UPPER FEATHER RIVER IRWM

PROJECT INFORMATION FORM

Please submit by 5:00 p.m. on August 3, 2015, to UFR.contact@gmail.com

Please provide information in the tables below:

I. PROJECT PROPONENT INFORMATION

Agency / Organization	Trout Unlimited
Name of Primary Contact	Mike Caltagirone
Name of Secondary Contact	Cindy Noble
Mailing Address	720 Tahoe St. Suite 1 Reno, NV 89509
E-mail	mcaltagirone@tu.org
Phone	775-232-9697
Other Cooperating Agencies / Organizations / Stakeholders	Plumas National Forest, University of Nevada-Reno, California Department of Conservations, The Sierra Fund, The Sierra Nevada Conservancy, Trout Unlimited-Feather River Chapter
Is your agency/organization committed to the project through completion? If not, please explain	Yes

II. GENERAL PROJECT INFORMATION

Project Title	FMW-19: Debris Dam Survey, Inventory, Characterization
Project Category	☒ **Water Supply/Water Quality** ☒ **Environmental Protection/Restoration** ☐ **Community Water/Wastewater** ☐ **Stakeholder/Public Collaboration and Education** ☐ **Working Landscape Viability**
Project Description (Briefly describe the project, in 300 words or less)	The 1884 Sawyer decision mandated that mining activities had to build debris dams in the Sierra waterways to contain materials discharged during mining. These debris dams are now backfilled with sediment and debris that is likely contaminated with mercury, metals and toxins. The condition and level of contamination of these dams is unclear. This project will locate and characterize all existing dams within the Upper Feather River watershed allowing for prioritization for removal. In addition to the existing dams, former dam sites will also be cataloged, where available, and characterized as potential remediation projects depending on prioritization levels and residual impacts. The evaluation tool will be developed in collaboration with the

	partners listed above. Samples will be taken from the dam sites for contamination testing. Scoring will be used to identify the sites which could produce the greatest negative impact from a dam failure. Once identified, the prioritization list of existing and failed dam sites will be utilized to guide the remediation of these sites.
Project Location Description (e.g., along the south bank of stream/river between river miles or miles from Towns/intersection and/or address):	The first phase of this project will encompass the entire Upper Feather River Watershed. Subsequent projects will be identified after the inventory phase is complete. Potential projects will be identified on both public and private land.
Latitude:	Regionwide
Longitude:	

III. APPLICABLE IRWM PLAN OBJECTIVES ADDRESSED

For each of the objectives addressed by the project, provide a one to two sentence description of how the project contributes to attaining the objective and how the project outcomes will be quantified. If the project does not address *any* of the IRWM plan objectives, provide a one to two sentence description of how the project relates to a challenge or opportunity of the Region.

Upper Feather River IRWM Objectives:	**Will the project address the objective?**	**Brief explanation of project linkage to selected Objective**	**Quantification** (e.g. acres of streams/wetlands restored or enhanced)
Restore natural hydrologic functions.	☐ Yes ☒ N/A		
Reduce potential for catastrophic wildland fires in the Region.	☐ Yes ☒ N/A		
Build communication and collaboration among water resources stakeholders in the Region.	☐ Yes ☒ N/A		
Work with DWR to develop strategies and actions for the management, operation, and control of SWP facilities in the Upper Feather River Watershed in order to increase water	☒ Yes ☐ N/A	The primary benefit of the Inventory will be in guiding management decisions in terms of prioritizing dam removals and protecting downstream waters. The benefits of this project are	

Upper Feather River IRWM Objectives:	Will the project address the objective?	Brief explanation of project linkage to selected Objective	Quantification (e.g. acres of streams/wetlands restored or enhanced)
supply, recreational, and environmental benefits to the Region.		numerous and cover a large number of areas. The ultimate removal of these unreliable dams and remediation of the sediments behind them will increase the safety of the watershed by eliminating the potential contamination risk to both human users and the environment. Potential cross contamination of aquifers and surface waters by contaminated outflow from a dam failure would also be eliminated.	
Encourage municipal service providers to participate in regional water management actions that improve water supply and water quality.	☐ Yes ☒ N/A		
Continue to actively engage in FERC relicensing of hydroelectric facilities in the Region.	☐ Yes ☒ N/A		
Address economic challenges of municipal service providers to serve customers.	☐ Yes ☒ N/A		
Protect, restore, and enhance the quality of surface and groundwater resources for all beneficial uses, consistent with the RWQC Basin Plan.	☒ Yes ☐ N/A	The ultimate removal of these unreliable dams and remediation of the sediments behind them will increase the safety of the watershed by eliminating the potential contamination risk to both human users and the environment. Potential cross contamination of aquifers and surface waters by contaminated outflow from a dam failure would also be eliminated. In total, the purpose of the project will be to guide management decisions and prioritize the remediation and removal of these dams.	

Upper Feather River IRWM Objectives:	**Will the project address the objective?**	**Brief explanation of project linkage to selected Objective**	**Quantification** (e.g. acres of streams/wetlands restored or enhanced)
Address water resources and wastewater needs of DACs and Native Americans.	☐ Yes ☒ N/A		
Coordinate management of recharge areas and protect groundwater resources.	☒ Yes ☐ N/A	The inventory will be created with the overall purpose of guiding management decisions including those governing the recharge and protection of groundwater resources. Removing these sources of contaminating outflow would safeguard groundwater sources from contamination by discharged sediment from a dam failure	
Improve coordination of land use and water resources planning.	☐ Yes ☒ N/A		
Maximize agricultural, environmental and municipal water use efficiency.	☐ Yes ☒ N/A		
Effectively address climate change adaptation and/or mitigation in water resources management.	☒ Yes ☐ N/A	Identification and characterization of degrading debris dams is critical to knowing which stream waters are potentially threatened, and determine priority dams for removal/remediation. As water resources become more and more scarce, the value of a clean, useable watershed increases. Eliminating these sources of heavy metal and toxins within the watershed will provide for more useable water and less risk to the resource availability.	Potentially hundreds of downstream miles
Improve efficiency and reliability of water supply and other water-related infrastructure.	☐ Yes ☒ N/A		
Enhance public awareness and understanding of water management issues and needs.	☒ Yes ☐ N/A	The debris dam inventory will be open to the public thereby raising public awareness of the debris dams and the risks	Available to the general public in California and beyond.

Upper Feather River IRWM Objectives:	Will the project address the objective?	Brief explanation of project linkage to selected Objective	Quantification (e.g. acres of streams/wetlands restored or enhanced)
		involved	
Address economic challenges of agricultural producers.	☐ Yes ☒ N/A		
Work with counties/ communities/groups to make sure staff capacity exists for actual administration and implementation of grant funding.	☐ Yes ☒ N/A		

If no objectives are addressed, describe how the project relates to a challenge or opportunity for the Region:

IV. PROJECT IMPACTS AND BENEFITS

Please provide a summary of the expected project benefits and impacts in the table below or check N/A if not applicable; **do no leave a blank cell.** Note that DWR encourages multi-benefit projects.

If applicable, describe benefits or impacts of the project with respect to:		
a. Native American Tribal Communities	☒ N/A	
b. Disadvantaged Communities[1]	☒ N/A	
c. Environmental Justice[2]	☒ N/A	
d. Drought Preparedness	☐ N/A	The collapse of a debris dam would likely mobilize heavy metals and toxins collected behind it. Removing the dam and the sediments eliminates the opportunity for this type of water contamination and its spread and safeguarding the available water supply. The inventory will prioritize the dam removal by risk and thereby help to determine which watersheds are safe, reliable water sources.
e. Assist the region in adapting to effects of climate change[3]	☐ N/A	These debris dams act as barriers to fish and aquatic life migration. As the climate changes, stream residents try to move upstream to more suitable conditions. Removing these barriers will facilitate that migration.

f. Generation or reduction of greenhouse gas emissions (e.g. green technology)	☒ N/A	
g. Other expected impacts or benefits that are not already mentioned elsewhere	☒ N/A	

[1] A Disadvantaged Community is defined as a community with an annual median household (MHI) income that is less than 80 percent of the Statewide annual MHI. DWR's DAC mapping is available on the UFR website (http://featherriver.org/maps/) .
[2] Environmental Justice is defined as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation and enforcement of environmental laws, regulations and policies. An example of environmental justice benefit would be to improve conditions (e.g. water supply, flooding, sanitation) in an area of racial minorities.
[3] Climate change effects are likely to include increased flooding, extended drought, and associated secondary effects such as increased wildfire risk, erosion, and sedimentation.

DWR encourages multiple benefit projects which address one or more of the following elements (PRC §75026(a). Indicate which elements are addressed by your project.

a. Water supply reliability, water conservation, water use efficiency	☐ Yes ☒ N/A	g. Drinking water treatment and distribution	☐ Yes ☒ N/A
b. Stormwater capture, storage, clean-up, treatment, management	☐ Yes ☒ N/A	h. Watershed protection and management	☒ Yes ☐ N/A
c. Removal of invasive non-native species, creation/enhancement of wetlands, acquisition/protection/restoration of open space and watershed lands	☒ Yes ☐ N/A	i. Contaminant and salt removal through reclamation/desalting, other treatment technologies and conveyance of recycled water for distribution to users	☐ Yes ☒ N/A
d. Non-point source pollution reduction, management and monitoring	☒ Yes ☐ N/A	j. Planning and implementation of multipurpose flood management programs	☐ Yes ☒ N/A
e. Groundwater recharge and management projects	☒ Yes ☐ N/A	k. Ecosystem and fisheries restoration and protection	☒ Yes ☐ N/A
f. Water banking, exchange, reclamation, and improvement of water quality	☒ Yes ☐ N/A		

V. RESOURCE MANAGEMENT STRATEGIES

For each resource management strategy (RMS) employed by the project, provide a one to two sentence description in the table below of how the project incorporates the strategy. A description of the RMS can be found in Volume 2 of the 2013 California Water Plan (http://featherriver.org/2013-california-water-plan-update/).

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
Reduce Water Demand		
Agricultural Water Use Efficiency	☐ Yes ☒ No	
Urban water use efficiency	☐ Yes ☒ No	
Improve Flood Management		
Flood management	☐ Yes ☒ No	Removal of unreliable barriers to flow
Improve Operational Efficiency and Transfers		
Conveyance – regional/local	☐ Yes ☒ No	
System reoperation	☐ Yes ☒ No	
Water transfers	☐ Yes ☒ No	
Increase Water Supply		
Conjunctive management	☐ Yes ☒ No	
Precipitation Enhancement	☐ Yes ☒ No	
Municipal recycled water	☐ Yes ☒ No	
Surface storage – regional/local	☐ Yes ☒ No	
Improve Water Quality		
Drinking water treatment and distribution	☐ Yes ☒ No	
Groundwater remediation/aquifer remediation	☐ Yes ☒ No	
Matching water quality to water use	☐ Yes ☒ No	
Pollution prevention	☒ Yes ☐ No	Removal of contamination risk from dam failure
Salt and salinity management	☐ Yes ☒ No	
Urban storm water runoff management	☐ Yes ☒ No	
Practice Resource Stewardship		
Agricultural land stewardship	☐ Yes ☒ No	
Ecosystem restoration	☐ Yes ☒ No	
Forest management	☒ Yes ☐ No	Identification and evaluation of debris dams located in forested lands will provide valuable information to guide forest management in protecting water quality
Land use planning and management	☐ Yes ☒ No	
Recharge area protection	☐ Yes ☒ No	
Sediment management	☒ Yes ☐ No	Knowledge of debris dam conditions such as their potential for near future failure, will prompt management decisions to prevent sediment pulses downstream from occurring unexpectedly.

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
Watershed management	☒ Yes ☐ No	Knowledge of debris dam conditions such as their potential for near future failure and level of toxicity, will prompt watershed scale management decisions that will protect downstream water quality.
People and Water		
Economic incentives	☐ Yes ☒ No	
Outreach and engagement	☐ Yes ☒ No	
Water and culture	☐ Yes ☒ No	
Water-dependent recreation	☒ Yes ☐ No	Restoring a natural fishery and removing migration barriers
Wastewater/NPDES	☐ Yes ☒ No	

Other RMS addressed and explanation:

VI. PROJECT COST AND FINANCING

Please provide any estimates of project cost, sources of funding, and operation and maintenance costs, as well as the source of the project cost in the table below.

PROJECT BUDGET

Project serves a need of a DAC?: ☐ Yes ☒ No
Funding Match Waiver request?: ☐ Yes ☐ No

	Category	Requested Grant Amount	Cost Share: Non-State Fund Source* (Funding Match)	Cost Share: Other State Fund Source*	Total Cost
a.	**Direct Project Administration**	26,000			
b.	**Land Purchase/Easement**	N/A			
c.	**Planning/Design/Engineering / Environmental Documentation**	TBD based on Phase 1 findings			
d.	**Construction/Implementation**	TBD based on Phase 1 findings			
e.	**Environmental Compliance/ Mitigation/Enhancement**	TBD based on Phase 1 findings			
f.	**Construction Administration**	TBD based on Phase 1 findings			
g.	**Other Costs – Sampling/ Testing/Logistics/Database development/Reporting**	71,000			
h.	**Construction/Implementation Contingency**	N/A			
i.	**Grand Total (Sum rows (a) through (h) for each column)**	97000			

j.	**Can the Project be phased?** ☒ **Yes** ☐ **No** If **yes**, provide cost breakdown by phases			
		Project Cost	**O&M Cost**	**Description of Phase**
	Phase 1	97000		Inventory and prioritization
	Phase 2	TBD based on Phase 1 findings		Removal and Remediation
	Phase 3			
	Phase 4			

k.	**Explain how operation and maintenance costs will be financed for the 20-year planning period for project implementation (not grant funded).**	Once removal and remediation is complete there is no ongoing maintenance required. Supplemental funding would be secured for long term monitoring of the habitat.

l.	**Has a Cost/Benefit analysis been completed?**	☐ **Yes** ☒ **No**
m.	**Describe what impact there may be if the project is not funded (300 words or less)**	These debris dams pose a significant risk to water quality, habitat, recreational and residential uses. Leaving them in place and uncharacterized means it is only a matter of time before the failure of one of these dams has a significant negative impact on both the human and aquatic communities. Currently the number, condition and locations of the debris dams is unknown. Therefore the risk they pose is also unknown. This risk need to be determined sooner rather than later. These dams are aged with some over 120 years old. The longer this inventory is delayed, the greater the potential for catastrophic collapse.

*List all sources of funding.
Note: See Project Development Manual, Exhibit B, for assistance in completing this table (http://featherriver.org/documents/).

VIII. PROJECT STATUS AND SCHEDULE

Please provide a status of the project, level of completion as well as a description of the activities planned for each project stage. If unknown, enter **TBD**.

Project Stage	Check the Current Project Stage	Completed?	Description of Activities in Each Project Stage	Planned/ Actual Start Date (mm/yr)	Planned/ Actual Completion Date (mm/yr)
a. Assessment and Evaluation	☒	☐ Yes ☒ No ☐ N/A	Identification, inspection, sampling, analysis, scoring of debris dams. Development of evaluation tools and database.	11/15 – depending on funding	11/16 – depending on progress
b. Final Design	☐	☐ Yes ☐ No ☒ N/A			
c. Environmental Documentation (CEQA / NEPA)	☐	☐ Yes ☐ No ☒ N/A			
d. Permitting	☐	☐ Yes ☐ No ☒ N/A			
e. Construction Contracting	☐	☐ Yes ☐ No ☒ N/A			
f. Construction Implementation	☐	☐ Yes ☐ No ☒ N/A			
Provide explanation if more than one project stage is checked as current status					

IX. PROJECT TECHNICAL FEASIBILITY

Please provide any related documents (date, title, author, and page numbers) that describe and confirm the technical feasibility of the project. See www.featherriver.org/catalog/index.php for documents gathered on the UFR Region.

a. List the adopted planning documents the proposed project is consistent with or supported by (e.g. General Plans, UWMPs, GWMPs, Water Master Plan, Habitat Conservation Plans, TMDLs, Basin Plans, etc.).	The California Water Plan 2013, "Mountain Counties" Chapter (pp. 25,26)
b. List technical reports and studies supporting the feasibility of this project.	This study will help to determine and prioritize the feasibility of each individual dam removal and remediation. The evaluations will be performed according to CA DOC procedures for mine workings inspection and USACE protocols for dam structural inspection. Both of these procedures and protocols are in common use.
c. Concisely describe the scientific basis (e.g. how much research has been conducted) **of the proposed project in 300 words or less.**	This project will be undertaken in conjuction and cooperation with a similar project in the adjacent Tahoe NF. All testing and evaluations will be consistent with standard accepted practices and will be overseen by USFS and the Department of Natural Resources and Environmental Science at the University of Nevada. This issue is unique to California and the Plumas and Tahoe National Forests. These dams have not been addressed previously therefore previous research is not specifically applicable.
d. Does the project implement green technology (e.g. alternate forms of energy, recycled materials, LID techniques, etc.).	☐ Yes ☐ No ☒ N/A If yes, please describe.
e. Are you an Urban Water Supplier[1]?	☐ Yes ☒ No ☐ N/A
f. Are you are an Agricultural Water Supplier[2]?	☐ Yes ☒ No ☐ N/A
g. Is the project related to groundwater?	☐ Yes ☒ No ☐ N/A If yes, please indicate which groundwater basin.

[1] Urban Water Supplier is defined as a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually.

[2] Agricultural Water Supplier is defined as a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding the acreage that receives recycled water.

Climate Change – Project Assessment Checklist

This climate change project assessment tool allows project applicants and the planning team to assess project consistency with Proposition 84 plan standards and RWMG plan assessment standards. The tool is a written checklist that asks GHG emissions and adaptation/resiliency questions.

Name of project: FMW-19: Debris Dam Survey, Inventory and Characterization

Project applicant: Trout Unlimited – Mike Caltagirone

GHG Emissions Assessment

Project Construction Emissions

(If you check any of the boxes, please see the attached worksheet)

☐ The project requires nonroad or off-road engines, equipment, or vehicles to complete.

☐ The project requires materials to be transported to the project site.

X The project requires workers to commute to the project site.

☐ The project is expected to generate GHG emissions for other reasons.

X The project does not have a construction phase and/or is not expected to generate GHG emissions during the construction phase.

Operating Emissions

(If you check any of the boxes, please see the attached worksheet)

☐ The project requires energy to operate.

☐ The project will generate electricity.

☐ The project will proactively manage forests to reduce wildfire risk.

☐ The project will affect wetland acreage.

☐ The project will include new trees.

☐ Project operations are expected to generate or reduce GHG emissions for other reasons.

Adaptation & Resiliency Assessment

Water Supply

Describe how the project makes the watershed (more/less) resilient to one or more of the following high priority water supply vulnerability issues:

- [X] Not applicable
- [ ] Reduced snowmelt
- [ ] Unmet local water needs (drought)
- [ ] Increased invasive species

Water Demand

Describe how the project makes the watershed (more/less) resilient to one or more of the following high priority water demand vulnerability issues:

- [X] Not applicable
- [ ] Increasing seasonal water use variability
- [ ] Unmet in-stream flow requirements
- [ ] Climate-sensitive crops
- [ ] Groundwater drought resiliency
- [ ] Water curtailment effectiveness

Water Quality

Describe how the project makes the watershed (more/less) resilient to one or more of the following high priority water quality vulnerability issues:

☐ Not applicable
☐ Increasing catastrophic wildfires
☐ Eutrophication (excessive nutrient pollution in a waterbody, often followed by algae blooms and other related water quality issues)
☐ Seasonal low flows and limited abilities for waterbodies to assimilate pollution
☐ Water treatment facility operations
X Unmet beneficial uses (municipal and domestic water supply, water contact recreation, cold freshwater habitat, spawning habitat, wildlife habitat, etc.)

Phase 2 and 3 of the project will address the removal of the debris dams prioritized by risk. Removal of these barriers will facilitate upstream migration of the aquatic residents. Upstream habitats will provide a refuge from higher downstream temperatures resulting from climate change warming.

Phase 1 of the project is an evaluation to determine the risk priorities of the debris dams and, as such, is not necessarily applicable.

Flooding

Describe how the project makes the watershed (more/less) resilient to one or more of the following high priority flooding vulnerability issues:

X Not applicable
☐ Aging critical flood protection
☐ Wildfires
☐ Critical infrastructure in a floodplain
☐ Insufficient flood control facilities

The categories above do not address this project's benefit regarding flooding. The existing dams are not flood protection structures. They are currently backfilled with sediments including large amounts of waste from hydraulic mining activities over the last century. Removing these dams and the backfilled sediment will reduce or potentially eliminate the risk associated with the mercury that is collected in the sediment behind these dams. Should one of these dams fail, the resulting toxic flow of sediments will compound the danger and impact of the resulting flood. Removal of these dams will mitigate that substantial risk.

Ecosystem and Habitat

Describe how the project makes the watershed (more/less) resilient to one or more of the following high priority ecosystem and habitat vulnerability issues:

- ☐ Not applicable
- X Climate-sensitive fauna or flora
- X Recreation and economic activity
- ☐ Quantified environmental flow requirements
- X Erosion and sedimentation
- X Endangered or threatened species
- X Fragmented habitat

As stated above, removal of these dams will allow for the upstream migration of the aquatic population looking for relief from climate change-induces warming at the lower elevations. This will help ensure the continuation of the populations over these warming periods. Providing for the habitat relief for the aquatic inhabitants will all for recreational fishing and exploring to continue in these areas. There are frog species in this watershed that are listed under the Endangered Species Act. Removing these dams will support their migration upstream to more suitable environs as well. These dams effectively dissect the watershed and creates habitat fragments. Removing these dams will reconnect the watershed and re-create a holistic environment.

Hydropower

Describe how the project makes the watershed (more/less) resilient to one or more of the following high priority hydropower vulnerability issues:

- X Not applicable
- ☐ Reduced hydropower output