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	Lake Almanor Water Group
Name of Primary Contact	Aaron Seandel
Name of Secondary Contact	Charles Plopper, Courtney Gomola
Mailing Address	1207 Driftwood Cove Road, Lake Almanor CA 96137
E-mail	aseandel@frontiernet.net
Phone	530-259-4335
Other Cooperating Agencies / Organizations / Stakeholders	USDA Natural Resources Conservation Services (NRCS) Sierra Institute for Community and Environment
Is your agency/organization committed to the project through completion? If not, please explain	

II. GENERAL PROJECT INFORMATION

Project Title	FMW-2: Water Quality Monitoring Program – Lake Almanor
Project Category	☐ **Agricultural Land Stewardship** **X Floodplains/Meadows/Waterbodies** ☐ **Municipal Services** ☐ **Tribal Advisory Committee** ☐ **Uplands/Forest**
Project Description (Briefly describe the project, in 300 words or less)	To expand and extend lake and streamflow monitoring program in the Almanor Basin , and provide central clearing house (s) where monitoring data can be assessed and maintained, and programs of interest and for educational purposes about the watershed can be developed. distributed, and maintained. To continue the sampling program at Lake Almanor. The program of assessment and remediation has been an annual task of the Water Group, in conjunction with D.W.R. As the Almanor Basin goes through changes in population and land usage, it is important to document the impact of these changes on flow regimes, erosion

	and stream degradation
Project Location Description (e.g., along the south bank of stream/river between river miles or miles from Towns/intersection and/or address):	All waterways in the County that are utilized for recreation purpose.and all streams and restoration projects in the County
Latitude:	Regional—covering entire Almanor Basin
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 X N/A		
Reduce potential for catastrophic wildland fires in the Region.	☐ Yes X☐ N/A		
Build communication and collaboration among water resources stakeholders in the Region.	x☐ Yes ☐ N/A	Expand on communications between Lake Almanor Water Group (LAWG), Pacific Gas and Electric(PG&E), Department ofWater Resources (DWR), and Natural Resource Conservation Services (NRCS)	
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 supply, recreational, and environmental benefits to the Region.	x☐ Yes ☐ N/A	Continuing to work cooperatively with DWR in the sampling program for Lake Almanor to improve recreational and environmental opportunities.	

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)
Encourage municipal service providers to participate in regional water management actions that improve water supply and water quality.	☐ Yes x☐ N/A		
Continue to actively engage in FERC relicensing of hydroelectric facilities in the Region.	x☐ Yes ☐ N/A	A few members of LAWG have been involved with the current relicensing program for FERC 21O5 since its inception .	
Address economic challenges of municipal service providers to serve customers.	☐ Yes x☐ N/A		
Protect, restore, and enhance the quality of surface and groundwater resources for all beneficial uses, consistent with the RWQC Basin Plan.	☐ Yes x N/A		
Address water resources and wastewater needs of DACs and Native Americans.	☐ Yes x☐ N/A		
Coordinate management of recharge areas and protect groundwater resources.	☐ Yes X☐ N/A		
Improve coordination of land use and water resources planning.	x☐ Yes ☐ N/A	Continue to work with local and County officials regarding land use and water availability.	
Maximize agricultural, environmental and municipal water use efficiency.	☐ Yes x☐ N/A		
Effectively address climate change adaptation and/or mitigation in water resources management.	x☐ Yes ☐ N/A	Have discussed this extensively in review of Draft Environmental Impact Report (DEIR) from the State Water Resources Control Board (SWRCB) re: Federal Energy Resources Commission (FERC) 2105	
Improve efficiency and reliability of water supply and other water-related infrastructure.	☐ Yes X☐ N/A		

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)
Enhance public awareness and understanding of water management issues and needs.	x☐ Yes ☐ N/A	Continue to have forums, distribution of printed materials regarding water management issues and needs	
Address economic challenges of agricultural producers.	☐ Yes x☐ N/A		
Work with counties/ communities/groups to make sure staff capacity exists for actual administration and implementation of grant funding.	☐ Yes x☐ 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	X YES	Work with the Native American communities in the development of a Cultural Center for the Maidus that relates current monitoring efforts to traditional uses of water." to further monitoring efforts and interests in the Humbug Valley and Yellow Creek.
b. Disadvantaged Communities[1]	X☐ N/A	
c. Environmental Justice[2]	X☐ N/A	
d. Drought Preparedness	X N/A	

e. Assist the region in adapting to effects of climate change[3]	X☐ YES	Providing information regularly through announcements, forums and printed material on the effects of climate change re: the health of the lake (e.g. the impact of water temperatires on the health of cold water fish in the lake, as an example)
f. Generation or reduction of greenhouse gas emissions (e.g. green technology)	X☐ N/A	
g. Other expected impacts or benefits that are not already mentioned elsewhere	X 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	x☐ N/A	g. Drinking water treatment and distribution	X N/A
b. Stormwater capture, storage, clean-up, treatment, management	x☐ Yes	h. Watershed protection and management	x Yes
c. Removal of invasive non-native species, creation/enhancement of wetlands, acquisition/protection/restoration of open space and watershed lands	x Yes	i. Contaminant and salt removal through reclamation/desalting, other treatment technologies and conveyance of recycled water for distribution to users	x☐ N/A
d. Non-point source pollution reduction, management and monitoring	x Yes	j. Planning and implementation of multipurpose flood management programs	x☐ N/A
e. Groundwater recharge and management projects	x☐ N/A	k. Ecosystem and fisheries restoration and protection	x☐ Yes
f. Water banking, exchange, reclamation, and improvement of water quality	x☐ 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 X No	
Urban water use efficiency	☐ Yes X☐ No	
Improve Flood Management		
Flood management	Yes ☐X No	
Improve Operational Efficiency and Transfers		
Conveyance – regional/local	☐ Yes X☐ No	
System reoperation	☐ Yes X☐ No	
Water transfers	☐ Yes X☐ No	
Increase Water Supply		
Conjunctive management	☐ Yes X☐ No	
Precipitation Enhancement	☐ Yes X☐ No	
Municipal recycled water	☐ Yes X☐ No	
Surface storage – regional/local	☐ Yes X☐ No	
Improve Water Quality		
Drinking water treatment and distribution	☐ Yes X☐ No	
Groundwater remediation/aquifer remediation	☐ Yes X☐ No	
Matching water quality to water use	☐ Yes X☐ No	
Pollution prevention	X☐ Yes ☐ No	The project will sample pollution sources and locations; green areas, golf courses et al. There is evidence of an increase in algae and other sources for excessive nutrients in the lake.
Salt and salinity management	☐ Yes X ☐ No	
Urban storm water runoff management	X Yes ☐ No	Remind local golf courses to develop run off basins to prevent run off from traveling to the lake. There are pictures taken In November of 2006, showing the damage that was done to roads, homes and the lake because of lack of runoff management.
Practice Resource Stewardship		
Agricultural land stewardship	☐ Yes X☐ No	
Ecosystem restoration	☐ Yes X☐ No	
Forest management	☐ Yes X☐ No	

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
Land use planning and management	X☐ Yes ☐ No	Participate in land use discussions, where the impact of these decisions could have a direct impact on the health of the lake.
Recharge area protection	☐ Yes X ☐ No	
Sediment management	X☐ Yes ☐ No	See response to urban storm water runoff management
Watershed management	☐ Yes X☐ No	
People and Water		
Economic incentives	X☐ Yes ☐	Working with business owners throughout the Watershed to improve ways to attract more visitors to the area. Development of a water trails map for visitors to the area is already underway.
Outreach and engagement	X Yes ☐ No	A strong long-term monitoring program with public access to the data provides an opportunity for public groups & individuals to contribute to positive water management outcomes by being better informed. Also working with partners to provide educational programs for residents and visitors
Water and culture	Yes X No	
Water-dependent recreation	☐ Yes ☐X No	
Wastewater/NPDES		

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 X No
Funding Match Waiver request?: ☐ Yes X☐ No

	Category	Requested Grant Amount	Cost Share: Non-State Fund Source* (Funding Match)	Cost Share: Other State Fund	Total Cost
a.	**Direct Project Administration**	$120,000	$ 20,000 by		$140,000
b.	**Land Purchase/Easement**		Two Home		
c.	**Planning/Design/Engineering/ Environmental**		Owners Associations— contributing $5,000 in		
d.	**Construction/Implementation**		of the four phases		
e.	**Environmental Compliance/ Mitigation/Enhancement**				
f.	**Construction Administration**				
g.	**Other Costs**				
h.	**Construction/Implementation Contingency**				
i.	**Grand Total (Sum rows (a) through (h) for each column)**	$120,000	$20,000		$140,000

j. Can the Project be phased? xx☐ Yes ☐ No If **yes**, provide cost breakdown by phases

	Project Cost	O&M Cost	Description of Phase
Phase 1	$35,000		For sampling costs and purchase of additional equipment and data preparation
Phase 2	$35,000		For sampling costs, mtce., replacement , new equipment and for data preparation
Phase 3	$35,000		For sampling costs, mtce., replacement, data preparation.
Phase 4	$35,000		For sampling costs, replacement costs, and data preparation.

k.	**Explain how operation and maintenance costs will be financed for the 20-year planning period for project implementation (not grant funded).**	
l.	**Has a Cost/Benefit analysis been completed?**	☐ Yes xxxx No
m.	**Describe what impact there may be if the project is not funded (300 words or less)**	There is a need for continuing the water quality monitoring in the Almanor Basin . Without this information, the Basin could see land/water

		management decisions not grounded in scientifically based information. We are fortunate in that we have local May expertise at this time to conduct the monitoring program.

*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	X	☐ Yes ☒ No ☐ N/A	Many years of accumulated data verify the need for continued review and evaluation of water resources in the County.	TBD Continuing assessment and evaluation by P.G.E., D.W.R., Plumas County Water Quality Committee. Lake Almanor Water Group (LAWG) and comparable bodies throughout the Feather River Basin	TBD
b. Final Design	☐	☐ Yes X☐ No ☐ N/A		TBD	
c. Environmental Documentation (CEQA / NEPA)	☐	☐X☐ No ☐ N/A			
d. Permitting	☐	X N/A			
e. Construction Contracting	☐	☐ Yes ☐ No X☐ N/A			
f. Construction Implementation	☐	☐ Yes ☐ No X☐ 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.).	Water Master Plan, TMDLs, Basin Plan for CVRWQP.
b. List technical reports and studies supporting the feasibility of this project.	Review prepared by M.J. Hill and Co. in the mid 1990's
c. Concisely describe the scientific basis (e.g. how much research has been conducted) **of the proposed project in 300 words or less.**	There is much research to support a consistent, pro-active approach towards dealing with issues and problems that can arise in water management. There is a need to learn more about the potential impact of climate change on the management of the lake.
d. Does the project implement green technology (e.g. alternate forms of energy, recycled materials, LID techniques, etc.).	☐ Yes ☐ No X☐ N/A If yes, please describe.
e. Are you an Urban Water Supplier[1]?	☐ Yes X☐ No ☐ N/A
f. Are you are an Agricultural Water Supplier[2]?	☐ Yes X ☐ No ☐ N/A
g. Is the project related to groundwater?	☐ Yes X ☐ 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-2: Water Quality Monitoring for Lake Almanor and its Tributaries

Project applicant: Sierra Institute/ LAWG

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.
- ☐ The project requires workers to commute to the project site.
- ☐ The project is expected to generate GHG emissions for other reasons.
- ☐ 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:

X☐ 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

☐ Unmet beneficial uses (municipal and domestic water supply, water contact recreation, cold freshwater habitat, spawning habitat, wildlife habitat, etc.)

This is a monitoring project to identify and quantify degradation in the quality of water in the Basin and provide information for decision making regarding mitigation projects if they become necessary.

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

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:

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

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

FMW-2: Water Quality Monitoring Program for Lake Almanor & its Tributaries

GHG Emissions Analysis

Project Construction Emissions

☐ The project requires non-road or off-road engines, equipment, or vehicles to complete. If yes:

Type of Equipment	Maximum Number Per Day	Total 8-Hour Days in Operation	Total $MTCO_2e$
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Total Emissions	**0**

☐ The project requires materials to be transported to the project site. If yes:

Total Number of Round Trips	Average Trip Distance (Miles)	Total $MTCO_2e$
		0

☐ The project requires workers to commute to the project site. If yes:

Average Number of Workers	Total Number of Workdays	Average Round Trip Distance Traveled (Miles)	Total $MTCO_2e$
			0

☐ The project is expected to generate GHG emissions for other reasons. If yes, explain:

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

FMW-2: Water Quality Monitoring Program for Lake Almanor & its Tributaries

Project Operating Emissions

[ ] The project requires energy to operate. If yes:

Annual Energy Needed	Unit	Total $MTCO_2e$
	kWh (Electricity)	**0**
	Therm (Natural Gas)	**0**

[ ] The project will generate electricity. If yes:

Annual kWh Generated	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will proactively manage forests to reduce wildfire risk. If yes:

Acres Protected from Wildfire	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will affect wetland acreage. If yes:

Acres of Protected Wetlands	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will include new trees. If yes:

Acres of Trees Planted	Total $MTCO_2e$
0	**0**

*A negative value indicates GHG reductions

[XX] Project operations are expected to generate or reduce GHG emissions for other reasons. If yes, explain:

FMW2 is an assessment project only, and is not expected to generate significant greenhouse gases for duration of project.

GHG Emissions Summary

Construction and development will generate approximately:	0 $MTCO_2e$
In a given year, operation of the project will result in:	0 $MTCO_2e$

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	Mountain Meadows Conservancy (MMC)
Name of Primary Contact	Nils Lunder
Name of Secondary Contact	Ron Lunder
Mailing Address	PO BOX 40, Westwood CA, 96137
E-mail	mtnmeadow@frontier.com
Phone	(530) 256-3982, (530) 258-6936 cell
Other Cooperating Agencies / Organizations / Stakeholders	Pacific Gas and Electric, Feather River Land Trust, Lake Almanor Watershed Group, Maidu Summit Consortium, Feather River Resource Conservation District, Plumas Audubon, Point Blue Conservation Science, Westwood Unified School District
Is your agency/organization committed to the project through completion? If not, please explain	Yes

II. GENERAL PROJECT INFORMATION

Project Title	FMW-4: Wildlife Enhancement Project
Project Category	☐ **Agricultural Land Stewardship** ■ **Floodplains/Meadows/Waterbodies** ☐ **Municipal Services** ☐ **Tribal Advisory Committee** ☐ **Uplands/Forest**
Project Description (Briefly describe the project, in 300 words or less)	The proposed project will construct approximately 8 miles of livestock fence at select sensitive areas along the shoreline of the Mountain Meadows Reservoir (MMR). The project will enhance wildlife habitat and improve water quality in the upper North Fork Feather River watershed. The proposal will complement the Mountain Meadows Fencing project that has also been submitted to the FRIRWM. This proposla will also fund the development of an annual monitoring program to assess the impact that the infrastructure has on wildlife in and around the MMR and the downstream effects on water quality in partnership with the

	Lake Almanor Watershed Group. These fences and associated infrastructure will protect approximately 1,000 acres of shoreline and riparian areas. In addition, the infrastructure will assist local livestock producers to better manage their animals. The protection of sensitive area will reduce erosion; reduce the delivery of sediment into the MMR and all downstream waterbodies, thereby improving water quality. The protection of those sensitive areas will also lead to an increase in riparian and shoreline vegetation that will provide habitat to wildlife while also leading to increased bank stabilization and improved water quality in the future.
Project Location Description (e.g., along the south bank of stream/river between river miles or miles from Towns/intersection and/or address):	The project will occur on lands owned by the Pacific Gas and Electric Company along the north and east shore of the MMR.
Latitude:	40 17’ 02” N
Longitude:	120 57’ 35” W

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	Project will reduce livestock impact on sensitive riparian channels as well as sensitive shorelines at the MMR	Approximately 1,000 acres of streams/wetlands restored or enhanced
Reduce potential for catastrophic wildland fires in the Region.	☐ Yes ■ N/A		
Build communication and collaboration among water resources stakeholders in the	■ Yes	Project will engage local land owners and land managers and will improve communication and	

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)
Region.	☐ N/A	collaboration among water resources stakeholders in the region.	
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 supply, recreational, and environmental benefits to the Region.	■ Yes ☐ N/A	Project will engage local land owners and land managers and will improve communication and collaboration among water resources stakeholders in the region.	
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	Project will engage local land owners and land managers, water quality monitoring planning will occur and this data will be integrated into other water quality monitoring efforts that are underway in the region.	Water quality monitoring plan, water quality monitoring and analysis in cooperation with DWR
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		
Improve coordination of land use and water resources planning.	☐ Yes ■ N/A		
Maximize agricultural, environmental and municipal water use efficiency.	☐ Yes ■ N/A		

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)
Effectively address climate change adaptation and/or mitigation in water resources management.	☐ Yes ■ N/A		
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		
Address economic challenges of agricultural producers.	■ Yes ☐ N/A	Will develop fences that will assist local livestock producers to better control their animals and will reduce the potential for lost livestock.	Approximately 8 miles of fence will be built
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	The project will protect areas that were historically used by native American people as foraging grounds for food and basket making materials. It will also protect sacred sites from animal impact.
b. Disadvantaged Communities[1]	■ N/A	
c. Environmental Justice[2]	■ N/A	
d. Drought Preparedness	■ N/A	
e. Assist the region in adapting to effects of climate change[3]	■ N/A	
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	Project will be monitored in order to determine how the proposed infrastructure impacts wildlife habitat and wildlife utilization of the project area. Monitoring efforts will also assess water quality; these monitoring efforts will be a collaborative effort with other on-going projects run by local organizations.

[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	Project will help to enhance riparian areas and will assist in the attenuation of flood events and the filtration of sediments and nutrients from upstream land uses
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	Functioning meadows and riparian areas retain water and release moderated flows.
Improve Water Quality		

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
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	Project will assist efforts underway by land managers and land owners to improve operations to reduce water pollution
Salt and salinity management	☐ Yes ■ No	
Urban storm water runoff management	☐ Yes ■ No	
Practice Resource Stewardship		
Agricultural land stewardship	■ Yes ☐ No	Project will compliment efforts underway by land managers and land owners to modify their operations to improve agricultural land stewardship
Ecosystem restoration	☐ Yes ■ No	
Forest management	☐ Yes ■ No	
Land use planning and management	☐ Yes ■ No	
Recharge area protection	☐ Yes ■ No	
Sediment management	■ Yes ☐ No	By better controlling livestock access to shorelines and riparian corridors the project will provide opportunities for local plant communities to become established. These plant communities increase soil protection and help to protect sensitive areas from the forces of erosion.
Watershed management	☐ Yes ■ No	
People and Water		
Economic incentives	☐ Yes ■ No	
Outreach and engagement	☐ Yes ■ No	
Water and culture	☐ Yes ■ No	
Water-dependent recreation	☐ Yes ■ No	
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**	25,502			
b.	**Land Purchase/Easement**				
c.	**Planning/Design/Engineering / Environmental**	5,000			
d.	**Construction/Implementation**	182,560			
e.	**Environmental Compliance/ Mitigation/Enhancement**	5,000			
f.	**Construction Administration**	5,000			
g.	**Other Costs—Monitoring of wildlife and water quality**	15,000			
h.	**Construction/Implementation Contingency**				
i.	**Grand Total (Sum rows (a) through (h) for each column)**	238,062			

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	5,000		Restoration of existing fence system
	Phase 2	92,000		Construction of South Pasture Fence
	Phase 3	92,000		Construction of North Shore Fence
	Phase 4			

k.	**Explain how operation and maintenance costs will be financed for the 20-year planning period for project implementation (not grant funded).**	Monitoring and maintenance of the fence system will be the responsibility of the MMC and the organization that oversees the monitoring of the conservation easement on the property
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)**	If the project is not funded, there will be ongoing impacts to wildlife habitat availability, to water quality and to rangeland productivity.

*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	Assess and repair of existing fencing system	TBD	TBD
b. Final Design	■	☐ Yes ■ No ☐ N/A	Mapping and budget development of phases 1-4	TBD	TBD
c. Environmental Documentation (CEQA / NEPA)	■	☐ Yes ■ No ☐ N/A	Analyze if any of the proposed project requires CEQA/NEPA compliance	TBD	TBD
d. Permitting	■	☐ Yes ■ No ☐ N/A	Secure any permits necessary to complete phases 1-4	TBD	TBD
e. Construction Contracting	☐	☐ Yes ■ No ☐ N/A	Phase 1 will not require any contracts to be developed, work will be completed in-house	TBD	TBD
f. Construction Implementation	☐	☐ Yes ■ No ☐ N/A	Contracts will be developed with professionals to install appropriate infrastructure for phases 2-4	TBD	TBD
Provide explanation if more than one project stage is checked as current status			The MMC has been working with PG&E to obtain a license in order to implement phase 1 of the project. MMC is awaiting the license and once that has been secured, the MMC will work with local volunteers to repair and monitor fences in the project area.		

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.).	CDFW 1990 Mountain Meadows Wildlife Enhancement Plan
b. List technical reports and studies supporting the feasibility of this project.	CDFW 1990; Mountain Meadows Watershed Restoration Action Plan
c. Concisely describe the scientific basis (e.g. how much research has been conducted) **of the proposed project in 300 words or less.**	The California Waterfowl Association conducted nest surveys in the project area as a part of a previous effort and have indicated that available nesting habitat at the MMR has been reduced over the past 50 years and that appropriate management of the shoreline vegetation will have a positive impact on nesting attempts by waterfowl in the MMR basin.
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. Fences will be powered by solar fence chargers.
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. Mountain Meadows 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-4: Wildlife Enhancement Project

Project applicant: Mountain Meadows Conservancy

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.
- ☒ The project requires workers to commute to the project site.
- ☐ The project is expected to generate GHG emissions for other reasons.
- ☐ 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:

- ☒ 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:

- ☒ 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
- ☒ Unmet beneficial uses (municipal and domestic water supply, water contact recreation, cold freshwater habitat, spawning habitat, wildlife habitat, etc.)

The proposed project will increase the stability of the stream banks within the project area. This will reduce the volume of sediment that enters the Mountain Meadows Reservoir. The project will reduce livestock impacts on riparian systems in the project area. Functioning riparian areas will have an increased capacity to assimilate pollution. Functioning riparian areas will improve cold freshwater habitat in the project area, will provide habitat for fish and wildlife.

Flooding

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

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

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
- ☒ Climate-sensitive fauna or flora
- ☒ Recreation and economic activity
- ☐ Quantified environmental flow requirements
- ☒ Erosion and sedimentation
- ☒ Endangered or threatened species
- ☒ Fragmented habitat

The proposed project has the potential to improve habitats for climate sensitive flora and fauna by increasing the ability for managers to control livestock in sensitive areas near the MMR. As management in those areas is modified, we assume feel that plants and wildlife including species listed as threatened and endangered, will respond and this will make the MMR basin an even more biologically active area that will draw visitors for bird watching, botanical investigations, and water travel. The proposed project will increase the landscape's ability to retain soil and this will reduce sedimentation into the MMR. This project and other efforts being made by adjoining landowners will lead to a reduction in habitat fragmentation in the region.

Hydropower

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

- ☐ Not applicable
- ☒ Reduced hydropower output

MMR is the upper most reservoir in PG&E's Stairway of Power on the North Fork Feather River. The proposed project will reduce the volume of sediment that enters the MMR and that will help PG&E to ensure that their system is less vulnerable to sedimentation.

FMW-4: Wildlife Enhancement Project

GHG Emissions Analysis

Project Construction Emissions

[x] The project requires non-road or off-road engines, equipment, or vehicles to complete. If yes:

Type of Equipment	Maximum Number Per Day	Total 8-Hour Days in Operation	Total $MTCO_2e$
Other Construction Equipment	1	20	2
			0
			0
			0
			0
			0
			0
			0
			0
		Total Emissions	**2**

[x] The project requires materials to be transported to the project site. If yes:

Total Number of Round Trips	Average Trip Distance (Miles)	Total $MTCO_2e$
20	50	**2**

[x] The project requires workers to commute to the project site. If yes:

Average Number of Workers	Total Number of Workdays	Average Round Trip Distance Traveled (Miles)	Total $MTCO_2e$
2	20	50	**1**

[ ] The project is expected to generate GHG emissions for other reasons. If yes, explain:

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

FMW-4: Wildlife Enhancement Project

Project Operating Emissions

☐ The project requires energy to operate. If yes:

Annual Energy Needed	Unit	Total $MTCO_2e$
	kWh (Electricity)	**0**
	Therm (Natural Gas)	**0**

☐ The project will generate electricity. If yes:

Annual kWh Generated	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

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

Acres Protected from Wildfire	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

☒ The project will affect wetland acreage. If yes:

Acres of Protected Wetlands	Total $MTCO_2e$
1,000	**-4,330**

*A negative value indicates GHG reductions

☐ The project will include new trees. If yes:

Acres of Trees Planted	Total $MTCO_2e$
100	**-18,600**

*A negative value indicates GHG reductions

☐ Project operations are expected to generate or reduce GHG emissions for other reasons. If yes, explain:

GHG Emissions Summary

Construction and development will generate approximately:	4 $MTCO_2e$
In a given year, operation of the project will result in:	-22,930 $MTCO_2e$

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	Mountain Meadows Conservancy (MMC)
Name of Primary Contact	Nils Lunder
Name of Secondary Contact	Ron Lunder
Mailing Address	PO BOX 40, Westwood CA, 96137
E-mail	mtnmeadow@frontier.com
Phone	(530) 256-3982, (530) 258-6936 cell
Other Cooperating Agencies / Organizations / Stakeholders	W.M. Beaty and Associates, Pacific Gas and Electric, Sierra Pacific Industries, Feather River Land Trust, Lake Almanor Watershed Group, Sierra Institute, Collins Pine Company, Plumas Audubon Society, Point Blue Conservation Science, Maidu Summit Consortium
Is your agency/organization committed to the project through completion? If not, please explain	Yes

II. GENERAL PROJECT INFORMATION

Project Title	FMW-5: Hamilton Branch Watershed Fencing Restoration
Project Category	☐ **Agricultural Land Stewardship** ■ **Floodplains/Meadows/Waterbodies** ☐ **Municipal Services** ☐ **Tribal Advisory Committee** ☐ **Uplands/Forest**
Project Description (Briefly describe the project, in 300 words or less)	The project will create two separate interpretive and educational sites in the upper Feather River. The MMC will facilitate engagement with numerous local partners to ensure that the project addresses as many of the local interests as possible. The MMC will leverage their existing relationship with both Honey Lake and Mountain Maidu people from the beginning of the planning process. The proposed project will increase awareness of the management of lands of the upper Feather River and how those management actions are related to the delivery of water from the watershed to downstream water users. The

	sites will showcase adaptive management techniques that are being implemented in the region to ensure that downstream water users have reliable, high quality water into the future. Management techniques include rangeland management, forest management, reservoir management, wastewater management, recreational management and wildlife management.
Project Location Description (e.g., along the south bank of stream/river between river miles or miles from Towns/intersection and/or address):	There will be two sites; one will be located approximately 4 miles east of Westwood along the edge of the Mountain Meadows on Highway 36. The second site is located 1 mile east of Chester on Highway 36.
Latitude:	40 19' 30" N
Longitude:	120 56' 16" W
Latitude:	40 18' 47" N
Longitude:	121 12' 51" W

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 supply, recreational, and	☐ Yes ■ N/A		

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)
environmental benefits to the Region.			
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		
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		
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	Project will engage local land owners and land managers and will improve communication and collaboration among water resources stakeholders in the region.	
Improve efficiency and reliability of water supply and other water-related infrastructure.	☐ Yes ■ N/A		
Enhance public awareness and understanding of water	■ Yes	These sites will be accessible to the public and will provide both	Interpretive materials to

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)
management issues and needs.	☐ N/A	visitors and locals with stunning, scenic locations to enjoy and to learn more about the management of lands in the upper Feather River watershed.	educate approximately 1500 visitors per year
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	Projects will have interpretive materials regarding the historic uses of the proposed sites by native American people in pre-European settlement times, these materials will be developed in partnership with Native American groups
b. Disadvantaged Communities[1]	■ N/A	Projects will be located adjacent to two disadvantaged communities (Westwood and Chester) and will inform visitors about those communities. The sites will increase exposure of the communities to tourists that travel along the Highway 36 corridor
c. Environmental Justice[2]	■ N/A	
d. Drought Preparedness	■ N/A	
e. Assist the region in adapting to effects of climate change[3]	■ N/A	
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	Projects will provide a platform to educate locals and visitors regarding the efforts that land owners and land managers are making to steward their lands in such a way that facilitates timber production, hydroelectric generation, livestock production, recreation opportunities, wildlife abundance and other benefits while also supplying reliable water supplies to downstream users

[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	
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	

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
Groundwater remediation/aquifer remediation	☐ Yes ☐ No	
Matching water quality to water use	☐ Yes ■ No	
Pollution prevention	■ Yes ☐ No	Project will highlight efforts underway by land managers and land owners to improve operations to reduce water pollution
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	
Land use planning and management	☐ Yes ■ No	
Recharge area protection	☐ Yes ■ No	
Sediment management	☐ Yes ■ No	
Watershed management	☐ Yes ■ No	
People and Water		
Economic incentives	☐ Yes ■ No	
Outreach and engagement	■ Yes ☐ No	Project will increase the awareness of locals and visitors to the region on management efforts that are occurring in the area.
Water and culture	■ Yes ☐ No	Project will inform locals and visitors about how the lands of the Upper Feather River are managed and ho those management actions are effecting downstream users.
Water-dependent recreation	☐ Yes ■ No	
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**	5,500			
b.	**Land Purchase/Easement**				
c.	**Planning/Design/Engineering / Environmental**	20,000			
d.	**Construction/Implementation**	20,000			
e.	**Environmental Compliance/ Mitigation/Enhancement**	10,000			
f.	**Construction Administration**				
g.	**Other Costs**	5,000			
h.	**Construction/Implementation Contingency**				
i.	**Grand Total (Sum rows (a) through (h) for each column)**	60,500			

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	$30,000		Site assessment, planning/design/engineering, environmental compliance, permitting
	Phase 2	15,000		Grading of site, parking infrastructure
	Phase 3	10,000		Graphic design, development of interpretive panels, install panels, benches and signs
	Phase 4			

k.	**Explain how operation and maintenance costs will be financed for the 20-year planning period for project implementation (not grant funded).**	Participating partners will enter into a maintenance agreement that will finance repairs and upgrades needed during the 20 year planning period
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)**	If the project is not funded, the region will not realize a great opportunity to educate visitors

		and local residents on the important land management activities that are taking place in the region. Additionally, this is a unique opportunity to bring together diverse partners to create diverse, educational materials that highlight the management of the region in pre-European settlement times, since European settlement times and into the future. Both of the proposed project areas are located in places that have powerful significance with the Maidu people who hunted and foraged in the region for thousands of years.

*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	Working with landowner, analyzing site, conceptual development for site	5/2016	5/2017
b. Final Design	☐	☐ Yes ■ No ☐ N/A	Working with landowner, CAL TRANS, Lassen County Department of Public Works, other partners	12/2016	12/2017
c. Environmental Documentation (CEQA / NEPA)	☐	☐ Yes ■ No ☐ N/A	Working with the Honey Lake Valley RCD to perform CEQA/NEPA	3/2017	9/2017
d. Permitting	☐	☐ Yes ■ No ☐ N/A	Working with all parties to complete permitting	3/2017	12/2017
e. Construction Contracting	☐	☐ Yes ■ No ☐ N/A	Working with landowners to develop prospectus and select a contractor	1/2018	4/2018

f. Construction Implementation	☐	☐ Yes ■ No ☐ N/A	Hire contractor to complete project	5/2018	12/2018
Provide explanation if more than one project stage is checked as current status			The MMC has been working with the landowner to develop the project. Initial designs have been discussed.		

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.).	Lassen and Plumas County General Plans; Lassen Volcanic Scenic Byway revision
b. List technical reports and studies supporting the feasibility of this project.	Lassen Volcanic Scenic Byway revision
c. Concisely describe the scientific basis (e.g. how much research has been conducted) **of the proposed project in 300 words or less.**	Evidence suggests that beautiful places inspire people. Educational signage helps visitors to better understand complex concepts (forest management, livestock management, hydroelectric generation, etc). Local land managers have stories to share with visitors regarding their efforts to be good stewards of their lands; these efforts have impacts on downstream water users.
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. Mountain Meadows Basin, Lake Almanor 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-5: Hamilton Branch Watershed Fencing Restoration

Project applicant: Mountain Meadows Conservancy

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.
- ☒ The project requires workers to commute to the project site.
- ☐ The project is expected to generate GHG emissions for other reasons.
- ☐ 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:

- [x] 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
- [ ] Unmet beneficial uses (municipal and domestic water supply, water contact recreation, cold freshwater habitat, spawning habitat, wildlife habitat, etc.)

Flooding

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

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

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
☐ Climate-sensitive fauna or flora
☐ Recreation and economic activity
☐ Quantified environmental flow requirements
☐ Erosion and sedimentation
☐ Endangered or threatened species
☐ Fragmented habitat

Hydropower

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

☒ Not applicable

FMW-5: Hamilton Branch Watershed Fencing Restoration

GHG Emissions Analysis

Project Construction Emissions

[x] The project requires non-road or off-road engines, equipment, or vehicles to complete. If yes:

Type of Equipment	Maximum Number Per Day	Total 8-Hour Days in Operation	Total $MTCO_2e$
Skid Steer Loaders	1	2	0
Tractors/Loaders/Backhoes	1	2	1
			0
			0
			0
			0
			0
			0
			0
		Total Emissions	**1**

[x] The project requires materials to be transported to the project site. If yes:

Total Number of Round Trips	Average Trip Distance (Miles)	Total $MTCO_2e$
3	50	**0**

[x] The project requires workers to commute to the project site. If yes:

Average Number of Workers	Total Number of Workdays	Average Round Trip Distance Traveled (Miles)	Total $MTCO_2e$
2	4	50	**0**

[ ] The project is expected to generate GHG emissions for other reasons. If yes, explain:

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

FMW-5: Hamilton Branch Watershed Fencing Restoration

Project Operating Emissions

☐ The project requires energy to operate. If yes:

Annual Energy Needed	Unit	Total $MTCO_2e$
	kWh (Electricity)	**0**
	Therm (Natural Gas)	**0**

☐ The project will generate electricity. If yes:

Annual kWh Generated	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

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

Acres Protected from Wildfire	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

☐ The project will affect wetland acreage. If yes:

Acres of Protected Wetlands	Total $MTCO_2e$
0	**0**

*A negative value indicates GHG reductions

☐ The project will include new trees. If yes:

Acres of Trees Planted	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

☐ Project operations are expected to generate or reduce GHG emissions for other reasons. If yes, explain:

GHG Emissions Summary

Construction and development will generate approximately:	1 $MTCO_2e$
In a given year, operation of the project will result in:	0 $MTCO_2e$

featherriver.org

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	USDA Natural Resources Conservation Service (NRCS)
Name of Primary Contact	Dan Z. Martynn
Name of Secondary Contact	**Joe Hoffman**
Mailing Address	PO Box 3562
E-mail	Dan.martynn@ca.usda.gov
Phone	
Other Cooperating Agencies / Organizations / Stakeholders	Lake Almanor Watershed Group (LAWG) Feather River Roundtable Group/ Plumas NF
Is your agency/organization committed to the project through completion? If not, please explain	yes

II. GENERAL PROJECT INFORMATION

Project Title	FMW-6: Watershed Monitoring Program
Project Category	☐ **Agricultural Land Stewardship** ■ **Floodplains/Meadows/Waterbodies** ☐ **Municipal Services** ☐ **Tribal Advisory Committee** ☐ **Uplands/Forest**
Project Description (Briefly describe the project, in 300 words or less)	To expand and extend existing streamflow monitoring Program throughout the Feather River watershed to include Lake Almanor basin and provide central clearing house where monitoring data can be assessed and maintained. This is primarily an implementation project lasting 3-5 years, but could go longer.
Project Location Description (e.g., along the south bank of stream/river between river miles or miles from	Upper North Fork, East branch of the north fork and upper Middle Fork of the Feather River Watershed.

Towns/intersection and/or address):	
Latitude:	Regional
Longitude:	Regional

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	Sharing of water Quality and Quantity data with stakeholders in watershed will allow local water users to make informed decisions and aid in collaboration on future projects	
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 supply, recreational, and environmental benefits to the Region.	☐ Yes ☐ N/A		
Encourage municipal service providers to participate in regional water management actions that improve water supply and water quality.	■ Yes ☐ N/A	Downstream water users may see value in investing in upper watershed improvements if monitoring data can show increases over time as result of management activities / restoration.	
Continue to actively engage in			

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)
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		
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		
Improve coordination of land use and water resources planning.	■ Yes ☐ N/A	Monitoring data likely to support improved coordination between county, state and federal agencies in watershed.	
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		
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	Database/website will be available to public and could help inform them on water management issues & trends	
Address economic challenges of agricultural producers.	☐ Yes ☐ N/A		
Work with counties/ communities/groups to make sure staff capacity exists for actual administration and	☐ Yes ☐ N/A		

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)
implementation of grant funding.			

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	More complete and comprehensive streamflow information will help quantify water available downstream (Oroville Dam).
e. Assist the region in adapting to effects of climate change[3]	■	Data trends in collected monitoring data could help guide management decisions relating to climate change
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	Educating the public on protection of functions of floodplains
Improve Operational Efficiency and Transfers		
Conveyance – regional/local	☐ Yes ■ No	

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
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	
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	
Land use planning and management	■ Yes ☐ No	Public lands management may be adjusted based on long term stream monitoring results
Recharge area protection	☐ Yes ■ No	
Sediment management	■ Yes ☐ No	Sediment load will be monitored
Watershed management	■ Yes ☐ No	Monitoring data will assist in the process of creating and implementing watershed plans related to streams and streamflow
People and Water		
Economic incentives	☐ Yes ■ No	
Outreach and engagement	■ Yes ☐ No	A database/website location for streamflow monitoring provides an opportunity for public groups & individuals to contribute to positive water management outcomes by being better informed
Water and culture	☐ Yes ■ No	
Water-dependent recreation	☐ Yes ■ No	
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**	40,000	4,000		$44,000
b.	**Land Purchase/Easement**				
c.	**Planning/Design/Engineering / Environmental**				
d.	**Construction/Implementation**				
e.	**Environmental Compliance/ Mitigation/Enhancement**				
f.	**Construction Administration**				
g.	**Other Costs**				
h.	**Construction/Implementation Contingency**				
i.	**Grand Total (Sum rows (a) through (h) for each column)**				$44,000

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			
	Phase 2			
	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).**	N/A
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)**	Opportunity to establish long term baseline conditions for water quality and quantity on representative streams in watershed will be lost.

*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		TBD	TBD
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.).	
b. List technical reports and studies supporting the feasibility of this project.	a) Climate Change & the Changing Water Balance for California's N Fork of the Feather River b) Effects of Meadow Restoration on Stream flow in the Feather River Watershed c) Feather River CRM Group Annual reports 2005-2014 d) Lake Almanor Watershed Mgt Plan e) Lake Almanor Watershed Monitoring Plan
f) Concisely describe the scientific basis (e.g. how much research has been conducted) **of the proposed project in 300 words or less.**	10+ years of stream flow data has been collected by FRCRM but variability in climate during that time has made it hard to identify trends. More data needed. Proposal can be combined with Lake Almanor Watershed Group proposal to include whole watershed.
g) 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.
h) 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. Upper feather river watershed

[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-6: Watershed Monitoring Program

Project applicant: Feather River Roundtable

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.
- ☐ The project requires workers to commute to the project site.
- ☐ The project is expected to generate GHG emissions for other reasons.
- ☐ 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:

- ☐ Not applicable
- ☐ Reduced snowmelt
- ☒ Unmet local water needs (drought)
- ☐ Increased invasive species

Monitoring of stream flow will help better manage the available water resources available in the watershed for both quantity and quality.

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:

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

More accurate data on stream flow allows for better estimates of availability in sub-watersheds.

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
- ☐ Unmet beneficial uses (municipal and domestic water supply, water contact recreation, cold freshwater habitat, spawning habitat, wildlife habitat, etc.)

Increased streamflow measurements and long term water quality monitoring within watershed will assist managers with allocating unmet beneficial uses.

Flooding

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

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

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
- ☐ Climate-sensitive fauna or flora
- ☐ Recreation and economic activity
- ☐ Quantified environmental flow requirements
- ☐ Erosion and sedimentation
- ☐ Endangered or threatened species
- ☐ Fragmented habitat

Hydropower

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

- ☐ Not applicable
- ☐ Reduced hydropower output

FMW-6: Watershed Monitoring Program

GHG Emissions Analysis

Project Construction Emissions

☐ The project requires non-road or off-road engines, equipment, or vehicles to complete. If yes:

Type of Equipment	Maximum Number Per Day	Total 8-Hour Days in Operation	Total $MTCO_2e$
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Total Emissions	**0**

☒ The project requires materials to be transported to the project site. If yes:

Total Number of Round Trips	Average Trip Distance (Miles)	Total $MTCO_2e$
10	100	**2**

☒ The project requires workers to commute to the project site. If yes:

Average Number of Workers	Total Number of Workdays	Average Round Trip Distance Traveled (Miles)	Total $MTCO_2e$
2	10	100	**1**

☐ The project is expected to generate GHG emissions for other reasons. If yes, explain:

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

FMW-6: Watershed Monitoring Program

Project Operating Emissions

☐ The project requires energy to operate. If yes:

Annual Energy Needed	Unit	Total $MTCO_2e$
	kWh (Electricity)	**0**
	Therm (Natural Gas)	**0**

☐ The project will generate electricity. If yes:

Annual kWh Generated	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

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

Acres Protected from Wildfire	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

☐ The project will affect wetland acreage. If yes:

Acres of Protected Wetlands	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

☐ The project will include new trees. If yes:

Acres of Trees Planted	Total $MTCO_2e$
0	**0**

*A negative value indicates GHG reductions

☐ Project operations are expected to generate or reduce GHG emissions for other reasons. If yes, explain:

GHG Emissions Summary

Construction and development will generate approximately:	2 $MTCO_2e$
In a given year, operation of the project will result in:	0 $MTCO_2e$

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	Plumas County Department of Public Works – Engineering
Name of Primary Contact	Robert A. Perreault , Jr., Director of Public works
Name of Secondary Contact	Robert Thorman, Engineering Technician II
Mailing Address	1834 East Main Street, Quincy, CA 95971
E-mail	bobperreault@countyofplumas.com
Phone	(530) 283-6222
Other Cooperating Agencies / Organizations / Stakeholders	NA
Is your agency/organization committed to the project through completion? If not, please explain	Yes

II. GENERAL PROJECT INFORMATION

Project Title	FMW-8: Spanish Creek Restoration
Project Category	☐ **Agricultural Land Stewardship** ☒ **Floodplains/Meadows/Waterbodies** ☐ **Municipal Services** ☐ **Tribal Advisory Committee** ☐ **Uplands/Forest**
Project Description (Briefly describe the project, in 300 words or less)	An assessment of the Spanish Creek watershed, funded by Proposition 13, was completed in 2006 and includes a comprehensive, community-based rehabilitation strategy for Spanish Creek, primarily in American Valley. Spanish Creek, located in the upper Feather River watershed, has been subjected to intensive use for over 150 years. Resource use and extraction directly affecting Spanish Creek include all the usual suspects, but its hydraulic-placer mining and stream channelization that have resulted in the most extensive changes to the system. American Valley is the naturally evolved floodplain of Spanish Creek. Extensive large-scale hydraulic mining in the mid to late 1800's led to the deposit of millions of cubic yards of coarse

	gravel and cobble in Spanish Creek and its tributaries upstream of the valley. A large streamflow diversion trench was constructed through American Valley in the late 1800's to alleviate flooding in the valley. The episodic release of the coarse sediment has resulted in excessive deposition of this material throughout the American Valley reach of Spanish Creek, resulting in accelerated bank erosion and enhanced flooding. Gravel material had been mined for years at the upstream end of American Valley. The operation was established to take full advantage of the natural tendency for gravel to deposit in this area. Initially, just enough gravel was harvested to prevent further aggradation of the channel. However, as community needs expanded, the operation began to overdraft the supply, contributing to bank erosion, expansion of the entrenchment and diminished channel maintenance. During the past several years, the amount of gravel extracted has been curtailed due to permitting requirements by the California Department of Fish and Game. As a result, an increasing amount of gravel has deposited in American Valley, resulting in a re-initiation of bank erosion and land loss. As a result, the Spanish Creek landowners have approached Plumas County for assistance. The community and landowners recognize the need for a holistic and long-term approach to managing the problems.
Project Location Description (e.g., along the south bank of stream/river between river miles or miles from Towns/intersection and/or address):	Six miles along Spanish Creek
Latitude:	From 39 degrees 56' N to 39 degrees 57' N
Longitude:	From 121 degrees 3' W to 120 degrees 55' W

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	Improvements in stream and riparian conditions would use hydraulic structures to divert streamflow energy away from entrenchment banks and would establish energy dissipating vegetation along the highest stressed banks.	• Improvement of six miles of aquatic and riparian habitat. • One gravel management zone at head of valley. • Construction of 22 bank erosion control structures (boulder vanes). • 15 riffle enhancements (boulder cross vanes).
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 supply, recreational, and environmental benefits to the	☐ Yes ☒ N/A		

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)
Region.			
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		
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		
Improve coordination of land use and water resources planning.	☒ Yes ☐ N/A	By working with the community and landowners to come up with a long-term management plan, the coordination between land use and water resources is improved.	
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		
Improve efficiency and reliability of water supply and other water-related infrastructure.	☐ Yes ☒ N/A		
Enhance public awareness	☐ Yes		

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)
and understanding of water management issues and needs.	☒ N/A		
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:

Project goals include (1) a stable, healthy channelway that is neither aggrading nor degrading, (2) a community with the capacity to collaborate and implement sound stream rehabilitation and watershed management practices, and (3) a gravel management program that promotes a properly functioning stream and riparian system.

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	
e. Assist the region in adapting to effects of climate change[3]	☒ N/A	

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	To improve the aquatic and riparian ecosystem of Spanish Creek and reduce erosion of its banks, reduce the amount of gravel entering American Valley by identifying the primary bedload source areas in the upper watershed, treating those source areas to reduce their output, identifying where gravels naturally deposit in American Valley and periodically remove the excess gravels without disturbing natural fluvial geomorphic development and processes.

[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	Excess Gravel Removal at the Head of American Valley: Remove excess bedload gravels by developing and maintaining:
		• Sediment trapping ponds.
		  ◦ Floodplain ponds with bedload shunt(s) (aka, vortex bedload sampler).
		  ◦ Floodplain ponds without bedload shunts (not connected to stream).
		• Floodplain areas within the gravel management section maintained at bankfull ($Q_{1.5}$) elevation by periodic removal of excess gravels.
		• Monitor the effects of removing the gravels and treating banks and adjust the strategy to meet desired conditions.
		  ◦ Rate of bedload replenishment within the gravel management section.
		  ◦ Changes to stream channel elevation, geometry (width, depth, gradient) and pattern within the gravel management section and downstream.
		  ◦ Changes in bedload size classes (surface and subsurface) in a downstream direction.

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
		◦ Continued or new bank erosion sites along the entire American Valley reach.
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	Prevention of non-point source pollution issue of sediment and protection of riparian habitats.
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	
Land use planning and management	☐ Yes ☒ No	
Recharge area protection	☐ Yes ☒ No	
Sediment management	☒ Yes ☐ No	The gravel management program would remove excess gravel along the stream channel at designated locations and at appropriate rates. Gravel bars and other accumulations would be lowered to floodplain elevation and maintained at this elevation by monitoring several permanent channel cross-section locations. Monitoring these cross-sections would help determine periodic gravel removal.
Watershed management	☒ Yes ☐ No	Minimize Bank Erosion and Improve Stream

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
		Channel Conditions: Treat eroding banks to establish dense vegetation protection and improve channel streamflow conditions using various techniques, including: • Boulder guide-vanes. • Bankfull floodplain elevation development and maintenance. • Channel constrictions constructed using naturally occurring material. • Riparian vegetation plantings. • Biotechnical Erosion Control.
People and Water		
Economic incentives	☐ Yes ☒ No	
Outreach and engagement	☐ Yes ☒ No	
Water and culture	☐ Yes ☒ No	
Water-dependent recreation	☐ Yes ☒ No	
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**	$150,000			$150,000
b.	**Land Purchase/Easement**				
c.	**Planning/Design/Engineering / Environmental**	$79,000	$19,000		$98,000
d.	**Construction/Implementation**	$850,000	$27,000		$877,000
e.	**Environmental Compliance/ Mitigation/Enhancement**	$10,000			$10,000
f.	**Construction Administration**	$61,000			$61,000
g.	**Other Costs**				
h.	**Construction/Implementation Contingency**	$100,000			$100,000
i.	**Grand Total (Sum rows (a) through (h) for each column)**	$1,250,000	$46,000		$1,296,000

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	$648,000		22 bank treatments and gravel removal
	Phase 2	$648,000		15 constriction treatments and gravel removal
	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).**	NA		
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)**	Loss of riparian habitat, bank erosion and loss of agricultural land, increased risk to infrastructure		

*List all sources of funding.
Cost Share Non-State Funding Match: (All amounts are estimated; proposed match amounts and commitments have not yet been confirmed, but have been discussed with the contributing entities.)

Planning/Design/Engineering/Env: $19,000

Pre-project monitoring/surveys	FRC Watershed Class	$2,000 (completed)
Surveys/design support	Plumas Co. Public Works	$15,000 (completed)
Post-project monitoring	FRC Watershed Class	$2,000 (proposed)

Construction/Implementation: $27,000

Construction support	FRC Heavy Equip Class	$20,000 (proposed)
Re-vegetation	FRC Watershed Class	$2,000 (proposed)
2015 Stream Enhancement	QCSD	$5,000 (ongoing/proposed)

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	Pre-project monitoring/Surveys and design support completed	TBD	TBD
b. Final Design	☐	☐ Yes ☒ No ☐ N/A		TBD	TBD
c. Environmental Documentation (CEQA / NEPA)	☐	☐ Yes ☒ No ☐ N/A	CEQA	1 year	TBD
d. Permitting	☐	☐ Yes ☒ No ☐ N/A		TBD	TBD
e. Construction Contracting	☐	☐ Yes ☒ No ☐ N/A		TBD	TBD
f. Construction Implementation	☐	☐ Yes ☒ No ☐ N/A		August (2 years)	October
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.).	Upper Feather River IRWM Plan 2005
b. List technical reports and studies supporting the feasibility of this project.	Feather River Coordinated Resource Management, 2006. Spanish Creek Assessment Rehabilitation and Gravel Management Strategy. Duan et al, Desert Research Institute, 2006. Two-Dimensional Simulation of Flow Hydraulics and Bed-Load Transport in a Mountain Gravel-Bed Stream: the Upper Spanish Creek (Appendix C of Spanish Creek Assessment).
c. Concisely describe the scientific basis (e.g. how much research has been conducted) **of the proposed project in 300 words or less.**	Feather River Coordinated Resource Management (FR-CRM) has been doing research and collecting data on Spanish Creek Restoration since 1999 when numerous landowners approached them for assistance in addressing their concerns. FR-CRM collaborated with Dr. Jennifer Duan of the Desert Research Institute in Las Vegas as noted in the technical report in b. above.
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-8 Spanish Creek Restoration

Project applicant: Plumas County Department of Public Works- Engineering

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.
- ☒ The project requires workers to commute to the project site.
- ☐ The project is expected to generate GHG emissions for other reasons.
- ☐ 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:

- ☒ 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:

- ☒ 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

☐ Unmet beneficial uses (municipal and domestic water supply, water contact recreation, cold freshwater habitat, spawning habitat, wildlife habitat, etc.)

Flooding

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

☐ Not applicable

☐ Aging critical flood protection

☐ Wildfires

☐ Critical infrastructure in a floodplain

☒ Insufficient flood control facilities

By reducing erosion and sedimentation, the creek will be capable of carrying increased flood waters. The project will also add floodplain ponds.

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
- ☐ Climate-sensitive fauna or flora
- ☐ Recreation and economic activity
- ☐ Quantified environmental flow requirements
- ☒ Erosion and sedimentation
- ☐ Endangered or threatened species
- ☐ Fragmented habitat

The project when completed will reduce the erosion and sedimentation in Spanish Creek.

Hydropower

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

- ☒ Not applicable
- ☐ Reduced hydropower output

FMW-8 Spanish Creek Restoration

GHG Emissions Analysis

Project Construction Emissions

[X] The project requires non-road or off-road engines, equipment, or vehicles to complete. If yes:

Type of Equipment	Maximum Number Per Day	Total 8-Hour Days in Operation	Total $MTCO_2e$
Excavators	5	20	44
Off-Highway Trucks	2	20	50
Tractors/Loaders/Backhoes	5	20	27
Off-Highway Tractors	3	20	48
Dumpers/Tenders	5	20	3
			0
			0
			0
			0
			0
		Total Emissions	**171**

[X] The project requires materials to be transported to the project site. If yes:

Total Number of Round Trips	Average Trip Distance (Miles)	Total $MTCO_2e$
40	30	**2**

[X] The project requires workers to commute to the project site. If yes:

Average Number of Workers	Total Number of Workdays	Average Round Trip Distance Traveled (Miles)	Total $MTCO_2e$
20	20	60	**8**

[ ] The project is expected to generate GHG emissions for other reasons. If yes, explain:

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

FMW-8 Spanish Creek Restoration

Project Operating Emissions

☐ The project requires energy to operate. If yes:

Annual Energy Needed	Unit	Total $MTCO_2e$
	kWh (Electricity)	**0**
	Therm (Natural Gas)	**0**

☐ The project will generate electricity. If yes:

Annual kWh Generated	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

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

Acres Protected from Wildfire	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

☐ The project will affect wetland acreage. If yes:

Acres of Protected Wetlands	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

☐ The project will include new trees. If yes:

Acres of Trees Planted	Total $MTCO_2e$
0	**0**

*A negative value indicates GHG reductions

☐ Project operations are expected to generate or reduce GHG emissions for other reasons. If yes, explain:

GHG Emissions Summary

Construction and development will generate approximately:	181	$MTCO_2e$
In a given year, operation of the project will result in:	0	$MTCO_2e$

featherriver.org

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	Plumas Unified School District
Name of Primary Contact	Rob Wade
Name of Secondary Contact	Jennifer Ayres
Mailing Address	1484 East Main Street, Quincy CA 95971
E-mail	rwade@pcoe.k12.ca.us
Phone	(530) 283-6500 x 5257
Other Cooperating Agencies / Organizations / Stakeholders	Plumas Corporation, Feather River College, Plumas National Forest, Quincy Community Services District, Chester Community Services District, Indian Valley Community Services District, City of Portola, California Department of Water Resources, Plumas County Fish & Game Commission, California Department of Fish & Wildlife, Army Corps of Engineers – Bay Model,
Is your agency/organization committed to the project through completion? If not, please explain	Yes

II. GENERAL PROJECT INFORMATION

Project Title	FMW-9: Watershed Education
Project Category	☐ **Agricultural Land Stewardship** ■ **Floodplains/Meadows/Waterbodies** ☐ **Municipal Services** ☐ **Tribal Advisory Committee** ☐ **Uplands/Forest**
Project Description	The Watercourse: Plumas to Pacific is an integrated, year-long course of study that uses the Feather River and its tributaries

(Briefly describe the project, in 300 words or less)	to teach concepts in life science, earth science, social studies, and mathematics. Building upon established elements of the sixth grade curriculum, students examine the influences of mining, logging, ranching/farming in the region, as well as water uses for transportation, recreation, wildlife/fisheries, hydroelectric power, commerce, and municipal/domestic purposes. The Watercourse: Plumas to Pacific consists of two main sections. The first part of the journey begins at home and is focused on the immediate watersheds of each school and community situated at various points adjacent to and within the Plumas National Forest. The second phase follows the river as it leaves each community and explores the people and places it affects as it flows to the Pacific Ocean. Each year nearly 200 students from four schools (Chester, Greenville, Quincy and Portola) participate in the series of adventures, with over 160 sixth graders and another 30 plus high school students serving as mentors and counselors. Many teachers, parents, community groups, and resource professionals also participate in portions of The Watercourse. Plumas Corporation had successfully secured funding for the coordination of The Watercourse for the last ten years. A Program Coordinator conducts the necessary planning, curricular research, scheduling field trips and guest speakers, and class instruction in conjunction with each sixth grade teacher. The studies are directly correlated to the California Content Standards for Science, Social Science, Mathematics, and Reading, Grade 6.
Project Location Description (e.g., along the south bank of stream/river between river miles or miles from Towns/intersection and/or address):	Literally follow the following watercourse/ tributaries from the headwaters of each to the Pacific Ocean – ▪ Middle Fork Feather River ▪ Spanish Creek Watershed ▪ Wolf Creek Watershed ▪ North Fork Feather River
Latitude:	Various
Longitude:	Various

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 supply, recreational, and environmental benefits to the Region.	☐ Yes ☐ N/A		
Encourage municipal service providers to participate in regional water management actions that improve water supply and water quality.	☐ Yes ☐ N/A		

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)
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		
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		
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	☐ Yes		

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)
management.	☐ N/A		
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	All sixth grade students in the Plumas Unified School District spend the entire year studying the Upper Feather River Watershed and the many ways that their FR water is used locally and as it relates to the entire state of California. Understanding water quality and quantity challenges are core program outcomes as the students engage in cost/benefit analysis for all activities occurring from the Plumas to Pacific. This results in an informed citizenry for the rising generation of stewards.	160 sixth grade students and 30 high school students participate annually. Over 2000 students have participated to date with many choosing related careers.
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:

Please note that the curriculum addresses the majority of the Upper Feather River IRWM objectives:

- Watershed stewardship
- Hydrologic Function
- Wildfire impacts to watershed
- Hydroelectricity generation in UFR
- Municipal and domestic use and efficiency
- DWR and SWP relationship to Upper Feather River and state
- Groundwater and surface water stewardship
- Agricultural use of Feather River locally and in the state

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	Serving all students in Plumas County it directly serves all 6th graders enrolled on the PUSD. Indian Valley Elementary School specifically represents the largest Maidu population served. This program serves these native youth and also integrates TEK into the curriculum.
b. Disadvantaged Communities[1]	☐ N/A	The children from locally disadvantaged communities (socio economic, etc.) are enrolled in the PUSD and so are served by this program. It inadvertently reaches the families of participating students each year.
c. Environmental Justice[2]	☐ N/A	Disproportionate access to water resources is addressed both locally in the curriculum but also during the Plumas to Pacific trip where students encounter EJ concerns as they relate to water quality access, recreational access, health impacts of mercury concentration in bodies of water and food chains from historic mining activities, storm water and waste water impacts.
d. Drought Preparedness	☐ N/A	Water conservation is directly addressed from the headwaters homeland to the Pacific Ocean. Students investigate the impacts of the drought on

		municipal/domestic, agricultural and wildlife/environmental uses. Monitoring water use at home and school throughout the year, students are uniquely prepared to understand and adjust their activities and those of the community.
e. Assist the region in adapting to effects of climate change[3]	■ N/A	
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	The Feather River Watercourse: Plumas to Pacific program uses education, stewardship and recreation to inspire this next generation of citizens. Understanding and loving the Upper Feather River equally develops a caring capacity that is critical for taking care of the region. The recreational aspects of this relationship are important for the economy and creating lifelong connections for all.

[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	☐ Yes	i. Contaminant and salt removal through reclamation/desalting,	☐ Yes

wetlands, acquisition/protection/restoration of open space and watershed lands	■ N/A	other treatment technologies and conveyance of recycled water for distribution to users	■ 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	
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		

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
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	
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	
Land use planning and management	☐ Yes ■ No	
Recharge area protection	☐ Yes ■ No	
Sediment management	☐ Yes ■ No	
Watershed management	■ Yes ☐ No	Provide regionally appropriate, regular, and dependable educational materials and programs to encourage water conservation, water reuse, and water pollution prevention. Materials have been developed and are integrated with the curriculum each year.
People and Water		
Economic incentives	☐ Yes ■ No	
Outreach and engagement	■ Yes ☐ No	Within regions, water managements should collaborate on outreach campaigns for clarity of message and to better utilize stakeholders' time. Program collaborates with multiple partners to communicate watershed education at the K-12 public education level.
Water and culture	■ Yes ☐ No	Educate children about how watersheds function. Watersheds are catchments for water and culture. Students learn 7 primary cultural/societal uses of Feather River water; how and why diversions are made and the related cost/benefit analysis. Add the hydrologic cycle to the California education standard. Every student should learn the hydrologic

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
		cycle from headwater to ocean, as well as the impacts and dependency people have on water.
Water-dependent recreation	■ Yes ☐ No	In developing water-dependent recreation opportunities, agencies should consider the needs of the public and low-income communities, and increased population and diversity as identified in planning documents such as the *California Outdoor Recreation Plan* updates. Program provides water sports activity for all students in partnership with Feather River College.
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**	$5,000			$5,000
b.	**Land Purchase/Easement**				
c.	**Planning/Design/Engineering / Environmental**				
d.	**Construction/Implementation**				
e.	**Environmental Compliance/ Mitigation/Enhancement**				
f.	**Construction Administration**				
g.	**Other Costs**	$43,000	$69,196	$19,500	$131,696
h.	**Construction/Implementation Contingency**				
i.	**Grand Total (Sum rows (a) through (h) for each column)**	$48,000	$69,196	$19,500	$136,696
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	24,000		Year One
	Phase 2	24,000		Year Two
	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).**			
l.	**Has a Cost/Benefit analysis been completed?**		■ **Yes** ☐ **No** ***Formal Program Evaluation**	
m.	**Describe what impact there may be if the project is not funded (300 words or less)**		The Plumas to Pacific has been operating regionally for 12 years. The funding is highly diversified however the core costs of coordinating the program remain as a funding obligation each year. These are the costs being requested here. We seek to find funding sources that are ideally aligned. We believe the IRWM has mission alignment with our outcomes of watershed education and stewardship. The Feather River Watercourse: Plumas to Pacific is a critical opportunity to guarantee that all of our youth are being exceptionally educated in issues related to watershed management in the Upper Feather River Watershed. If the project is not funded we will find a way forward as we always do. The commitment to this program runs high at every school and in every community. The 6th grade year is anticipated for years and then reflected upon for a lifetime. Parental commitment for fundraising helps to support many of our costs and that will continue. Other funding sources are also being considered to provide the highest likelihood of success.	

*List all sources of funding.

- Plumas County Fish & Game Commission
- Feather River College TRiO
- Local Rotary Clubs
- Local fundraising (bake/candy/mandarin/cookie dough sales, concession booths, yard sales, various business donations, restaurant FR Water donation jars)
- Parental Donations

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	Annual evaluation is conducted		
b. Final Design	■	■ Yes ☐ No ☐ N/A	Program Design is complete		
c. Environmental Documentation (CEQA / NEPA)	☐	☐ Yes ☐ No ☐ N/A	N/A		
d. Permitting	☐	☐ Yes ☐ No ☐ N/A	N/A		
e. Construction Contracting	☐	☐ Yes ☐ No ☐ N/A	N/A		
f. Construction Implementation	☐	☐ Yes ☐ No ☐ N/A	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.).	N/A
b. List technical reports and studies supporting the feasibility of this project.	http://www.seer.org/pages/research/Emekauwa2004.pdf http://www.seer.org/pages/research/Bartosh2003.pdf http://www.seer.org/pages/research/BaySchools2004.pdf http://www.seer.org/pages/research/AIROutdoorSchool2005.pdf http://www.seer.org/pages/research/CSAPII2005.pdf http://www.seer.org/pages/research/CSAP2000.pdf http://www.seer.org/pages/research/NEETFEBE2000.pdf http://www.seer.org/pages/research/Southcarolinafalco2004.pdf http://www.seer.org/pages/research/PEEC%202005.pdf http://www.seer.org/pages/research/PEEC%202004.pdf http://www.seer.org/pages/research/AthmanandMonroeJIR2004.pdf
c. Concisely describe the scientific basis (e.g. how much research has been conducted) **of the proposed project in 300 words or less.**	In educational pedagogy (study of children) student learning that is based upon real world inquiry and hands on experiences is shown to increase their understanding of concepts and principles. When the environment specifically is used as an integrating context for learning, additional benefits have been shown to occur. • Higher scores on standardized measures of academic achievement in reading, writing, math, science, and social studies; • Reduced discipline and classroom management problems; • Increased student engagement and enthusiasm for learning; and, • Greater pride and ownership in students' accomplishments. In addition to educational benefits there are stewardship benefits. Stewardship is a relationship that is developed over time through long-term interactions and direct experience. The resulting connection (attachment theory) and understanding create the potential for lifetime commitments to environmental stewardship. Please refer to studies listed above for more specific data.

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. Related sustainable activities tied to wise use of water resources are integrated into the curriculum. Recycling education is part of this.
e. Are you an Urban Water Supplier[1]?	☐ Yes ■ No ☐ N/A *My students would say yes because the Upper Feather River does
f. Are you are an Agricultural Water Supplier[2]?	☐ Yes ■ No ☐ N/A *My students would say yes because the Upper Feather River does
g. Is the project related to groundwater?	■ Yes ☐ No ☐ N/A If yes, please indicate which groundwater basin. Educationally related

[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-9: Watershed Education

Project applicant: Plumas Unified School District

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.
- ☐ The project requires workers to commute to the project site.
- ☐ The project is expected to generate GHG emissions for other reasons.
- ☐ 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:

- ☐ Not applicable
- ☒ Reduced snowmelt
- ☒ Unmet local water needs (drought)
- ☒ Increased invasive species

Water supply issues are part of the curriculum. The physical resource is not impacted but the related culture is enhanced by increasing understanding of watershed and related stewardship.

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:

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

Water demand issues are part of the curriculum. The physical resource is not impacted but the related culture is enhanced by increasing understanding of watershed and related stewardship.

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
- ☒ Unmet beneficial uses (municipal and domestic water supply, water contact recreation, cold freshwater habitat, spawning habitat, wildlife habitat, etc.)

Water quality issues are part of the curriculum. The physical resource is not impacted but the related culture is enhanced by increasing understanding of watershed and related stewardship.

Flooding

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

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

Flooding is part of the curriculum. The physical resource is not impacted but the related culture is enhanced by increasing understanding of watershed and related stewardship.

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

☐ Climate-sensitive fauna or flora

☒ Recreation and economic activity

☒ Quantified environmental flow requirements

☒ Erosion and sedimentation

☒ Endangered or threatened species

☒ Fragmented habitat

These issues are part of the curriculum. The physical resource is not impacted but the related culture is enhanced by increasing understanding of watershed and related stewardship.

Hydropower

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

☐ Not applicable

☒ Reduced hydropower output

Hydropower is part of the curriculum. The physical resource is not impacted but the related culture is enhanced by increasing understanding of watershed and related stewardship.

FMW-9: Watershed Education

GHG Emissions Analysis

Project Construction Emissions

☐ The project requires non-road or off-road engines, equipment, or vehicles to complete. If yes:

Type of Equipment	Maximum Number Per Day	Total 8-Hour Days in Operation	Total $MTCO_2e$
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Total Emissions	**0**

☐ The project requires materials to be transported to the project site. If yes:

Total Number of Round Trips	Average Trip Distance (Miles)	Total $MTCO_2e$
		0

☐ The project requires workers to commute to the project site. If yes:

Average Number of Workers	Total Number of Workdays	Average Round Trip Distance Traveled (Miles)	Total $MTCO_2e$
			0

☐ The project is expected to generate GHG emissions for other reasons. If yes, explain:

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

FMW-9: Watershed Education

Project Operating Emissions

[ ] The project requires energy to operate. If yes:

Annual Energy Needed	Unit	Total $MTCO_2e$
	kWh (Electricity)	**0**
	Therm (Natural Gas)	**0**

[ ] The project will generate electricity. If yes:

Annual kWh Generated	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will proactively manage forests to reduce wildfire risk. If yes:

Acres Protected from Wildfire	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will affect wetland acreage. If yes:

Acres of Protected Wetlands	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will include new trees. If yes:

Acres of Trees Planted	Total $MTCO_2e$
0	**0**

*A negative value indicates GHG reductions

[XX] Project operations are expected to generate or reduce GHG emissions for other reasons. If yes, explain:

Project may generate minor GHG emissions when students are transported to various locations.

GHG Emissions Summary

Construction and development will generate approximately:	0 $MTCO_2e$
In a given year, operation of the project will result in:	0 $MTCO_2e$

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	Sierra Institute for Community and Environment/Lake Almanor Watershed Group
Name of Primary Contact	Courtney Gomola
Name of Secondary Contact	Jonathan Kusel
Mailing Address	PO Box 11/4438 Main St, Taylorsville, CA 95983
E-mail	CGomola@SierraInstitute.us
Phone	530-284-1022
Other Cooperating Agencies / Organizations / Stakeholders	Mountain Meadows Conservancy, Maidu Summit Consortium
Is your agency/organization committed to the project through completion? If not, please explain	Yes

II. GENERAL PROJECT INFORMATION

Project Title	FMW-10: Lake Almanor Basin Stewardship and Outreach Program
Project Category	☐ **Agricultural Land Stewardship** ☑ **Floodplains/Meadows/Waterbodies** ☐ **Municipal Services** ☐ **Tribal Advisory Committee** ☐ **Uplands/Forest**
Project Description (Briefly describe the project, in 300 words or less)	The Lake Almanor Watershed Group (LAWG, formerly the Almanor Basin Watershed Advisory Council) has addressed water quality, land use, and critical habitat issues in the Lake Almanor Basin since 2004. A key aspect of this work has been engaging the public in discussions and presentations to advance watershed stewardship holistically throughout Lake Almanor communities. This work has involved public meetings and forums, individual outreach activities, as well as the creation of informational pamphlets and brochures. Although past work has successfully been implemented, and more public support garnered for watershed stewardship activities, there is an imminent need for large-scale reductions in non-point sources of nutrient deposition into the Lake and

	widespread education on the role of residents and visitors in these and other current issues. Increased nutrients, coupled with warmer, drier years, can not only lead to decreased water quality and detrimental algal blooms, but also create favorable habitat for the introduction of invasive species. This project will build upon established community connections and previous research to engage the public in activities that increase understanding of human-mediated influences on water quality and invasive species in Lake Almanor and surrounding water bodies, and develop actions to reduce nutrient deposition into these areas and the potential for invasive species introduction, among other relevant issues.
Project Location Description (e.g., along the south bank of stream/river between river miles or miles from Towns/intersection and/or address):	Lake Almanor and surrounding water bodies (ex: Butt Lake, Mountain Meadows Reservoir)
Latitude:	40 17.3' N
Longitude:	121 08.3' W

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	Although the water bodies are managed by PG&E or other private/public entities, visitors and residents recreate in and near these water bodies and are also often responsible for managing land adjacent to these bodies or tributaries of these water sources, thereby acting as stakeholders in the watershed. Increasing	N/A

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)
		understanding of their individual impacts on the health and quality of these water bodies, and resulting impacts on tourism and quality of life surrounding Lake Almanor and other areas will result in increased connection to the lake and the potential for collaboration among these stakeholders as they realize their role as watershed stewards. Success of increasing communication and collaboration will be measured by attendance of stakeholders from different areas around the water bodies at various community outreach events.	
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 supply, recreational, and environmental benefits to the Region.	☑ Yes ☐ N/A	Lake Almanor (LA), Butt Lake and MMR are critical aspects of the State Water Project and specifically the Staircase of Power. Increasing understanding of human-mediated impacts on water quality in these critical water resources will maintain and promote good water quality for downstream users and wildlife, as well as keep LA and other water bodies as appealing areas to recreate, supporting the water recreation-based tourism that drives the economies of many disadvantaged communities in the area. Success will be measured by the quantity and quality of outreach material created by SI/LAWG staff with input by DWR staff where appropriate. Outreach material will be more tangible when presented alongside the long-term monitoring data the LAWG is privy to as a result of their continued collection over the previous years.	N/A
Encourage municipal service providers to participate in regional water management actions that improve water supply and water quality.	☐ Yes ☑ N/A		

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)
Continue to actively engage in FERC relicensing of hydroelectric facilities in the Region.	☑ Yes ☐ N/A	LAWG members were contacted by previous County Supervisors to assist in making recommendations on the original FERC relicensing, which occurred over 10 years ago. Although we cannot be sure about future actions, we imagine that LAWG members will be contacted with dealing with recommendations that the SWB comes up with for the new FERC relicensing. Furthermore, FERC re-licensing is routinely brought up during LAWG meetings as it relates to the groups priorities, primarily related to the health of the Lake and recreation and economic opportunities for the area.	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	Increased nutrients, coupled with warmer, drier years, can not only lead to detrimental algal blooms, but also create favorable habitat for the introduction of invasive species and reduce water quality metrics needed for healthy fish populations. Successful implementation of this project will address this objective by increasing resident understanding of these variables and steps they can take to mediate these negative impacts. Success will be measured by the number of outreach materials dispersed and the number of individuals engaged in this outreach.	N/A
Address water resources and wastewater needs of DACs and Native Americans.	☐ Yes ☑ N/A		N/A
Coordinate management of recharge areas and protect	☐ Yes		

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)
groundwater resources.	☑ N/A		
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	Warming temperatures and drier years exacerbate many of the negative anthropogenic influences on water health. By engaging community members and promoting their role as critical stewards of these waterways, we take a proactive role in mitigating some of the projected negative effects on lake health as a result of climate change. Success will be measured by the number of outreach materials dispersed and the number of individuals engaged in this outreach.	N/A
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	This project directly addresses this goal by engaging the public in outreach activities geared towards increased understanding of human-mediated impacts on water quality and ecosystem health. We will measure the effectiveness of these efforts by the number outreach activities, the number of individuals engaged in outreach activities, and the number of outreach materials dispersed.	N/A
Address economic challenges of agricultural producers.	☐ Yes ☑ N/A		
Work with counties/ communities/groups to make sure staff capacity exists for actual administration and	☑ Yes ☐ N/A	Sierra Institute has a long and robust history of receiving and effectively utilizing large grant dollars. Sierra Institute will	N/A

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)
implementation of grant funding.		facilitate LAWG in administering any financial support awarded to promote watershed stewardship through outreach activities, and success will be measured by successful implementation and reporting of grant activities after awards are received.	

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

N/A

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	Many of these water bodies represent sacred places to the native Maidu people of the Almanor Basin. LAWG members include a tribal representative, who will provide opinions and suggestions on where and when to incorporate information on Maidu culture and history, including traditional stewardship practices and how these may be utilized by local landowners in efforts to be better stewards. Furthermore, we will explore opportunities to have outreach activities include presentations by the Maidu where appropriate. Encouraging watershed stewardship by residents and visitors and increasing their understanding of the role of traditional ecological practices will help protect these culturally significant places and promote the historic and culture resources that are rife in and around these water bodies.

b. Disadvantaged Communities[1]	☐ N/A	DACs populate the area around Lake Almanor (including Canyondam, Prattville, Chester and the upper reaches of the Peninsula) as well as those closest to Mountain Meadows Reservoir (Westwood and Clear Creek). These DACs are characterized by struggling economies, some of which rely solely on dollars brought in by recreation-based tourism in the area. This program helps protect these fragile economies by promoting watershed stewardship efforts by residents and visitors, ensuring that these water bodies remain a desirable destination for tourism rather than succumbing to water-quality related economic crashes such as those seen around Clear Lake in Lake County. Furthermore, by providing outreach materials directly geared towards members of DACs, we empower these individuals by giving them tools (through education) to become champions of their ecosystems and directly apply this new knowledge to improving water quality.
c. Environmental Justice[2]	☐ N/A	The native Maidu people of the Almanor Basin have been historically shortchanged and overlooked in environmental policies, with important cultural and economic resources pushed aside in favor of the initiatives of large, private and public entities. An outreach program geared toward protecting the health and quality of local water bodies and adjacent habitat help protect areas that provide ecological and cultural resources for these native inhabitants. Furthermore, the Maidu are receiving land easements as a result of PG&E settlements, providing land adjacent to these water bodies. Although proper stewardship of these areas by the Maidu is not in question, promoting more awareness and better stewardship by residents and visitors helps promote overall watershed health, and thereby mitigating negative impacts that might otherwise have been felt on areas adjacent to Maidu-managed land.
d. Drought Preparedness	☑ N/A	N/A

e. Assist the region in adapting to effects of climate change[3]	☐ N/A	Lake health issues are exacerbated by climate change and have been evidenced by the water quality monitoring done by the Lake Almanor Watershed Group (Lake Almanor Water Quality Report 2015). Warmer temperatures and decreased water quantity have negative influences on fish habitat, which are further impacted by nutrient deposition and invasive species. Mitigating the input of non-point nutrient sources and educating residents on problematic invasive species will slow down the deterioration of water quality compared to if measures were not taken. Furthermore, outreach activities will involve increasing resident and visitor awareness and understanding of the impacts of climate change and the interaction between these variables and their own actions.
f. Generation or reduction of greenhouse gas emissions (e.g. green technology)	☑ N/A	N/A
g. Other expected impacts or benefits that are not already mentioned elsewhere	☑ N/A	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 that 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	☑ Yes	j. Planning and implementation of	☐ Yes

reduction, management and monitoring	☐ N/A	multipurpose flood management programs	☑ 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	
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	This project addresses "Urban Impacts" and "Climate Change" issues raised in the California Water Plan. Through outreach activities the project will directly address urban impacts such as pollutant levels, surface runoff and the sustainability and viability of aquatic habitats by connecting with local residents and visitors regarding their actions in relation to these factors. Similarly, outreach activities will involve addressing the

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
		connection between climate change and these variables, and how what may seem like small actions to residents and visitors may have large influence on the ecosystem, particularly as they are amplified as a result of changing climates. Furthermore, outreach will include the audience of visitors to marinas and recreational boating facilities, specifically in relation to aquatic invasive species.
Salt and salinity management	☐ Yes ☑ No	
Urban storm water runoff management	☑ Yes ☐ No	This project addresses "Climate Change" and "Misperception" issues raised in the California Water Plan in association with Urban Storm Water Runoff Management. There appears to be a great deal of misunderstanding of the impacts that fertilizer application, debris piling and littering can have on water quality health, particularly as a result of runoff and consequent deposition into water bodies. This project will address this issue by conducting outreach activities to raise awareness about these relationships, and the actual impact that these variables can have on water and ecosystem health. Furthermore, activities will address the connection between climate changes and these variables.
Practice Resource Stewardship		
Agricultural land stewardship	☐ Yes ☑ No	
Ecosystem restoration	☐ Yes ☑ No	
Forest management	☐ Yes ☑ No	
Land use planning and management	☐ Yes ☑ No	
Recharge area protection	☐ Yes ☑ No	
Sediment management	☐ Yes ☑ No	
Watershed management	☐ Yes ☑ No	
People and Water		
Economic incentives	☐ Yes ☑ No	
Outreach and engagement	☑ Yes ☐ No	This project addresses the Outreach and Engagement component of the CA Water Plan by directly involving the public in outreach activities associated with human-mediated nutrient deposition, invasive species, and the influence of climate change on water health and quality.
Water and culture	☑ Yes ☐ No	This project addresses the Water and Culture component of the CA Water Plan by protecting water and habitat resources important to native

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
		Maidu people by directly involving the public in outreach activities associated with mitigating human-mediated nutrient deposition, invasive species, and the influence of climate change on water health and quality. As mentioned above, LAWG members include a Maidu Tribal representative, who will assistant with outreach material generation. Through Maidu participation, we will promote using traditional knowledge and practices to better sustain and integrate water management and provide models of sustainability, which local residents can incorporate into their own stewardship activities related to the watershed.
Water-dependent recreation	☑ Yes ☐ No	This project addresses the Water-dependent Recreation component of the CA Water Plan through education on the public's role in protecting water quality and recreational opportunities. Specifically, this will be accomplished by educating residents and businesses, as well as local youth, about outdoor ethics, preserving and protecting resources, and taking an active role in watershed stewardship. Although there are resources that LAWG makes available to the public related to current water quality issues, such as through the Annual Water Quality Reports, this project will work to explain water quality and stewardship issues in a way that is more compelling, comprehensible, and accessible to the general public, therefore making those involved in outreach activities more engaged.
Wastewater/NPDES	☐ Yes ☑ No	

Other RMS addressed and explanation:

N/A

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**	$139,224		$25,000 Lake Almanor Water Quality Monitoring $8,000 Sierra Nevada Conservancy Water Trails Grant (dependent on	
b.	**Land Purchase/Easement**				
c.	**Planning/Design/Engineering / Environmental**				
d.	**Construction/Implementation**				
e.	**Environmental Compliance/ Mitigation/Enhancement**				
f.	**Construction Administration**				
g.	**Other Costs**	$3,000			
h.	**Construction/Implementation Contingency**				
i.	**Grand Total (Sum rows (a) through (h) for each column)**	$142,224		$33,000	$142,224

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-	$47,408		Development of outreach materials and strategy
	Phase 2-	$94,816		Outreach implementation
	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).**	The Lake Almanor Watershed Group is a mostly volunteer-driven organization addressing pressing community and environmental needs in the Almanor Basin. The dedicated work of the group and community volunteers will maintain this project during the planning period.

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)**	Lake Almanor and surrounding water bodies are already experiencing the negative impacts of climate change and direct anthropogenic activities on water quality and habitat health. If direct measures are not taken to mediate human-caused nutrient inputs, invasive species introduction and establishment, and water consumption, the negative effects on climate change on these water bodies will continue to be exacerbated, resulting in poor water quality, reduced tourism and the consequent economic impacts, and overall deterioration of watershed health.

*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	Creation of the Lake Almanor Watershed Plan (2009) outlining needed activities to maintain and promote the health of Lake Almanor	December 2005	April 2009
b. Final Design	☑	☐ Yes ☑ No ☐ N/A	Creation of outreach materials and implementation of outreach activities. Specifically: One State of the Watershed Forums held in year one Completion of the updated watershed outreach plan within one year Sub-projects identified and implemented in year one	TBD	TBD

			Two State of the Watershed Forums held in year two Implementation of sub-projects in year two Two State of the Watershed Forums held in year three Implementation of sub-projects in year three		
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.).	Upper Feather River IRWMP California State Water Plan
b. List technical reports and studies supporting the feasibility of this project.	Lake Almanor Water Quality Report 2015 (2015) prepared by Dr. Gina Johnston (CSU-Chico) and Scott McReynolds (CA-DWR) for the Plumas County Flood Control and Water Conservation District and Lake Almanor Watershed Advisory Group 2011 Lake Almanor Review: Survey of Water Quality, Trend Analysis and

	Recommendations prepared by Sierra Institute for Community and Environment on behalf od the Almanor Basin Watershed Advisory Committee Lake Almanor Watershed Management Plan (2009) prepared by Sierra Institute for Community and Environment Lake Almanor Watershed Assessment Report (2006) prepared by CH2MHill and Earthworks Restoration, Inc. for the Plumas County Flood Control and Water Conservation District Lake Almanor Stakeholder Report: Key issues in the Basin (2004) prepared by Sierra Institute for Community and Environment
c. Concisely describe the scientific basis (e.g. how much research has been conducted) **of the proposed project in 300 words or less.**	Water quality monitoring at Lake Almanor dates back to the 1960s, with monitoring performed by various groups, primarily California Department of Water Resources, Pacific Gas and Electric, and the Lake Almanor Watershed Group. A synthesis of the available results is documented in the 2011 Lake Almanor Review: Survey of Water Quality, Trend Analysis and Recommendations, prepared by Sierra Institute for Community and Environment on behalf of the Almanor Basin Watershed Advisory Committee. In this review there is a clear trend for increased water temperature, decreased dissolved oxygen, increases in total phosphorus, and decreases in suitable habitat for Salmonids. The Lake Almanor Water Quality Report 2015 (2015) prepared by Dr. Gina Johnston (CSU-Chico) and Scott McReynolds (CA-DWR) for the Plumas County Flood Control and Water Conservation District and Lake Almanor Watershed Advisory Group confirms these trends, and also showcases increased populations of phytoplankton and zooplankton, species that often result in algal blooms. These results provide the basis and elucidate the urgent need for targeted and effective outreach activities to mediate any impacts where possible.

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-10 Lake Almanor Basin Stewardship and Outreach Program

Project applicant: Sierra Institute for Community and Environment/ Lake Almanor Watershed Group

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.

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

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

☑ 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:

- ☐ Not applicable
- ☐ Reduced snowmelt
- ☐ Unmet local water needs (drought)
- ☑ Increased invasive species

There are many vectors for invasive species to be introduced, or reintroduced, to an area where it hasn't been establishment. A major culprit of the introduction of invasive species to new areas is the unknowing visitor or resident, transporting invasive species propagules on their clothing, automobiles, recreation equipment, in livestock feed, etc. Fortunately, the adjective "unknowing" creates an opportunity to help rectify or reduce the rates of these disastrous transportations. This project aims to increase awareness about all levels of watershed stewardship in the local community, including resident and visitor's roles in invasive species prevention and management. Through this education, we aim to reduce rates of ignorant invasive species dispersal by making residents and visitors more aware of the role that they play in the cycle.

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:

- ☑ 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
- ☑ Unmet beneficial uses (municipal and domestic water supply, water contact recreation, cold freshwater habitat, spawning habitat, wildlife habitat, etc.)

A major aspect of this project work is increasing local understanding of the role that community actions play in watershed health, particularly in those waterbodies that are used for recreation. LAWG's Water Quality Monitoring Reports have shown the health of the lake to be decreasing, particularly in the areas of decreased dissolved oxygen, higher water temperatures, and more algal blooms. Although some of the factors that contribute to these outcomes cannot be mediated through outreach (such as lower cold water flows, less snowpack, warmer ambient temperatures, etc.) what can be changed are factors like non-point nutrient and waste deposition, and environmentally ethical actions in these and surrounding waterbodies. Through outreach and education activities, we aim to increase local understanding about effective ways to maintain their properties, lifestyles, and ethics in a way that benefits, or at the least does not negatively impact, their local waterbodies. By becoming better stewards- decreasing nutrient runoff from lakeshore properties, acting responsibly with their waste, and respecting and protecting local flora and fauna- residents will create a healthier and more sustainable watershed, which will in turn continue to provide all the environmental services that these communities rely on, including water-based recreation, abundant wildlife, and clean water.

Flooding

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

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

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
- ☐ Climate-sensitive fauna or flora
- ☑ Recreation and economic activity
- ☐ Quantified environmental flow requirements
- ☑ Erosion and sedimentation
- ☑ Endangered or threatened species
- ☐ Fragmented habitat

Decreases in water quality can directly impact water-based recreation and tourism, and consequently harm local tourism-dependent economies. As stated under "Water Quality," local community members can play a big role in the health of waterbodies adjacent and near to their communities. By providing these individual with the tools through education to steward these local water bodies and properly manage lakeshore properties, we can maintain these waterbodies as a destination for water-based recreation, maintain and improve water quality by decreasing erosion and sedimentation in tributaries, and protect endangered or threatened species by reducing the potential introduction of invasive species that can displace those that are struggling.

Hydropower

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

- ☑ Not applicable
- ☐ Reduced hydropower output

FMW-10: Lake Almanor Basin Stewardship & Outreach Program

GHG Emissions Analysis

Project Construction Emissions

☐ The project requires non-road or off-road engines, equipment, or vehicles to complete. If yes:

Type of Equipment	Maximum Number Per Day	Total 8-Hour Days in Operation	Total $MTCO_2e$
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Total Emissions	**0**

☐ The project requires materials to be transported to the project site. If yes:

Total Number of Round Trips	Average Trip Distance (Miles)	Total $MTCO_2e$
		0

☐ The project requires workers to commute to the project site. If yes:

Average Number of Workers	Total Number of Workdays	Average Round Trip Distance Traveled (Miles)	Total $MTCO_2e$
			0

☐ The project is expected to generate GHG emissions for other reasons. If yes, explain:

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

FMW-10: Lake Almanor Basin Stewardship & Outreach Program

Project Operating Emissions

[ ] The project requires energy to operate. If yes:

Annual Energy Needed	Unit	Total $MTCO_2e$
	kWh (Electricity)	**0**
	Therm (Natural Gas)	**0**

[ ] The project will generate electricity. If yes:

Annual kWh Generated	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will proactively manage forests to reduce wildfire risk. If yes:

Acres Protected from Wildfire	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will affect wetland acreage. If yes:

Acres of Protected Wetlands	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will include new trees. If yes:

Acres of Trees Planted	Total $MTCO_2e$
0	**0**

*A negative value indicates GHG reductions

[XX] Project operations are expected to generate or reduce GHG emissions for other reasons. If yes, explain:

Project may have minor GHG emissions related to vehicular travel for monitoring purposes.

GHG Emissions Summary

Construction and development will generate approximately:	0 $MTCO_2e$
In a given year, operation of the project will result in:	0 $MTCO_2e$

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	Sierra Institute for Community and Environment/ Lake Almanor Watershed Group
Name of Primary Contact	Charles Plopper
Name of Secondary Contact	Aaron Seandel/ Courtney Gomola
Mailing Address	P.O Box 395, Chester, CA 96020
E-mail	cgplopper@ucdavis.edu
Phone	530-284-7414
Other Cooperating Agencies / Organizations / Stakeholders	Mountain Meadows Conservancy (MMC), Maidu Summit Consortium (MSC), USDA Natural Resources Conservation Services (NRCS)
Is your agency/organization committed to the project through completion? If not, please explain	Yes

II. GENERAL PROJECT INFORMATION

Project Title	FMW-11: Lake Almanor Basin Water Quality Improvement Plan
Project Category	☐ **Agricultural Land Stewardship** ☒ **Floodplains/Meadows/Waterbodies** ☐ **Municipal Services** ☐ **Tribal Advisory Committee** ☐ **Uplands/Forest**
Project Description (Briefly describe the project, in 300 words or less)	Goal: Protect, maintain and improve water quality in the Lake Almanor Basin. The Lake Almanor Watershed Group (LAWG, formerly the Almanor Basin Watershed Advisory Committee) has addressed water quality, land use, and critical habitat issues in the Lake Almanor Basin since 2004. A key aspect of this work has been monitoring water quality. The work proposed here is to address the contribution of upstream sources and run-off from roads, golf courses, lawns and other surfaces around homes and developed areas by 1) exploring current practices used in other lake side communities to minimize impact of activity, 2) develop recommendations to address modification of current practices. Although past work

	has successfully been implemented, and more public support garnered for watershed stewardship activities, there is an imminent need for large-scale reductions in non-point sources of nutrient deposition into the Lake. This project will build upon established community connections and previous research to develop action plans to reduce erosion, sedimentation and contaminated nutrient run-off and deposition into the Lake Almanor.
Project Location Description (e.g., along the south bank of stream/river between river miles or miles from Towns/intersection and/or address):	The Almanor Basin Watershed including Mountain Meadows, Walker Lake and its contributing creeks, Hamilton Branch, Lake Almanor, Butt Lake, Last Chance Creek, Bailey Creek and the North Fork of the Feather River above Lake Almanor and its tributaries.
Latitude:	40^{o} 07' to 40^{o} 30' N
Longitude:	120^{o} 48' to 121^{o} 30' W

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	Once the project is funded, all relevant stakeholders will be brought together to assist in developing the assessment plan, identifying other stakeholders, identifying potential contractors, and insuring all relevant factors that could compromise water quality are included in the assessment. As the assessments progress, all stakeholders, including DWR,	Involvement of at least 6 agencies (USFS, NRCS, DWR, CPUD,WPUD, HBPUD) and 7 entities (PG&E, SPI, CPI, West Almanor CC, Pennisula CC, MMC, MSC) with concerns regarding operations that effect water quality in at least 2

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)
		will also be involved in the evaluation of the data and the identification of potential solutions and planning for mitigation.	meetings per year for planning and evaluation.
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 supply, recreational, and environmental benefits to the Region.	☒ Yes ☐ N/A	Once the project is funded, all relevant stakeholders will be brought together to assist in developing the assessment plan, identifying other stakeholders, identifying potential contractors, and insuring all relevant factors that could compromise water quality are included in the assessment. As the assessments progress, all stakeholders, including DWR, will also be involved in the evaluation of the data and the identification of potential solutions and planning for mitigation.	At least 2 meetings per year that include other agencies and entities with concerns regarding operations that effect water quality. (See above)
Encourage municipal service providers to participate in regional water management actions that improve water supply and water quality.	☒ Yes ☐ N/A	Once the project is funded, all relevant stakeholders will be brought together to assist in developing the assessment plan, identifying other stakeholders, identifying potential contractors, and insuring all relevant factors that could compromise water quality are included in the assessment. As the assessments progress, all stakeholders, including DWR, will also be involved in the evaluation of the data and the identification of potential solutions and planning for mitigation.	At least 2 meetings per year that include other agencies and entities with concerns regarding operations that effect water quality. (See above)
Continue to actively engage in FERC relicensing of hydroelectric facilities in the	☒ Yes ☐ N/A	Members of LAWG have been actively engaged in the FERC relicensing of Lake Almanor	

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)
Region.		since it started. Despite detailed documentation provided by LAWG demonstrating recent increases in nutrients and blue-green algae in Lake Almanor, this issue was not addressed in the EIR recently released for FERC 2105.	
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		
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		
Improve coordination of land use and water resources planning.	☒ Yes ☐ N/A	Assessment will identify non-point source pollution to Lake Almanor which may result in: a) different management of fertilizer use around the lake, b) new management approaches for service and logging road maintenance adjacent to upstream water sources, c) altered management of waste handing procedures, d) different watering practices for golf course and other large areas of lawn, e) different management practices for handing storm water runoff.	
Maximize agricultural, environmental and municipal water use efficiency.	☐ Yes ☒ N/A		

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)
Effectively address climate change adaptation and/or mitigation in water resources management.	☒ Yes ☐ N/A	The effects of nutrient deposition will be exacerbated by warmer temperatures and drier years. Therefore, identifying sources of nutrient deposition and avenues for mitigating these impacts will help combat the effects of climate change on these variables.	
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 information and planning process, as well as , the finished plans and operations will be incorporated into the educational program being developed by another proposal from SI/LAWG/MMC/MSC.	
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	SI and LAWG currently have a Watershed Coordinator who works closely with members and DWR on the current assessment. This person's duties will be expanded to include management of the proposed project.	

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	The projects will identify potential areas for mitigation that were historically used by native American people as foraging grounds for food and basket making materials.
b. Disadvantaged Communities[1]	☐ N/A	The projects will be located adjacent to the disadvantaged communities of Chester, Canyon Dam, Prattville and Westwood. By identifying areas needing mitigation and strategies for protecting and improving the quality of the water in the entire Basin, the project has the potential to increase tourism (hiking, biking, birding, boating, hunting and fishing). These activities draw visitors into these communities which could improve conditions for local businesses. As has been demonstrated by the experience of communities surrounding Clear Lake, poor water quality will negatively impact the already struggling water-based tourism economies of Almanor Basin communities.
c. Environmental Justice[2]	☒ N/A	
d. Drought Preparedness	☐ N/A	By identifying areas needing mitigation and strategies for protecting and improving the quality of the water in the entire Basin, the project has the potential to enhance and protect important tributaries and shoreline habitats that will be critical for improved water retention as the region prepares for drought.
e. Assist the region in adapting to effects of climate change[3]	☐ N/A	The effects of nutrient and sediment deposition will be exacerbated by warmer temperatures and drier years. Therefore, identifying sources of nutrient deposition and avenues for mitigating these impacts will help combat the effects of climate change on these variables. This project will identify

		and put in place preemptive measures.
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	By identifying and mitigating for sources of excessive runoff, potential excess water flow during adverse inclement weather conditions will be controlled.
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	Currently most of water in Lake Almanor is committed to domestic use in Los Angeles and the SF Bay Area. Identification of problem areas will promote mitigation activities that will improve current water quality for both consumption locally and for downstream water rights holders and prevent further deterioration of water quality.
Pollution prevention	☒ Yes ☐ No	Currently most of water in Lake Almanor is committed to domestic use in Los Angeles and the SF Bay Area. Identification of problem areas, including at/near the numerous boat ramps and marinas, will promote mitigation activities that will improve current water quality for both consumption locally and for downstream

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
		water rights holders and prevent further deterioration of water quality.
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	
Land use planning and management	☐ Yes ☒ No	
Recharge area protection	☐ Yes ☒ No	
Sediment management	☐ Yes ☒ No	
Watershed management	☒ Yes ☐ No	The proposed assessment project will identify mediate runoff, sedimentation and erosion issues in the Almanor Basin, will provide local land use decision-makers with access to watershed information that will promote improvement of maintenance procedures and facilitate local decision-making regarding watershed functions to enhance water quality.
People and Water		
Economic incentives	☐ Yes ☒ No	
Outreach and engagement	☒ Yes ☐ No	As the assessment of the factors compromising water quality are identified all stakeholders, including DWR will be involved in the identification of potential solutions, planning for mitigation and participation in implementation of mitigation projects. The information and planning process, as well as the finished plans and operations will be incorporated into the educational program being developed by another proposal from SI/LAWG/MMC/MSC.
Water and culture	☐ Yes ☒ No	
Water-dependent recreation	☒ Yes ☐ No	The Lake Almanor Basin offers unparalleled recreation opportunities and is a critical economic driver for Plumas County. The watershed provides millions of gallons of clean drinking water for downstream users along with critical habitat for myriad fish and wildlife communities both throughout the Basin and beyond. Although historically considered to be in good condition,

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
		increased anthropogenic influences associated with development and recreation have exacerbated deteriorating water quality in Lake Almanor, which, based on current monitoring, includes drastically increased nutrients, temperatures, and blue-green algae and decreased dissolved oxygen. This project will define the nature and sources of the contaminants, identify potential solutions, develop plans for mitigation and implement mitigation projects to maintain and reestablishment of a more healthy ecosystem for the Almanor Basin Watershed.
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**	$125,000			
b.	**Land Purchase/Easement**	$-0-			
c.	**Planning/Design/Engineering / Environmental**	$375,000			
d.	**Other Costs**	$10,000			
e.					
f.					
g.					
h.					
i.	**Grand Total (Sum rows (a) through (h) for each column)**	$510,000			

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	$125,000		Identify and hire contract agencies to design study plans and begin studies of current practices that negatively impact sedimentation, erosion, runoff and lake contamination by fertilizer use. Year 01
	Phase 2	$425,000		Continue and complete studies of current practices that negatively impact sedimentation, erosion, runoff and lake contamination by fertilizer use. Develop and complete plans to implement strategies for altering practices that negatively impact sedimentation, erosion, stormwater runoff and fertilizer use, including environmental compliance.. Years 02 & 03
	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).**		This project will identify sources of runoff effecting water quality and provide the detailed data for local decision makers to alter current practices. Changes that will require funds beyond those already being used will be generated by applications for additional funds to support specific projects needed to change infrastructure or management practices.	
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)**		The Lake Almanor Basin offers unparalleled recreation opportunities and is a critical economic driver for Plumas County. The watershed provides millions of gallons of clean drinking water for downstream users along with critical habitat for myriad fish and wildlife communities both throughout the Basin and beyond. Although historically considered to be in good condition, increased anthropogenic influences associated with development and recreation have exacerbated deteriorating water quality in Lake Almanor, which, based on current monitoring, includes drastically increased	

		nutrients, temperatures, and blue-green algae and decreased dissolved oxygen. This proposal is for the first stages of a comprehensive program to define and minimize the impacts of erosion, sedimentation, and contaminated runoff from either upstream sources or urban run-off, especially stormwater, from roads, golf courses, lawns and other surfaces around homes and developed areas surrounding the lake. Without such a proactive program, such as proposed here, the water quality of Lake Almanor will continue to deteriorate at an increasingly rapid rate as the drought continues.

*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		As soon as funding is awarded the program will begin by expanding the existing minimal testing program and the hiring of contract agencies.	TBD
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.).	Lake Almanor Watershed Management Plan (2009) prepared by Sierra Institute for Community and Environment
b. List technical reports and studies supporting the feasibility of this project.	Lake Almanor Water Quality Report 2014 (2015) prepared by Dr. Gina Johnston (CSU-Chico) and Scott McReynolds (CA-DWR) for the Plumas County Flood Control and Water Conservation District and Lake Almanor Watershed Advisory Group. Lake Almanor Watershed Assessment Report (2006) prepared by CH2MHill and Earthworks Restoration, Inc. for the Plumas County Flood Control and Water Conservation District. Lake Almanor Stakeholder Report: Key issues in the Basin (2004) prepared by Sierra Institute for Community and Environment.
c. Concisely describe the scientific basis (e.g. how much research has been conducted) **of the proposed project in 300 words or less.**	The quality of Lake Almanor has been assessed for a number of years. When economic constraints prevented DWR and Plumas County from continuing annual assessments, LAWG and its predecessor, Almanor Basin Watershed Advisory Committee (ABWAC) raised private funds to continue monitoring the lake. These annual reports have clearly shown deterioration of water quality in recent years, including

	increases in temperature, dissolved nutrients, blue-green algae and other biologicals and decreased in dissolved oxygen. Due to lack of funding a comprehensive assessment of the lake or its tributaries has not been possible to identify the sources contributing to the deterioration in quality. The report for 2014 is referenced above and the others are available on the website.
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-11: Lake Almanor Basin Water Quality Improvement Program

Project applicant: Sierra Institute/ LAWG

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.
- ☐ The project requires workers to commute to the project site.
- ☐ The project is expected to generate GHG emissions for other reasons.
- ☐ 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:

X☐ 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

☐ Unmet beneficial uses (municipal and domestic water supply, water contact recreation, cold freshwater habitat, spawning habitat, wildlife habitat, etc.)

This is a monitoring project to identify and quantify degradation in the quality of water in the Basin and provide information for decision making regarding mitigation projects if they become necessary.

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

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:

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

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

FMW-11: Lake Almanor Basin Water Quality Improvement Plan

GHG Emissions Analysis

Project Construction Emissions

☐ The project requires non-road or off-road engines, equipment, or vehicles to complete. If yes:

Type of Equipment	Maximum Number Per Day	Total 8-Hour Days in Operation	Total $MTCO_2e$
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Total Emissions	**0**

☐ The project requires materials to be transported to the project site. If yes:

Total Number of Round Trips	Average Trip Distance (Miles)	Total $MTCO_2e$
		0

☐ The project requires workers to commute to the project site. If yes:

Average Number of Workers	Total Number of Workdays	Average Round Trip Distance Traveled (Miles)	Total $MTCO_2e$
			0

☐ The project is expected to generate GHG emissions for other reasons. If yes, explain:

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

FMW-11: Lake Almanor Basin Water Quality Improvement Plan

Project Operating Emissions

[ ] The project requires energy to operate. If yes:

Annual Energy Needed	Unit	Total $MTCO_2e$
	kWh (Electricity)	**0**
	Therm (Natural Gas)	**0**

[ ] The project will generate electricity. If yes:

Annual kWh Generated	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will proactively manage forests to reduce wildfire risk. If yes:

Acres Protected from Wildfire	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will affect wetland acreage. If yes:

Acres of Protected Wetlands	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will include new trees. If yes:

Acres of Trees Planted	Total $MTCO_2e$
0	**0**

*A negative value indicates GHG reductions

[XX] Project operations are expected to generate or reduce GHG emissions for other reasons. If yes, explain:

FMW11 is an assessment project only, and is not expected to generate significant greenhouse gases for duration of project.

GHG Emissions Summary

Construction and development will generate approximately:	0 $MTCO_2e$
In a given year, operation of the project will result in:	0 $MTCO_2e$

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	U.S. Forest Service
Name of Primary Contact	Randy Westmoreland
Name of Secondary Contact	Sharon Falvey
Mailing Address	PO Box 95, Sierraville CA 96126
E-mail	rwestmoreland@fs.fed.us
Phone	530-587-3558
Other Cooperating Agencies / Organizations / Stakeholders	Sierra Valley Resource Conservation District
Is your agency/organization committed to the project through completion? If not, please explain	Yes

II. GENERAL PROJECT INFORMATION

Project Title	FMW-14: Folchi Meadow Project
Project Category	☐ **Agricultural Land Stewardship** ☒ **Floodplains/Meadows/Waterbodies** ☐ **Municipal Services** ☐ **Tribal Advisory Committee** ☐ **Uplands/Forest**
Project Description (Briefly describe the project, in 300 words or less)	Restore the meadow, stream and riparian ecosystems in the Folchi Sub Watershed of Carman Creek Watershed. The project is to remove railroad grade on the north side of the valley to reconnect ephemeral and intermittent drainages that have been disconnected by the rail road gradeconstruction. Obliterate the gully (existing channel) through approximately 1 mile of Folchi Valley using a combination of off-site material and locally generated (in channel) material to intermittently fill the existing channel. This will reconnect the stream with the historic channels on the meadow surface and the floodplain.
Project Location Description (e.g., along the south bank of stream/river between river miles or miles from	Folchi Meadows area above Knuthson Meadow in the Carman Creek Watershed. Approximately 2 miles north east from Calpine.

Towns/intersection and/or address):	
Latitude:	
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	Return flow to surface channels and floodplain to restore hydrologic function.	1-3 miles of stream reactivated. Approx 80-100 acres of meadow/wetland
Reduce potential for catastrophic wildland fires in the Region.	☒ Yes ☐ N/A	The project will re-water 80-100 acres of meadow/wetland and should create a better break in continuous fuels.	80-100 acres of wetter meadow area resistant to fire spread
Build communication and collaboration among water resources stakeholders in the Region.	☒ Yes ☐ N/A	Collaborating/communicating with local RCD and county officials about need and benefits of restoration work.	
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 supply, recreational, and environmental benefits to the Region.	☐ Yes ☒ N/A	Will improve environmental benefits to the region localized for the project area.	
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		

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 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	Project will restore meadow & wetland areas by reconnecting floodplains. This will reduce sediment movement from bed and banks of channel, increase filtration of runoff, and increase potential for groundwater recharge	Approximately 80-100 acres
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		
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	Improving/restoring the health and extent of wet meadow/wetland systems will increase carbon intake and long term storage.	Approximately 80-100 acres
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		
Address economic challenges of agricultural producers.	☐ Yes ☒ N/A		
Work with counties/ communities/groups to make sure staff capacity exists for actual administration and	☒ Yes ☐ N/A	Plan on partnering as much as possible with the Sierra Valley RCD. Will work to ensure group has staff capacity to implement	

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)
implementation of grant funding.		and administer grant funding.	

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	Will help hold and release slowly the spring runoff. This will help minimize drought effects at the local site scale.
e. Assist the region in adapting to effects of climate change[3]	☐ N/A	Will hold more of the runoff that comes as rain instead of snow and will help capture and store carbon.
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	This project will restore and protect the natural and beneficial functions of the associated floodplain.
Improve Operational Efficiency and Transfers		

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
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	Will reduce sediment movement from degraded stream/meadow/wetland
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	Restore wet meadow/wetland ecosystems and natural hydrologic function
Forest management	☒ Yes ☐ No	Meadow/wetland restoration, removal of small conifers along meadow edge, managing grazing
Land use planning and management	☐ Yes ☒ No	
Recharge area protection	☒ Yes ☐ No	Will restore meadow/wetland areas to slow and spread runoff which is expected to increase groundwater recharge
Sediment management	☒ Yes ☐ No	Will reduce sediment generation form bed and banks by obliterating degraded/eroding channels.
Watershed management	☒ Yes ☐ No	Restore and enhance watershed functions. Improve water retention for baseflow in streams. Improve water quality and stream bank protection.
People and Water		
Economic incentives	☐ Yes ☒ No	
Outreach and engagement	☐ Yes ☒ No	
Water and culture	☐ Yes ☒ No	
Water-dependent recreation	☒ Yes ☐ No	Will increase potential for bird watching,

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
		wildlife viewing, waterfowl hunting
Wastewater/NPDES	☒ Yes ☐ No	Will reduce non-point sources of sediment

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**	45,000			45,000
b.	**Land Purchase/Easement**				
c.	**Planning/Design/Engineering / Environmental**		15,000		15,000
d.	**Construction/Implementation**	230,000			230000
e.	**Environmental Compliance/ Mitigation/Enhancement**		50,000		50,000
f.	**Construction Administration**	15,000			15,000
g.	**Other Costs**				
h.	**Construction/Implementation Contingency**	10,000			10,000
i.	**Grand Total (Sum rows (a) through (h) for each column)**	300,000	65,000		365,000

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			
	Phase 2			
	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).**	USFS will monitor and maintain the project as needed		
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)**	If the project is not implemented there will be continued erosion of the bed and banks of the stream, the runoff from the upper watershed area will continue to be flashy and will drain from the local area quickly, The railroad grade impacts (concentration of water, erosion, disconnected drainages will continue. The floodplain will not be re-engaged with the stream flow and so will not contribute to upland early season water storage or increase potential for aquifer replenishment.

*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			
b. Final Design	☐	☒ Yes ☒ No ☐ N/A	Initial design completed, Some work to do to fully complete final design.	In progress	Spring 2016
c. Environmental Documentation (CEQA / NEPA)	☐	☒ Yes ☐ No ☐ N/A	NEPA assessment has been completed. Need to complete CEQA.		Spring 2016
d. Permitting	☒	☐ Yes ☒ No ☐ N/A	401 & 404 permits will be needed.	Fall 2015	
e. Construction Contracting	☐	☐ Yes ☒ No ☐ N/A		July 2016	
f. Construction Implementation	☐	☐ Yes ☒ No ☐ N/A		August 2016	September 2016
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.).	USFS Tahoe NF Land and Resource Management Plan Sierra Valley RCD Watershed Action Plan
b. List technical reports and studies supporting the feasibility of this project.	Carman Creek Watershed Restoration II Environmental Assessment
c. Concisely describe the scientific basis (e.g. how much research has been conducted) **of the proposed project in 300 words or less.**	An overall watershed assessment has been completed. Specific site parameters have been measured through valley wide cross sections. Extensive reconnaissance of the hydrologic function and degradation has been completed. Recommendations for specific treatments to correct watershed degradation have been developed. Environment assessment (NEPA) has been completed which analyzed the interaction of the project with wildlife, cultural resources, botany, aquatic resources, and range has been completed.
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. Groundwater recharge will occur with this project. Sierra Valley 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-14: Folchi Meadow Project

Project applicant: US Forest Service

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.
- ☒ The project requires workers to commute to the project site.
- ☐ The project is expected to generate GHG emissions for other reasons.
- ☐ 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:

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

This is a meadow/floodplain restoration project. The project is anticipated to reconnect the incised stream to the floodplain. This will increase the seasonal (shallow) watertable elevations by increasing the spread of water on the floodplain allowing more water to infiltrate and will close the existing drain (gully) on the water table increasing the duration of the water infiltrated. This should increase the contribution of the area to the deeper groundwater aquifer.

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
- ☐ Unmet beneficial uses (municipal and domestic water supply, water contact recreation, cold freshwater habitat, spawning habitat, wildlife habitat, etc.)

The restored meadow is expected to be wetter type vegetation and as such be more resistant to burning and the spread of wildfire.

Flooding

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

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

The restored meadow will help attenuate local flood flows and help reducing flood magnitudes in Carman Creek.

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
- ☒ Climate-sensitive fauna or flora
- ☐ Recreation and economic activity
- ☐ Quantified environmental flow requirements
- ☒ Erosion and sedimentation
- ☐ Endangered or threatened species
- ☒ Fragmented habitat

This meadow/wetland restoration project is anticipated to restore wet and dry meadow habitat and wetland habitat. This project will help in resisting local changes due to climate change and will help connect fragmented wetland/meadow habitats.

The area is currently experiencing elevated levels of soil erosion and sedimentation to the streams. This project will reduce current levels of erosion and sedimentation from the treatment sites and become a better filter for sediment generated in the upper watershed.

Hydropower

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

- ☒ Not applicable
- ☐ Reduced hydropower output

FMW-14: Folchi Meadow Project

GHG Emissions Analysis

Project Construction Emissions

[X] The project requires non-road or off-road engines, equipment, or vehicles to complete. If yes:

Type of Equipment	Maximum Number Per Day	Total 8-Hour Days in Operation	Total $MTCO_2e$
Excavators	2	20	17
Rubber Tired Loaders	2	20	16
Off-Highway Trucks	3	10	37
			0
			0
			0
			0
			0
			0
			0
		Total Emissions	**71**

[ ] The project requires materials to be transported to the project site. If yes:

Total Number of Round Trips	Average Trip Distance (Miles)	Total $MTCO_2e$
		0

[X] The project requires workers to commute to the project site. If yes:

Average Number of Workers	Total Number of Workdays	Average Round Trip Distance Traveled (Miles)	Total $MTCO_2e$
5	20	20	**1**

[ ] The project is expected to generate GHG emissions for other reasons. If yes, explain:

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

FMW-14: Folchi Meadow Project

Project Operating Emissions

[ ] The project requires energy to operate. If yes:

Annual Energy Needed	Unit	Total $MTCO_2e$
	kWh (Electricity)	**0**
	Therm (Natural Gas)	**0**

[ ] The project will generate electricity. If yes:

Annual kWh Generated	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will proactively manage forests to reduce wildfire risk. If yes:

Acres Protected from Wildfire	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[x] The project will affect wetland acreage. If yes:

Acres of Protected Wetlands	Total $MTCO_2e$
25	**-108**

*A negative value indicates GHG reductions

[ ] The project will include new trees. If yes:

Acres of Trees Planted	Total $MTCO_2e$
0	**0**

*A negative value indicates GHG reductions

[X] Project operations are expected to generate or reduce GHG emissions for other reasons. If yes, explain:

The project will restore hydrolgic function to approximately 50 acreas of seasonaly wet meadow and/or wetland. The restored areas will have more vigorous meadow/wetland vegetation which will begin to capture and store carbon in the roots and soils.

GHG Emissions Summary

Construction and development will generate approximately:	72 $MTCO_2e$
In a given year, operation of the project will result in:	-108 $MTCO_2e$

featherriver.org

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	Feather River chapter of Trout Unlimited (FRTU)
Name of Primary Contact	Cindy Noble
Name of Secondary Contact	Tim Kurdupski
Mailing Address	POB 278, Graeagle CA 96103
E-mail	cindy.noble@frtu.org
Phone	530) 249-0444
Other Cooperating Agencies / Organizations / Stakeholders	US Forest Service, Natural Resources Conservation Service, Caltrans, and other Upper Feather River non-profit organizations in addition to private landowners.
Is your agency/organization committed to the project through completion? If not, please explain	Yes, this is a multi- project submittal that encompasses work the Chapter would like to accomplish in the next 10 years.

II. GENERAL PROJECT INFORMATION

Project Title	FMW-15: Fish Habitat Assessment/Restoration, Public Awareness/Education
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)	FRTU is utilizing the IRWMP to bring forth the Chapter's priority projects. The Chapter intends to: 1) continue working with the USFS and Caltrans to expand the Interpretive Sign program that is currently being developed in the Storrie Fire area; 2) work with Plumas County Unified School District (PCUSD) to expand our regional Trout in the Classroom program; 3) further investigate and plan for a total renovation of the James Lee site in the Feather River Canyon; and 4) address fish passage on private and public lands by installing fish screens where willing landowners exist. FRTU is currently working on a Basin Wide Assessment in the Upper Feather River region that we feel will guide Trout Unlimited's Strategic Planning process beyond the four proposed projects identified in this submission.

Project Location Description (e.g., along the south bank of stream/river between river miles or miles from Towns/intersection and/or address):	Other than the renovation of the James Lee site in the Feather River Canyon, the scope of our four projects are region wide.
Latitude:	N/A
Longitude:	N/A

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	The Interpretive Sign and Trout in the Classroom programs will build communication and project collaboration opportunities with a diverse group of stakeholders to better understand existing conditions of the region's fisheries.	
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 supply, recreational, and environmental benefits to the	■ Yes ☐ N/A	FRTU is focused on recreational and environmental issues as related to the Fish and Fishery in our region, and connecting those issues to DWR's objectives.	

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)
Region.			
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	Fish would be "the primary beneficiary" of any plan to protect, restore and enhance surface waters in the region. One of the objectives of Trout Unlimited's Basin Wide Study is to evaluate presence of aquatic invasives.	
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		
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	By way of the Interpretive Signage program we feel there is a way to convey to the public and visitors' any climate change adaptation measures that are being implemented in the region. Along with educating public, fish passage projects will address climate change needs.	

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)
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	By way of the Interpretive Signage program and our Trout in the Classroom program we feel there is a way to convey to the public and visitors the importance of water management in the region.	Average of 200+ students annually.
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:

In the past, efforts have been made to restore meadows, degraded creeks, and streams with little attention to the effects of these efforts to the fish and fishery. FRTU is participating in the 2015-2016 IRWMP planning process to insure that there is discussion in the Plan Update that speaks to the importance of the fish and fishery in the region. The FRTU Basin Wide Assessment will ensure that any planning or restoration projects that FRTU undertake in the future will be broadly viewed and fit into our strategy to provide cold water refugia for the existing fish populations.

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	FRTU hopes to partner with Tribal Communities to convey the basic tenants of Traditional Ecological Knowledge as a function of our Trout in the Classroom program.
b. Disadvantaged Communities[1]	■ N/A	
c. Environmental Justice[2]	■ N/A	
d. Drought Preparedness	■ N/A	
e. Assist the region in adapting to effects of climate change[3]	☐ N/A	By working with EcoSystem Sciences, we hope to provide a science based approach to climate change adaptation measures that will protect fish in the region.
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	Unknown at this time.

[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	■ Yes ☐ N/A	i. Contaminant and salt removal through reclamation/desalting,	☐ Yes ■ N/A

wetlands, acquisition/protection/restoration of open space and watershed lands		other treatment technologies and conveyance of recycled water for distribution to users	
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	
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	
Salt and salinity management	☐ Yes ■ No	
Urban storm water runoff management	☐ Yes ■ No	

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
Practice Resource Stewardship		
Agricultural land stewardship	☐ Yes ☐ No	
Ecosystem restoration	■ Yes ☐ No	All efforts to restore cold water refugia in the region will benefit the ongoing work of FRTU. This will include controlling non-native plant and animal species, and addressing issues related to fish passage.
Forest management	☐ Yes ■ No	
Land use planning and management	☐ Yes ■ No	
Recharge area protection	☐ Yes ■ No	
Sediment management	☐ Yes ■ No	
Watershed management	■ Yes ☐ No	Fish passage and barrier removal will improve blocked access to rearing and spawning habitat for anadromous fish.
People and Water		
Economic incentives	☐ Yes ■ No	
Outreach and engagement	■ Yes ☐ No	The Interpretive Sign program will educate both residents and visitors about existing conditions of the fishery and the fish, such as aquatic invasive species. The trout in the Classroom program will engage and educate local youth about the importance of our local fisheries. Both of these outreach efforts will lead to a more informed and engaged population.
Water and culture	■ Yes ☐ No	Both the Interpretive Sign program and the Trout in the Classroom program provide an educational experience that is inextricably linked to cultural values and tradition.
Water-dependent recreation	■ Yes ☐ No	This suite of projects is based on the anticipated increase and quality of water-based recreation experiences for adults and youth in the region.
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 ■ unknown at this time.

	Category	Requested Grant Amount	Cost Share: Non-State Fund Source* (Funding Match)	Cost Share: Other State Fund Source*	Total Cost
a.	**Direct Project Administration**	$60,000			
b.	**Land Purchase/Easement**				
c.	**Planning/Design/Engineering / Environmental**	$15,000			
d.	**Construction/Implementation**	$95,000			
e.	**Environmental Compliance/ Mitigation/Enhancement**				
f.	**Construction Administration**	$10,000			
g.	**Other Costs**				
h.	**Construction/Implementation Contingency**				
i.	**Grand Total (Sum rows (a) through (h) for each column)**	$180,000	$30,000		$210,000

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	$70,000		One year of Trout in the Classroom Program; One year of Coordination & Implementation of Interpretive Sign program; Phase 1 of implementing fish passages.
	Phase 2	$70,000		One year of Trout in the Classroom Program; One year of Coordination & Implementation of Interpretive Sign program; Phase 1 of implementing fish passages.
	Phase 3	$70,000		One year of Trout in the Classroom Program; One year of Coordination & Implementation of

				Interpretive Sign program; Phase 1 of implementing fish passages.
	Phase 4			
k.	**Explain how operation and maintenance costs will be financed for the 20-year planning period for project implementation (not grant funded).**		Sign and fish passage structures shared responsibility between USFS, Caltrans, and participating private landholders.	
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)**		Upper Feather River region-wide fisheries continue to decline and are increasingly threatened by the negative impacts of aquatic invasive species, loss of habitat, and uni-formed decision-making. FRTU is currently the sole entity with a long-term focus dedicated to addressing fish and fishery issues and the relationship to improved management of water use as related to recreation, water quality, water quantity, and future needs. This project directly addresses the lack of access to cold water refugia by strategically increasing number of fish passages and removing barriers to fish migration in collaboration with partners.	

*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			
b. Final Design	■	☐ Yes ■ No ☐ N/A	Fish passages design needs to be completed. Interpretive Signs design needs to be finalized in collaboration with Caltrans.	TBD	TBD
c. Environmental Documentation (CEQA / NEPA)	☐	☐ Yes ■ No ☐ N/A		TBD	TBD
d. Permitting	☐	☐ Yes ■ No ☐ N/A		TBD	TBD
e. Construction Contracting	☐	☐ Yes ■ No ☐ N/A		TBD	TBD
f. Construction Implementation	☐	☐ Yes ■ No ☐ N/A		TBD	TBD
Provide explanation if more than one project stage is checked as current status			N/A		

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.).	California Water Plan 2013 USFS Region 5 Forest Plan
b. List technical reports and studies supporting the feasibility of this project.	"Assessment & Analysis of Cold Stream as Potential Reintroduction Site for Lahontan Cutthroat Trout" "Final Restoration Plan for Anadromous Fish Restoration Program"
c. Concisely describe the scientific basis (e.g. how much research has been conducted) **of the proposed project in 300 words or less.**	FRTU Basin Wide Assessment (in progress)
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-15: Fish Habitat Assessment/Restoration, Public Awareness/Education

Project applicant: Feather River Trout Unlimited (FRTU)

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.
- ☐ The project requires workers to commute to the project site.
- ☐ The project is expected to generate GHG emissions for other reasons.
- ☒ 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:

- ☐ Not applicable
- ☐ Reduced snowmelt
- ☐ Unmet local water needs (drought)
- ☒ Increased invasive species

FRTU Basin Wide Assessment Plan (in progress) will be used to address invasive aquatic 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:

- ☒ 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
- ☒ Unmet beneficial uses (municipal and domestic water supply, water contact recreation, cold freshwater habitat, spawning habitat, wildlife habitat, etc.)

Proposed involvement in fish passage and barrier removal projects will directly address unmet beneficial uses by improving access to freshwater rearing and spawning habitat for anadromous fish.

Flooding

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

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

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
- ☐ Climate-sensitive fauna or flora
- ☒ Recreation and economic activity
- ☐ Quantified environmental flow requirements
- ☐ Erosion and sedimentation
- ☒ Endangered or threatened species
- ☒ Fragmented habitat

The project will result in upstream expansion of current reaches of anadromous fish for spawning and rearing, therefore increasing species ability to exist in changing climate conditions. Recreation opportunities related to maintaining healthy watershed conditions for fish populations leads to increased economic benefits for this region, which primarily consists of DACs.

Hydropower

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

- ☒ Not applicable
- ☐ Reduced hydropower output

FMW-15: Fish Habitat Assessment, Restoration

GHG Emissions Analysis

Project Construction Emissions

☐ The project requires non-road or off-road engines, equipment, or vehicles to complete. If yes:

Type of Equipment	Maximum Number Per Day	Total 8-Hour Days in Operation	Total $MTCO_2e$
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Total Emissions	**0**

☐ The project requires materials to be transported to the project site. If yes:

Total Number of Round Trips	Average Trip Distance (Miles)	Total $MTCO_2e$
		0

☐ The project requires workers to commute to the project site. If yes:

Average Number of Workers	Total Number of Workdays	Average Round Trip Distance Traveled (Miles)	Total $MTCO_2e$
			0

☐ The project is expected to generate GHG emissions for other reasons. If yes, explain:

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

FMW-15: Fish Habitat Assessment, Restoration

Project Operating Emissions

[ ] The project requires energy to operate. If yes:

Annual Energy Needed	Unit	Total $MTCO_2e$
	kWh (Electricity)	**0**
	Therm (Natural Gas)	**0**

[ ] The project will generate electricity. If yes:

Annual kWh Generated	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will proactively manage forests to reduce wildfire risk. If yes:

Acres Protected from Wildfire	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will affect wetland acreage. If yes:

Acres of Protected Wetlands	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

[ ] The project will include new trees. If yes:

Acres of Trees Planted	Total $MTCO_2e$
0	**0**

*A negative value indicates GHG reductions

[XX] Project operations are expected to generate or reduce GHG emissions for other reasons. If yes, explain:

Genration of GHG emissions will be limited to travel costs for Trout in the Classroom coordinator travel time to local schools. GHG emissions related to fish passage projects are not directly applicable to the advisory role FRTU will play in design development and construction.

GHG Emissions Summary

Construction and development will generate approximately:	0 $MTCO_2e$
In a given year, operation of the project will result in:	0 $MTCO_2e$

UPPER FEATHER RIVER IRWM

PROJECT INFORMATION FORM

I. PROJECT PROPONENT INFORMATION

Agency / Organization	Ecosystem Sciences Foundation/Upper Feather River Trout Unlimited
Name of Primary Contact	Mark Hill, Ecosystem Sciences Foundation
Name of Secondary Contact	Cindy Noble, Feather River Trout Unlimited
Mailing Address	202 N. 9th Street, Suite 400 Boise, ID 83702
E-mail	mhill@ecosystemsciences.com
Phone	208-383-0226
Other Cooperating Agencies / Organizations / Stakeholders	Feather River Trout Unlimited Chapter #905
Is your agency/organization committed to the project through completion? If not, please explain	Yes

II. GENERAL PROJECT INFORMATION

Project Title	FMW-16: Fish Distribution Modeling in Relation to Climate Change
Project Category	☐ **Agricultural Land Stewardship** ■ **Floodplains/Meadows/Waterbodies** ☐ **Municipal Services** ☐ **Tribal Advisory Committee** ☐ **Uplands/Forest**
Project Description	Recent global warming research confirms that fish species shift their range to higher elevations, cooler waters in stream systems, or, in some cases adapt to temperature, flow and velocity changes. Predicting changes that could occur in Upper Feather River cold-water fish distribution as a consequence of climate change will allow adaptation of management actions and stream restoration priorities. This project will develop distribution models from fish species and temperature data for separate time periods, then comparisons made between periods for locations of upstream and downstream distributional boundaries. The shift in fish species across boundaries will be evaluated using existing bioclimatic models. Current fish species presence or absence by stream will be determined with eDNA analysis. The average rate of distribution shift can be expected to lag behind the average climate velocity in streams, which would indicate that species are moving more slowly than their thermal niches. In terms of adapting management and restoration priorities, passage barriers or degraded main

	stream and tributary conditions that impede dispersal can be addressed in order to prevent or minimize some species being overcome by shifting isotherms. Once critical habitats (refugia) are identified, both land use and water use management can be directed toward restoration actions.
Project Location Description	North, South and Middle Forks of the Feather River and their major tributaries within the Upper Feather River IRWM Planning Area.
Latitude:	121'30.0"W to 120'0.0"W
Longitude:	39'30.0"N to 40'30.0"N

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	The last step toward protecting critical habitat for coldwater species' thermal refugia will be restoration of the habitat including restoring natural hydrologic functions to the extent possible.	TBD
Reduce potential for catastrophic wildland fires in the Region.	■ Yes ☐ N/A	Improvement in riparian habitat as a function of stream restoration for coldwater species refuge will aid in the reduction and control of wildfires.	TBD
Build communication and collaboration among water resources stakeholders in the Region.	■ Yes ☐ N/A	Stakeholder input and coordination with resource agencies and irrigation districts is essential to manage and adapt fish and habitat to climate changes.	TBD
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 supply, recreational, and environmental benefits to the Region.	■Yes ☐N/A	Recognizing climate change effects on coldwater species will also alert managers and stakeholders to the impacts on water supply, recreation and overall environmental values.	TBD

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)
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	FERC relicensing frequently addresses the issues of lost fish habitat and particularly fish passage and access. Identification of critical habitat areas above and below hydro projects will fold into the FERC process and provide important data and information.	TBD
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	Recharging groundwater and improving surface water is essential to maintaining coldwater habitat. Groundwater in late summer may be the only source of flow in some headwater streams. Protecting headwater surface and groundwater resources are key elements of the RWQC and UPFR IRWM plans.	TBD
Address water resources and wastewater needs of DACs and Native Americans.	■ Yes ☐ N/A	Identification and protection of coldwater species refugia would be pertinent to “first foods” of Native American cultures.	TBD
Coordinate management of recharge areas and protect groundwater resources.	■ Yes ☐ N/A	Groundwater recharge, particularly in headwater basins, is fundamental to maintaining critical fish habitat.	TBD
Improve coordination of land use and water resources planning.	■ Yes ☐ N/A	The project will result in information that will improve long-term planning for land and water uses.	TBD
Maximize agricultural, environmental and municipal	■ Yes	Identification of critical habitats as refugia from increased	TBD

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)
water use efficiency.	☐ N/A	instream temperature will help inform water use efficiency and its importance in maintaining habitats. And all users (municipal, agriculture, environmental) are important links to ensure best and most efficient water uses.	
Effectively address climate change adaptation and/or mitigation in water resources management.	■ Yes ☐ N/A	The purpose of the project is to locate future coldwater species refugia as a function of elevated thermal conditions; particularly in response to isotherm velocities due to climate change. These locations will be identified as critical, future habitat to allow fish refuge and/or adaption.	TBD
Improve efficiency and reliability of water supply and other water-related infrastructure.	■ Yes ☐ N/A	Water efficiency to maintain supply and consistency is necessary to maintain critical fish habitats, which would include maintaining existing water related infrastructure.	TBD
Enhance public awareness and understanding of water management issues and needs.	■ Yes ☐ N/A	Stakeholder awareness is a necessary part of education and outreach of each management action to identify and protect critical habitat and to raise understanding of climate change implications to instream resources.	TBD
Address economic challenges of agricultural producers.	■ Yes ☐ N/A	Identification of critical coldwater habitat and restoration of habitat must be sensitive to agriculture to ensure any change in land and water uses will maintain and protect agriculture production.	TBD
Work with counties/ communities/groups to make sure staff capacity exists for actual administration and implementation of grant funding.	☐ Yes ■ N/A		

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	Improved fish habitat would increase fish populations into the future, which would be of value to Native American culture and a key "first food".
b. Disadvantaged Communities[1]	■ N/A	
c. Environmental Justice[2]	■ N/A	
d. Drought Preparedness	☐ N/A	A key element of identifying critical habitat for longterm protection of coldwater fish species is the fact that the refuge areas are most likely to be natural water storage sites retaining runoff and recharging groundwater basins, so that in the event of drought these areas will contribute water to stream flow as well as for agriculture and municipal needs.
e. Assist the region in adapting to effects of climate change	☐ N/A	The project focus is on the adaption of fish and migration to critical, longterm habitat as temperature (e.g., isotherms) advance over time. The Upper Feather River watershed contains critical headwater and meadow areas that are primary sources for stream flows. Understanding how climate change affects stream temperatures, fish and instream habitats will also enhance understanding of other climate change effects on stream flows and natural resources. This project will also provide prioritization of areas where resources can be better allocated to increase the ability of fish to adapt to climate change.
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	Restoring and protecting critical upper watershed habitats for fish will also result in benefits to water conservation and planning, improved water quality, development or restoration of meadows and wetlands, and promote informed watershed planning and management.

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.

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	Identification of priority stream restoration areas will typically result in reduced ET and improvement of water delivery systems.
Urban water use efficiency	☐ Yes ■ No	
Improve Flood Management		
Flood management	■ Yes ☐ No	Habitat restoration will promote natural floodplain functions; geomorphic and ecological processes.
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	Critical habitat for coldwater species will require management of groundwater and surface water, to effectively combat temperature changes due to climate change
Precipitation Enhancement	☐ Yes ■ No	

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
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	Methods to recharge aquifers to protect critical habitats can include changes in crop types as well as irrigation methods.
Matching water quality to water use	■ Yes ☐ No	Matching water of appropriate temperature to instream and ecosystem uses.
Pollution prevention	■ Yes ☐ No	Restoration of critical habitat will include development of riparian vegetation that will buffer nutrient inputs from grazing and other overland flow constituents.
Salt and salinity management	☐ Yes ■ No	
Urban storm water runoff management	☐ Yes ■ No	
Practice Resource Stewardship		
Agricultural land stewardship	■ Yes ☐ No	Critical habitat restoration will result in reduced erosion, improved streambank stability, riparian buffering, modified grazing intensity and timing and cover crops to prevent soil erosion.
Ecosystem restoration	■ Yes ☐ No	Locating and prioritizing critical fish habitat will require restoration of natural flows, elimination of non-native predator species, removal of barriers to migration, recovering headwater marshes and wetlands, and improved forest and land management practices.
Forest management	■ Yes ☐ No	Critical habitats will require conservation of riparian forests. Riparian habitats shade streams and provide fish cover.
Land use planning and management	■ Yes ☐ No	Directing development away from critical habitat areas will permit management of agriculture lands and improve water quality.
Recharge area protection	■ Yes ☐ No	Protection and identification of new recharge areas will be critical to conjunctive water supply and maintenance of critical fish habitat.
Sediment management	■ Yes ☐ No	Access to critical habitat may require deconstruction of dams or dredging. Streambank restoration will reduce sediment loading to streams.
Watershed management	■ Yes ☐ No	Restoring and maintaining critical fish habitat identified by the project will aid many

Resource Management Strategy	Will the Project incorporate RMS?	Description of how RMS to be employed, if applicable
		watershed management goals: improve water retention, improve water quality, restore wetlands, and improve groundwater recharge and retention.
People and Water		
Economic incentives	☐ Yes ■ No	
Outreach and engagement	■ Yes ☐ No	Stakeholder input will be essential for coordinating and accepting identification and protection of critical habitat. This will require outreach and education elements of restoration actions.
Water and culture	■ Yes ☐ No	Historic areas where native fishes thrived will be an integral part of protecting critical habitat; and it can be expected that such areas will have significant cultural value, especially to Native Americans.
Water-dependent recreation	■ Yes ☐ No	While the project will identify those river and tributary reaches that will offer the best longterm protection of coldwater fish species, such areas will also provide some of the last and best angling opportunities for native coldwater fish.
Wastewater/NPDES	■ Yes ☐ No	Once critical fish habitat has been identified, restoration of that habitat will usually include development and protection of riparian habitat as well as buffer zones, which will filter overland flows and reduce nutrient and sediment inputs.

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)[1]	Cost Share: Other State Fund	Total Cost
a.	**Direct Project Administration**	$12,500	$1,250		$13,750
b.	**Land Purchase/Easement**				
c.	**Planning/Design/Engineering / Environmental**	$154,000	$15,400		$169,400
d.	**Construction/Implementation**				
e.	**Environmental Compliance/ Mitigation/Enhancement**				
f.	**Construction Administration**				
g.	**Other Costs**				
h.	**Construction/Implementation Contingency**				
i.	**Grand Total (Sum rows (a) through (h) for each column)**	$166,500	$16,650		$183,150

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			
	Phase 2			
	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).**	NA
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)**	A 2011 study by PGF&E in sub-basins of the North Fork Feather River reported a declining trend in water year runoff. This combined with increased evapotranspiration caused by warmer air temperatures and increased forest growth account for a 250,000 AF/yr flow decline

[1] Ecosystem Sciences Foundation Match

		since the 1970's. A USFS study in the Pacific Northwest showed that as isotherms advance and no corrective actions are taken to protect and restore critical habitat, the only trout species that might persist will be bulltrout. Cutthroat trout may adapt to some degree but rainbow and brown trout will be extirpated as well as salmon in most areas they now use. In order to prevent the loss of more coldwater species, refuge identification, restoration and protection should begin as soon as possible. Regional temperature models indicate increasing air temperatures and the rapid advancement of isotherms into coldwater species' habitat to the extent that by 2040 most current habitat will be diminished to the point that coldwater species either rapidly adapt or find refuge in other reaches. Given the rapidity of isotherm velocities and the shortterm/longterm temperature predications, there is little time to waste in identifying, quantifying and developing restoration and management plans. Funding and implementation of restoration of critical habitat will in itself take considerable time. Research identifies three critical actions that most usefully combat climate change and loss of fisheries: (1) conduct geographically broad and intense biodiversity surveys to document fisheries, (2) restore and maintain functional riparian areas and flows because stream flow and temperature are two primary vectors of climate change, and (3) manage fish flows across landscapes. All of these elements are time sensitive requiring land and water user collaboration and long-term planning and funding.

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	(1) Assemble pertinent fish data from agency records and oral histories (2) Determine presence/absence of species of concern in selected streams using eDNA analysis (3) Combine historic data, with eDNA data to establish upstream/downstream species' boundaries, past and present (4) Extrapolate NW Temperature Model to UFR using temperature and flow data from local sources to calibrate both temperature model and Climate Shield Model. (5)Correlate shifts (P/A) in distribution w/isotherm velocity (6) Predict how species will disperse over time (7) Identify and map impediments to dispersal (8) Prioritize which impediments need to be addressed over time.	TBD	TBD
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.

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.).	Upper Feather River Basin Plan Upper Feather River IRWM Plan California Water Plan Update 2013 Plumas County General Plan Sierra County General Plan Butte County General Plan 2030 Butte County RCD 2008-2013 Long Range Strategic Plan USFS Ecological Restoration Implementation Plan Lake Almanor Watershed Management Plan Lassen County General Plan 2000 USFS Lassen National Forest Land and Resource Management Plan Mountain Meadow Watershed Restoration Action Plan Pacific Forest and Watershed Lands Stewardship Council Land Conservation Plan Plumas National Forest Land and Resource Management Plan Tahoe National Forest Land and Resource Management Plan
b. List technical reports and studies supporting the feasibility of this project.	Almodóvar, A., Nicola, G., Ayllon, D. and Elvira, B. 2012. Global warming

threatens the persistence of Mediterranean brown trout. *Global Change Biology* 18(5):1549–1560

Armstrong, J.B. and Schindler, D.E. 2013. Going with the flow: spatial distributions of Juvenile Coho salmon track an annually shifting mosaic of water temperature. *Ecosystems* 16:1429-1441

Battin, J., Wiley, M., Ruckelshaus, M., Palmer, R., Korb, E., Bartz, K., Imaki, H. 2007. Projected impacts of climate change on salmon habitat restoration. *Proceedings of the National Academy of Sciences (USA)* 104:6720-6725

Buisson, L. and Grenouillet, G. 2009. Contrasted impacts of climate change on stream fish assemblages along an environmental gradient. *Diversity and Distributions* 15:613–626

Chadwick, J., Nislow, K. and McCormick, S. 2015. Thermal onset of cellular and endocrine stress responses correspond to ecological limits in brook trout, an iconic cold-water fish. *Conservation Physiology* 3(1):1-12

Chu, C., Mandrak, N. and Minns, C. 2005. Potential impacts of climate change on the distribution of several common and rare freshwater fishes in Canada. *Diversity and Distributions* 11:299-310

Comte, L. and Grenouillet. 2013. Do stream fish track climate change? Assessing distribution shifts in recent decades. *Ecography* doi:10.1111/j.1600-0587.2013.00282.x

Cooney, S., Covich, A., Lukas, P., Harig, A. and Faush, K. 2005. Modeling global warming scenarios in greenback cutthroat trout (*Oncorhynchus clarki stomias*) streams: implications for

species recovery. *Western North American Naturalist* 65:371-381

Dugdale, S., Franssen, J., Corey, E., Bergeron, N., Lapointe, M. and Cunjak, R. 2015. Main stem movement of Atlantic salmon parr in response to high river temperature. *Ecology of Freshwater Fish* 24

Eaton, J. and Schaller, R. 1996. Effects of climate warming on fish thermal habitat in streams of the United States. *Limnology and Oceanography* 41:1109-1115

Flebbe, P., Roghair, L. and Bruggink, J. 2006. Spatial modeling to project southern Appalachian trout distribution in a warmer climate. *Transactions of the American Fisheries Society* 135:1371-1382

Freeman, G.J. 2011. Climate change and the changing water balance for California's North Fork Feather River. Operations and Maintenance, Power Generation Department, PG&E, San Francisco, California

Hamlet, A. and Lettenmaier, D. 2007. Effects of 20th century warming and climate variability on flood risk in the western U.S. *Water Resources Research* 43(6)

Hillyard, R. and Keeley, E. 2012. Temperature-related changes in habitat quality and use by Bonneville cutthroat trout in regulated and unregulated river segments. *Transactions of the American Fisheries Society* 141:1649-1663

Isaak, D., Luce, C., Rieman, B., Nagel, D., Peterson, E., Horan, D., Parker, S. and Chandler, G. 2010. Effects of climate change and wildfire on stream temperatures and salmonid thermal habitat in a mountain river network.

Ecological Applications 20:1350-1371

Isaak, D., Wollrab, S., Horan, D., Chandler, G. 2011. Climate change effects on stream and river temperatures across the northwest U.S. from 1980-2009 and implications for salmonid fishes. *Climate Change* 113:499-524

Isaak, D., Young, M., Nagel, D, Horan, D. and Groce, M. 2015. The Cold-Water Climate Shield: delineating refugia for preserving salmonid fishes through the 21st Century. *Global Change Biology* doi: 10.1111/ gcb.12879

Jager, H.I., Van Winkle, W. and Holcomb, B.D. 1999. Would hydrologic climate changes in Sierra Nevada streams influence trout persistence? *Transactions of the American Fisheries Society* 128:222-240

Keleher, C. and Rahel, F. 1996. Thermal limits to salmonid distributions in the Rocky Mountain region and potential habitat loss due to global warming: a geographic information system (GIS) approach. *Transactions of the American Fisheries Society* 125:1-13

Kennedy, T., Gutzler, D. and Leung, R. 2009. Predicting future threats to the long-term survival of Gila trout using a high-resolution simulation of climate change. *Climate Change* 94:503-515

Lawler, J., Tear, T., Pyke, C., Shaw, R., Gonzalez, P., Kareiva, P., Hansen, L., Hannah, L., Klausmeyer, K., Aldous, A., Bienz, C. and Pearsall, S. *2010.* Resource management in a changing and uncertain climate. *Frontiers in Ecology and the Environment* 8(1):35-43

Lyons, J., Stewart, J., Mitro, M. 2010. Predicting effects of climate warming on the distribution of 50 stream fishes

in Wisconsin, U.S.A. *Journal of Fish Biology* 77:1867-1898

Matthews, W. and Zimmerman, E. 1990. Potential effects of climate change on native fishes of the southern Great Plains in the Southwest. *Fisheries* 15:26-32

Meisner, J. 1990. Effect of climatic warming on the southern margins of the native range of brook trout. *Canadian Journal of Fisheries and Aquatic Sciences* 47:1065-1070

Moshseni, O., Stefan, H. and Eaton, J. 2003. Global warming and potential changes in fish habitat in U.S. streams. *Climate Change* 59:389-409

Mote, P., Hamlet, A., Clark, M. and Lettenmaier, D. 2005. Declining mountain snowpack in western North America. *Bulletin of the American Meteorological Society* 86:39-49

Painter, R.E., Wixom, L.H. and Taylor, S.N. 1977. An evaluation of fish populations and fisheries in the post-Oroville project Feather River. California Department of Fish and Game, Anadromous Fish Branch, California

Rahel, F., Keleher, C. and Anderson, J. 1996. Potential habitat loss and population fragmentation for cold water fish in the North Platte River drainage of the Rocky Mountains: response to climate warming. *Limnology and Oceanography* 41:1116-1123

Regonda, S., Rajagopalan, B., Clark, M. and Pitlick, J. 2005. Seasonal cycle shifts in hydroclimatology over the western United States. *Journal of Climate* 18:372-384

Rieman, B. and Isaak, D. 2010. Climate change, aquatic ecosystems, and fishes in the Rocky Mountain West: implications and alternatives for management. Gen. Tech. Rep. RMRS-GTR-250. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, Colorado

Rieman, B., Isaak, D., Adams, S., Horan, D., Nagel, D., Luce, C. and Meyers, D. 2007. Anticipated climate warming effects on bull trout habitats and populations across the interior Columbia River Basin. *Transactions of the American Fisheries Society* 136:1552-1565

Ruesch, A.S., Torgersen, C.E., Lawler, J.J., Olden, J.D., Peterson, E.E., Volk, C.J. and Lawrence, D.J. 2012. Projected climate-induced habitat loss for salmonids in the John Day River network, Oregon, USA. *Conservation Biology* 26(5):873-882

Sharma, S. and Jackson, D. 2008. Predicting smallmouth bass Micropterus *dolomieu occurance* across North America under climate change: a comparison of statistical approaches. *Canadian Journal of Fisheries and Aquatic Sciences* 65:471-481

Snider, W.M. and Linden, A. 1981. Trout growth in California streams. Inland Fisheries Administration Report No. 81-1. California Department of Fish and Game, Inland Fisheries Branch, Sacramento, California

Stein, B.A., Staudt, A., Cross, M.S., Dubois, N., Enquist, C., Griffis, R., Hansen, L., Hellman, J., Lawler, J., Nelson, E. and Pairis, A. 2013. Preparing for and managing change: climate adaptation for biodiversity and ecosystems. *Frontiers in Ecology and*

the Environment 11:502-510

Stewart, I., Cayan, D. and Dettinger, M. 2005. Changes toward earlier streamflow timing across western North America. *Journal of Climate* 18:1136-1155

Tisseuil, C., Vrac, M., Grenouillet, G., Wade, A., Gevrey, M., Oberdorff, T., Grodwohl, J. and Lek, S. 2012. Strengthening the link between climate, hydrological and species distribution modeling to assess the impacts of climate change on freshwater biodiversity. *Science of the Total Environment* 424:193-201

Vorosmarty, C. McIntyre, P., Gessner, M., Dudgeon, D., Pruevich, A., Green, P., Glidden, S., Bunn, S., Sullivan, C., Liermann, C. and Davies, P. 2010. Global threats to human water scarcity and river biodiversity. *Nature* 467:555-561

Wegner, S., Isaak, D., Luce, C., Neville, H., Fausch, K., Dunham, J., Dauwalter, D., Young, M., Elsner, M., Riemann, B., Hamlet, A. and Williams, J. 2011. Flow regime, temperature, and biotic interactions drive differential declines of trout species under climate change. *Proceedings of the National Academy of Sciences* 108:1475-1480

Williams, J., Haak, A., Neville, H., Colyer, W. 2009. Potential consequences of climate change to persistence of cutthroat trout populations. *North American Journal of Fisheries Management* 29:533-548

c. Concisely describe the scientific basis (e.g. how much research has been conducted) **of the proposed project in 300 words or less.**	The basis for this work is summarized in a new study published in *Ecography*. This report is a watershed event because it provides biological evidence in support of basic predictions made by some 23 fish bioclimatic models. ESF recently incorporated Oregon Department of Fish and Wildlife temperature and fish habitat modeling (EDT models) that identified stream reach limitations for the John Day River Basin watershed atlas. A bioclimatic model developed by the USFS (Climate Shield) has been used to identify streams and watersheds that can serve as refugia for cold-water species. The Climate Shield Model uses the NorWest Temperature Model, in combination with climate scenarios and survey data or professional judgment on species presence/absence as well as species biological needs to delineate cold-water fish habitat by stream reach. GIS generated maps spatially depict the model's habitat predications. Most bioclimatic models assume that the habitat requirements of species remain constant even if the distribution of habitats shifts. Fish distributions are delimited by critical temperature isotherms (temperature where it is too warm for a species to survive), and species will redistribute on the basis of changing isotherms. Climate change velocity in an area determines if a species' response to isotherm change results in redistribution, adaption or extinction. Consequently, it is essential to know what climate velocities are in different areas, and to match that information with biological distributions. The data

	needed for this are readily derived from global air temperature models and projections regarding climate change scenarios. The Sierra Institute has developed regional temperature models as part of their climate change work. The outcome will predict stream areas that fish will seek out in response to changing isotherms. It is then essential that species are able to access and use those "habitat areas", which means identifying and prioritizing restoration and intervention actions that make habitat areas suitable in the future.
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?	☐ Yes ■ No ☐ N/A
f. Are you are an Agricultural Water Supplier?	☐ Yes ■ No ☐ N/A
g. Is the project related to groundwater?	■ Yes ☐ No ☐ N/A If yes, please indicate which groundwater basin. Lake Almanor Meadow Valley Indian Valley Middle Fork Humbug Valley Grizzly Valley Clover Valley Last Chance Creek Yellow Creek Valley Sierra Valley Long Valley Mohawk Valley American Valley Modoc Plateau Pleistocene Area

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-16: Fish Distribution Monitoring in Relation to Climate Change

Project applicant: Ecosystem Sciences Foundation and Feather River Trout Unlimited (Chapter 905)

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.

☐ 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:

☐ Not applicable

X Reduced snowmelt

☐ Unmet local water needs (drought)

X Increased invasive species

Climate change has a significant impact on snow pack in the Sierras. A reduced snowpack can result in a reduction in warm-season instream flows which may lead to increases stream temperatures in streams throughout the Upper Feather River range. The NW Temperature Model and Climate Shield Model used to predict coldwater fish habitat will provide some predictive power when studying the effects of reduced snowmelt throughout the Northern Sierras.

Bull trout and cutthroat trout are two California special status species. The principle threats to these native species are the loss of suitable habitat and competition from non-native fish species. This project will identify critical habitat for the long-term survival of native species. By identifying the habitat areas most resilient to climate change induced increased thermal loading, conservation and protection efforts may be prioritized in the most effective and resilient areas.

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:

☐ Not applicable

X Increasing seasonal water use variability

X Unmet in-stream flow requirements

X Climate-sensitive crops

X Groundwater drought resiliency

☐ Water curtailment effectiveness

As stream flows attenuate due to climate change, normal or expected seasonal flow regimes will change. This must be taken into account when examining life stage periodicity for coldwater fish species in that usual spawning migration timing will change as will the periodicity for agriculture irrigation causing a shift in timing and use of refugia. Understanding the shifts in seasonal stream flow will provide some information to aid in the adaptation of watershed practices, particularly agriculture and fish migration. Implementation of restoration actions on priority streams identified by this project will improve seasonal flows regimes through enhanced bank storage and groundwater recharge.

Output from the temperature and climate model used in this project can inform agricultural projects especially in regard to climate-sensitive crops. Data input and output can be shared and used to strategize actions that combat the effects of long-term climate change throughout the Upper Feather River watershed.

Recharge of groundwater is critical to summer instream flows. Fish in need of temperature refugia will require access to groundwater inflow areas. In addition, year-round habitat continuity will improve the long-term health of the fishery. Groundwater recharge can be improved with restoration of riparian habitat and stream bank conditions. It is imperative that precious restoration and enhancement resources be allocated in locations that are resilient to climate change. Identification of restoration actions to make refugia available to stressed fish is an integral part of this project.

Flows required to give coldwater fish species access to critical areas of the watershed will support the need for maintaining instream flows. The data and information generated by this project will be an important component of designing strategies to increase unmet in-stream flow needs.

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

X Increasing catastrophic wildfires

X Eutrophication (excessive nutrient pollution in a waterbody, often followed by algae blooms and other related water quality issues)

X 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.)

Wildfires in degraded landscapes often burn right to the river's edge thereby removing riparian habitat and degrading water quality. Restoration of riparian habitat by increasing buffers, setbacks, bank storage and groundwater conditions will contribute to streamside habitat acting as natural firebreaks and green-zones that limit wildfire impacts on streams and especially refugia areas, which will reduce the catastrophic effects of wildfires.

One output from identifying fish refugia will be identifying and prioritizing blockages and impediments to fish migration and emigration. Many of these impediments are remnant dams and diversions, which when breached or removed, will allow access to critical habitats. Some dams or barriers create a ponding or backwater effect that encourages concentration of nutrients particularly in grazing areas leading to noxious algal blooms. Elimination of such standing water will improve water quality conditions downstream.

Identification of critical coldwater habitat for fish spawning and rearing, and access to critical habitat will be a principle output of this project. In many streams this will mean opening-up essential life stage habitat in otherwise unmet beneficial use areas.

Identification and prioritization of streams will include riparian habitat values and the beneficial uses of wildlife habitat and wildlife species. Restoration actions that improve riparian habitat as part of the effort to make refugia suitable will improve water quality and reduce pollution loading by virtue of filtering and buffering runoff.

Flooding

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

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

Remnant dams and diversions as well as log jams, slides and even beaver dams can all inhibit fish passage to critical habitat in response to climate change. These structures can also increase the risk of flooding on floodplains if abandoned or improperly maintained. Identifying these structures and their capacity to allow fish passage and a determination of removal or improvement might also reduce flood risk in some cases.

In addition to reducing flood risks from antiquated or improper structures, restoration actions will be identified that will reduce flood risk. Healthy and functioning floodplain and riparian areas reduce flood velocities, allow for infiltration, and have higher bank storage capacities. This improved riparian habitat, bank storage and groundwater recharge will reduce the occurrence of wildfires by maintaining green-zones.

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
- ☐ Recreation and economic activity
- X Quantified environmental flow requirements
- X Erosion and sedimentation
- X Endangered or threatened species
- X Fragmented habitat

Coldwater fish species are sensitive to small temperature changes. Research has shown that fish species shift their range to higher elevations, cooler waters in stream systems, and move at a rate related to the average climate velocity in a watershed. This project will identify velocity isotherms that will predictably cause a shift in the distribution of key fish species into higher elevations or cooler water areas as a function of climate change.

When restoration actions are implemented on priority streams, streambank and riparian improvements will reduce erosion and sediment loading. A healthier stream filters more pollutants, provides better habitat and protects down-gradient areas from flood and drought risk.

Providing access to critical habitats will require maintaining environmental flows if fish species are to reach spawning and rearing areas. A proper flow regime and removal of barriers to movement will de-fragment essential life stage habitat and allow migration and emigration into critical habitat areas. Successful utilization of spawning, early rearing, and adult rearing habitat requires habitat connectivity.

Threatened and endangered bull trout and state species of concern cutthroat trout will be the primary beneficiaries of identifying and protecting critical habitat. Allowing access to these areas will expand their range and provide opportunities for reintroduction of bull trout and their long-term survival.

Hydropower

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

☐ Not applicable

X Reduced hydropower output

Identifying and maintaining fish passage to critical habitat areas will require thoughtful planning for future hydropower projects. Existing hydropower facilities may represent fish passage blocks to critical habitat identified by climate change modeling. In this case the ability to bypass the facility in relation to the value of the habitat above it and reduced hydropower output will have to be assessed as part of the prioritization process.

FMW-18: Fish Distibution Modeling in Relation to Climate Change

GHG Emissions Analysis

Project Construction Emissions

■ The project requires non-road or off-road engines, equipment, or vehicles to complete. If yes:

Type of Equipment	Maximum Number Per Day	Total 8-Hour Days in Operation	Total $MTCO_2e$
Tractors/Loaders /Backhoes	1	10	3
			0
			0
			0
			0
			0
			0
			0
			0
		Total Emissions	**3**

■ The project requires materials to be transported from outside of the UFR watershed. If yes:

Total Number of Round Trips	Average Trip Distance (Miles)	Total $MTCO_2e$
1	170	**0**

■ The project requires workers from outside of the UFR watershed. If yes:

Average Number of Workers	Total Number of Workdays	Average Round Trip Distance Traveled (Miles)	Total $MTCO_2e$
5	10	170	**3**

☐ The project is expected to generate GHG emissions for other reasons. If yes, explain:

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

FMW-18: Fish Distibution Modeling - Climate Change

Project Operating Emissions

☐ The project requires energy to operate. If yes:

Annual Energy Needed	Unit	Total $MTCO_2e$
	kWh (Electricity)	**0**
	Therm (Natural Gas)	**0**

☐ The project will generate electricity. If yes:

Annual kWh Generated	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

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

Acres Protected from Wildfire	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

■ The project will affect wetland acreage. If yes:

Acres of Protected Wetlands	Total $MTCO_2e$
36	**-156**

*A negative value indicates GHG reductions

☐ The project will include new trees. If yes:

Acres of Trees Planted	Total $MTCO_2e$
	0

*A negative value indicates GHG reductions

GHG Emissions Summary

Construction and development will generate approximately:	6 $MTCO_2e$
In a given year, operation of the project will result in:	-156 $MTCO_2e$

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