



Grant Request Information

Title of Project

Stanshaw Creek Water Conservation Assessment

Total Amount Requested

\$ 63,351.15

Matching Contributions Proposed

\$ 23,049.00

Proposed Grant Period

06/01/2013 - 05/31/2014

Project Description

Develop design alternatives to the existing water system and associated hydro system without compromising the Marble Mountain Ranch's (MMR) water diversions from Stanshaw Creek and overall operations

Project Abstract

Stanshaw Creek has a short but significant section of coho habitat below the Hwy 96 crossing. A lateral scour pool is formed just upstream of the Stanshaw Creek mouth when Klamath flood flows are deflected by evulsed alluvium and streamflow from Stanshaw Creek. This pool is subsequently filled by cold Stanshaw Creek water when flooding subsides, creating a high quality summer and winter rearing habitat for non-natal juvenile coho salmon migrating down the Klamath River corridor. Growth rates for coho overwintering in this pool are high, leading to increased survival and numbers of returning spawners.

Marble Mountain Ranch (MMR) currently diverts up to 3 cfs from Stanshaw Creek for domestic, irrigation and hydropower uses. Since 2002, landowners, agency, and tribal personnel have been working together to find solutions that provide for coho habitat needs without unduly impacting the MMR. All stakeholders concur that the interbasin transfer to Irving Creek must be remedied, either by returning water to Stanshaw Creek above the Highway 96 culvert, or directly to the Klamath River. Other options, such as physical modification of the intake, ditch, tailwater return, the hydropower system and consumptive uses of water and power, could likely reduce required diversion amounts and other potential impacts. This project will conduct independent analysis of MMR water rights, potential physical solutions, and an energy audit to inform stakeholders seeking resolution to this issue.

Organization and Primary Contact Information

Organization Mid Klamath Watershed Council

Organization Type Non-profit Corporation 501(c)(3)

Organization Web Address www.mkwc.org

Organization Phone

Street Line 1 38150 Hwy 96

Street Line 2 PO Box 409

City, State, Country Postal Code Orleans, California, North America - United States 95556

Region (if international)

Organization Congressional District District 1 (CA)

Tax Status Under Review - Non-profit

Tax ID 201501256

Primary Contact

Mr. Will C.S. Harling

Position/Title Executive Director

Street Line 1 38150 Hwy 96

City, State, Country Postal Code Orleans, California, North America - United States 95556

Region (if international)

Phone and E-mail 530-627-3202 x; will@mkwc.org

Keywords

Species; Klamath River-specific Keywords; Conservation Action;
Conservation Threat

Sub-keywords

Fish - *Oncorhynchus kisutch* (Coho Salmon); Southern
Oregon/Northern California Coast coho salmon; Action - Land/Water
Protection; Action - Land/Water Management; Action - Livelihood,
Economic & Other Incentives; Threat - Human Intrusions &
disturbance; Threat - Natural System Modifications

Other Keyword(s)

Title: Stanshaw Creek Water Conservation Assessment

Organization: Mid Klamath Watershed Council

Conservation Activities	Water Rights Evaluation Memorandum
Progress Measures	Other Activity Metric (Legal Review of MMR Water Right)
Value at Grant Completion	Final Memorandum on MMR Water Right Completed
Conservation Activities	Water Efficiency Study and Concepts Report
Progress Measures	Other Activity Metric (Report Detailing Methods to Improve Efficiency of MMR Water System)
Value at Grant Completion	Completed Water Efficiency Study
Conservation Activities	Energy Efficiency Audit
Progress Measures	Other Activity Metric (Energy Efficiency Audit of MMR Hydropower System)
Value at Grant Completion	Completed Energy Efficiency Audit for MMR
Conservation Activities	Alternatives Analysis of Proposed Physical Modifications
Progress Measures	Other Activity Metric (Report Detailing Potential Physical Solutions to Existing Impacts from MMR Water Diversion)
Value at Grant Completion	Completed Alternatives Analysis Report

Conservation Outcome(s)	Water Rights Analysis
Conservation Indicator Metric(s)	Other Outcome Metric (Completed Water Rights Analysis)
Baseline Metric Value	0
Metric Value at Grant Completion	1
Long-term Goal Metric Value	1
Year in which Long Term Metric Value is Anticipated	2013
Conservation Outcome(s)	Energy Efficiency Audit
Conservation Indicator Metric(s)	Other Outcome Metric (Energy Efficiency Audit)
Baseline Metric Value	0
Metric Value at Grant Completion	1
Long-term Goal Metric Value	1
Year in which Long Term Metric Value is Anticipated	2013
Conservation Outcome(s)	Physical Improvements Alternatives Analysis
Conservation Indicator Metric(s)	Other Outcome Metric (Completed Physical Improvements Alternatives Analysis)
Baseline Metric Value	0
Metric Value at Grant Completion	1
Long-term Goal Metric Value	1
Year in which Long Term Metric Value is Anticipated	2013

Title: Stanshaw Creek Water Conservation Assessment

Organization: Mid Klamath Watershed Council

Project Location Information

Project Location Description	Project is located at Marble Mountain Ranch 7.5 miles north of Somes Bar, CA, along Highway 96.
Project Country(ies)	North America - United States
Project State(s)	California
Project Congressional District(s)	District 2 (CA)

	Units	Cost Per Unit	Total
Salaries and Benefits			
Program Director	160	\$28.00	\$4,480.00
GIS Analyst	12	\$20.00	\$240.00
Office Assistant	16	\$14.00	\$224.00
Staff Benefits @ 30%	0.3	\$4,944.00	\$1,483.20
Total Salaries and Benefits			\$6,427.20
Equipment			
Total Equipment			\$0.00
Contractual Services			
Somach, Simmons and Dunn (Water Rights Attorney)	40	\$390.00	\$15,600.00
Northwest Hydraulic Consultants - Senior Engineer	88	\$175.00	\$15,400.00
Northwest Hydraulic Consultants - Junior Engineer	96	\$105.00	\$10,080.00
Northwest Hydraulic Consultants - Drafter	32	\$125.00	\$4,000.00
Sharpe Energy Solutions (Electrical Engineer)	67	\$150.00	\$10,050.00
Total Contractual Services			\$55,130.00
Supplies and Materials			
Total Supplies and Materials			\$0.00
Printing			
Total Printing			\$0.00
Travel			
Travel (miles/cost per mile)	1200	\$.55	\$660.00
Total Travel			\$660.00
Other			
Administrative Overhead @ 16%	0.16	\$7,087.20	\$1,133.95
Total Other			\$1,133.95
Administrative Overhead for Personnel and Travel expenses only.			
Budget Grand Total			\$63,351.15

Title: Stanshaw Creek Water Conservation Assessment

Organization: Mid Klamath Watershed Council

Matching Contribution Amount: \$19,500.00
Type: Cash
Status: Application Submitted
Source: CA Dept. Fish and Game FRGP
Source Type: Non-Federal
Description: Funding decision will be made Feb/Mar 2013. Funding will cover a portion of the costs of the water rights review/memorandum.

Matching Contribution Amount: \$1,344.00
Type: In-kind
Status: Pledged
Source: Karuk Tribe
Source Type: Non-Federal
Description: Consultation throughout project on proposed alternatives and projected fisheries benefits by Karuk Tribe lead fisheries biologist Toz Soto.

Matching Contribution Amount: \$1,200.00
Type: In-kind
Status: Pledged
Source: Landowner (Doug Cole)
Source Type: Non-Federal
Description: Landowner time spent with project participants in design of alternatives/providing information, etc.

Matching Contribution Amount: \$1,005.00
Type: In-kind
Status: Pledged
Source: Mid Klamath Watershed Council
Source Type: Non-Federal
Description: MKWC Program Director volunteer time dedicated to project design and completion.

Total Amount of Matching Contributions \$23,049.00

Title: Stanshaw Creek Water Conservation Assessment

Organization: Mid Klamath Watershed Council

The following pages contain the uploaded documents, in the order shown below, as provided by the applicant:

Board of Trustees, Directors, or equivalent
Statement of Litigation
Project Vicinity Map
Project Site Map
Latitude and Longitude
Klamath River Coho Full Proposal Narrative
Project Schedule
KRCEF Monitoring Plan
Photos - Jpeg
Photos - Jpeg
Photos - Jpeg
Photos - Jpeg
Photos - Jpeg

The following uploads do not have the same headers and footers as the previous sections of this document in order to preserve the integrity of the actual files uploaded.

Mid Klamath Watershed Council Board of Directors

<u>Name</u>	<u>Title</u>	<u>Occupation</u>	<u>Years on Board</u>
Davis, Dean	Board Member	Retired Forest Service Employee; Artist	3
DuPont, Mark	President	"Sandy Bar Nursery" Business Owner	8
Grunbaum, Jon	Board Member	US Forest Service Fisheries Biologist	8
Hatton, Chris	Secretary	"Salmon River Outpost" business owner	8
Jacups-Johnny, Jeanerette	Board Member	Tribal Health and Cultural Protection; Member of the Karuk Tribe	8
Reis, Blythe	Treasurer	"Sandy Bar Ranch" Business Owner	7
Stearns, Michael	Board Member	"River Life Nursery" Business Owner, MKWC employee	4
White, Molli	Board Member	Environmental Programs Assistant, Karuk Department of Natural Resources	2
Annalia Hillman	Board Member	Director, "Amayav" (Good Food) Tribal Food Security	1



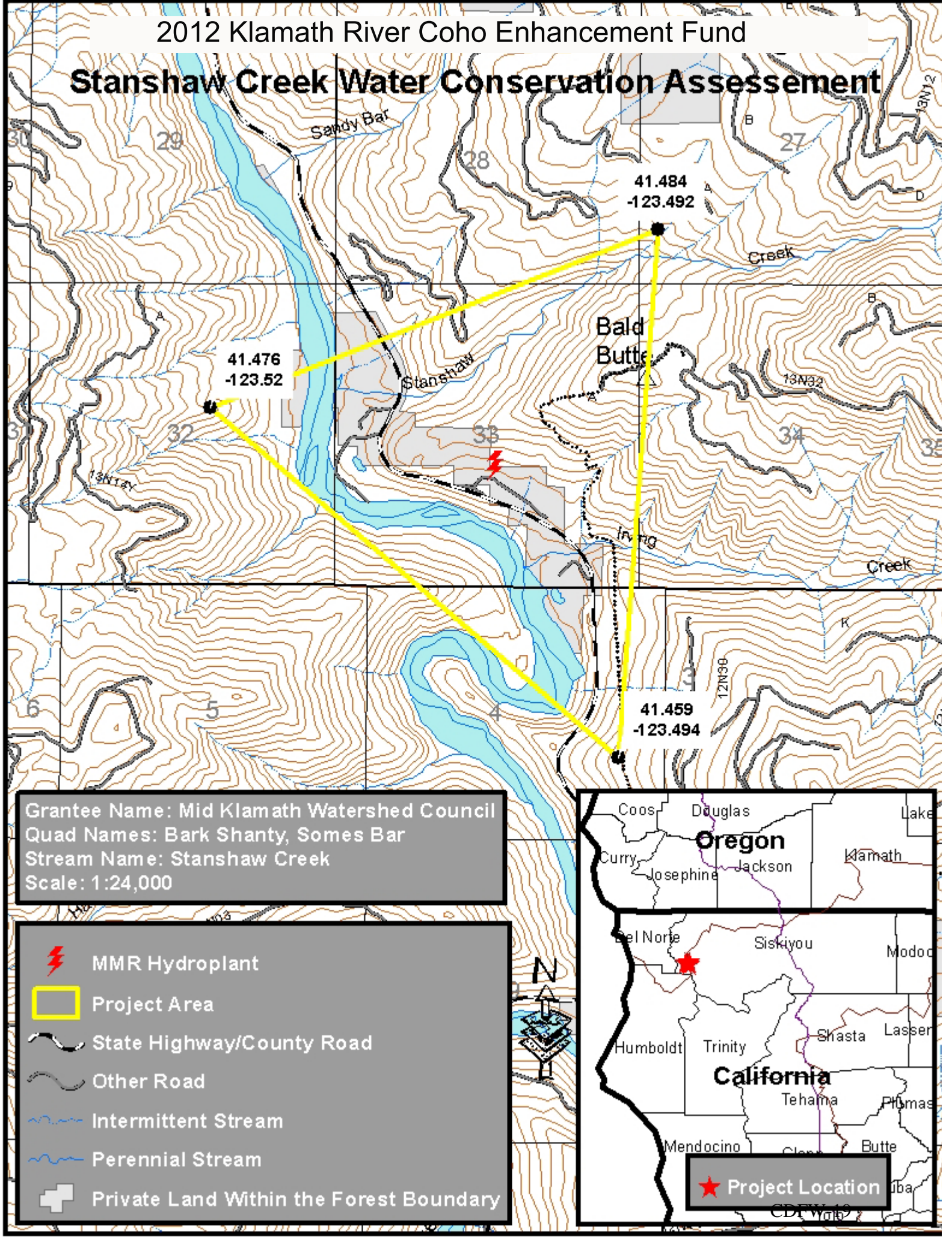
Statement of Litigation

Instructions: Save this document on your computer and complete. The final narrative should not exceed two (2) pages; do not delete the text provided below. Once complete, upload this document into the on-line application as instructed.

Litigation: In the space provided below, state any litigation (including bankruptcies) involving your organization and either a federal, state, or local government agency as parties. This includes anticipated litigation, pending litigation, or litigation completed within the past twelve months. Federal, state, and local government applicants are not required to complete this section. If your organization is not involved in any litigation, please state below.

The Mid Klamath Watershed Council is not, and has never been, involved in litigation. This includes anticipated, pending and completed litigation.

Stanshaw Creek Water Conservation Assessment



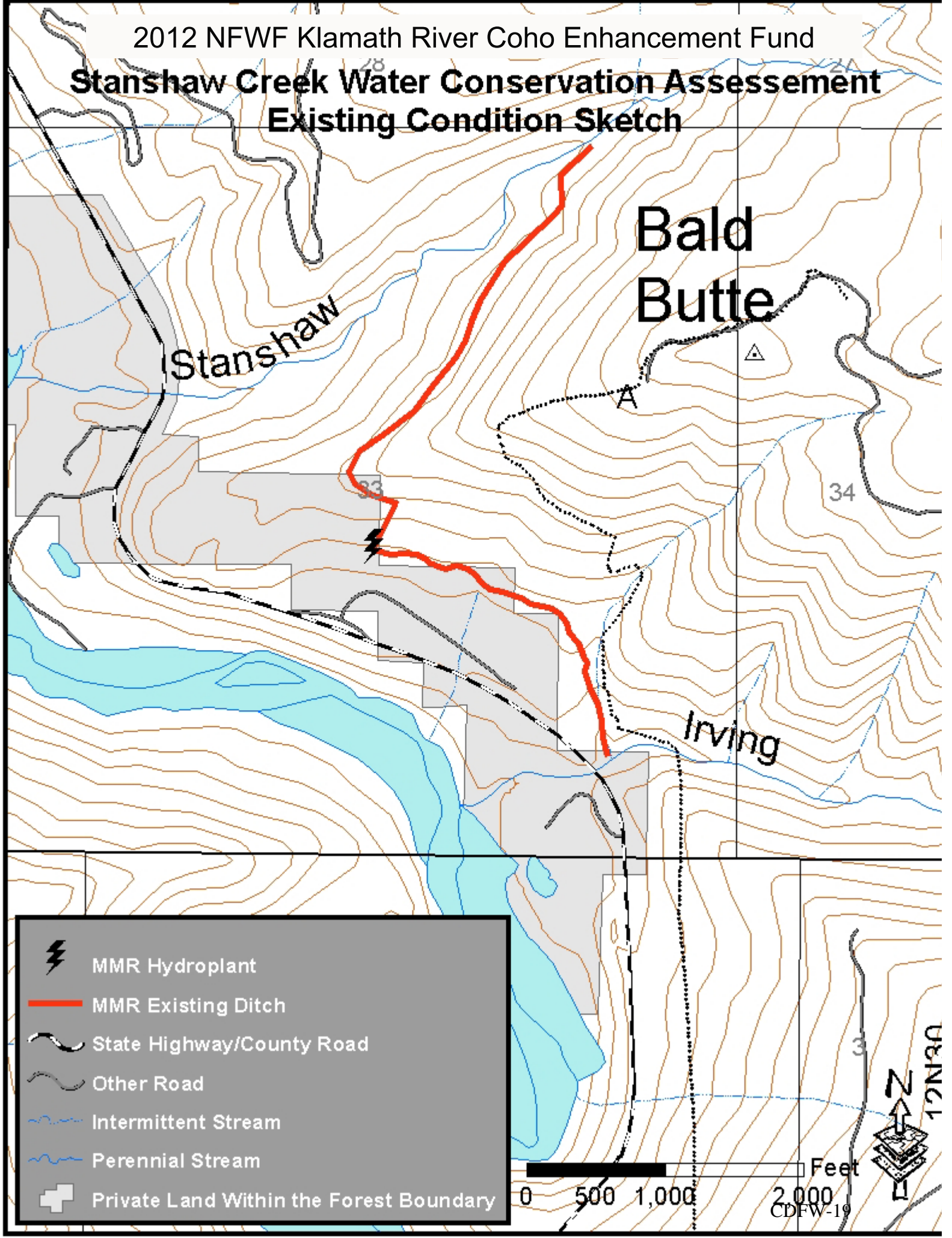
Grantee Name: Mid Klamath Watershed Council
Quad Names: Bark Shanty, Somes Bar
Stream Name: Stanshaw Creek
Scale: 1:24,000

-  MMR Hydroplant
-  Project Area
-  State Highway/County Road
-  Other Road
-  Intermittent Stream
-  Perennial Stream
-  Private Land Within the Forest Boundary



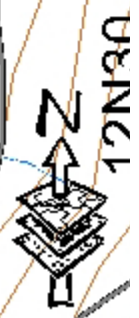
 Project Location

Stanshaw Creek Water Conservation Assessment Existing Condition Sketch



-  MMR Hydroplant
-  MMR Existing Ditch
-  State Highway/County Road
-  Other Road
-  Intermittent Stream
-  Perennial Stream
-  Private Land Within the Forest Boundary

0 500 1,000 2,000 Feet
CDFW-19





Stanshaw Creek Water Conservation Assessment

Plan Goal: Specify the Plan goal, target, and objective (included in Table 1 of the Request for Proposals) that the project is meeting or will meet when implemented. All proposed projects must meet at least one Plan goal.

The assessments described in this proposal, when completed, will provide critical information for stakeholders to reach consensus on physical solutions to the existing diversion from Stanshaw Creek and MMR water system that will increase instream flows in Stanshaw Creek above the extent of anadromous fish habitat. These increased flows will maintain connectivity between Stanshaw Creek and the Klamath River throughout the year, increase the size and extent of the refugia in Stanshaw Creek, and lower summer water temperatures in Stanshaw Creek. Specifically, the following goals, targets and objectives will be met by this project:

Mainstream habitat enhancement and protection projects	VI	G. Refugia	G1. Improve habitat cover and complexity (to about 30 to 50 percent of the total existing cover) or maintain habitat cover and complexity (if already suitable) at coldwater refugia sites along the mainstem Klamath River.
	VI	G. Refugia	G2. Increase the extent and/or duration (by about 30 to 50 percent of the total existing extent and/or duration) of coldwater refugia sites along the mainstem Klamath River.
	VI	H. Mainstream Rearing Habitat Enhancement	H1. Enhance rearing habitat in key rearing sites of the mainstem Klamath River corridor.
Tributary habitat enhancement and protection projects	VII	J. Connectivity	J1. Restore connectivity in stream reaches of juvenile rearing habitat in tributaries of the Upper Klamath, Scott River, and Shasta River.
	VII	K. Tributary Rearing Habitat Enhancement	K1. Enhance rearing habitat in tributaries of the Upper Klamath, Scott River, and Shasta River.
	VII	K. Tributary Rearing Habitat Enhancement	K2. Protect important summer rearing habitat along tributaries of the Upper Klamath, Scott River, and Shasta River.

Project Objectives: What is/are the purpose(s) and objectives of the project? What are the expected short-term benefits to SONCC coho salmon and long-term measurable outcomes? If this project is a continuation or expansion of an existing project, describe the status and results/outcomes achieved to date.

Stanshaw Creek has a short but significant section of coho habitat below the Highway 96 crossing. A lateral scour pool is formed just upstream of the Stanshaw Creek mouth when Klamath flood flows are deflected by evulsed alluvium and streamflow from Stanshaw Creek. This pool is subsequently filled by cold Stanshaw Creek water when flooding subsides, creating a high quality summer and winter rearing habitat for non-natal juvenile coho salmon migrating down the Klamath River corridor. Coho ecology studies by the Karuk Tribe at this site, and in Stanshaw Creek upstream to the Highway 96 culvert barrier, over the past 10 years indicate that once coho young of the year (yoy), or 0+ fry, enter this habitat, they are likely to overwinter there until outmigration early the next spring. Growth rates for coho overwintering in this pool are high, likely leading to increased survival and numbers of returning spawners.

In 1867, Civil War veteran Samuel Stanshaw recorded at the County Records office that he had “taken hold for mining and for purpose of irrigation 600 [miner’s] inches of the water running in Stanshaw Creek”. This equates to approximately 15cfs, however over time use and ditch capacity has been reduced to a maximum diversion amount of 3 cfs. Use for mining has changed to primarily hydropower generation for the ranch business, which has no access to grid power. Currently, there is an interbasin transfer via a ditch carrying 2.5 to 3.0 cfs from Stanshaw Creek south to Irving Creek. This diversion is listed in the DFG Coho Recovery Plan for the state as a high priority for restoration.

An application by previous owners of MMR, and subsequently by the Cole’s to the State Water Resources Control Board

(SWRCB) (Application #29449) for 3 cfs of Stanshaw Creek water for hydropower generation has been neither rejected or validated by SWRCB for over 15 years. Complaints filed over this application and attempts to resolve these complaints have been hindered by a lack of information on outcomes of proposed improvements.

Since 2002, landowners, agency, and tribal personnel have been working together to find solutions that provide for coho habitat needs without unduly impacting the MMR. All stakeholders concur that the interbasin transfer to Irving Creek must be remedied, either by returning water to Stanshaw Creek above the Highway 96 culvert, or directly to the Klamath River. Other options, such as physical modification of the intake, ditch, tailwater return, the hydropower system and consumptive uses of water and power, could likely reduce required diversion amounts and other potential impacts from the current system. This proposal addresses all of these options by attaining specialists reports to objectively describe alternatives and quantify various modifications and system improvements. This project accomplishes the task of improving instream flows by providing necessary specialist information to inform stakeholders about the real consequences of various modifications to the MMR water system. The focus will be on improving hydropower efficiency, redesigning tail water returns to avoid an inter-basin transfer, reducing overall power consumption, and improvements to water conveyance that will reduce ditch loss, excessive maintenance and monitoring.

Lack of resolution and action regarding the MMR diversion from Stanshaw Creek has impacted both rearing coho salmon in lower Stanshaw Creek for over a decade, and relationships between many stakeholder groups and individuals. Doug and Heidi Cole, owners of MMR, have lived with the uncertainty of not knowing if someone would come to shut off or curtail their water system for over a decade. Downstream landowners with riparian rights have been faced with the choice of diverting the remaining flow from Stanshaw Creek for domestic and irrigation uses, or not using this water so it could maintain the refugia at the mouth of Stanshaw. This project aims to address landowner and threatened coho salmon habitat needs by collecting specialist information that will allow stakeholders to agree to a solution without litigation.

The expected short term benefits of this project are that stakeholders will be able to reach consensus on physical solutions that address the current impacts to coho salmon rearing in Stanshaw Creek without lengthy and costly litigation. Long term measurable outcomes will be reduced sedimentation in Stanshaw Creek due to ditch overtopping and scour during flood events, increased flow in Stanshaw Creek, continuous connectivity between Stanshaw Creek and the Klamath River, reduced sedimentation in Irving Creek where the MMR water system tailwater ends up, decreased water temperatures in Stanshaw Creek and Irving Creek, and no illegal interbasin transfer of water from the Stanshaw drainage to the Irving Creek drainage.

Scope of Work: Describe the length of term of the project. If the proposed activity is a multiple year action or can be renewed each year, describe in proposal. Elaborate on the primary activities that will be conducted through the proposed grant. Explain how these activities address the goals, objectives, and target(s) described above. Describe the planning, design/engineering, and permitting necessary prior to beginning the project construction and how the project team will complete those necessary steps and obtain all relevant permits. If private landowner cooperation is necessary, please describe. Formal agreements may be required with these landowners in order for a project to receive funding. Describe the reporting or documentation to be prepared as part of the project.

This project will begin as soon as funding is secured and will last for one year. This proposal was also submitted to the California Department of Fish and Game's (DFG) Fisheries Restoration Grant Program (FRGP) for funding. Funding decisions for FRGP will be made in Spring 2013, and funded grants will start June 1, 2013. This proposal and our FRGP proposal were submitted as potentially stand alone projects (NFWF funding was only counted as match in the DFG submission for \$19,500, and DFG funding is used as match in this proposal for \$19,500), NFWF and DFG, at their mutual discretion, may decide to both fund an agreed upon portion of this project.

This project will fund the collection of information defining several alternative proposed physical improvements to the MMR water system and associated hydropower system. Proposed physical improvements will be described as alternatives to be analyzed by qualified, independent physical and electrical engineers. Alternatives will be developed in coordination with MMR owners Doug and Heidi Cole, DFG staff, MKWC, and other stakeholders. As part of this project, any proposed alternatives will also be reviewed by an independent, qualified water rights attorney for consistency with existing laws and regulations. The Cole's, by agreeing to participate in this effort, are not agreeing the MMR system is

causing the impacts to the fishery, water quality, refugia etc, asserted in this application, and specifically reserve the right to contest such assertions.

Specific tasks for this project include:

Task 1. Water Rights Evaluation

Information developed in this evaluation will be used to develop and assess the adequacy of concepts to bring Marble Mountain Ranch into compliance with inter-drainage transfer regulations and resolve current disputes over water use. Matching funds from DFG would be used for this task (\$19,500).

Task 2. Survey and Site Assessment

This task will include field survey, survey data processing, and base map production. The project team will survey the general alignment of the water distribution network. The survey will begin at the water diversion on Stanshaw Creek. Surveys will also be conducted to identify potential alignments and locations for alternative micro-hydro power plants. The surveys will be used to develop a base map that shows the schematic layout of the existing network. Elevations and distances collected by the survey will be used in subsequent tasks for hydraulic and energy production calculations as well as for developing quantities for cost estimates.

Task 3. Energy Audit

A qualified, licensed energy analyst will conduct facility investigations to profile the facility’s historical energy end-uses, surveying the site for renewable energy possibilities, and developing a report to communicate the following information:

- 1) An analysis of the facility’s current energy using systems, and estimates of its historical energy end-use distribution (how much to lights, heat, processes, etc).
- 2) A site-specific survey for traditional and alternative energy source availability, with cursory analyses performed to quantify financial feasibility.
- 3) Details of the most cost-effective Energy Efficiency Measures (EEMs) available to reduce facility energy usage. EEM analyses to evaluate energy and cost savings, estimated project costs, and expected facility energy impacts.

Facility utility data, operation schedules, and maintenance information are expected to be provided by the time of our site visits. We anticipate building and calibrating a basic eQuest computer model for the facility to help establish current energy end-uses and to model the effects of proposed EEMs.

Task 4. Water Efficiency Study and Concept Alternatives

This task will study existing water use and identify methods to reduce consumption, identify water diversion conveyance improvements that protect aquatic organisms and reduce transmission losses. The project team will develop concept alternatives that identify operation methods and infrastructure that reduce diversion flows.

The project team will document water availability, existing use, and demand for irrigation, fire protection, domestic consumption, and power generation. The water use and demand will be assessed on a seasonal basis. Information from the energy audit will be used to identify potential reductions to power needs. System modifications and upgrades will be assessed to identify means to reduce stream diversion, particularly during critical periods. Alternative power generation facilities will be evaluated to identify improvements to water use.

The existing water diversion and conveyance system will be reviewed and assessed to identify options to protecting aquatic organisms and reducing sediment ingestion at the point of diversion, minimizing transmission losses through the canal, and reducing maintenance needs in the canal. The conveyance system will also be evaluated to maximize static head and minimize losses to improve hydroelectric power generation output. Options will be developed and summarized in a water efficiency study and concept report.

Methodology: Describe the means and methods by which the scope of work will be accomplished. Discuss how this project will succeed in and of itself in restoring, protecting, or enhancing the species population(s). How will direct SONCC benefits be measured?

See above for means and methods by which the scope of work will be accomplished. This project will succeed in restoring, protecting and enhancing habitat for rearing juvenile coho by providing necessary information to move forward with physical solutions to reduce diversion amounts from Stanshaw Creek, stop the interbasin transfer to Irving Creek, and resolve longstanding issues regarding the MMR diversion and water system. Direct SONCC benefits will be measured by amount of water returned to Stanshaw Creek above the anadromous reach, and decreased temperatures in the Stanshaw Creek refugia due to increased flow. Fish densities in Stanshaw Creek are monitored throughout the year, however increased fish densities at this site cannot be directly attributed to this project since coho using Stanshaw Creek come from spawning populations further up the Klamath River.

Research / Management Implications: Describe how the project results will be used to help protect, enhance or restore habitat and increase coho salmon populations. If the project is part of a larger program, please describe the larger program and how this component is integrated.

Project results may be used as a template for resolving complicated water rights issues throughout the Klamath Basin.

Dissemination/Community Involvement: Describe in detail your strategy for communicating project results. Describe the educational values and stewardship benefits of the project, if any.

Project results will be made available to all stakeholders for review. The information collected through this project will allow landowners, funders, downstream affected landowners, and regulatory agencies to understand the implications of proposed modifications to the current water system.

Project Participants: What organizations, entities, or contractors comprise the project team? What is the expertise and prior experience of the project team in accomplishing similar projects? The names of the project manager, key cooperators and/or those providing technical guidance, along with their qualifications for involvement in the project, must be stated.

The project team is comprised of the Mid Klamath Watershed Council, Northwest Hydraulic Consultants, Sharpe Energy Solutions, and the law firm of Somach, Simmons, and Dunn.

Mid Klamath Watershed Council

Since 2001, the Mid Klamath Watershed Council (MKWC) has been actively planning, coordinating and implementing restoration projects in the Mid Klamath subbasin. Focusing on projects that directly benefit our anadromous fisheries resource, MKWC implements practical, hands-on restoration projects while educating participants on restoration techniques and stewardship principles. MKWC is involved in a variety of projects related to river restoration and watershed education. These activities provide a way for community members to become involved with their watershed through direct participation. Projects are funded by state, federal, and private grants and donations. MKWC and its partners have been working with landowners along anadromous tributaries in the Mid-Klamath for many years, establishing working relationships that have led to implementation of enhancement and restoration projects on these tributaries. Executive Director Will Harling will be the project manager.

Will Harling, Executive Director, Mid Klamath Watershed Council (MKWC)

B.S., Environmental Biology, Humboldt State University, 1999

Will helped to form MKWC in 2001, after working for the USFS and other governmental and non-governmental agencies since 1993 in the field of natural resources. He currently facilitates the Mid Klamath Restoration Partnership, which collaboratively identifies and prioritizes fisheries restoration projects in the Middle Klamath subbasin. Will has managed

dozens of fisheries and watershed restoration projects in the area and has a close working relationship with local, state, tribal and federal agencies, and residents throughout the subbasin.

Northwest Hydraulic Consultants (NHC)

Northwest Hydraulic Consultants (NHC) has provided planning and engineering services under FRGP grants for Grenada Irrigation District Dam Removal and Fish Passage Construction, Bogus Creek Fish Passage Improvement Project, and Scott River Fishery Habitat Improvement Project. Physical engineer Joey Howard will be the principle investigator.

NHC is a specialist in water resources engineering with an especially strong history of work on rivers. Since our founding in 1972, hydrology, hydraulics, fluvial geomorphology, and sediment transport in rivers has been central to our business and to the technical interests of our professional staff.

NHC performs hydraulic design and analysis services primarily in the areas of conceptual and detailed-design. We offer a hybrid approach which integrates the application of several powerful design tools: conventional methods, physical hydraulic modeling, and numerical hydraulic modeling. We have successfully applied this approach for several decades, with applications that include the hydraulic design and analysis of: fish passage systems, hydroelectric facilities, water and wastewater treatment systems, pump stations, surge protection systems, flow- and pressure-control systems and structures, pipelines and flow conveyance systems, intakes and outlets structures, river training works and bridges, and sediment and debris management facilities.

Joey Howard, P.E. – 16 Years with NHC

Principal Engineer –Hydraulic and Fisheries Engineering

Mr. Howard is a licensed civil engineer in Oregon and California with nearly 20 years of engineering practice in disciplines related to fisheries and river engineering, erosion control and riparian restoration design, stream monitoring, and construction observation. His academic training includes a Bachelor's of Science in civil engineering from the University of California at Irvine with an emphasis in hydraulics and a Master's of Science in environmental and civil engineering from the University of California at Davis (UCD). At UCD, he investigated fine sediment intrusion into salmonid spawning gravels. Mr. Howard is well versed in both the design and implementation of river engineering projects. He has been the engineer of record in charge of preparing construction plans, specifications, and engineer's estimates for numerous river engineering, fish passage, and restoration projects.

Sharpe Energy Solutions

Sharpe Energy Solutions (SES) is an Oregon business offering commercial, industrial, and institutional technical energy audits & feasibility studies, systems commissioning, energy resource management, computer modeling and other engineering services. They are Level III Oregon State SB1149 Auditors for schools and other buildings; Level II Allied Technical Assistant Contractors (ATACs) for the Energy Trust of Oregon; and fully licensed and bonded CBB general contractors.

Jeffery Sharpe, PE

Mr. Sharpe is a licensed professional Civil and Mechanical engineer (PE) in more than 30 States and Provinces, has a wealth of Mechanical and Structural design experience, is a model-law engineer with the NCEES, and is a BPI certified Building Energy Analyst. He is currently contracted as an Oregon State SB1149 Auditor for schools and other buildings; a Level 2 Allied Technical Assistant Contractor (ATAC) for the Energy Trust of Oregon; a regional DSM auditor and consultant for PacifiCorp; and a fully licensed and bonded CBB general contractor

Somach, Simmons, & Dunn

Somach Simmons & Dunn's public sector clients include cities, counties, joint powers agencies, water and irrigation districts, and public utilities. Private sector clients include development interests, water companies, farmers, ranchers, oil companies, small power producers, ski resorts, and non-profit associations of agricultural interests. Somach Simmons & Dunn maintains a state-wide practice throughout California, and represents numerous clients located in the other western states, including Oregon, Arizona and Nevada.

The firm was established in 1991 under its former name of De Cuir & Somach. The firm name changed to Somach Simmons & Dunn in 2000. Somach Simmons & Dunn is notable for its creative approaches to problem solving and resolving disputes on behalf of its clients. Firm attorneys frequently negotiate with local, state and federal regulatory

agency personnel, and client adversaries, in order to develop workable solutions to difficult issues. When negotiation efforts are not successful, the firm is capable of employing all available options, including alternative dispute resolution and litigation, in order to obtain the best possible results for its clients.

Somach Simmons & Dunn is uniquely qualified to provide all of its clients with a broad array of services and counsel for transactional, regulatory compliance and litigation matters.

Stuart Somach, Esq.

Mr. Somach’s background includes the U.S. Department of the Interior and the U.S. Department of Justice. In private practice since 1984, Mr. Somach’s practice concentrates on water rights, water quality, federal reclamation law, toxics, natural resources, environmental law, all phases of civil litigation before federal and state courts, and negotiating federal legislative issues. Mr. Somach earned his J.d. from the University of Pacific, McGeorge School of Law, in 1979. He has argued significant water cases before both the United States Supreme Court and the California Supreme Court. Mr. Somach has been an Adjunct Professor of Law at McGeorge, having taught natural resources law, water quality and toxics law. He is admitted to the State Bar of California and the District of Columbia Bar, as well as numerous Federal District Courts and Circuit Courts of Appeal.

Examples of similar work completed by project participants include:

PG&E Bear River and Yuba Canal Analyses

Northwest Hydraulic Consultants conducted hydraulic analyses to assess hydraulic performance of 25 miles of conveyance canals that divert flows from the Bear and Yuba Rivers. These canals convey diversion flows for hydroelectric generation and water supply facilities. Analyses included assessment of hydraulic losses through the system and impacts of proposed canal lining projects and a flume replacement project. In 2011, pre- and post-project hydraulic analyses were conducted for 12 canal lining sites. Models were calibrated before and after the lining projects. Hydraulic analyses were conducted using engineering equations and HEC-RAS.

Twitchell Island - Carbon Sequestration Managed Wetland

Northwest Hydraulic Consultants developed irrigation water demand, pump sizing, and pipe network water delivery design for a 400 acre managed wetland restoration project located in the Sacramento San Joaquin Delta near Rio Vista, CA. The water delivery system is designed to satisfy demand for peak consumptive use, and provides reduced delivery for off peak needs through variable speed pumps. Looped, low pressure pipe network designs were optimized using EPANET to confirm proper irrigation delivery flowrates and pressures under the prescribed range of water delivery needs. Variable delivery design was paramount for the project to minimize pumping of drain water from the managed wetland system. A feasibility level engineer's cost estimate was provided to assist in developing the project implementation grant request.

Scott and Shasta Valley Fish Screen and Passage Projects

NHC has designed and constructed several fish screen and passage projects for water diversions in the Scott and Shasta Valleys. These projects include fish screen and roughened channel design and construction oversight at the Montague Water Conservation Districts diversion on the Little Shasta River, fish screen design and construction support at the Denny Ditch Diversion on the Scott River, fish screen design on two diversions on the East Fork Scott River, fish screen and passage design at the Grenada Irrigation diversion on the Shasta River, intake design and fish passage design at the Edson Foulke intake on the Upper Shasta River, and fish screen and passage design of the Hart and Musgrave diversions on the Little Shasta River.

Spokane River Protection Water Budget and Instream Flow Assessment

Avista Utilities Corporation (Avista) owns and operates five hydroelectric facilities on the Spokane River, Washington. Collectively, these facilities are referred to as the Spokane River Hydroelectric Project. Avista is in the process of developing new license conditions for the Project under the Alternative Licensing Procedure (ALP). NHC was retained by Avista and the Project Relicensing team to develop a detailed water budget and conduct an operations assessment for the Project. nhc developed the water budget from approximately 90 years of hydrologic and meteorological data and used this information as input to an operations model of the Project. The model was used to simulate conditions under current and historic (unregulated) conditions. NHC also conducted an instream flow study to identify key fish species and life stages and assess the impacts of different flows on habitat conditions. Using the information from the instream flow assessment and other studies undertaken as part of the relicensing (e.g. economics, aesthetics, whitewater rafting, water

quality, etc.), NHC applied the operations model to evaluate alternative operations scenarios and develop flow recommendations for the Project.

Mount Ashland Ski Resort Energy Audit and Net-0 feasibility study

Sharpe Energy Solutions performed a Technical Analysis Study (TAS) for the entire Mount Ashland Ski Resort facility; including the lodge and rental shop buildings, HVAC systems, ski-run lighting, and lift motors. The project included modeling, analyses, preliminary designs and procurement of contractor bids. This TAS was conducted under contract with ETO, and has already stimulated EEM construction. Also conducted a Preliminary Feasibility Study for the resort investigating possible avenues for its becoming a Net-0 energy consuming/producing facility.

Energy Audits of selected Siskiyou County facilities to procure ARRA funding through the California Energy Commission (CEC)

Sharpe Energy Solutions conducted energy audits for critical Siskiyou County facilities. These facilities include Siskiyou County’s Library, Jail, City Hall, and KNF buildings; Yreka Community Theatre; City of Montague’s WWTP, City Hall, City Shop and Community Center; City of Doris’s Water Supply Pump Motor, City Hall, and Fire Hall; City of Mount Shasta City Hall, Police/Fire Station, Public Works, WWTP Motors; City of Fort Jones Fire Hall, Water Supply Pump Motor, and Community Center; City of Dunsmuir City Shop and Park & Rec. Buildings, WWTP Pump Motors. These preliminary energy audits included site visits, preliminary eQuest modeling and system designs, and procuring of EEM construction estimates. The audits were performed under a contract from Pacific Power as subcontractor to RHT, and are currently being used to procure stimulus dollars from the CEC

Partnerships: Briefly list the proposed partners and the roles that they will play in accomplishing the scope of work. If the project is a cooperative effort with other organizations, define the degree of funding participation in the overall project, what the level of responsibility will be for the Fund’s component, and whether/how the other components may impact successful completion of the Fund’s portion of the comprehensive effort.

Partners in the project include Marble Mountain Ranch owners Doug and Heidi Cole, the Karuk Tribe, the California Department of Fish and Game, and the Mid Klamath Watershed Council. Interested parties include downstream landowners with riparian water rights, the State Water Resources Control Board, the US Forest Service – Orleans/Ukonom Ranger District, National Marine Fisheries Service, and Natural Resource Conservation Service.

Karuk Tribe Lead Fisheries Biologist Toz Soto will be donating \$1,300 in in-kind services. Landowner Doug Cole will be donating \$1,200 in in-kind services. DFG, if this project is chosen for funding, will provide at minimum, \$19,500 in in-kind services towards the water rights analysis to be conducted by Stuart Somach. These in-kind services, while critical to provide key information and participation from project partners, are not absolutely necessary for project completion.



Stanshaw Creek Water Conservation Assessment

Project Schedule

Project will begin June 1, 2013, and be completed by May 31, 2014. The following tasks will be completed as follows:

Months 1-2: Water Rights Evaluation/Memorandum

Months 1-4: Survey and Site Assessment

Months 3-4: Energy Audit

Months 3-11: Water Efficiency Study and Concept Alternatives Analysis

Months 1-12: Progress Reports, Annual Reports, and Final Report Completion



Monitoring Plan

Instructions: Save this document on your computer and complete the table below. Once complete, upload this document into the on-line application as instructed.

Please provide a brief monitoring plan for your proposed project which describes the monitoring or measurement(s) to be performed to document resulting project benefits. Describe the strategy for monitoring and evaluating project results, including specifics on how success will be defined and measured. Please note any challenges or limitations you anticipate in interpreting anticipated results. The costs associated with this monitoring should be included in the overall project budget. This monitoring plan should not exceed more than 2 pages. Refer to the Request for Proposal's standardized Monitoring Report forms to guide you with completing this.

The Stanshaw Creek Water Conservation Assessment in itself will not result in physical benefits to Stanshaw Creek and coho rearing there. However, this project is a mandatory step towards moving forward with physical solutions to current impacts to Stanshaw Creek that will be implemented through subsequent proposals. These implementation projects will result in significant quantifiable results based on the structure of the Project Monitoring Report.

Attachment #3: Photographs
Stanshaw Creek Water Conservation Assessment



Figure 1. Marble Mountain Ranch (MMR) Hydroplant



Figure 2. Outflow from MMR Hydroplant



Figure 3. Domestic water treatment facility



Figure 4. Recent MMR ditch repair site.



Figure 5. Repaired section of MMR ditch.



Figure 6. Failed Sediment Trap



Figure 7. MMR ditch overflow just below Point of Diversion (POD).



Figure 8. MMR ditch POD.



Figure 9. Gully headcut (approx. 15 feet deep) where MMR ditch leaves MMR into Irving Creek drainage.