OREGON WATER RESOURCES DEPARTMENT
WATER SUPPLY DEVELOPMENT ACCOUNT
LOAN AND GRANT APPLICATION

I. Project Information

Project Name: *Sun Creek Restoration: Instream Flow Augementation, Irrigation Efficiency and Channel Reconstruction*

Type of Project: *Streamflow protection and restoration, water conservation*
☐ Check box if project type includes storage

Funding Request Type: ☐ Loan ☒ Grant

Funding Amount Requested: $ $249,867 Total cost of project: $ $552,734

Note: Grant funding requests must demonstrate cost match of at least 25% of total project cost. This may include in-kind.

II. Applicant Information

Principal Contact: ***Chrysten Lambert, Trout Unlimited***			**Fiscal Officer:** ***Jennelle Root Martell***		
Address:	*700 Main St., Ste 201A*		Address:	*4221 Hollis St.*	
	Klamath Falls, OR 97601			*Emeryville, CA 94608*	
Phone:	*541-973-4431*	Fax:	Phone:	*703-772-5337*	Fax:
Email:	*clambert@tu.org*		Email:	*jmartell@tu.org*	

Involved Landowner 1: ***Ed Maletis, Limnes Land Company***			**Involved Landowner 2:**		
Address:	*2033 SW Jackson St*		Address:		
	Portland, OR 97201				
Phone:	*(503) 706-0431*	Fax:	Phone:		Fax:
Email:	*edmelitas@gmail.com; sarah@sarahandersonllc.com*		Email:		

****Please include a supplementary document that lists all additional involved landowners if applicable.***

Certification:

I certify that this application is a true and accurate representation of the proposed project work and that I am authorized to sign as the Applicant or Co-Applicant. By the following signature, the Applicant certifies that they are aware of the requirements of an Oregon Water Resources Department funding award and are prepared to implement the project if awarded.

Applicant Signature: Chrysten Lambert Date: *January 19, 2016*

Print Name: *Chrysten Lambert* Title/Organization: *Dir. Oregon Water Project, Trout Unlimited*

III. Project Summary

Please provide a description of the need, purpose and nature of the project. Include what the applicant intends to complete and how the applicant intends to proceed.

Project Overview:

This project proposes to support the recovery of native fish (redband trout and ESA listed bull trout) in Sun Creek by restoring connectivity and fish passage between Sun Creek and the Wood River for the first time in more than 100 years. To accomplish this, the historic Sun Creek channel will be restored and water rights will be permanently transferred instream to provide adequate year round flow. In addition, improvements to irrigation efficiency and management on the private ranch lands within the Sun Creek watershed will be made to sustain agricultural production levels and

further conserve water for instream use. Additional benefits of the project are expected to include improved water quality, protection of resources important to the Klamath Tribes, and improved economic security for the ranching community through more reliable irrigation water rights for other water users. This proposal is part of larger, multiphase project.

Specific project activities include:
1. Restoring lower Sun Creek to its natural channel and its historic confluence with the Wood River (the channel is currently ditched and leveed);
2. Eliminating entrainment of native fish by consolidating multiple unscreened and unmonitored irrigation diversions into a single point of diversion with a newly constructed fish screen and flow monitoring capability;
3. Increasing instream flow to provide year-round hydrologic connectivity for migratory fish; and
4. Improving water quality through improved riparian management and reductions in tail water.

Funding for project goals 1 and 2 is secured and the work is currently under construction (fall 2015-fall 2016), goal 3 is proposed here for funding, and goal 4 is pending funding from the Natural Resource Conservation Service (NRCS).

OWRD grant funds would be used to acquire 249.7 acres of irrigation water rights for permanent instream transfer. The lands to which these water rights are appurtenant will be converted from wild flood irrigation to dryland grazing, and grazing in the riparian corridor will be conducted on a prescribed basis to protect ecologic resources. The value of these water rights was determined through an independent appraisal process by the preeminent water valuation company in this region, WestWater Research, LLC. Appraisals by WestWater are regularly used to value water rights for a variety of state and federal water programs including those operated by Oregon Watershed Enhancement Board and U.S. Fish and Wildlife Service. In this case, the value negotiated with the landowner is within the valuation range determined by WestWater. The full appraisal is attached to this application.

The ranch productivity lost from the instream transfer of the water rights will be partially off-set by completing irrigation efficiency improvements on the remaining 544 acres that are expected to increase production on those lands, as well as installing cross-fencing and other infrastructure that will support high-intensity rotational grazing. This approach is demonstrated to increase the carrying capacity of pasture lands in the Wood River Valley. Riparian fencing along the restored Sun Creek channel will be installed to support prescribed grazing.

These project activities will provide immediate ecological benefits by creating additional spawning, rearing, and migration habitat for redband trout and bull trout. The project also will benefit endangered shortnose and Lost River suckers by providing increased volumes of cold water, and reduced phosphorous loading to Upper Klamath Lake, and will benefit ESA-listed Oregon spotted frog by restoring riparian wetland communities and reducing grazing pressure in those areas, which provide critical habitat. Moreover, the project helps to provide increased water security for other downstream irrigators because the additional instream flow will help to fulfill the Klamath Tribe's senior instream water rights, reducing the magnitude of water calls on other irrigators. Calls to shutoff irrigation deliveries in favor of the Klamath Tribe's senior instream water rights occur annually in this drainage. This project provides an opportunity to voluntarily dedicate instream the water that provides the greatest ecologic value at the uppermost end of the hydrologic system, thereby preventing water calls of more junior water rights, that irrigate some of the most agriculturally productive lands downstream.

Funding for the channel restoration, fish screen, and preliminary irrigation efficiency project design has already been secured, and most of this work was completed in 2015 (these funds will not be included as match to this proposal, since these earlier components of the project are near completion). The additional funding beyond this proposal to acquire and transfer instream the 249.7 acres of water rights was secured through the US Fish and Wildlife Service Seciton 6 grant program and is provided as match to this application ($302,867; includes water acquisition funds, staff time, and contractors). The funding for the irrigation efficiency improvements is currently pending to the NRCS in the amount of $600,000; the pre-proposal was favorably received with an invitation to submit a full proposal, but is not considered match for this application.

Project Need:
In the Upper Klamath Lake watershed, loss of important aquatic and riparian habitat has occurred on private and federal lands due to the extreme over-allocation of water resources, making acquisition of water rights (for the purposes of instream transfer) an essential restoration and recovery tool. Irrigation diversions in the watershed partially or completely dewater critical stream reaches, and the irrigation return flows are often too warm and nutrient-laden to provide habitat for native, listed species. Diking and draining of riparian wetlands has reduced habitat availability and the natural filtration of excess nutrient and sediment loads, and the over-appropriation of water resources has dried up miles of natural creeks and rivers during critical migratory and rearing periods for a large assemblage of native fish and other aquatic and riparian species.

In addition, the loss of riparian shade and overuse of water for out of stream purposes has led to increases in water temperature. Excess nutrient loading and increased water temperature are thought to be two major factors contributing to the decline of the shortnose sucker (Chasmistes brevirostris) and Lost River sucker (Deltistes luxatus), both of which are federally listed as endangered. The dewatering of key tributaries in the watershed has resulted in the few remaining populations of the bull trout (Salvelinus confluentus), which is federally listed as threatened, being isolated in short headwater reaches preventing them from exhibiting their complete life histories. Finally, the loss of more than 95% of the marsh lands in the Klamath basin as well as changes in hydrology (due to construction of ditches and dams), decreased water quality, development, and livestock overgrazing continue to result in habitat loss, alteration, and/or fragmentation for the recently federally listed threatened Oregon spotted frog (Rana pretiosa).

However, the Upper Klamath Lake watershed is also home to an important rural economy that is primarily supported by family owned ranching operations and recreational activities including fishing for prized trophy redband trout (Oncorhynchus mykiss newberrii). The area is also the homeland of the Klamath Tribes who retain treaty rights for hunting, fishing, and gathering. Balancing the ecologic needs of this watershed with the critical need to protect the economic vitality of the region is an on-going challenge in the basin. This project is designed to provide an innovative approach to balancing these needs by addressing all of these issues for one tributary in the watershed, Sun Creek. This approach is intended to serve as model for additional work in the basin.

Importance for Bull Trout Recovery:
Federally threatened bull trout were once widespread in the Upper Klamath Basin but are now limited to seven small populations in isolated headwater streams. Sun Creek is one of only two streams that contain extant populations of bull trout within the Upper Klamath Lake Core Area, designated in the USFWS Recovery Plan. The other population in the Core Area occurs in Threemile Creek on the west side of the Wood River Valley. Factors limiting bull trout recovery in Sun Creek include competition and hybridization with non-native brook trout (S. fontinalis), habitat fragmentation causing reduced genetic exchange, and extensive habitat degradation associated with agricultural land use such as flow reduction, lack of complex habitat, bank destabilization, and lack of floodplain connectivity.

Sun Creek originates on the southern slopes of Crater Lake National Park (CLNP) and was historically a tributary to the Wood River in the Upper Klamath Basin. Currently it flows south out of the national park and onto Oregon Department of Forestry (ODF) property, where it bifurcates into two channels. The eastern channel appears to be located in the most recent historic flow path, but it no longer receives enough water to reach the Wood River. All water in the channel seeps into the well-drained soils of Sun Creek's alluvial fan. There are no control structures at the bifurcation point, and most of the water flows into the western channel, a straightened ditch used for irrigation of the downslope cattle ranch. The western channel flows into Annie Creek, a tributary to the Wood River. There are numerous diversions on the western channel, and consequently only a fraction of the flow in Sun Creek enters Annie Creek. The primary impact of these channel modifications and over-appropriation of water on the instream habitat is a lack of connectivity between Sun Creek and the Wood River. Additionally, the absence of fish screens on the diversions poses an entrainment risk for outmigrating salmonids. Further, the landowner is not able to shut off diversions outside of the irrigation season or when water is not needed.

In 1989, biologists found that the Sun Creek bull trout population was restricted to 1.2 miles of habitat with an estimated abundance of 150 individuals. At that time, competition with non-native brook trout was the primary factor limiting bull trout in the watershed. Over the last 25 years, CLNP has led efforts to remove non-native fish and restore bull trout on CLNP and ODF property. The results paint a true success story, as bull trout abundance and distribution

have increased approximately tenfold since 1989 (Buktenica et al. 2013). Current abundance estimates range from 2500-3000 individuals. Since 2012, over 200 bull trout have been observed downstream of the national park boundary, including within the unscreened irrigation ditches. The primary limiting factor now has become lack of connectivity, unscreened diversions, and poor habitat quality on private land at the downstream end of the watershed. Reconnecting Sun Creek to the Wood River and restoring instream flow will allow the expanding bull trout population to access the Wood River and its other tributaries. Consequently, bull trout will be able to express migratory life history strategies, recolonize other streams, and increase population resilience.

In addition to bull trout, restoration of flow to lower Sun Creek will benefit other ecologically, culturally, and economically important fish species. Redband trout, which were native to Sun Creek but long ago extirpated from the stream, will be able to recolonize through the restored connection with the Wood River. The restored reach will provide spawning and rearing habitat for this species, which has experienced dramatic declines in distribution within the region. Also, recovery of natural riparian wetland function is expected to improve water quality in return flows to Upper Klamath Lake for the benefit of the endangered suckers. As discussed above, improvements to water quality and restoration of riparian and wetland reaches in the Wood River watershed are identified as a priority recovery actions in the 2012 Revised Recovery Plan for Lost River and shortnose suckers.

Identifying opportunities to recover native species in the Upper Klamath Basin, while continuing to support economically viable agricultural operations is essential to sustaining the rural community of Klamath County. This project achieves that goal by working with a landowner on a voluntary basis, to balance increased production and efficiency on some land to offset reductions in productivity on the most ecologically sensitive lands. This project further addresses the over-allocation of water in the basin by reducing out of stream water use. Increased instream flows will help to meet the Klamath Tribe's "Time Immemorial" instream water right on the Wood River, thereby providing improved water security to other downstream irrigators that would otherwise be shutoff in most water years due to the senior tribal water right not being met. Projects like the one proposed here provide innovative solutions to balance ecological protection, tribal trust obligations, and economic needs for this rural community.

Project Activities:
In the first phase of this project, currently under construction, multiple points of diversion on Sun Creek are being consolidated into a single, screened point of diversion that will prevent entrainment of native and ESA-listed fish in the irrigation network, and also allow the irrigation system to be completely shutdown outside of the irrigation season. This second phase of the project (proposed here) will acquire and permanently transfer instream 1,334 acre-feet of irrigation water rights from Sun Creek, which is expected to result in 5.3 cfs of instream flow in the early season (April 1- July 20) and 3.3 cfs in the late season (July 21 –October 1), facilitating year round connectivity between the headwaters, the restored Sun Creek channel, and the Wood River. In the final project phase, the old Sun Creek irrigation ditch will be piped and higher efficiency irrigation systems installed to serve the remaining 544 acres of the ranch that are irrigated from Sun Creek. The final design of the system is still in development but will likely include gated pipe, sprinkler pods, or a combination of the two methods depending on the final recommendation of the engineer and landowner. Additional water conservation is expected from this work, and if realized, the conserved water will be permanently transferred instream through the Allocation of Conserved Water Program.

All funding (with the exception of those funds sought through this application) is secured for the acquisition and instream transfer of the water rights, and funding for the irrigation efficiency work is pending. TU has secured a signed Option to Transfer agreement with the landowner to dedicate the irrigation water rights instream (attached). TU anticipates that if this proposal is funded, the instream transfer would be completed by mid-2017. The final phase of the project to install irrigation system upgrades is anticipated to be completed in 2017. Instream transfers of the conserved water from the irrigation improvements would occur at least one year, but not more than 5 years, later; once the efficiency of the new system is confirmed, per the rules of the Allocation of Conserved Water Program.

Instream Transfer Process and Water Rights:
Oregon Revised Statutes 537.332 to 537.360 facilitate the instream transfer of irrigation water rights, and the statutes also protect the water instream in perpetuity for the People of Oregon. TU proposes that the instream water rights developed from this project will be owned by the State of Oregon, Oregon Water Resources Department, with the

beneficial use designated for conservation, maintenance and enhancement of aquatic and fish life, wildlife, fish and wildlife habitat and other ecologic values.

The water rights proposed for instream dedication have senior priority dates of 1895. This date is senior to the US Bureau of Reclamation project downstream, as well as the major irrigation diversions from the Wood River, to which Sun Creek is tributary. As a result, the instream water can be protected for the length required to benefit the ecologic objectives of this project, and is water that would not otherwise be "called" by the USBR project or most other irrigators on the system. There are a limited number of more senior water rights on the mainstem Wood River (1864), but use of these water rights will not impact the instream protection required in the primary project area. Because of this senior status, the water rights are of significant value.

The contracted price for the water rights that are being permanently retired is based on an independent third party appraisal by the preeminent water valuation company in the Western U.S., WestWater Research, LLC (attached). The water right appraisal considered a variety of factors that impact the value of water rights, including reliability (based on seniority of the water rights relative to other rights on the system, and the natural availability of water in Sun Creek), as well as the economic value of the water rights when used for irrigation. Since there is not an active water market in the Upper Klamath Basin to utilize a direct market value method, the appraiser utilized two alternative methods of valuation to identify an appropriate value range for these water rights: Comparative Markets and Lease Price Conversion. The comparative markets analysis looked at other watersheds with similar agricultural economies and land values that do have active water markets and converted those water values into proxy values for this basin.

IV. Project Specifics

Instructions: Answer all questions in this section by typing the answer below the question, using additional space as needed.

1. **Describe how the project will provide public benefits in each of the three public benefit categories.** Project applications will be scored and ranked based on the economic, environmental and social/cultural public benefits identified below. Describe the conditions prior to and after project implementation to demonstrate changes resulting from the project. Descriptions should be quantitative when possible. Information provided must be sufficient to allow evaluation of the public benefits of the project. **Please see the Public Benefit and Evaluation Guidance document for a description of how public benefits will be evaluated.** Applications that do not demonstrate public benefit in each of the three categories (economic, environmental, social/cultural) will be deemed incomplete. Leave blank any categories that are not applicable to project.

Economic Benefits ORS 541.673(2)

(a) Job creation or retention:
This project will both help to retain current jobs and provide for short-term job creation related to construction work. Addressing the over-allocation of irrigation water in the Wood River Basin will reduce the likelihood of water being called to fulfill the Klamath Tribe's instream water right, providing for improved job security on the participating and downstream ranches. Without assurance of irrigation water supply, downstream ranches are forced to reduce cattle stocking rates and lay off staff. If water can be placed instream on a voluntary basis, in the stream reaches where it provides the highest ecologic value, rather than through haphazard calls of junior priority date water rights, the entire economy benefits.

The construction of the restored Sun Creek channel, fencing, riparian restoration, and fish screens will all create temporary jobs. Restoration work like this has supported the development of technical skills amongst heavy equipment operators in the local community that provides important income for their families.

(b) Increases in economic activity:
The project will generate short-term economic activity through the various construction projects related to implementation.

(c) Increases in efficiency or innovation:
The next phase of this project will provide important irrigation efficiency improvements on the ranch. These improvements will be the first effort at substantial improvements to irrigation efficiency in this watershed, and we hope will lead to a broader adoption of these innvoative methods.

(d) Enhancement of infrastructure, farmland, public resource lands, industrial lands, commercial lands or lands having other key uses:
This project will improve public resource lands managed by Oregon Department of Forestry and Crater Lake National Park through restoration and protection of native fish species. In particular, there is a sizable recreation economy in the region associated with fishing for trophy redband trout, a prized native fish. The increased population of this species resulting from this project will help to support that economy and the related public resources. Because Sun Creek bull trout are the only native fish in Crater Lake National Park, improving resilience of bull trout in Sun Creek directly enhances park lands by furthering the National Park Service mission of preserving wildlife unimpaired for future generations. The resources of the national park draw over 500,000 visitors annually from around the world who contribute to the tourism economies of the surrounding communities. Recovery of bull trout also benefits Sun Pass State Forest by improving the security of commercial timber harvest on the forest, the primary use of this public land. Also current and future phases of this project will directly enhance the affected ranchland by installing irrigation control structures, fences, and other infrastructure to improve efficiency of ranch operations.

(e) Enhanced economic value associated with tourism or recreational or commercial fishing, with fisheries involving native fish of cultural significance to Indian tribes or with other economic values resulting from restoring or protecting water instream:

This project enhances every value listed in this question directly. The increased instream flows and improved habitat connectivity will benefit ESA-listed native species (bull trout, shortnose and Lost River suckers), native recreational fish species (redband trout), species of cultural significance to the Klamath Tribes (all of those previously listed, and particularly shortnose and Lost River suckers), and will benefit downstream anadromous fish species through increased water supplies and improved water quality. The support letters from Crater Lake National Park, the Klamath Tribes, and ODFW all speak to these important benefits from those perspectives.

(f) Increases in irrigated land for agriculture:

No.

Environmental Benefits ORS 541.673(3)

(a) A measurable improvement in protected streamflows that accomplishes one or more of the following:
(A) Supports the natural hydrograph;
(B) Improves floodplain function;
(C) Supports state- or federally-listed sensitive, threatened or endangered fish species;
(D) Supports native fish species of cultural importance to Indian tribes; or
(E) Supports riparian habitat important for wildlife:

This project will provide all of the benefits listed above. The primary purpose of the project is to permanently improve instream flows, and 100% of the water acquired and conserved will be transferred instream. By maintaining a larger proportion of Sun Creek discharge instream year-round, the project will restore a more natural hydrograph in lower Sun Creek and the Wood River. The reconstruction of the historic Sun Creek channel has been designed to allow the stream to move naturally across the alluvial fan and floodplain as it would have prior to the ditching of the creek. Further, installation of the consolidated point of diversion, with a headgate, will allow irrigation ditches to be closed off during the non-irrigation season, retaining larger, channel-altering flows within the restored channel and connecting the stream's active channel with its floodplain. Thus, the restoration of instream flow proposed here will largely restore natural hydrologic function.

Increased flows and improved hydrologic and geomorphic function will improve habitat for multiple native and listed fish species and will facilitate the natural migratory behavior of these species. As detailed above, beneficiary species will include bull trout, redband trout, shortnose and Lost River sucker. Pit-Klamath brook lamprey also will likely use the restored habitat. The need for habitat and streamflow improvements is documented in the recovery plans for ESA-listed fish species as well as the state management plans for other sensitive species. The USFWS Recovery Plan for bull trout (USFWS 2015) calls for improving hydrologic connectivity, increasing instream water quality and quantity, addressing entrainment at irrigation diversions, and re-establishing of migratory behavior, all of which are addressed by this project. ODFW Klamath River Basin Fish Management Plan (ODFW 1997) describes Sun Creek habitat concerns as inadequate instream flows during summer, numerous unscreened diversions, and poor fish passage. In addition, the plan describes habitat on the private property section of Sun Creek as being in poor condition with significant channelization, detailing that Annie Creek and Sun Creek carry most of the sediment load into the Wood River while flowing through unprotected stream channels. The stock status review for redband trout (ODFW 2005) identifies similar habitat concerns and also lists specific management objectives protecting genetic diversity and increasing the adaptive ability and abundance of redband trout in all waters.

In addition, ODFW and the Klamath Tribes continue to plan for the reintroduction of anadromous fish to the Upper Klamath Basin in the next few years. Sun Creek is a likely spawning tributary for steelhead and possibly spring Chinook, when anadromous fish are either reintroduced or able to recolonize the Upper Klamath Basin (ODFW 2008). Once anadromous species are reintroduced, their populations will benefit from improving the limiting factors that we are addressing for native bull trout and redband trout, including poor habitat quality, lack of habitat connectivity, competition with non-natives, and entrainment in irrigation infrastructure. This

project will allow expression of potamodromous migration behavior by adult and juvenile bull trout and redband trout, which has been prevented by degraded habitat connectivity in lower Sun Creek.

These species are all culturally significant to the Klamath Tribes which have occupied this area since time in memorial, and the benefits will be realized within their former reservation lands (although their reservation was lost in 1954 under the federal US Indian Termination Policy; tribal status was restored in 1986). A letter of support for the project from the Klamath Tribes is included with this application.

The improved riparian condition brought about by this project will benefit other species of wildlife, as well. The lower Sun Creek area is home to large herds of elk, as well as deer, coyote, numerous small mammals, and recently, gray wolf. All these animals will benefit from restored instream flows and improved riparian condition. Great blue heron, kingfisher, and other birds are expected to use the newly restored channel and riparian zone, as is the ESA-listed Oregon spotted frog.

ODFW. 1997. Klamath River Basin, Oregon Fish Management Plan. Fish Division. Portland, OR. 186 pp.

ODFW. 2005. Oregon Native Fish Status Report. Oregon Department of Fish and Wildlife. Volume 1 and 2. Salem, Or.

ODFW. 2008. A Plan for Reintroduction of Anadromous Fish in the Upper Klamath Basin. Oregon Department of Fish and Wildlife. Klamath Falls, OR. 53 pp.

USFWS. 2015. Recovery plan for the coterminous United States population of bull trout (Salvelinus confluentus). Portland, Oregon. xii + 179 pages.

(b) A measurable improvement in groundwater levels that enhances environmental conditions in groundwater restricted areas or other areas:
No. This is not an objective of the proposal.

(c) A measurable improvement in the quality of surface water or groundwater:
Yes, this project is designed to improve surface water quality through the reduction of out of stream diversions and the elimination of tail water return flows from flood irrigation. Flood irrigation is thought be an important source of anthropogenic water quality detriment in this watershed since the associated return flows increase water temperatures and nutrient loads. Phosphorous is the primary nutrient of concern in Upper Klamath Lake where it is linked to monoculture algal blooms that create lethal water quality conditions for native fish and lead to toxic algal blooms downstream that are known to be lethal to wildlife as well as farm animals. Water quality studies have shown a reduction in total nutrient loads when tail water returns are eliminated. The TMDLs specifically identify irrigated agriculture as a source of phosphorous and water temperature detriment above and in the lake and describe the need for changes in the management of irrigation water.

ODEQ, 2002. Upper Klamath Lake Drainage Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP). Salem, OR. 189pp.

Jassby, A., and J.Kann. 2010. Upper Klamath Lake monitoring program: preliminary analysis of status and trends for 1990-2009. Technical Memorandum prepared byAquatic Ecosystem Sciences LLC for theKlamath Tribes Natural Resources Department, Chiloquin OR. 55 p.

(d) Water conservation:
The next phase of this project will include installation of piping and a sprinkler irrigation system which is expected to conserve water. The conversion of a portion of the ranch from flood irrigation to dryland grazing with the funding requested here will also result in water conservation.

(e) Increased ecosystem resiliency to climate change impacts:
Yes, this project is designed to protect a critical, cold-water tributary to the upper Klamath basin which will provide for ecosystem resiliency to climate change and protect a multitude of native species dependent on such habitat. Much of this system is spring-fed, which provides important refugia for native species when snow pack levels are reduced. The streams of the Upper Klamath Core Area have been identified as likely temperature refuges for bull trout and other cold-adapted aquatic species under predicted future thermal regimes.

(f) Improvements that address one or more limiting ecological factors in the project watershed:
Yes, this project directly addresses limiting factors identified in the recovery plans for four ESA listed species in this watershed (bull trout, Lost River and shortnose suckers, and Oregon spotted frog). In addition, the restored hydrologic connectivity will benefit other species of interest to the state such as redband trout. The limiting factors for bull trout and redband trout are detailed extensively in other sections of this application.

Sun Creek lies within the proposed Critical Habitat for threatened Oregon spotted frog (Rana pretiosa) and a population has been identified in the project area. Restoration of riparian function and improved grazing management are both expected to benefit the species.

Excess nutrient loading and increases in water temperature are thought to be two of the major factors contributing to the decline of the shortnose sucker (Chasmistes brevirostris) and Lost River sucker (Deltistes luxatus), both of which are federally listed as endangered. Sun Creek is not included as critical habitat for these species, but the improvements in water quality will flow downstream to benefit critical habitat areas.

Social/Cultural Benefits ORS 541.673(4)

(a) The promotion of public health and safety and of local food systems:
The project promotes local food systems by retaining and protecting the local agricultural economy for family farms in this watershed by improving their efficiency and water availability. The project further works to protect public health by reducing phosphorous loading to Upper Klamath Lake. Excess phosphorous in the lake leads to toxic algal blooms that are a threat to human and animal health.

(b) A measurable improvement in conditions for members of minority or low-income communities, economically distressed rural communities, tribal communities or other communities traditionally underrepresented in public processes:
This project provides important benefits to Tribal Trust resources for the Klamath Tribes. As the Klamath Tribes state in their attached support letter, "The importance of these resident trout populations is paramount to rural tribal communities in the basin given the local extirpation and decline of anadromous salmonid and endemic sucker populations that, historically, were the foundation of tribal culture and a significant food source. Enhancing resident Redband Trout populations serves to maintain remaining subsistence opportunities and cultural resources for local tribal communities."

Trout Unlimited and all of the project partners collaborate regulary with the Klamath Tribes' natural resource staff on this project due to its importance for that community, and look forward to continuing this collaboration.

(c) The promotion of recreation and scenic values:
Yes, this project promotes the recovery and protection of redband trout, a species of great importance for the recreational fishing community in this basin. Fisherman travel from great distances in the hopes of catching one of the basin's prized trophy redband trout, which are endemic to this area. Improved flows and the restoration of the natural Sun Creek channel will also provide for improved aesthetic values.

In addition, this project is one of the most important actions that can be taken to support maintenance of the only native fish located within Crater Lake National Park. As the superindenant of the park writes in his attached support letter, " In addition to the clear ecological value of this project, there is a strong economic benefit of

preserving the park's only native fish. Crater Lake National Park attracts over 600,000 recreational visitors annually. These visitors, who are drawn by the intact native ecosystems of the National Park, contribute substantially to the tourism economy of Klamath, Jackson, and Douglas county communities. We share the story of bull trout restoration with park visitors, and native species conservation is fundamental to the visitor experience that makes Crater Lake National Park a premier tourism destination in Oregon."

(d) Contribution to the body of scientific data publicly available in this state:
Yes, this project builds on an extensive body of research conducted by Crater Lake National Park and Oregon Department of Fish and Wildlife biologists, including some published research on the recovery of bull trout in this system and the population response to conservation work on both National Park and Oregon Department of Forestry lands (attached are examples of publications). As the result of the restoration work completed to date on Sun Creek, and the additional work planned, Sun Creek was named by the Western Native Trout Initiative as one of 2015's "Waters to Watch". This project is part of a broader effort to restore native bull trout populations to streams and reaches of stream from which they were recently extirpated, and is anticipated to be used as a model for further work in other basins.

(e) The promotion of state or local priorities, including but not limited to the restoration and protection of native fish species of cultural significance to Indian tribes:
Yes, this project promotes the recovery and restoration of a stream and native fish populations that are of particular concern to the Klamath Tribes as is detailed in their support letter for this project. Please see item (b) above and the Klamath Tribes support letter for additional detail.

(f) The promotion of collaborative basin planning efforts, including but not limited to efforts under Oregon's Integrated Water Resources Strategy:
The actions that will occur under this project support a multitude of collaborative basin planning efforts, including specific actions that were identified in the Upper Klamath Basin Comprehensive Agreement which is a signed settlement on water rights between the irrigation community and the Klamath Tribes. Unfortunavely a lack of federal congressional action has prevented this settlement from being fully implemented at this time, however the actions required under continue to serve as the foundation for a collaborative future in this community.

Other collaborative planning efforts that call for actions like that proposed here include the Hatfield Science Team 5-year Plan, the US Geological Survey's Review of the USBR 2004 Water Bank (39-40), and the ODFW Oregon Conservation Strategy.

2. Identify Project Location.

(a) Attach map of project implementation area if appropriate. List map(s) in this space and attach to application.
Map 1: Sun Creek Instream Transfer Project Area
Map 2: Project Overview, Sun Creek Instream Transfer

(b) Township	Range	Section	Quarter-Quarter Section
32S;33S	*7.5E*	*33 and 34; 3 and 4*	*multiple*

(c) Tax Lot Number(s)
R-3307-V0000-00200-000, R-3207-V0000-00900-000

(d) Latitude/Longitude
42.745604/ -121.987747

(e) County
Klamath

(f) Watershed
Sun Creek, Wood River, Upper Klamath Lake

(g) River/Stream Mile (where applicable)
Sun Creek from river mile 0 to 2.5

3. ***(a)*** **Will the project result in a physical change on private land?** ☒ **Yes** ☐ **No**

If yes, attach evidence that landowners are aware of and agree to the proposal. List attachments below.
Attached is the Option to Transfer Agreement between TU and Limnes Land Company (private ranch) allowing TU to transfer the water rights to instream flow as proposed here. In addition, the landowner agreements for the channel restoration work (in progress) are attached.

(b) **Will the project result in monitoring on private land?** ☒ **Yes** ☐ **No**

If yes, attach evidence that landowners agree to the proposal and are aware that monitoring information is public record. List attachments below.
Same attachments as 3a. The Monitoring Easement that is part of the Option to Transfer Agreement specifically provides access for monitoring of the project and recognizes that any collected data may become public information.

4. Provide a project schedule, including beginning and completion dates. Use the following table as a guide. Attach a separate sheet to application if needed.

Estimated Project Duration: June 1, 2016 to September 30, 2017

Place an "X" in the appropriate column to indicate when each Key Task of the project will take place.

	20*16*				20*17*				20*18*
Project Key Tasks	**1st Qtr**	**2nd Qtr**	**3rd Qtr**	**4th Qtr**	**1st Qtr**	**2nd Qtr**	**3rd Qtr**	**4th Qtr**	**& Beyond**
Obtain Certified Water Right Examiner Maps			X						
Complete OWRD Application for instream transfer and respond to additional information requests from OWRD			X	X					
Complete review of proposed transfer order, including public notice					X	X			
Secure updated property ownership documentation							X		
Complete state instream transfer process							X		
Close water acquisition at escrow with the landowner							X		
Record easements and contracts with Klamath County							X		

5. Describe any conditions that may affect the completion of the project.

Conditions that could impact the completion of the project include delays in the Instream Transfer application process that can occur due to staffing availability within Oregon Water Resources Department, or unforeseen issues with the property title and water rights. Trout Unlimited has already completed a preliminary title review which found the ownership to be clean, and has also conducted extensive review of the water rights on this and adjacent properties to minimize the risk of delays or unforeseen challenges.

To help mitigate any unforeseen issues, the contract with the landowner includes specific provisions to reduce the dollar amount paid if the volume of water ultimately approved for instream tranfer is substantially below the anticipated amount. In addition, TU will not request disbursement of these funds until a Draft Final Order has been issued by OWRD that will meet the ecologic goals of the project.

6. Attach a completed feasibility analysis if one has been completed.

No feasibility study is needed for the instream transfer of the water rights. An independent appraisal of the water rights has been completed to confirm value for public funding, and contract with the landowner has been secured to assure their participation in the project.

Project planning for the overall effort was initially completed through a study of project alternatives completed by Interfluve (attached). Additionally, designs for the restored natural Sun Creek channel were completed by USFWS (attached). Both of these items cover overall project plans that relate to project phases beyond those proposed for funding in this application, but demonstrate the overall feasibility of achieving the project goals through these methods.

7. Provide suggestions for interim and long-term project performance benchmarks.

The interim project benchmarks are those described in Section 4 Key Project Tasks. Of particular importance to this project is successfully obtaining the Final Order to transfer instream water right Certificate 10903 and the portions of Certificate 10902 described in this application. This is the single most important deliverable of the project.

A secondary aspect and benchmark is the completion of the irrigation efficiency project on the remaining lands irrigated under Certificate 10902 and instream dedication of 100% of the water conserved through those efforts.

In the long-term, project success will be defined through achievement of the economic, environmental, social, and cultural benefits that are described in great detail in Section IV of this application. In the first five years post-project we anticipate:

1. The return of stable populations of native fish to the lower reaches of Sun Creek including redband trout and bull trout since impediments to fish passage will be eliminated through the reconstructed channel and increased instream flow.

2. Maintenance of cattle stocking rates and ranch profitability on the lands where irrigation improvements are implemented.

3. Improvement of populations of native fish that are important treaty resources for the Klamath Tribes.

Within 10 years of post-project implementation:

1. Complete restoration of a fully functioning riparian corridor and geomorphic function of the Sun Creek channel.

2. Elimination of anthropogenic phosphorous loading to Upper Klamath Lake from Sun Creek due to the elimination of irrigation return flows and restoration of the riparian form and function of the channel.

3. Restoration of strong-hold populations of native fish to Sun Creek, including potamodromous bull trout migrating between Sun Creek and the Wood River.

These results will be actively measured through an effectiveness monitoring plan developed by project partners. Monitoring activities planned in the short term include fish and amphibian population monitoring, water temperature and flow measurement, groundwater monitoring, channel geomorphology and riparian vegetation surveys. Initial funding for effectiveness monitoring has been secured from Oregon Watershed Enhancement Board with in-kind contributions from Crater Lake National Park.

8. Provide letters of support for the proposed project (list in this space and attach to application).

Oregon Department of Fish and Wildlife

Crater Lake National Park

Klamath Tribes

Oregon Department of Forestry

US Fish and Wildlife Service - Klamath Falls

9. Describe partnerships and collaborative efforts associated with the project.

This project is a culmination of over a decade of planning work involving multiple state and federal agencies, private landowners and non-profit conservation groups. The collaborative stands out as an excellent example of cooperation in natural resource management among diverse stakeholders, reaching across multiple land ownerships, and working to achieve coordinated, mutual goals on a landscape scale.

Current partners in the project design, funding, implementation and monitoring of the Sun Creek restoration effort include: Oregon Department of Fish and Wildlife, US Fish and Wildlife Service Partner's Program, US Forest Service (RAC), National Fish and Wildlife Foundation, Crater Lake National Park, Oregon Water Resources Department, Oregon Department of Forestry, Oregon Watershed Enhancement Board, Klamath Tribes, Western Native Trout Initiative, and US Fish and Wildlife Service's Section 6 ESA Grant Program.

10. Consultations/communications with affected Indian tribes and with the Legislative Commission on Indian Services regarding the project.

Has the Legislative Commission on Indian Services been contacted to identify tribes affected by the project?

☒ **Yes** ☐ **No**

Please provide correspondence as an attachment to this application.

Email correspondence with LCIS and the Klamath Tribe's Cultural and Heritage Department is attached as well as the SHPO and federal cultural review documentation from the channel construction phase of the project.

Has there been consultation/communications with affected Indian tribes?

☒ **Yes** ☐ **No**

Please provide a description of consultation/communication that occurred and attach documents to this application if applicable.

The Klamath Tribe's have been consulted extensively about this project including multiple tours of the project site, participation in regular meetings of the project partners to review project planning and implementation at multiple phases, and consulted regarding management of the ranch's water rights. The Klamath Tribe's are considered a partner in this project and they have provided a letter of support for this funding proposal which is attached.

The Klamath Tribes have also requested that a cultural monitor be onsite for any ground disturbance activities that may occur, which is a request beyond the standard SHPO permit. Trout Unlimited is happy to comply with this request, and also notes that no ground disturbing activities are funded through this application to OWRD. The funds requested here will be used solely to dedicate irrigation water to instream flow.

11. Provide a description of:

***(a)* Required local, state and/or federal permits and/or authorizations for project implementation that have been secured to date. Please attach secured permits/authorizations to the application.**

The portions of the project proposed for funding here have not required any permits to be secured to date. The funding for the channel restoration and screening efforts was secured from other sources, and all necessary permits for that construction work were obtained in a timely manner and are available upon request.

***(b)* Required local, state and/or federal permits and/or authorizations that will be secured in the future to implement the project. Describe efforts to date in securing these permits and/or authorizations.**

The instream transfer of the water rights and consolidation of the multiple points of diversion to a single screened diversion point will require action by the Oregon Water Resources Department through the standard water right transfer application processes. In addition, the future implementation of irrigation efficiency projects (piping, sprinklers) may require permits, but the final design has not yet been completed to make that determination.

12. Provide any additional supplemental materials to demonstrate ability to implement the project. Examples include project plans and specifications, engineering details and water availability analysis. List documents in this space and attach to application.

1. Water right valuation study (appraisal) which includes a water availability analysis, WestWater Research, LLC

2. Landowner Agreement for instream transfer of water rights and monitoring easement

3. Construction design documents for channel reconstruction (construction work was partially completed in 2015 and will be finished in 2016).

4.Landowner agreement for channel restoration and screening.

5. Design Concept Alternatives Report, Lower Sun Creek Restoration, Prepared by Interfluve for Oregon Department of Forestry.

6. North American Journal of Fisheries Management Article on the efforts of Crater Lake National Park to restore bull trout in Sun Creek. Published by project partners in 2013.

V. Storage Project Requirements (if not a storage project continue to Section VI)

For any storage project please contact Water Resources Grant Administrator, Jon Unger, at (503) 986-0869 prior to completing the application.

13. Storage Project Type: ☐ **Above Ground** ☐ **Below Ground**

14. If above-ground storage, would the proposed storage project be located in-channel?

☐ **Yes** ☐ **No** ☐ **N/A**

15. Identify the capacity in acre-feet of the proposed storage project.

16. Has a water right application been filed for the proposed storage project?

☐ Application not yet made.

☐ Water right application made; permit not yet issued Application #

☐ Permit issued. Application # Permit #

For Questions 17 & 18 answer the following:

(a) Does the proposed storage project impound surface water on a perennial stream?

☐ **Yes** ☐ **No** ☐ **Uncertain**

(b) Does the proposed storage project divert water from a stream that supports state- or federally-listed sensitive, threatened or endangered fish species?

☐ **Yes** ☐ **No** ☐ **Uncertain**

(c) Does the proposed storage project divert more than 500 acre-feet of water annually?

☐ **Yes** ☐ **No**

17. Water Dedicated Instream ☐ N/A

For above ground storage projects seeking <u>grant funding</u>: If you answered "yes" to any of the questions posed in a-c above a minimum volume of water equal to at least 25% of the stored water must be dedicated to instream use.

Identify percentage of stored water to be dedicated to instream use.

%

Note: Any storage project dedicating 25% of stored water to instream use will automatically receive a median score in the environmental public benefit category with the opportunity to demonstrate additional environmental benefit to increase the score.

18. **Seasonally Varying Flow Prescription**

For all storage projects: If you answered "yes" to any of the questions posed in a-c above the project will need a **Seasonally Varying Flow (SVF) Prescription**, determining the duration, timing, frequency and volume of flows (including ecological baseflow), necessary for protection and maintenance of biological, ecological, and physical functions outside of the official irrigation season. The initial step in defining the SVF for the project is to schedule an SVF meeting with OWRD. For assistance and more information please contact Water Resources Grant Administrator Jon Unger at (503) 986-0869.

Identify whether the storage project will need a Seasonally Varying Flow Prescription.

☐ **Yes** ☐ **No** ☐ **Uncertain**

VI. Environmental Public Benefit for Conservation Projects Dedicating Water Instream **(if not a conservation project continue to Section VII)**

19. Identify percentage of conserved water to be dedicated to instream use. ☐ N/A

100 **%**

Note: Any project that conserves water and dedicates at least 25% of the conserved water quantity to instream use will automatically receive a median score in the environmental public benefit category with the opportunity to demonstrate additional environmental benefit to increase the score. Water dedicated to instream use must be permanently placed instream and protected by the Oregon Water Resources Department.

VII. Financial Information

For Loan Applicants – Since loan applications do not require cost match, loan applicants who do not offer a cost match need not complete Section A and can disregard the match funding columns in Sections B and C. Budget and costs of key tasks must be identified in sections B & C. Loan applicants will be required to provide additional financial information related to their ability to repay the loan. This request for information will take place after the scoring and ranking process for those projects that are recommended for funding.

For Grant Applicants – Complete Sections A, B and C.

Section A – Cost Match Information

Applicants must demonstrate a minimum 25% funding match based on the total project cost. The match may include: a) applicant funds or secured funding commitment from other sources; b) pending funding commitment from other sources; and/or c) the value of in-kind labor, equipment rental, and materials essential to the project. For secured funding, the applicant must attach a funding award letter from the match funding source that specifically mentions the dollar amount shown in the "Amount/Dollar Value" column. For pending resources, documentation showing a request for the matching funds must accompany the application. Funds expended prior to grant agreement are not reimbursable nor do they qualify for cost match without prior authorization by the Department.

In the Type column below matching funds may include:	**In the Status column below matching funds may have the following status:**
• **Cash** - Cash is direct expenditures made in support of the feasibility study by the applicant or partner*.	• **Secured** - Funding commitments already secured from other sources.
• **In-Kind** - The value of in-kind labor, equipment rental and materials essential to the feasibility study provided by the applicant or partner.	• **Pending** - Pending commitments of funding from other sources. In such instances, Department funding will not be released prior to securing a commitment of the funds from other sources. Pending commitments of the funding must be secured within 12 months from the date of the award.

* "Partner" means a non-governmental or governmental person or entity that has committed funding, expertise, materials, labor, or other assistance to a proposed project planning study. OAR 690-600-0010.

Match Funding Source (if in-kind, briefly describe the nature of the contribution)	**Type (✓ One)**	**Status (✓ One)**	**Amount/ Dollar Value**	**Date Match Funds Available** *(Month/Year)*
US Fish and Wildlife Service Section 6, subaward via Oregon Department of Fish and Wildlife	☒ cash ☐ in-kind	☒ secured ☐ pending	*$302,867*	*October 2015*
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		

Section B – Project Budget

Please provide a line item budget for the project; see example below. If significant additional detail is needed please complete separately and attach to completed application.

Line Items	**Number of Units*** *(e.g. # of Hours)*	**Unit Cost** *(e.g. hourly rate)*	**In-Kind Match**	**Cash Match Funds**	**OWRD Funds**	**Total Cost**
Materials						
Contractual/Services						
Staff Salary/Benefits						
Equipment (must be approved)						
Supplies						
Other:						
Total for Section B						
Percentage for Section B						***100%***

** Note: "Unit" should be per "hour" or "day" not per "project" or "contract." Number of Units x Unit Costs = Total Cost*

Section C – Key Task Cost

Complete Section C below. Key Tasks identified in Section C should be the same as the Key Tasks in Section IV(4) above.

Project Key Tasks	**In-Kind Match**	**Cash Match Funds**	**OWRD Funds**	**Total Cost**
Obtain Certified Water Right Examiner Maps		*$7,000*		*$7,000*
Complete OWRD application for instream transfer and respond to additional information requests from OWRD		*$15,000*		*$15,000*
Complete review of proposed transfer order, including public notice		*$4,000*		*$4,000*
Secure updated property ownership documentation per OWRD requirements		*$600*		*$600*
Complete state instream transfer process		*$8,867*		*$8,867*
Close water acquisition at escrow with the landowner		*$265,000*	*$249,867*	*$514,867*
Record easements and contracts with Klamath County		*$2,400*		*$2,400*
Total for Section C		*$302,867*	*$249,867*	*$552,734*

Section B: Project Budget

Line Items	Number of Units (hours, miles, acres)	Unit Cost	In-Kind	Cash Match Funds	OWRD Funds	Total Cost
Materials						
Contractual Services:						
Water right appraisal update	10	$ 150.00		$ 1,500		$ 1,500
GIS/CWRE Mapping Services	65	$ 75.00		$ 4,875		$ 4,875
Staff Salary/Benefits	360	$ 71.00		$ 25,560		$ 25,560
Travel	1809	$ 0.58		$ 1,049		$ 1,049
Equipment						$ -
Supplies						$ -
Other:						
Water Right Acquisition Certificate 10902	130	$ 1,800.00		$ 117,000	$ 117,000	$ 234,000
Water Right Acquisition Certificate 10903	119.7	$ 2,220.00		$ 132,867	$ 132,867	$ 265,734
OWRD application and public notice fees	1	$ 4,600.00		$ 4,600		$ 4,600
Escrow, title, and county fees	1	$ 7,500.00		$ 7,500		$ 7,500
Indirect costs (FNIR 16.45%, excepting 2% on water acquisition funds)				$ 7,916		$ 7,916
Total for Section B				**$ 302,867**	**$ 249,867**	**$ 552,734**
Percentage for Section B				**55%**	**45%**	**100%**