted to oppose the Restoration Project "in its present form." The resolution also stated that opposition would continue until "all possible steps will be taken to protect natural production in Battle Creek."

In a recent communication addressed to you (February 8, 2005), we listed the progress made regarding key issues of concern and also listed issues yet to be resolved. Since that time, substantial progress has been made by the agencies on all of the Conservancy issues. As a result of this progress and spirit of cooperation, the Battle Creek Watershed Conservancy Board was able to recommend full approval of the Project to its membership, which, in turn, fully supported the Board's recommendation.

Once again, we would like to express our appreciation for the hard work and spirit of cooperation of all involved. We look forward to working with all parties involved in the Battle Creek Restoration Project and fully expect stakeholder support and cooperation to continue.

Sincerely,

Steve du Chesne  
Secretary of the Board of Directors

cc: Mary Marshall, USBR      Wayne White, USFWS  
Michael Aceituno, NOAA      Don Koch, CDFG  
Angela Risdon, PG&E



**B a t t l e C r e e k W a t e r s h e d C o n s e r v a n c y**

*Post Office Box 606, Manton, California, 96059*

February 8, 2005

Mr. Patrick Wright  
California Bay Delta Authority  
650 Capitol Mall, 5<sup>th</sup> Floor  
Sacramento, CA 95814

Dear Mr. Wright,

On behalf of the Battle Creek Watershed Conservancy Board, I am pleased to provide you with an update regarding our level of support for the Battle Creek Salmon and Steelhead Restoration Project and to inform you of the status of efforts by CBDA and the four agencies which have been working to satisfy our concerns with the Restoration Project.

As you know, at the 2001 Annual Meeting of the Battle Creek Watershed Conservancy, the membership voted to oppose the Restoration Project "in its present form." The resolution also stated that opposition would continue until the Conservancy Board was satisfied that "all possible steps will be taken to protect natural production in Battle Creek." Since then, significant progress has been made to reduce the problem areas that led to that vote of opposition.

On October 25, 2002, the Battle Creek Watershed Conservancy was pleased to report to you that we had seen substantial progress in resolving issues. For example:

- Efforts were underway at that time, and have since been fully implemented, to form a more structured Greater Battle Creek Watershed Working Group; and
- The CALFED Science Program had been working to develop what eventually resulted in a science symposium and a subsequent workshop that clarified the science underlying many concerns regarding the compatibility of Coleman National Fish Hatchery (CNFH) with the Restoration Project.

Two issues that remained outstanding in our minds in October 2002 have also since been resolved, namely:

- Metropolitan Water District, using funds from the California Urban Water Agencies Category III Account, stepped forward to assure that the local watershed residents are part of the process by providing us with the capacity to retain a credentialed fisheries ecologist who is able to provide the Conservancy with the scientific expertise that it needs to understand and contribute to Restoration Project planning; and
- The exposure of Mount Lassen Trout Farms (MLTF) to contamination of three of its facilities by the Restoration Project is being addressed in Restoration Project planning – the



Supplemental Document to the EIS has recognized the spread of fish diseases as a significant impact to fisheries – and measures designed to mitigate this impact appear likely to reduce the threat to MLTF to an acceptable level.

A turn of events, resulting from the CALFED Science Program-sponsored October 2003 Workshop on Battle Creek, left us in an awkward position because of the CNFH Science Panel's emphatic recommendation that "funding for restoration activities and proposed removal of dams, etc., should not be granted and should not proceed until a comprehensive document [which incorporated CNFH management with Restoration Project planning] has been produced." The Conservancy then proposed four tasks which we considered necessary and sufficient to allow us to formalize our active support for the Restoration Project and which would avoid possible delays to project implementation that could arise if preparation of a "comprehensive document" was undertaken. The agencies have made significant steps in completing these four tasks, for example:

- The U.S. Fish and Wildlife Service convened a workshop to review their plans to supplement steelhead populations in Battle Creek with hatchery fish and have subsequently agreed, in response to the CNFH Science Panel's findings, that such supplementation "would be utterly at odds with an objective of restoring the natural population of steelhead in Battle Creek," to prevent hatchery origin adult steelhead from reaching Battle Creek upstream of the CNFH weir.
- The CDFG has lead an effort to more clearly identify the goals, objectives, and priorities of the Restoration Project and make sure that those objectives are consistent with existing Restoration Project documentation, with CBDA's Programmatic Record of Decision, and that they are consistent throughout all elements of the final funding request to CBDA.
- The U.S. Bureau of Reclamation has included, as an integral part of their funding request to CBDA, a proposal to facilitate the development and implementation of an adaptive management plan for CNFH facilities and operations and a proposal to fund diagnostic studies necessary for the adaptive management of CNFH.
- The CDFG, in cooperation with NOAA-Fisheries, is conducting a feasibility analysis of establishing viable, naturally self-sustaining populations of winter-run chinook salmon in Battle Creek. We are still awaiting progress by NOAA-Fisheries in the completion of recovery plans for the three listed salmonid species or, at least, the development of strategies for their re-establishment in Battle Creek in anticipation of the Record of Decision for the Restoration Project.

The steps taken to date by CBDA, the four agencies managing the Restoration Project, and the cooperation of MWD and other members of the GBCWWG, have substantially reduced the concerns that fueled our opposition to the 2001 version of the Restoration Project and we would like to express our appreciation for the hard work and spirit of cooperation of all involved.

We fully expect this spirit to continue, and that the remaining issues will be resolved. We await news from NOAA-Fisheries regarding substantial progress in recovery planning, at which point the Conservancy Board will be able to issue a provisional approval for the Restoration Project pending full approval from the membership. With continuing cooperation we see no indication that our membership will not fully support the Board's position.

Thank you for your consideration.

Sincerely,  
Battle Creek Watershed Conservancy

A handwritten signature in black ink that reads "Steve Du Chesne". The signature is written in a cursive style with a large initial "S".

Steve Du Chesne,  
Secretary of the Board of Directors

cc: Michael Aceituno, NOAA  
Donald B. Koch, CDFG  
Wayne White, USFWS  
Mary Marshall, USBR

Appendix C

# **Revised Draft Battle Creek Salmon and Steelhead Restoration Project Adaptive Management Plan, *Executive Summary***

The following is the executive summary of the Revised Draft Adaptive Management Plan for the Battle Creek Salmon and Steelhead Restoration Project. For the full text of the Adaptive Management Plan, please visit the California Bay-Delta Authority's Ecosystem Restoration website at:

<http://calwater.ca.gov/Programs/EcosystemRestoration/Ecosystem.shtml>

and follow the links for Battle Creek.

DRAFT  
BATTLE CREEK SALMON AND  
STEELHEAD RESTORATION PROJECT  
ADAPTIVE MANAGEMENT PLAN

Prepared for the

U.S. Bureau of Reclamation  
Pacific Gas and Electric Company  
National Marine Fisheries Service  
U.S. Fish and Wildlife Service  
California Department of Fish and Game

Prepared by

Terraqua, Inc.  
Wauconda, Washington

April 2004

## EXECUTIVE SUMMARY

The Battle Creek Salmon and Steelhead Restoration Project is a joint effort between PG&E, the National Marine Fisheries Service (NOAA Fisheries), California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), and U.S. Bureau of Reclamation (USBR) to restore salmon and steelhead runs in the Battle Creek watershed while maintaining the renewable energy production of the Battle Creek Hydroelectric Project (FERC Project No. 1121). A MOU was adopted in June 1999 stating the intent of the MOU Parties to engage in a restoration effort that would modify the facilities and operations of FERC Project No. 1121. The objectives of the Restoration Project are (1) the restoration of self-sustaining populations of Chinook salmon and steelhead and their habitat in the Battle Creek watershed, (2) up-front certainty regarding specific restoration components, (3) timely implementation and completion of restoration activities, and (4) joint development and implementation of a long-term AMP with dedicated funding sources to ensure the continued success of restoration efforts under this partnership.

The MOU identifies Adaptive Management as an important component of the Restoration Project (Figure 1). Adaptive Management uses extensive monitoring to identify problems, examine possible solutions for meeting the biological objectives, and if needed, allow changes to Contemporary strategies and actions within established limits to try to achieve the objectives and desired results. The Adaptive Management concept was formalized in this AMP developed by the PG&E, NOAA Fisheries, USFWS, and CDFG (collectively known herein as the “Parties”). Funding for implementation of the AMP is provided by the CALFED Monitoring Fund, the Water Acquisition Fund (WAF), the Adaptive Management Fund (AMF), and Licensee (PG&E).

The AMP provides guidance on implementing the Adaptive Management provisions of the MOU, and is intended to be consistent with the terms of the MOU. Any cases where the language in the AMP may conflict with the language in the MOU represent an oversight in the AMP. Therefore, the MOU prevails in any discrepancy that may be discovered between the AMP and the MOU.

The AMP was developed by Consensus between the Parties under the Adaptive Management Policy Team (AMPT) and the Adaptive Management Technical Team (AMTT). The AMPT consists of management-level representation from each of the Resource Agencies and the Licensee and is authorized to make all final decisions regarding the implementation of the AMP and to provide policy direction and dispute resolution on issues forwarded to it by the AMTT. The AMTT consists of technical experts from each of the Resource Agencies and the Licensee and is responsible for the development and implementation of the AMP portion of the Restoration Project when it has been approved by FERC. Definitions are provided in the AMP to minimize confusion and to simplify the text. Words or phrases defined in the AMP appear capitalized within this plan.

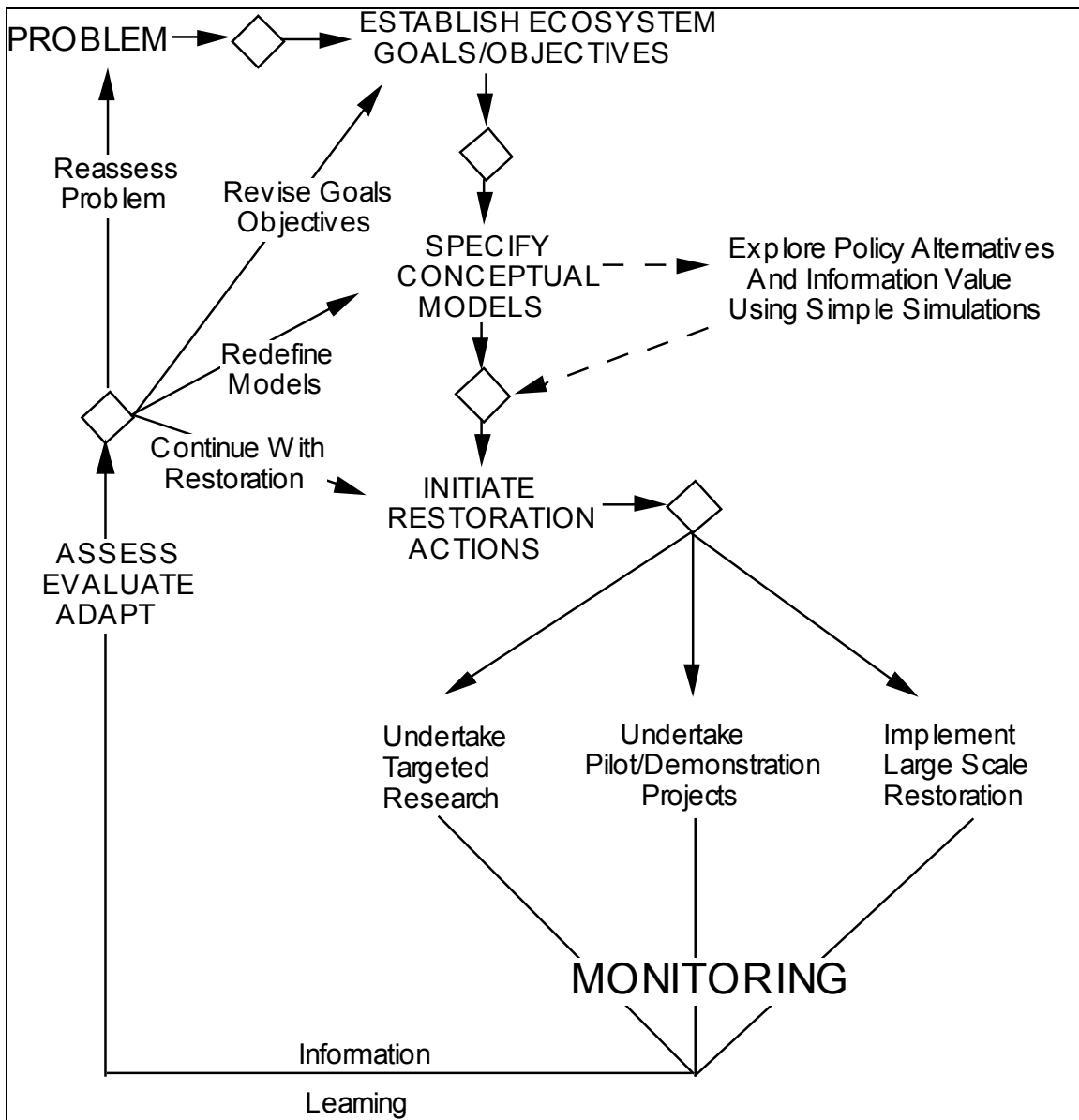


Figure 3. CALFED schematic of adaptive management.

Roles and responsibilities of the Parties pertaining to the AMP portion of the Restoration Project are listed in detail. The Licensee has agreed to a number of physical and operational changes and additions to FERC Project No. 1121 and has agreed to assume 90 percent of the initially forecast costs associated with the loss of power generation as well as other future costs. These include, but are not limited to, cost overruns for which the Licensee is responsible, future authorized facilities modifications or increased instream flows in the event the WAF and AMF are depleted, internal costs associated with providing expertise in the AMP process, and the loss

of power associated with meeting instream flow releases and Ramping Rate requirements. Upon completion of facility start-up and testing, Licensee is responsible for the operation, maintenance, replacement, and successful operation of all physical modifications to its facilities under the MOU. Licensee is also responsible for all facility and other monitoring required by the FERC license amendment for FERC Project No. 1121. NOAA Fisheries responsibilities are those it determines consistent with its mandate under the ESA. NOAA Fisheries also has the responsibility of defining recovery goals for salmon species listed under the ESA. Together the USFWS and CDFG agree to support the prescribed instream flows and Ramping Rates described in the MOU, or agreed upon through the Adaptive Management in the next relicensing proceeding for FERC Project No. 1121. USFWS and CDFG are also jointly responsible for conducting or funding a variety of monitoring, data collection and assessment, and report preparations associated with various fish population objectives. In addition, all Parties will be responsible for providing at least one representative to the AMPT and the AMTT and assuming all responsibilities and costs associated with these positions. All Parties will be individually responsible for any costs associated with their involvement in any FERC dispute resolution proceedings.

Sources of funding for the implementation of the AMP identified to date are the CALFED Monitoring Fund, the WAF, the AMF, and the Licensee. The CALFED Monitoring Fund of \$1,000,000 is intended for monitoring costs associated with the Restoration Project. The WAF is a federal fund of \$3,000,000 administered by the Resource Agencies per AMP protocols and intended for the sole purpose of acquiring additional instream flow releases in Battle Creek recommended under the AMP for a ten year period following the initial prescribed instream flow releases. The AMF of \$3,000,000 is for the purpose of funding possible future changes to the Restoration Project developed under the AMP. The AMF is to be limited to actions under the Restoration Project directly associated with FERC Project No. 1121, and is expressly not available for funding of monitoring or construction cost overruns. In the event of the exhaustion or termination of the WAF, the AMF may be used to secure additional instream flow releases developed under the AMP. In the event of exhaustion of the WAF and AMF, the Licensee has committed up to a total of \$6,000,000 for all Adaptive Management actions for Authorized Modifications to project facilities or flow operations which are determined to be necessary under Adaptive Management.

The AMP closely follows Contemporary theoretical and practical standards of adaptive management. Adaptive Management used in this plan includes elements of and, therefore, is a form of “active” adaptive management. However, because specific experimentation of instream flows and facilities modifications were not initially designed into the implementation of the AMP, the AMPT characterizes the restoration of Battle Creek as Passive Adaptive Management where changes in management are made in response to monitoring results.

The AMP bridges the theoretical and practical aspects of adaptive management by building a logical span between scientific knowledge and uncertainties, on the theoretical side, to monitoring activity schedules and budgets at the purely practical end. In between is a strong infrastructure of conceptual models and Adaptive Management Objectives.

**The reader interested in skimming the essence of this AMP, that is to quickly view the bridge between adaptive management theory and practice as applied in Battle Creek, may wish to skip to the following AMP features:**

- **Conceptual Models** (Conceptual Models 1, 2, and 3) page 8
- **Uncertainties Table** (Table 3) page 12
- **Adaptive Management Objectives** (Section III.A) page 41
- **Monitoring Activities (schedule and budget)** (Table 24) page 84

The Adaptive Management objectives outlined in the AMP focus on management of hydroelectric operations within the Restoration Project to facilitate habitat changes beneficial to salmon and steelhead. There is expected to be a corresponding increase in salmon and steelhead populations as a result of these management actions. Measuring such increases is practical for larger populations such as steelhead and fall-run Chinook salmon, but proving statistically significant responses to fish populations currently at extremely low levels, such as winter-run Chinook, may not be possible. Therefore, trigger events leading to Adaptive Management actions will not be based solely on populations data, but will also rely on measurements indicating habitat conditions. The AMP objectives do not include or exclude existing or potential future propagation or supplementation activities, nor do they include specific “active” experimentation of proposed instream flows or experimental changes to hydroelectric project facilities to elucidate relationships between management actions and ecological processes, nor do they address the possibility of future development within Battle Creek.

Although many anticipated limiting factors as well as many unanticipated circumstances have been outlined in the AMP, the plan acknowledges that not all events are predictable and, invariably, surprising circumstances will arise. However, it is the nature of Adaptive Management to design studies and management programs to adapt to unforeseen circumstances. Also, many unanticipated factors may be outside the scope of the Restoration Project. Just how an AMP responds to new circumstances is governed by a stepwise scientific process beginning with hypothesis testing of objectives through monitoring and data assessment. A timeline identifies the duration and order of monitoring activities and includes trigger events indicating that an Adaptive Management response is necessary. Adaptive Management responses would be evaluated to determine if the objective is being met and current actions should continue or if new actions are needed to meet the objectives. Adaptive Management responses could include any major or minor changes to the hydroelectric facility or the natural features of the Restoration Project. Responses to a trigger event will have limits identified by the FERC license amendment. Adaptive Management responses falling outside of those allowed by the FERC license amendment provisions would need to be addressed through established FERC processes. Key to the Adaptive Management process is a reporting regime consistent with the ability to design and evaluate responses to Adaptive Management actions.

The AMP objectives for the restoration of salmon and steelhead focus on improvements in population dynamics, improvements to the habitat, and improvements designed to ensure safe passage of adults and juveniles. The population objectives are (1) ensure successful salmon and



steelhead spawning and juvenile production, (2) restore and recover the assemblage of anadromous salmonids (i.e., winter-run Chinook, spring-run Chinook, steelhead) that inhabit the stream's cooler reaches during the dry season, (3) restore and recover the assemblage of anadromous salmonids (i.e., fall-run Chinook, late fall-run Chinook) that enter the stream as adults in the wet season and spawn upon arrival, and (4) ensure salmon and steelhead fully utilize available habitat in a manner that benefits all life stages, thereby maximizing natural production and full utilization of the ecosystem carrying capacity. Objectives focusing on improving the habitat of salmon and steelhead are (1) maximize habitat quantity through changes in instream flow, (2) maximize habitat quantity by ensuring safe water temperatures, (3) minimize false attraction and harmful fluctuation in thermal and flow regimes resulting from planned outages or detectable leaks from the hydroelectric project, and (4) minimize the stranding and isolation of salmon and steelhead resulting from variations in flow regimes caused by hydroelectric project operations. Objectives for the safe and reliable passage of salmon and steelhead are (1) provide upstream passage of adults at dams, (2) provide downstream passage of juveniles at dams, and (3) provide upstream passage of adults to their appropriate habitat over natural obstacles while ensuring appropriate levels of spatial separation between runs.

To determine if the population objectives of the AMP are being met, assessments of population size, trends in productivity, population substructure, and population diversity must be compared to corresponding guidelines set forth by NOAA Fisheries. The AMP has adopted NOAA Fisheries definitions of "viable populations" as the intermediate population goal and identifies the maximization of salmon and steelhead production and full utilization of carrying capacity as the final goal. The fish passage objectives are intended to assist in restoring natural process of dispersal and the habitat objectives will work to restore natural ecological variation associated with the natural function of the ecosystem. Further threats to population diversity not covered by the AMP objectives will be addressed through the AMP "linkages."

The AMP is just one aspect of the Restoration Project and is closely linked with the other elements of the Restoration Project. Other programs within the Restoration Project cover some aspects of restoration not covered in the AMP such as facility operations and maintenance. The AMP is also linked to non-project restoration programs affecting salmon and steelhead populations both within and outside the Battle Creek watershed.

The implementation of the AMP is governed by a set of protocols. Adaptive Management activities on private land will be conducted in a manner that respects landowners' rights and privacy and that minimizes disturbances and risks to private lands. Protocols governing data management are consistent with guidelines established by Comprehensive Monitoring, Assessment, and Research Program (CMARP) and the Environmental Protection Agency (EPA). Data and information will be made available to the public by dissemination to the appropriate agency information storage systems and an information system operated and maintained by the BCWC.

Meetings of the AMTT will be scheduled four times per year including an annual meeting in March, when possible Adaptive Management actions will be considered. The AMPT will meet at least annually in late March. These March meetings of the AMTT and AMPT are scheduled to finalize annual reports in time for funding agency deadlines. Ad hoc meetings may be scheduled by the AMTT or AMPT to address emergencies without advanced public notice,

but such meetings will only consider the emergency at hand. All meetings will be open to the public, and all scheduled meetings will be announced to the public. Protocols also specify meeting announcement requirements, voting rules, report writing, Adaptive Management responses, proposal ranking, modification of Adaptive Management objectives, and dispute resolution.

Several Focused Studies were developed to address uncertainties and learning opportunities that may not be directly addressed by Adaptive Management objectives. These are listed in the final ten sections of the document.

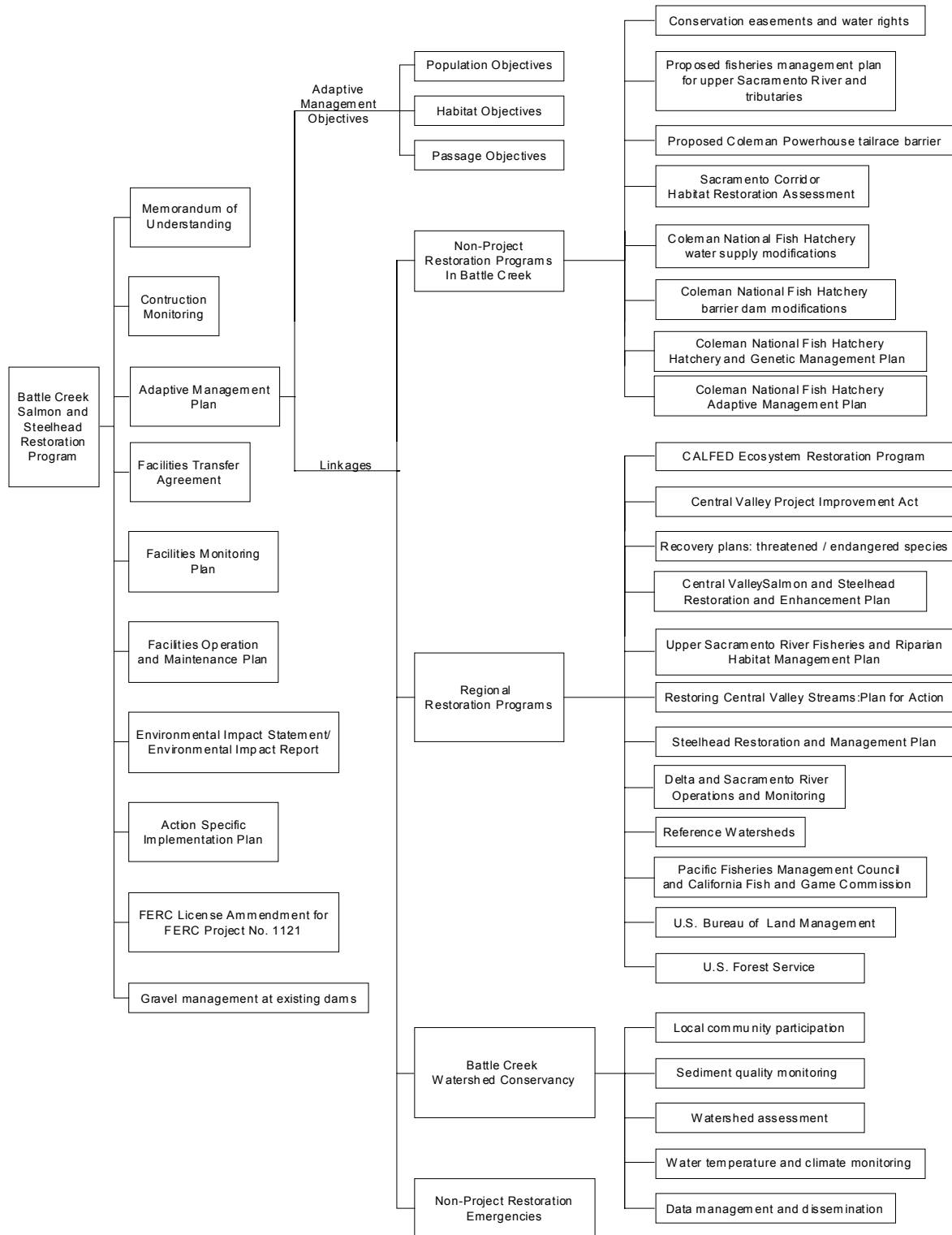


Figure 2. Schematic of the relationship of the AMP and Adaptive Management objectives with other Restoration Project and non-project restoration activities that may affect salmon and steelhead in Battle Creek.

Appendix D

**Pacific Gas and Electric Company  
Vested Water Rights on Battle Creek and  
Battle Creek Tributaries**

**Pacific Gas and Electric Company**  
**Vested Water Rights on Battle Creek and Battle Creek Tributaries**

Pacific Gas and Electric Company claims the following vested water rights:

1. The right to divert water from North Fork Battle Creek, in the SE1/4 OF SE1/4 SECTION 20, T32N, R3E, MDB&M, 1,012 acre-feet to storage in Battle Creek Reservoir, from January 1 to December 31, under prior vested right with a priority of 1909, for electric generation, as specified in Statement of Water Diversion and Use No. 830.
2. The right to divert water from North Fork Battle Creek, in the SW1/4 OF NE1/4 SECTION 15, T31N, R2E, MDB&M, 430 acre-feet to storage in Macumber Reservoir, from January 1 to December 31, under prior vested right with a priority of 1909, for electric generation, as specified in Statement of Water Diversion and Use No. 831.
3. The right to divert water from Bailey Creek, in the NE1/4 OF NE1/4 SECTION 30, T31N, R3E, MDB&M, 20 cubic feet per second into the Loomis Mill Ditch, from January 1 to December 31, under prior vested right with a priority of 1865, for electric generation, as specified in Statement of Water Diversion and Use No. 843.
4. The right to divert water from North Fork Battle Creek, in the NE1/4 OF NE1/4 SECTION 30, T31N, R2E, MDB&M, 45 cubic feet per second into the Al Smith Canal, from January 1 to December 31, under prior vested right with a priority of 1880, for electric generation, as specified in Statement of Water Diversion and Use No. 832.
5. The right to divert water from Ash Creek, in the SW1/4 OF SE1/4 SECTION 28, T31N, R1E, MDB&M, 4 cubic feet per second into the Shingle Creek Canal, from January 1 to December 31, under prior vested right with a priority of 1870, for electric generation, as specified in Statement of Water Diversion and Use No. 846.
6. The right to divert water from Baldwin Creek, in the NW1/4 OF SE1/4 SECTION 33, T31N, R1E, MDB&M, 5 cubic feet per second into the Baldwin-Lake Grace Canal, from January 1 to December 31, under prior vested right with a priority of 1903, for electric generation, as specified in Statement of Water Diversion and Use No. 862.
7. The right to divert water from Millseat Creek, in the NE1/4 OF NW1/4 SECTION 3, T30N, R1E, MDB&M, 70 cubic feet per second into the Lower Mill Creek Canal, from January 1 to December 31, under prior vested right with a priority of 1900, for electric generation, as specified in Statement of Water Diversion and Use No. 834.
8. The right to divert water from North Fork Battle Creek, in the SE1/4 OF SE1/4 SECTION 25, T31N, R1E, MDB&M, 45 cubic feet per second into the Keswick

Canal, from January 1 to December 31, under prior vested right with a priority of 1883, for electric generation, as specified in Statement of Water Diversion and Use No. 833.

9. The right to divert water from an unnamed spring, in the NW1/4 OF NE1/4 SECTION 36, T31N, R1E, MDB&M, 3 cubic feet per second into the Keswick Canal, from January 1 to December 31, under prior vested right with a priority of 1883, for electric generation, as specified in Statement of Water Diversion and Use No. 857.
10. The right to divert water from Millseat Creek, in the NE1/4 OF SW1/4 SECTION 3, T30N, R1E, MDB&M, 10 cubic feet per second into the Keswick Canal, from January 1 to December 31, under prior vested right with a priority of 1883, for electric generation, as specified in Statement of Water Diversion and Use No. 860.
11. The right to divert water from Berry Creek, in the NW1/4 OF NW1/4 SECTION 2, T30N, R1E, MDB&M, 10 cubic feet per second into the Keswick Canal, from January 1 to December 31, under prior vested right with a priority of 1883, for electric generation, as specified in Statement of Water Diversion and Use No. 858.
12. The right to divert water from Galloping Creek, in the NE1/4 OF NE1/4 SECTION 3, T30N, R1E, MDB&M, 10 cubic feet per second into the Keswick Canal, from January 1 to December 31, under prior vested right with a priority of 1883, for electric generation, as specified in Statement of Water Diversion and Use No. 859.
13. The right to divert water from Brush Creek, in the NW1/4 OF NE1/4 SECTION 16, T30N, R1E, MDB&M, 10 cubic feet per second, from January 1 to December 31, under prior vested right with a priority of 1883, for electric generation, as specified in Statement of Water Diversion and Use No. 861.
14. The right to divert water from Millseat Creek, in the NW1/4 OF NE1/4 SECTION 16, T30N, R1E, MDB&M, 20 cubic feet per second into the Cross Country Canal, from January 1 to December 31, under prior vested right with a priority of 1910, for electric generation, as specified in Statement of Water Diversion and Use No. 844.
15. The right to divert water from North Fork Battle Creek, in the NW1/4 OF SW1/4 SECTION 15, T30N, R1E, MDB&M, 50 cubic feet per second into the Cross Country Canal, from January 1 to December 31, under prior vested right with a priority of 1910, for electric generation, as specified in Statement of Water Diversion and Use No. 836.
16. The right to divert water from Digger Creek, in the SE1/4 OF NE1/4 SECTION 21, T30N, R1E, MDB&M, 20 cubic feet per second into the Cross Country Canal, from January 1 to December 31, under prior vested right with a priority of 1910, for electric generation, as specified in Statement of Water Diversion and Use No. 847.

17. The right to divert water from Ripley Creek, in the SE1/4 OF SE1/4 SECTION 33, T30N, R1E, MDB&M, 25 cubic feet per second into the Cross Country Canal, from January 1 to December 31, under prior vested right with a priority of 1910, for electric generation, as specified in Statement of Water Diversion and Use No. 845.
18. The right to divert water from Ripley Creek, in the SW1/4 OF SE1/4 SECTION 33, T30N, R1E, MDB&M, 10 cubic feet per second into the Cross Country Canal, from January 1 to December 31, under prior vested right with a priority of 1907, for electric generation, as specified in Statement of Water Diversion and Use No. 856.
19. The right to divert water from South Fork Battle Creek, in the SW1/4 OF NW1/4 SECTION 18, T29N, R2E, MDB&M, 100 cubic feet per second into the South Battle Creek Canal, from January 1 to December 31, under prior vested right with a priority of 1910, for electric generation, as specified in Statement of Water Diversion and Use No. 837.
20. The right to divert water from Soap Creek, in the NW1/4 OF NW1/4 SECTION 12, T29N, R1E, MDB&M, 35 cubic feet per second into the South Battle Creek Canal, from January 1 to December 31, under prior vested right with a priority of 1910, for electric generation, as specified in Statement of Water Diversion and Use No. 838.
21. The right to divert water from North Fork Battle Creek, in the NW1/4 OF SE1/4 SECTION 25, T30N, R1W, MDB&M, 70 cubic feet per second into the Eagle Canyon Canal, from January 1 to December 31, under prior vested right with a priority of 1910, for electric generation, as specified in Statement of Water Diversion and Use No. 840.
22. The right to divert water from Digger Creek, in the NE1/4 OF SW1/4 SECTION 30, T30N, R1E, MDB&M, 10 cubic feet per second into the Rice-Bauer Ditch, from January 1 to December 31, under prior vested right with a priority of 1880, for electric generation and irrigation, as specified in Statement of Water Diversion and Use No. 855.
23. The right to divert water from an unnamed spring, in the NW1/4 OF SE 1/4 SECTION 25, T30N, R1W, MDB&M, 10 cubic feet per second into the Eagle Canyon Canal, from January 1 to December 31, under prior vested right with a priority of 1907, for electric generation, as specified in Statement of Water Diversion and Use No. 850.
24. The right to divert water from an unnamed spring, in the NW1/4 OF SE 1/4 SECTION 25, T30N, R1W, MDB&M, 10 cubic feet per second into the Eagle Canyon Canal, from January 1 to December 31, under prior vested right with a priority of 1907, for electric generation, as specified in Statement of Water Diversion and Use No. 851.

25. The right to divert water from an unnamed spring, in the NW1/4 OF SE 1/4 SECTION 25, T30N, R1W, MDB&M, 10 cubic feet per second into the Eagle Canyon Canal, from January 1 to December 31, under prior vested right with a priority of 1907, for electric generation, as specified in Statement of Water Diversion and Use No. 852.
26. The right to divert water from an unnamed spring, in the NW1/4 OF SE1/4 SECTION 25, T30N, R1W, MDB&M, 10 cubic feet per second into the Eagle Canyon Canal, from January 1 to December 31, under prior vested right with a priority of 1907, for electric generation, as specified in Statement of Water Diversion and Use No. 853.
27. The right to divert water from an Rice Springs, in the NE1/4 OF NE1/4 SECTION 35, T30N, R1W, MDB&M, 3 cubic feet per second into the Eagle Canyon Canal, from January 1 to December 31, under prior vested right with a priority of 1907, for electric generation, as specified in Statement of Water Diversion and Use No. 854.
28. The right to divert water from South Fork Battle Creek, in the NE1/4 OF SE1/4 SECTION 5, T29N, R1E, MDB&M, 200 cubic feet per second into the Inskip Canal, from January 1 to December 31, under prior vested right with a priority of 1910, for electric generation, as specified in Statement of Water Diversion and Use No. 839.
29. The right to divert water from Ripley Creek, in the NW1/4 OF NE1/4 SECTION 1, T29N, R1W, MDB&M, 5 cubic feet per second into the Inskip Canal, from January 1 to December 31, under prior vested right with a priority of 1907, for electric generation, as specified in Statement of Water Diversion and Use No. 848.
30. The right to divert water from South Fork Battle Creek, in the NW1/4 OF NW1/4 SECTION 3, T29N, R1W, MDB&M, 280 cubic feet per second into the Coleman Canal, from January 1 to December 31, under prior vested right with a priority of 1910, for electric generation, as specified in Statement of Water Diversion and Use No. 841.
31. The right to divert water from North Fork Battle Creek, in the SE1/4 OF SW1/4 SECTION 27, T30N, R1W, MDB&M, 18 cubic feet per second into the Wild Cat Canal, from January 1 to December 31, under prior vested right with a priority of January 9, 1922, for electric generation, as specified in California State Water Rights License No. 549 (Application No. 2754).
32. The right to divert water from Darrah Creek, in the NE1/4 OF NE1/4 SECTION 29, T30N, R1W, MDB&M, 25 cubic feet per second into the Coleman Canal, from January 1 to December 31, under prior vested right with a priority of October 13, 1950, for electric generation and incidental domestic use, as specified in California State Water Rights License No. 7217 (Application No. 13995).



33. The right to divert water from Baldwin Creek, in the SW1/4 OF SW1/4 SECTION 20, T30N, R1W, MDB&M, 45 cubic feet per second into the Coleman Canal, from January 1 to December 31, under prior vested right with a priority of 1910, for electric generation, as specified in Statement of Water Diversion and Use No. 842.
34. The right to divert water from Unnamed Spring, in the SW1/4 OF SE1/4 SECTION 9, T30N, R1E, MDB&M, 150 gallons per minute, from January 1 to December 31, under prior vested right with a priority of 1900, for domestic and incidental irrigation, as specified in Statement of Water Diversion and Use No. 867.
35. The right to divert water from Unnamed Spring, in the NE1/4 OF NW1/4 SECTION 3, T29N, R1W, MDB&M, 200 gallons per minute, from January 1 to December 31, under prior vested right with a priority of 1909, for domestic and incidental irrigation, as specified in Statement of Water Diversion and Use No. 865.

Appendix E

**Documentation Associated with the  
Interim Flow Agreement**



**U.S. Fish and Wildlife Service  
Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846**



**National Marine Fisheries Service  
Protected Resources Division  
650 Capitol Mall, Suite 8-300  
Sacramento, California 95814-4706**



**California Department of Fish and Game  
Northern California-North Coast Region  
601 Locust Street  
Redding, California 96001**

May 14, 2001

Ms. Angela Risdon  
Senior License Coordinator  
Pacific Gas and Electric Company  
Mail Code N11C  
P.O. Box 770000  
San Francisco, California 94177

**Subject: Battle Creek Hydroelectric Project No. 1121, Shasta and Tehama Counties,  
California. Request to Continue Fish Ladder Closures**

Dear Ms. Risdon:

The U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Game concur with the Pacific Gas and Electric Company's (PG&E) request to the Federal Energy Regulatory Commission to continue blocking the downstream entrances to the fish passage facilities (fish ladders) at the Eagle Canyon and Coleman diversion dams and suspending diversion flows into Wildcat Canal until the end of 2001 or until a new short-term agreement is in place, whichever comes first. It is expected that the new short-term agreement will be similar to the last agreement, including the same fish ladder closures, suspension of the Wildcat Dam diversion, and augmentation of flows.

The last short-term agreement providing for these actions was in effect from November 17, 1998 through February 28, 2001, and is now expired along with a preceding 3-year agreement. These previous short-term agreements were put in place until a long-term restoration agreement for the hydroelectric project can be implemented through the environmental regulatory process, including National Environmental Policy Act and California Environmental Quality Act compliance and a hydropower license amendment, for the Battle Creek Salmon and Steelhead Restoration Project.

Closing the fish ladders over the past four years was combined with flow augmentation, water temperature improvements, and entrainment preventions to restore anadromous and resident fish habitat in 17 miles of stream. Discontinuing that habitat restoration now would jeopardize the accumulating fishery benefits, which are a significant financial investment. The fish produced over

the last 4 years will be needed to seed 42 miles of habitat that is intended to be restored under the Battle Creek Salmon and Steelhead Restoration Memorandum of Agreement between the resource agencies and PG&E. The fish ladder closures concentrate the relatively small annual numbers of adult anadromous fish in the safest habitat that can be afforded on an interim basis. The habitat below the closed ladders is the coldest, largest amount of usable habitat that is entrainment free. Suspension of diversion flows into Wildcat Canal provides increased flows downstream of the Wildcat Diversion Dam, which results in improved water temperatures and increased habitat area to the benefit of fisheries and the overall aquatic and riparian environment.

If you have any questions or comments, please contact Bart Prose of the U.S. Fish and Wildlife Service (916) 414-6600, Mike Tucker of the National Marine Fisheries Service (916) 930-3600, or Harry Rectenwald of the California Department of Fish and Game (530) 225-2300.




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Wayne S. White  
Field Supervisor  
U.S. Fish and Wildlife Service



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Mike Aceituno  
Central Valley Team Leader  
National Marine Fisheries Service



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Donald Koch  
Regional Manager  
California Department of Fish and Game

cc: David P. Boergers, Federal Energy Regulatory Commission  
Thomas J. LoVullo, Federal Energy Regulatory Commission  
Randal S. Livingston, PG&E



U.S. Fish and Wildlife Service  
Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846



National Marine Fisheries Service  
Protected Resources Division  
650 Capitol Mall, Suite 8-300  
Sacramento, California 95814-4706



California Department of Fish and Game  
Northern California-North Coast Region  
601 Locust Street  
Redding, California 96001

March 21, 2002

Ms. Angela Risdon, Senior License Coordinator  
Pacific Gas and Electric Company  
Mail Code N11C  
P.O. Box 770000  
San Francisco, CA 94177

Dear Ms. Risdon:

Thank you for Pacific Gas and Electric Company's (PG&E's) continued cooperation and participation in the Battle Creek Interim Flow Agreement ("Interim Agreement") that temporarily modifies the operation of the Battle Creek Hydroelectric Project for the benefit of anadromous fish. The Bureau of Reclamation's 1998 environmental assessment titled: "Temporary Reduction in Water Diversions from Battle Creek" describes the project as it was implemented in the recent past. Now that the interim agreement supporting the project has expired, it is being revised along with its supporting environmental documentation. We appreciate PG&E's seamless continuation of the interim measures while the institutional arrangements are being completed to cover several more years of the operation under a new formal agreement.

The interim measures may include temporary reductions in water diversion at Coleman and Eagle Canyon dams and no diversion at Wildcat Dam. In addition, the diversion adjustments are coupled with temporary closures of the fish ladders at Eagle Canyon and Coleman diversion dams. These ladder closures confine the anadromous fish to the sections of habitat in Battle Creek that benefit from the reduced diversions in the Hydroelectric Project and prevent juvenile salmonids from becoming entrained into the open diversion canals above these dams. More complete descriptions of the benefits to biological resources are included in previous environmental documentation, monitoring results and agency correspondence relevant to the project. It is anticipated that the Interim Agreement will be replaced with a long-term restoration project (Battle Creek Salmon and Steelhead Restoration Project 1999) that significantly increases the quantity and quality of the habitat. However, because of the scope of the long-term

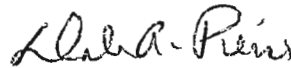
Ms. Angela Risdon  
March 21, 2002  
Page Two

project, it will be several years before all the necessary environmental documentation, decision making and construction activities are completed, leaving a continued need for the Interim Agreement.

The U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Game concur with the need to continue the Interim Agreement including the related operation of temporarily closing the fish ladders at Coleman Dam and Eagle Canyon Dam. We look forward to continued cooperation in our joint efforts to restore salmon and steelhead habitat in Battle Creek.

If you have any questions or comments, please contact Mr. Bart Prose of the U.S. Fish and Wildlife Service at (916) 414-6606, Mr. Mike Tucker of the National Marine Fisheries Service at (916) 930-3600, or Mr. Harry Rectenwald of the California Department of Fish and Game at (530) 225-2368.


Sincerely,



*for* **WAYNE S. WHITE**  
U.S. Fish and Wildlife



**MICHAEL ACEITUNO**  
National Marine Fisheries Service



*for* **DONALD B. KOCH**  
Department of Fish and Game

cc: See page three

Ms. Angela Risdon  
March 21, 2002  
Page Three

cc: Mr. Thomas J. Lo Vullo  
Federal Energy Regulation Commission  
888 First Street, NE  
Washington DC 20426

Mr. Bart Prose  
U.S. Fish and Wildlife Service  
2800 Cottage Way, Room W-2605  
Sacramento, California 95828-1846

Mr. Mike Tucker  
National Marine F Service  
650 Capitol Mall  
Sacramento, California 95814-4706

Mr. Harry Rectenwald  
Department of Fish and Game  
601 Locust Street  
Redding, California

Mr. Dave Gore  
U.S. Bureau of Reclamation  
2800 Cottage Way  
Sacramento, California 95814



May 28, 2003

Mr. Todd Johnson  
Mail Code: N11D  
P.O. Box 7700  
San Francisco, CA 94177

POWER GENERATION		
ORIG. <i>TST</i>	JUL 14 2003	CC:
FERC NO. <i>1121</i>	TRACK NO.	
FILE NO. <i>028.21</i>	ACTION: <i>FYI, FILE</i>	

Dear Mr. Johnson:

*Angela Bisson, Chip Stetson  
Craig Probyer, Nick Wong -*

**Interim Agreement for Purchase of Water between the United States Pacific and Gas and Electric Company - Battle Creek**

As you know, Pacific Gas and Electric Company (PG&E) owns and operates the Battle Creek Hydroelectric Project (Project) situated on the north and south forks of Battle Creek and their tributaries. Pursuant to a Federal Energy Regulatory Commission license, temporary modification of flow and facilities for fishery management purposes are allowed. In 1998, there was a three-year formal agreement by the United States Bureau of Reclamation to pay PG&E for reducing diversions from Battle Creek to the Project. This action has been joined with a temporary closure of the fish ladders at Eagle Canyon and Coleman dams as described in past letters from the Federal and State fishery agencies. These increased instream flows and temporary closures of the fish ladders have been maintained below Eagle Canyon, Wildcat and Coleman dams to the present time through an informal extension of the 1998 agreement. For the next two years, the increased instream flows will be continued pursuant to a new interim agreement that is in the process of being signed. This new agreement requires PG&E to receive a letter of notification from the fisheries agencies for any changes in temporary operations for instream flow or fish ladders within 48 hours prior to any change being initiated. The purpose of this letter is to establish the streamflow and ladder operations.

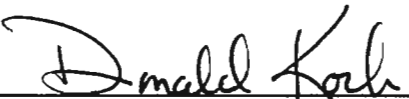
Consistent with past practice, the members of the interim flow science team (including agencies, PG&E, and stakeholders) discussed the interim instream flow prescriptions and ladder operations for the upcoming dry season (telephone conference call May 19, 2003). We request that the flows on the north fork and south fork continue to be set at 30 cubic feet per second (cfs) below Eagle Canyon Dam and Coleman Dam,



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respectively. Consistent with past practice we request that the fish ladders below Coleman and Eagle Canyon dams be temporarily closed as a joint action with the instream flow increase (as described in our past correspondence for this action, i.e., joint May 14, 2001, letter).

If you have any questions or comments regarding this matter, please call Mr. Michael Tucker of the National Marine Fisheries Service at (916) 930-3600. Thank you for your cooperation with the restoration efforts on Battle Creek.



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**DONALD B. KOCH**  
Regional Manager  
Department of Fish and Game



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**WAYNE WHITE**  
Field Supervisor  
U.S. Fish and Wildlife Service



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**MIKE ACEITUNO**  
Central Valley Team Leader  
National Marine Fisheries Service

cc: See page three

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cc: Mr. Carl Werder  
U.S. Bureau of Reclamation  
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Mr. Thomas J. LoVullo  
Federal Energy Regulatory Commission  
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Mr. Harry Rectinwald  
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