

Draft Response to Project Abstracts and Public Comments for the 2018 Update to the UCFRB Aquatic and Terrestrial Resources Restoration Plans

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Section I. Introduction

On June 6, 2018, the Natural Resource Damage Program (NRDP) released the 2018 Update, Solicitation of New Restoration Action Concepts and Potential Revisions for the *Final Upper Clark Fork River Basin (UCFRB) Aquatic and Terrestrial Resources Restoration Plans* (hereafter referred to collectively as “*Restoration Plans*”) for public solicitation of additional conceptual restoration proposals specific to aquatic and terrestrial resource priority areas, projects with recreation components associated with aquatic and terrestrial Priority 1 and 2 areas or in the aquatic and terrestrial injured resource areas for which the State made restoration claims (with a focus on restored or remediated areas), and revisions to the Restoration Plans. The public solicitation and comment period ran through July 6, 2018. The NRDP sent notices of this opportunity to 446 individuals/entities on its mailing lists, issued a press release, and placed display ads in four basin-area newspapers. The NRDP also summarized this public solicitation for project abstracts/comment process at the June 19, 2018, and June 28, 2018, meetings of the UCFRB Remediation and Restoration Advisory Council (Advisory Council or AC) and the Trustee Restoration Council, respectively.

The NRDP received a total of 23 project abstracts and two comment letters during the public solicitation/comment period proposing revisions to the Restoration Plans. See Appendix 1 for a list of conceptual restoration abstract proposals, identified by a specific number that serves as a reference to the comment throughout this document. This reference number (82 through 105) given to each conceptual restoration abstract proposal also identifies the project for reference within the *Restoration Plans*. Appendix 1 also provides copies of the conceptual restoration abstract proposals, which are also available on the NRDP website at: <https://dojmt.gov/lands/notices-of-public-comment/>. Appendix 2 provides copies of the two comment letters.

This document further summarizes the conceptual restoration abstract proposals and comments received and provides the State’s responses. The State’s responses provide which conceptual restoration abstract proposals and revisions to the *Restoration Plans* are incorporated in the draft revision or why the conceptual restoration abstract proposals or suggested changes are not incorporated. Section IV of this document provides a summary of the State’s recommended updates and revisions to the *Restoration Plans*, which also includes the State’s recommended revisions to the *Restoration Plans*.

The State’s draft 2018 Update to the *Restoration Plan* will be subject to public comment during a 30-day public comment period in the fall of 2018, presented at the meeting of the Advisory Council and a meeting of the Trustee Restoration Council. Following consideration of public comment and the recommendations of these two councils, the Governor will make the final decision on the 2018 Update to the *Restoration Plans*.

Section II. Conceptual Restoration Proposals Submitted

Watershed Project Abstracts

Cottonwood Creek, Deer Lodge, Montana: enhance the ecological functions of Cottonwood Creek within the town of Deer Lodge, MT

This project abstract (#82) proposes to improve riparian habitat and instream habitat, both of which are listed as priorities in the *Restoration Plans*, for Cottonwood Creek. The restoration concept being proposed is the development and implementation of riparian and instream habitat improvements in the lower mile of Cottonwood Creek. The specific project goals include: improve instream habitat diversity to support all native aquatic organisms, provide thermal refugia for aquatic organisms from the Clark Fork River, improve riparian habitat by increasing native vegetative cover, reduce noxious weeds and improve soil conditions, improve the natural aesthetics of the Cottonwood Creek corridor, provide educational opportunities for local students and residents of Deer Lodge, and maintain or improve flood conveyance. Total funding requested \$500,000.

Response: Cottonwood Creek is listed as a priority 2 stream in the *Aquatic Resources Prioritization* document¹ and included in the 2012 Restoration Plans, section 3.2.2.5. The *Process Plan*² states the State will focus restoration alternatives in the Priority 1 or 2 areas, consistent with the sequential approach to restoration work advocated in the prioritization plans, and in the aquatic and terrestrial injured resource areas for which the State made restoration claims. In 2012, the *Restoration Plans* did not include two project abstracts specific to this reach of Cottonwood Creek because these two projects were for flood control and mitigation purposes. Seven project abstracts (21, 22, 23, 24, 45, 46, and 60) were included in the Restoration Plans associated with reaches of Cottonwood Creek upstream and downstream of the Deer Lodge City reach, Section 3.2.2.5. These abstracts included in the Restoration Plans proposed restoration actions to improve priorities for Cottonwood Creek: riparian habitat, fish passage/fish entrainment, and instream habitat.

The State proposes to include only the aspects of this abstract that will address the priority restoration actions listed for Cottonwood Creek project in the 2018 Update of the *Restoration Plans*, improve instream habitat diversity to support native aquatic organisms, provide thermal refugia for aquatic organisms from the Clark Fork River, and improve riparian habitat by increasing native vegetative cover. These restoration actions will be prioritized with the other restoration actions previously included in the Restoration Plans. The State proposes to not include the aspects of this proposal that pertain to flood control and mitigation. The Cottonwood Creek fund allocation of \$1,700,000 will be used to implement these actions per the Restoration Plans.

¹ UCFRB Prioritization of Areas in the UCFRB for Fishery Enhancement, jointly prepared by FWP and NRDP, Final (dated January 2018) are available from the NRDP website at: <https://media.dojmt.gov/wp-content/uploads/Aquatic-Prioritization-Plan-2018-FINAL.pdf>.

² Final UCFRB Interim Restoration Process Plan, prepared by NRDP (dated May 2012). Available from the NRDP website at: <https://media.dojmt.gov/wp-content/uploads/2012/05/051512-Final-Complete-Process-Plan.pdf>.

Clark Fork River Mainstem, Garrison, Anaconda/Deer Lodge, and Powell Counties, Montana

This project abstract (#83) proposes to reduce the impacts of multiple diversion dams on aquatic resources and recreational users including, but not limited to fisheries habitat fragmentation, fish entrainment in irrigation ditches, stream flow reduction, boat passage impairment, and risk to floater/wader safety. Preliminary assessments of the diversion dams were completed as part of the development of flow related projects. Total funding requested \$2,000,000.

Response: This project meets the criteria to be considered for funding from the *Restoration Plans*, aquatic plan, *Restoration Plans* sections 3.2.1 and 3.2.2.1. The State will work with project partners to fully evaluate this project. The State proposes to incorporate fish passage and boat passage improvements associated with this proposal when working on flow projects or during Clark Fork River remediation/restoration work being implemented by the State.

Gold Creek Fish Passage and Habitat, Powell County Montana

This project abstract (#84) will address what are believed to be the primary limiting factors in Gold Creek's fishery, a Priority 2 stream: a) entrainment and mortality of juvenile and adult salmonids, b) fragmentation of habitat connectivity by irrigation diversions and localized dewatering, and c) stream corridor habitat degradation. Assessments completed in 2010 document stream conditions and 6 major diversions where restoration actions (habitat enhancement, fish passage and entrainment) will reduce impacts on the fishery of Gold Creek and improve recruitment to the Clark Fork River mainstem. Project sponsors have developed landowner contacts and matching funds to contribute to these projects. Total funding requested \$500,000.

Response: This project meets the criteria to be considered for funding and is proposed as a new Priority Tributary Watershed in section 3.2.2.2. The State will work with project partners to fully evaluate this project. To the extent possible the State proposes funding this project from re-allocation of aquatic projects and the aquatic interest.

Flint Creek Watershed Fish Passage and Habitat, Granite County, Montana

Three project abstracts (#85, 90, 91) proposing additional fish passage and riparian habitat projects throughout the Flint Creek watershed were submitted. These projects are in addition to the proposals submitted in 2012. The implementation of restoration actions since 2012 has developed additional projects to enhance fish populations (fish passage/entrainment), enhance aquatic and riparian habitat, and enhance public access. These abstracts propose to implement restoration actions to further address the needs in the Flint Creek watershed. Total funding requested \$2,070,000.

Response: These projects meets the criteria to be considered for funding and are included the *Restoration Plans*, section 3.2.2.7. The State will work with project partners to fully evaluate this project. To the extent possible the State proposes funding these projects from re-allocation of aquatic projects and the aquatic interest.

O'Neill Creek, Powell County, Montana

The project abstract (#86) will address what are believed to be the primary limiting factors to O'Neill Creek's fishery, a Priority 2 stream, by reducing fish entrainment, enhancing fish passage, spawning and rearing habitat. The Project should provide important fisheries benefits to the public, as O'Neill Creek was identified is a significant source of westslope cutthroat trout recruitment to the Upper Clark Fork. Project sponsors proposed \$10,500 in matching funds. Total funding request \$101,600.

Response: This project meets the criteria to be considered for funding and is proposed as a new Priority Tributary Watershed in section 3.2.2.2. The State will work with project partners to fully evaluate this project. To the extent possible the State proposes funding this project from re-allocation of aquatic projects and the aquatic interest.

Rock Creek Fish Passage, Entrainment, and Riparian Habitat, Missoula County, Montana

Two project abstracts (#87 and 88), propose to address what are believed to be the primary limiting factors to Rock Creek fishery, a Priority 2 stream, by reducing fish entrainment, enhancing fish passage and riparian habitat. The project goals include protecting intact, high-quality riparian and wetland habitat, enhancing riparian areas for fish and wildlife, replacing recreational angling opportunities and protecting public access to recreational opportunities, increasing recruitment of trout to the Clark Fork River, reducing fish entrainment, improving upstream fish passage for trout and improving irrigation infrastructure and reduce maintenance to landowners. Project sponsors proposed \$527,500 in matching funds. Total funding request \$1,305,000.

Response: These projects meets the criteria to be considered for funding is proposed as a new Priority Tributary Watershed in section 3.2.2.2. The State will work with project partners to fully evaluate this project. To the extent possible the State proposes funding this project from re-allocation of aquatic projects and the aquatic interest.

Harvey Creek, Granite County, Montana

Project abstract (#89) proposes to improve aquatic and riparian habitat of over a mile of Harvey Creek upstream of recent restoration action implementations and to reduce fish entrainment associated with an irrigation diversion downstream of recent restoration actions. These actions would increase recruitment to the reach of the Clark Fork River with the lowest fish densities. Project sponsor proposed \$50,000 in matching funds. Total funding request \$271,000.

Response: This project meets the criteria to be considered for funding and is included in *Restoration Plans*, section 3.2.2.9. The State proposes funding only the highest priority project, fish entrainment downstream of restoration actions from re-allocation of aquatic projects and the aquatic interest.

Little Blackfoot River Watershed, Powell County, Montana

Five project abstracts (#92, 93, 94, 95, and 96), propose to address what are believed to be the primary limiting factors to the Little Blackfoot River and its priority tributaries, Snowshoe Creek, Spotted Dog Creek, and Trout Creek. These proposals are in addition to the proposals submitted in 2012. The implementation of restoration actions since 2012 has developed additional projects to enhance fish populations (fish passage/entrainment), enhance aquatic and riparian habitat, and enhance public access. These abstracts propose to implement restoration actions to further address the needs in the Little Blackfoot River watershed. Total funding request \$5,340,000.

Response: These projects meets the criteria to be considered for funding and is included in the *Restoration Plans*, section 3.2.2.10. The State will work with project partners to fully evaluate this project. To the extent possible the State proposes funding this project from re-allocation of aquatic projects and the aquatic interest.

Basin Creek (above Basin Creek Reservoir), Silver Bow County, Montana

The project abstract (#97) will address what is believed to be the primary limiting factor identified by Fish Wildlife & Parks (FWP) associated with Basin Creek above the Basin Creek Reservoir, a Priority 2 stream, enhancing fish passage. The project will benefit native westslope cutthroat trout populations in Basin Creek and the reservoir as well as improve public recreational fishing opportunity in the watershed. Total funding request \$252,000.

Response: This project meets the criteria to be considered for funding is proposed as a new Priority Tributary Watershed in section 3.2.2.2. The State will work with project partners to fully evaluate this project. To the extent possible the State proposes funding this project from re-allocation of aquatic projects and the aquatic interest.

Flow Project Abstracts

Little Blackfoot River and Silver Lake Flow Projects

Two project abstracts (#98 and 100) propose improving flow within the UCFRB. One proposes to improve streamflow in the Little Blackfoot River watershed, a Group 2 Aquatic Flow area. The second abstract proposes continuation of efforts to secure flow from the Silver Lake water system to improve flow upstream of Deer Lodge, a Group 1 Flow area.

Response: The Silver Lake water system project meets the criteria to be considered for funding and is included in the *Restoration Plans*, section 3.2.1. The State will continue to work with project partners and Butte Silver Bow, owners of the Silver Lake water system, to try and secure flow for the dewatered reach of the Clark Fork River south of Deer Lodge. The Little Blackfoot River flow improvement proposal is for a Group 2 flow area that is not eligible per the 2016 Restoration Plans. The State does propose to revise the 2018 Restoration Plans for the development of flow enhancement projects in all groups. The efforts to secure Group 1 flow projects since 2012 has been limited and the State, it's project partners, and landowners believes there are opportunities within Group 2 and 3 areas for flow enhance projects to provide water to

improve aquatic habitat and fish populations that recruit to the mainstems of the Clark Fork River and Silver Bow Creek.

Little Blackfoot River Water Quality, Powell County, Montana

One abstract (#99) proposes a project to identify and implement projects in the Little Blackfoot River watershed that will improve water quality in the mainstem, primarily upstream of the confluence with the Dog Creek. The project is intended to improve fish populations in the Little Blackfoot River, its priority tributaries, and the Clark Fork River. The goals of this proposal are: improve water quality in the Upper Little Blackfoot River, improve fish populations in the Little Blackfoot River, its tributaries and the Clark Fork River, and improve native fish populations in the Little Blackfoot River, primarily bull trout and westslope cutthroat. Total funding request \$100,000.

Response: NRDP does not consider this an eligible project for funding from the UCFRB Restoration Fund since the poor water quality in the Little Blackfoot River is not a natural resource injury associated with the Montana v. ARCO injury. There are other government agencies responsible for monitoring and remediating the abandoned mining sites causing the water quality injury in this watershed. This proposal is similar to the Flint Creek mercury injury to fish and osprey where the 2012 Restoration Plans provided limited funding to only determine the extent of the mercury contamination.

Projects Abstracts with Recreation Components

FWP Fishing Access Site Development

FWP's proposal (#102) request additional funding to complete the goal of acquiring and developing a series of Fishing Access Sites (FASs) on the upper Clark Fork River. During the 2012 process, FWP was allocated \$1,000,000 to acquire and develop approximately 10 FASs on the Clark Fork from its headwaters downstream to Milltown. Due to complications, delays, permitting and social issues, increases in construction costs and underestimating the actual costs of acquisition and development, FWP is requesting additional funding to complete the original work. FWP states they have spent or allocated approximately \$650,000 of the original \$1,000,000 on four sites—Racetrack Pond, Kohr's Bend, Gold Creek, and Bearmouth. FASs to be completed are Garrison, Beavertail Hill, DNRC Section 16, Jens, and a BLM site or Bear Gulch. FWP anticipates an additional \$600,000 is needed to complete the sites. Total funding request \$600,000.

Response: This project meets the criteria to be considered for funding from the *Restoration Plans*, section 5.2.1. FWP was allocated \$1,000,000 in 2012 for construction of or upgrade to ten fishing access sites along the Clark Fork River from Warm Springs Ponds to Milltown. Fishing access sites were identified in the State's guidance of encouraged recreational projects in the 2012 Process Plan and meet the AC recommendation that projects with recreation components be associated with aquatic and terrestrial Priority 1 and 2 areas or in the aquatic and terrestrial injured resource areas for which the State made restoration claims, with a focus on restored or remediated areas. At this time, with limited funding available for projects with a recreation

component and based on knowledge of the rate of development of these sites the State does not recommend funding this proposal.

Trails Master Plan for Basin, Anaconda Deer Lodge, Powell, and Granite Counties

The Powell County Planning Department submitted an abstract (#103) proposing to inventory and identify potential linkages between the recreational assets, opportunities and river access points within the Upper Clark Fork River watershed, from Warm Springs to Drummond. The inventory would identify existing facilities and/or access points, those currently in development and those that have the potential to be developed in conjuncture with restoration activities. The inventory would be meant to enhance and connect recreational assets in the watershed (i.e. fishing access sites, hiking and biking trails, parks, public access for hunting, etc.). Total funding request \$120,000.

Response: This project meets the criteria to be considered for funding from the *Restoration Plans*, section 5.0. Members of the Advisory Council have previously voiced their desire to the development of a plan for public recreational access within the Upper Clark Fork River Basin. The State considers the development of a trails master plan an effective tool to guide future trail development in the UCFRB regardless of funding sources. To the extent possible the State proposes funding this project from re-allocation of projects and the aquatic and terrestrial interest.

Anaconda Trail, Anaconda Deer Lodge County, Montana

The Anaconda Trail Society submitted an abstract (#104) proposing the construction of a trail on 3 miles of the remediated railroad bed in western Anaconda adjacent to Highway 1.

The goals of the project are to enhance accessibility to the newly constructed Washoe/Hafner Park, protect terrestrial resources and offer additional recreational opportunities. The project sponsor has partnered with the Montana Department of Transportation to construct the project. Project sponsor proposed \$300,000 in matching funds. Total funding request \$200,000.

Response: This project meets the criteria to be considered for funding from the *Restoration Plans*, section 5.0 and the Advisory Council recommendation that projects with recreation components be associated with aquatic and terrestrial Priority 1 and 2 areas or in the aquatic and terrestrial injured resource areas for which the State made restoration claims, with a focus on restored or remediated areas. The railroad bed is a remediated site associated with the ARRWS OU and the proposed trail will connect to the Washoe/Hafner Park constructed with UCFRB Restoration Funds. To the extent possible the State proposes funding this project from re-allocation of projects and the aquatic and terrestrial interest.

FWP Milltown State Park Funding, Missoula County, Montana

FWP Parks abstract proposes (#105) to develop three areas of the Milltown State Park. Develop the Milwaukee Tunnel 16 ½ as part of the parks greater trail network, provide for park amenities associated with the acquisition of the Bonner Learning Park, and the construction of a ranger station / maintenance shop and associated infrastructure. The 700-foot-long Milwaukee Tunnel 16 ½ would provide for greater access to the south side of the Clark Fork River. FWP had

Montana Tech design safety improvements for the tunnel and estimate safety improvements to cost \$80,000. FWP is proposing to use \$50,000 from the 2012 Restoration Plans allocation and seeks an additional \$30,000 with this proposal. FWP is acquiring the 36-acre Bonner Learning Park located within the State Park boundary. This addition will allow FWP Parks to ensure protection of the state's restoration work; to ensure public access to Milltown State Park along the north bank of the Clark Fork River (park property upstream and down of the Bonner Learning Park; and to enhance recreational and educational opportunities at the park. FWP Parks is seeking \$36,000 for amenities for this area. FWP Park is also proposing to construction a ranger station/maintenance shop and associated infrastructure at the Park within the Confluence area. The ranger station/maintenance shop would allow for a visitor contact area and office space for park staff that is currently not available. FWP would also like to develop water service at the site as part of the associated infrastructure. FWP is requesting \$300,000 to develop this ranger station. Total requested funding \$360,000.

Response: This project meets the criteria to be considered for funding from the *Restoration Plans*, section 5.0 and the Advisory Council recommendation that projects with recreation components be associated with aquatic and terrestrial Priority 1 and 2 areas or in the aquatic and terrestrial injured resource areas for which the State made restoration claims, with a focus on restored or remediated areas. The development of the Milwaukee Tunnel 16 ½ and the amenities for the Bonner Learning Park will enhance public access to the restored Milltown area as well as help protect these areas. The construction of the ranger station would also provide the administrative support to operate the Park in a more effective manner by providing offices at the Park. To the extent possible the State proposes to fund the Milwaukee Tunnel 16 ½ and the Bonner Learning Park amenities from re-allocation of projects and the aquatic and terrestrial interest if funding is available. However; the construction of the ranger station augments normal government function more than the other recreational projects proposed since FWP has a regional office within 10 miles of the site, the cost benefit is less than the other projects. To the extent possible the State also proposes the development of water services at the Confluence area as this would provide services lost with the removal of the dam (NWE well went dry after dam removal) and directly support the recreational services in the Confluence area if funding is available.

Dry Cottonwood Creek Ranch Education, Powell County, Montana

The Clark Fork Coalition abstract (#101) proposes to conceptualize, design, and implement plans to convert the Clark Fork Coalition's ranch house and five-acre property on Dry Cottonwood Creek near Galen into a community resource for research, education, and outreach about the recovery of the Upper Clark Fork River. Funds would support a community-driven process to explore and develop a facility and property for uses that could include, but are not limited to, a hands-on watershed learning classroom; a field station for research, monitoring, and interpretation of the recovery of the river; and a community resource and gathering place for the public to engage in the unique story, science, and processes of the historic cleanup and transformation of the Upper Clark Fork River. The proposal estimates \$530,000 of the requested \$570,000 is for infrastructure upgrades with the remaining \$40,000 for education.

Response: The educational aspect of the UCFRB restoration is funded through the Clark Fork Watershed Education program. Educating the public about the restoration activities within the

UCFRB is an essential process to support the restoration actions being implemented and is an eligible project. The State believes the educational components of this proposal can be integrated with the Clark Fork Watershed Education program and the out-reach NRDP and others conduct within the UCFRB. The State believes the development of an educational center is not a cost-effective and project costs outweigh/exceed benefits to be gained from the project as the cost to develop an educational center are 92% if this request. The State proposes to assist the applicant with the educational out-reach aspects of their proposal, but does not recommend funding the development of an educational center at Dry Cottonwood Creek.

Section III. Comment Summary and Response by Category

Trout Unlimited Comments: 1-5

Comment 1: One comment indicated the desire to consider other flow restoration opportunities in Group 1 and 2 areas since the length of time and uncertainty associated with negotiating streamflow improvement projects warrants a more flexible approach.

Response: During the 2016 Restoration Plans revision project the State did not recommend funding Group 2 or Group 3 projects but agreed to reconsider this recommendation during the next revision. The State agrees with this comment and proposes in section 3.2.1 to consider flow restoration projects in Groups 1, 2, and 3. In addition to the same reasons listed by the commenter, the State believes the Group 1 flow restoration projects have all been evaluated to some extent. Some of the Group 1 projects are still under consideration, and others have been vetted and at this time not being considered.

Comment 2: Commenter supports funding for aquatic projects on tributaries to Priority 1 and Priority 2 streams that meet the goals for those priority waters. Commenter requests discretion for State to fund projects on these tributaries to priority streams that contribute to meeting the goals of those systems.

Response: The State proposes in section 3.2.2.2 the ability to work on tributaries with connection to Priority 1 and 2 tributaries to improve connectivity and habitat if the resource managers agree these are priority actions.

Comment 3: Commenter requests the State consider plan revisions to support projects that improve streamflow but may not require formal changes to a water right. Expanding the Plan's definition of "flow augmentation" to include other flow enhancement tools such as source changes and irrigation efficiency improvements equips partners with a needed diversity of ways to tailor projects to the opportunities on the ground, especially where a successful water right change may not be feasible.

Response: The *Restoration Plans* does allow for the implementation of flow projects integrated with watershed restoration actions, however; the State proposes to also fund these types of projects with flow funds. For example, a new diversion structure may be designed that will allow for year-round fish passage may also result in additional flow in the stream. A water right change may or may not be necessary with this type of project, but the result is water savings that are being left instream. As proposed these types of projects will be funded by the specific watershed or flow funds. However, the State believes these types of flow projects require a water right change to ensure the water savings left instream remain protected regardless of future land ownership or management.

Comment 4: One comment request on priority headwaters tributaries such as Mill and Willow Creeks that have been considered flow-limited and ineligible for funding of non-flow aquatic projects prior to addressing flow impairments, consider concurrent non-flow and flow project development and implementation. Our project development experience with private landowners and irrigators suggests that the trust developed through successful habitat and infrastructure-

related fish passage work is often necessary to develop and implement flow restoration projects. Integrating project development and implementation of habitat and flow projects is a cost-effective strategy that could net the best outcomes for both the Clark Fork and these priority tributaries.

Response: The State proposes in section 3.2.2.2 to schedule restoration action development and implementation on tributaries such as Mill and Willow Creeks where DEQ is currently implementing the Clark Fork River Operable Unit remedial actions. The State proposes to address the commenter's recommendation on a case by case basis for the watersheds that are flow limited; Mill/Willow Creek and Racetrack Creek.

Comment 5: One comment supports continued investment in targeted monitoring and research efforts that answer critical fisheries and aquatic habitat questions and guide the cost-effective implementation of on-the-ground projects. The recent otolith microchemistry and cutthroat telemetry projects funded by NRDP are good examples of applied science that guide improved restoration decision-making.

Response: The State agrees the targeted monitoring and research efforts implemented by Fish Wildlife and Parks and others have provided important scientific data leading to the efficient implementation of restoration projects within the UCFRB.

City of Deer Lodge Council Comment: 6

Comment 6: One comment letter was submitted by the City of Deer Lodge Council in support of the Clark Fork Coalitions submission of a project proposal for Cottonwood Creek.

Response: The State acknowledges the Council's support for this project.

Appendices

Appendix 1: Conceptual Restoration Abstract Proposals

List of Abstract Proposals

Aquatic (Non-Flow Public Proposals):	
82	Cottonwood Creek (in town) – CFC
83	CFR Mainstem Diversions CFC/TU
84	Gold Creek Habitat- WRC
85	Lower Flint Creek Habitat and fish passage – WRC
86	O’Neil Creek Fish passage/Habitat- WRC
87	Rock Creek Rip Habitat– TU
88	Rock Creek fish passage – TU
89	Harvey Creek Fish passage/Habitat – TU
90	Flint Creek Habitat –TU
91	Flint Creek Fish Passage- TU
92	Little BFR Habitat- TU
93	Little BFR fish passage- TU
94	Little BFR Snowshoe Creek – TU
95	Little BFR Spotted Dog – TU
96	Trout Creek – TU
97	Basin Creek – TU
Aquatic (Flow Public Proposals):	
98	Little BFR Flow – TU
99	Little BFR Water Quality – TU
100	Silver Lake Flow –TU
Recreation (Public Proposals):	
101	CFC DCCR Education – CFC
102	FWP FAS – FWP
103	Powell County Trail Master Plan for Basin
104	Anaconda Trail
105	FWP Milltown State Park- FWP

RESTORATION CONCEPT ABSTRACT SUBMITTAL FORM

1. PROJECT TITLE: Lower Cottonwood Creek Restoration Partnership

2. ORGANIZATION AND CONTACT:

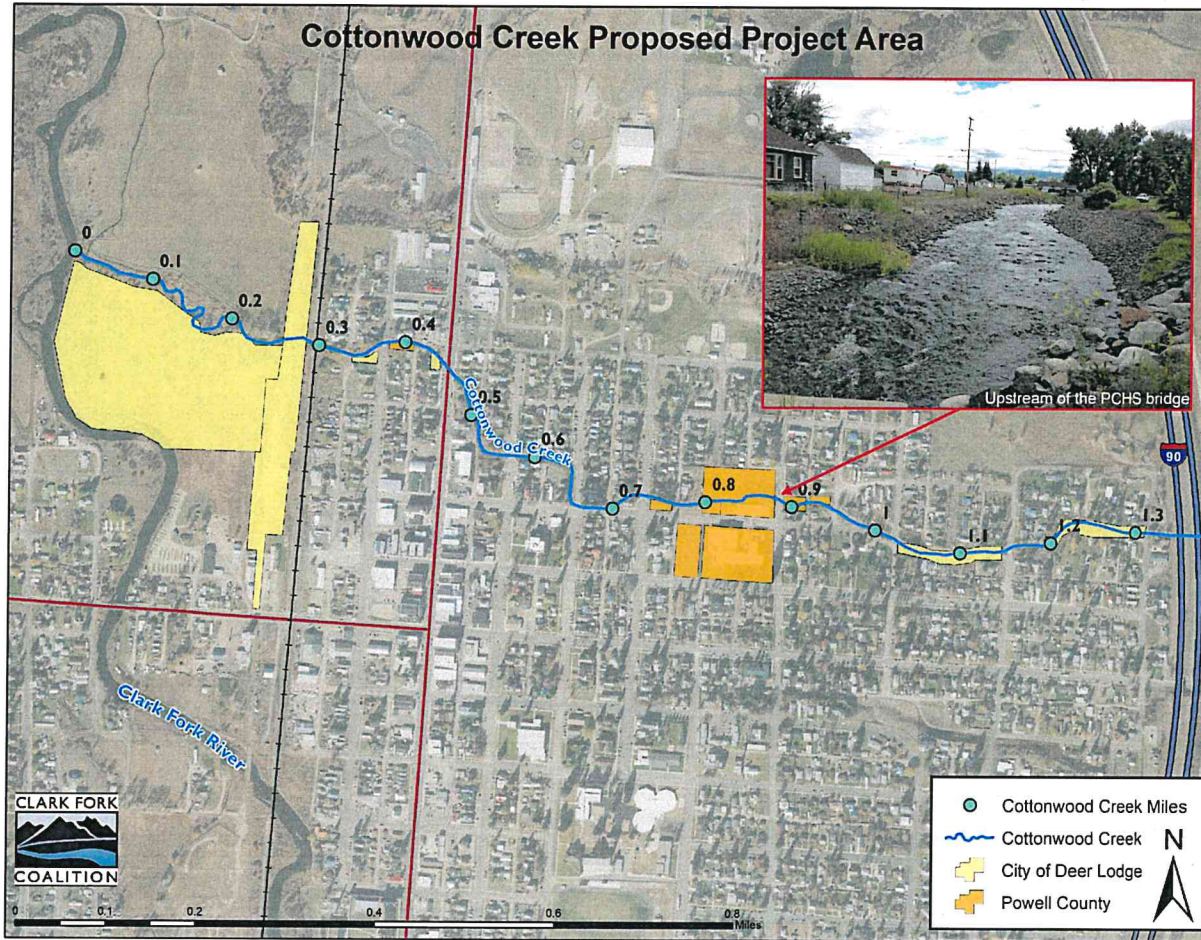
Contact/Entity	Address:	Phone/Email:
Andy Fischer Project Manager, Clark Fork Coalition (CFC)	140 S. 4 th St. W. #1 PO Box 7593 Missoula, MT 59807	(406) 552-7513 andy@clarkfork.org

3. PROJECT PURPOSE AND BENEFITS:

The purpose of this restoration concept proposal is to enhance the ecological functions of Cottonwood Creek within the town of Deer Lodge, MT. Cottonwood Creek experienced a 100-year flood event in 2011, which resulted in significant damage to the riparian habitat through Deer Lodge. This large flood event caused massive erosion in places and resulted in significant damage to the existing vegetation and bank stability. The City and County have spent the past seven years building new bridges, revising their floodplain maps, and acquiring flood-prone lands along the urban creek corridor. The City and County now own nine properties along the floodplain. This creates an excellent opportunity to improve riparian habitat and instream habitat diversity in addition to maintaining floodplain functions. Through this project CFC aims to improve riparian habitat, water quality, and aquatic habitat in the Upper Clark Fork watershed by enhancing habitat along Cottonwood Creek (a priority 2 stream area).

4. PROJECT LOCATION:

The Project focuses on a one-mile section of Cottonwood Creek than runs through the City of Deer Lodge, MT (below I-90) that is in need of improvement and restoration and will benefit trout, riparian habitat, and riparian-obligate species. The lowest one mile of the stream runs through downtown Deer Lodge for about one mile, where stream habitat is degraded due to encroachment, channelization, urban runoff, and associated water quality issues, such as elevated water temperature, nutrients, and sediment. Westslope cutthroat thrive in the upper reaches of the watershed, but tagged fluvial westslope cutthroat also have been documented migrating through downtown Deer Lodge to reach their upper watershed spawning areas. The Clark Fork Coalition and its partners are heavily engaged in fishery habitat restoration in upper reaches of Cottonwood Creek (flow, passage, and riparian projects) on private ranches and US Forest Service lands, so this project furthers the benefits of these other watershed-wide efforts.



5. PROJECT DESCRIPTION:

a. Goals, Objectives:

This restoration concept is being proposed to allow for the development and implementation of riparian and instream habitat improvements in the lower 1 mile of Cottonwood Creek. The purpose of this concept is to improve fishery habitat in this degraded section of creek. The specific project goals include:

- Improve instream habitat diversity to support all state of native aquatic organisms.
- Provide thermal refugia for aquatic organisms from the Clark Fork River.
- Improve riparian habitat by increasing native vegetative cover.
- Reduce noxious weeds and improve soil conditions.
- Improve the natural aesthetics of the Cottonwood Creek corridor.
- Provide educational opportunities for local students and residents of Deer Lodge.
- Maintain or improve flood conveyance.

b. Components/Activities by Goal:

The following activities (or some variation) would likely need to occur in order to achieve the goal of improved riparian and instream habitat:

- *Data Collection, Planning and Preliminary Design*

The first steps in this effort will be to review existing data and complete a full site inventory of Cottonwood Creek below I-90 which may include, but is not limited to inventory structures, storm water and drainage features, bed and bank instability, instream habitat and beforms, channel bed substrates, macroinvertebrate sampling and temperature monitoring. The project manager will work closely with an environmental engineer to complete this assessment and discuss known constraints, project goals and objectives. Initial restoration concepts and conceptual designs will be developed based upon the site assessment and shared with the project partners for input. Public outreach will also be conducted through at least one public workshop to effectively communicate the potential design options and shape future design options.

- *Design/Permitting*

Projects that have strong partner and public support and have completed some level of preliminary engineering and scoping will advance to final design and permitting. Our primary focus will be working initially on existing City and County owned properties and eventually on private property as budget and support allows.

- *Financing and Cost Share*

Submitting grant requests and securing cost share commitments from the NRDP, landowners and other partners will assist in planning for project implementation. Involving other partners and programs will make the best use of limited public resources. The partners have already committed to providing \$15,000 in in-kind match and there is currently a \$30,000 grant proposal pending.

- *Construction*

The components necessary to construct a project will vary depending on the nature of the project type. Construction of specific portions of the creek can be designed and bid separately depending on the geographic proximity and available budget. Construction activities may include but are not limited to stream bank reconstruction, instream habitat/wetland features, planting and seeding.

- *Post-Project Monitoring*

Monitoring and reporting of the restoration measures will help measure the success. We recommend long term water quality monitoring, vegetation and fish population monitoring in coordination with FWP to measure the effectiveness of these restoration measures and ensure they are being properly maintained.

c. *Progress to Date:*

To date 9 properties have been acquired by the City (refer to map) and the County also owns a number of properties along the creek. This presents a unique opportunity for restoration along the creek in addition to working with other private landowners. To date we have secure \$2,500 in match through the MT Trout Foundation and have submitted a \$30,000 proposal (pending) to the National Fish and Wildlife Foundation to support initial planning, site assessment and outreach activities.

d. *Lead Entity and Partners:*

Based on years of work in the Upper Clark Fork Basin and extensive restoration expertise, CFC is proposing to be the lead entity in conducting this work in partnership with the

City of Deer Lodge and Powell County. The CFC also has a project manager that is based out of Deer Lodge, which makes them well suited to work closely with the other project partners. The City of Deer Lodge has formalized their interest in moving this proposal forward through a City Council resolution in support of the project (see attached). Powell County through their planning office, Powell County High School and Weed District has all expressed their support for the project. We plan to work in partnership with the City, County and interested members of the public as we develop design concepts for restoring portions of Cottonwood Creek through Deer Lodge. In addition, we plan to involve the Powell County High School science classes in hands-on learning experiences through assessing the stream that runs behind their school and teaching them about the restoration techniques being employed.

6. Integration/Coordination with Restoration Plans:

Cottonwood Creek is a priority 2 tributary for restoration according to *the 2018 Aquatic Prioritization Plan* and supports populations of westslope cutthroat and brown trout. Currently a combination of low flows, elevated temperatures and degraded riparian and instream habitat conditions limit fish productivity in this lower 1 mile of Cottonwood Creek. During the summer of 2017, there was documented fish mortality in lower Cottonwood Creek through Deer Lodge as a result of poor habitat conditions (Silver State Post). This project seeks to improve riparian and instream habitat conditions in key areas of Lower Cottonwood Creek through Deer Lodge. Extensive work has been completed upstream to improve flows and reduce fish entrainment in major irrigation ditches and the proposed work would extend the habitat and benefits of this prior work. This project will complement those efforts by improving habitat conditions downstream to support all life stages of aquatic organisms. Specifically, the project seeks to improve fish habitat by increasing woody vegetation along the banks, improving shading and overhead cover and adding more stream complexity in the form of pools, riffles and side channels. This project will improve riparian habitat and instream habitat, both of which are listed as priorities in *the 2016 Final Upper Clark Fork Basin Aquatic and Terrestrial Resource Plans* for Cottonwood Creek. However, the Plan states that it does not propose restoration actions specific to the reach of Cottonwood Creek as proposed in abstracts #45 and 46 because such works serves more for flood control planning and mitigation purposes, rather than restoration. A new abstract is being submitted to address this comment with a focus specific to restoration of lower Cottonwood Creek.

7. PROJECT SCHEDULE:

Item:	2019	2020	2021-2023
Data Collection, Planning and Preliminary Design			
Design			
Financing/Cost Share			
Construction			
Post-Project Monitoring			

8. DRAFT BUDGET:

*Item:	Quantity:	Unit Cost:	Total Cost:	Anticipated Match:	NRDP:
Project Management	700 hours	\$55/hour	\$38,500	\$8,500	\$30,000
Engineering	Varies	Varies	\$100,000	\$25,000	\$75,000
Travel	2,000 mi	\$0.545	\$1,090	\$500	\$590
Construction	Varies	Varies	\$500,000	\$100,000	\$400,000
Total:			\$639,590	\$134,000	\$505,590

*All items are general estimates and subject to change.

RESTORATION CONCEPT ABSTRACT SUBMITTAL FORM

1. PROJECT TITLE: Clark Fork River Fish Passage, Streamflow, and Recreation Improvement Project

2. ORGANIZATION AND CONTACT:

Contact/Entity	Address:	Phone/Email:
Andy Fischer Project Manager, Clark Fork Coalition (CFC)	140 S. 4 th St. W. #1 PO Box 7593 Missoula, MT 59807	(406) 552-7513 andy@clarkfork.org
Casey Hackathorn Upper Clark Fork Program Manager, Trout Unlimited	312 N. Higgins Ave, Suite 200 Missoula, MT 59802	(406) 546-5680 Casey.Hackathorn@tu.org

3. PROJECT PURPOSE AND BENEFITS:

The purpose of this project is to improve mainstem Clark Fork River irrigation diversion dams and infrastructure to benefit the fishery and recreational resources. The primary benefits include improved fish and boater passage, reduced entrainment in ditches and water conservation in some cases. An inventory of the primary mainstem diversion was documented in a 2018 report (attached), which identifies eight key diversions and discusses the potential opportunities at each location. The specific project components at each diversion are site-specific and will require further project planning, coordination with the water right holders and engineering before they can proceed to implementation. Some examples of the potential opportunities include replacing full spanning pin and plank structures with cross vane or j-hook rock diversions, adding fish screens and reducing irrigation water user through improved water conveyance, application or management. By addressing key issues at these 8 diversions and allowing for fish movement above and below, additional habitat will be opened up in the Clark Fork and its tributaries. The primary goal of this project is to improve the fishery in the mainstem Clark Fork River and its tributaries. Before we can restore the Clark Fork River to a world class fishery, we first need to address some of the primary fish passage, entrainment and flow issues facing the river at these locations.

4. PROJECT LOCATION:

The project is focused on eight irrigation diversions on the Clark Fork River located in the Deer Lodge Valley from Perkins Lane downstream to Deer Lodge (see map attached).

5. PROJECT DESCRIPTION:

Multiple irrigation diversion dams are located on Reach A of the Clark Fork River from its headwaters near Warm Springs downstream to Deer Lodge. These structures range from small push-up dams to full-spanning pin-and-plank style structures. The impacts of this infrastructure on aquatic resources and recreational users also vary by site but broadly include fisheries habitat fragmentation, fish entrainment in irrigation ditches, stream flow reduction, boat passage impairment, and risk to floater/wader safety.

In 2017 the Clark Fork Coalition and Trout Unlimited began working with NRDP to investigate project opportunities at mainstem diversion dams. While no dedicated NRDP funding has been assigned for addressing the impacts of mainstem irrigation dams, there are streamflow restoration goals for this reach with targeted funding. The goals of this initial investigation were to identify potential streamflow restoration project opportunities, engage water users to assess interest in project work, and identify other potential opportunities to improve infrastructure for fish passage and recreation. Since that investigation we have had conversations with many of the operators of these diversions, most of which are eager to see improvements. By working with each diversion individually, we seek to develop a suite of restoration benefits at each location depending on the resource concerns. For some diversions, passage might be the biggest issue, while others it might be fish entrainment and flow. Some of the flow opportunities may not involve formal changes of water rights, but rather include water conservation investments or minimum flow type agreements to allow for fish passage.

6. INTEGRATION/COORDINATION WITH RESTORATION PLANS:

Reach A of the mainstem Clark Fork River where these diversions are located is considered a Priority 1 area for fishery restoration. While the *Upper Clark Fork River Basin Aquatic and Terrestrial Resources Restoration Plan* prioritizes restoration within this reach of the Clark Fork River, it does not specifically call for improvements to diversions within this section of river or contemplate how such an effort would be funded. By reducing the impact of these irrigation dams, this effort would help achieve one of the primary goals in the *Restoration Plan* of restoring the mainstem fishery by improving passage and recruitment to the tributaries and improving angling opportunities. While improvements to a few of these diversions have been considered through flow restoration efforts, these projects also involve aquatic habitat improvements and recreational benefits associated with improved boater passage. Improving the fishery habitat limitations at these sites will compliment DEQ and NRDP efforts to remediate and restore this heavily impacted section of the river. If collectively these projects are

successful, we can anticipate increasing fish populations in Reach A along with increasing recreational demand-- both of which elevate the priority for work to improve mainstem irrigation structures.

7. PROJECT SCHEDULE:

Item:	2019	2020-2022	2023-2043
Data Collection, Planning and Preliminary Design			
Design and Permitting			
Financing/Cost Share			
Implementation			
Maintenance and Post-Project Monitoring			

8. ESTIMATE OF PROJECT COSTS:

*Item:	Total Cost:	Match:	NRDP:
Data Collection, Planning and Preliminary Design	\$200,000	TBD	\$200,000
Project Management and Permitting	\$80,000	TBD	\$80,000
Implementation	\$1,600,000	TBD	\$1,600,000
Maintenance and Monitoring	\$160,000	TBD	\$160,000
Total:	\$2,040,000	TBD	\$2,040,000

*All items are general estimates and subject to change.

7/3/2018

TO: Montana Natural Resource Damage Program, ATTN: Tom Mostad

FROM: Andy Fischer, Clark Fork Coalition and Casey Hackathorn, Trout Unlimited

RE: Mainstem Clark Fork Project Opportunities to Benefit Streamflow, Fish Passage, and Recreation

Background

Multiple irrigation diversion dams are located on Reach A of the Clark Fork River from its headwaters near Warm Springs downstream to Deer Lodge. These structures range from small push-up dams to full-spanning pin-and-plank style structures. The impacts of this infrastructure on aquatic resources and recreational users also vary by site but broadly include fisheries habitat fragmentation, fish entrainment in irrigation ditches, stream flow reduction, boat passage impairment, and risk to floater/wader safety.

Restoring the mainstem fisheries of the Clark Fork River is a priority for NRDP restoration efforts in the Upper Clark Fork River Basin. NRDP manages dedicated restoration funding for mainstem activities in coordination with DEQ remedial efforts in Reach A. These activities are largely focused on fisheries habitat enhancement, restoring riparian vegetation, and additional tailings removal. In addition, NRDP is manages aquatic restoration funding for priority tributary restoration to restore habitat, fish passage and streamflow. The overall goals of the combined effort include restoring the mainstem Clark Fork fishery and public recreation opportunities. If collectively these projects are successful, we can anticipate increasing fish populations in Reach A along with increasing recreational demand-- both of which could elevate the priority for work to improve mainstem irrigation structures.

In 2017 the Clark Fork Coalition and Trout Unlimited began working with NRDP to investigate project opportunities at mainstem diversion dams. While no dedicated NRDP funding has been targeted for addressing the impacts of mainstem irrigation dams, there are streamflow restoration goals for this reach with targeted funding. The goals of this initial investigation were to identify potential streamflow restoration project opportunities, engage water users to assess interest in project work, and identify other potential opportunities to improve infrastructure for fish passage and recreation.

The following is a summary of the findings to date for each structure including a description of the existing infrastructure, its potential resource impacts, a description of existing water use, potential streamflow improvement projects, and additional restoration project opportunities.

Helen Johnson Ditch

Diversion Description: Located just north of Perkins Lane, the Helen Johnson Ditch is a small partial spanning rock diversion that diverts flow from the mainstem river. Hand placement of rocks, tarps and other material has occurred as flows diminish and it is necessary to maintain sufficient flows in the ditch. Few modifications have occurred to this diversion and it does not pose a recreational or fish passage barrier at this time, although it does likely entrain fish.

Water Usage: This 3-mile long ditch has water rights claims for up to 30 cfs of flow, although measurement records only support diverted flow of approximately 12 cfs. The ditch is highly inefficient and has seepage rates of around 48% on average. The two main users on the ditch are the Dry Cottonwood Creek Ranch (DCCR) and Deer Lodge River Ranch (DLRR), although the Lampert Ranch also has a small water right from the ditch. The most senior water right on the Clark Fork River dating back to 12/31/1875 is located at this diversion (and downstream at the Alvi-Beck Ditch). Prior ranch managers for the DCCR have struggled at times, especially during low flows, to divert sufficient flow down the ditch to meet the historic flood irrigation requirements.

Potential Water Opportunities: The ditch is highly inefficient and alternatives were considered for the DCCR to reduce their water usage. In 2014, DCCR discontinued their use of the Helen Johnson Ditch by installing a pump station at the lower Alvi-Beck ditch to service a portion of the historically irrigated acres via center pivots and hand-lines as well as reducing the number of irrigated acres. An application was submitted to the DNRC to protect up to 9 cfs as instream flow from this point of diversion (still pending). Further instream flow opportunities exist with the DLRR to either improve irrigation efficiency or retire the existing water rights partially or fully. Fully retiring these water rights would likely allow for the majority (or possibly all) of the ditch to be removed. The Lampert Ranch has a few acres they irrigate from the Helen Johnson Ditch, although the additional land that would be gained by removing the ditch might outweigh the cost of losing a few irrigated acres. The best outcome possible for this ditch system would be to eliminate use of this diversion entirely, which would leave water instream and eliminate entrainment at this location.

Additional Project Opportunities: A fish screen could be considered to prevent entrainment at the site. A screen could be installed in conjunction with any irrigation efficiency improvements or as a stand-alone project.

Alvi-Beck Ditch

Diversion Description: The diversion is a small rock weir which is supplemented by water users during low flow conditions with additional tarps, t-posts and straw bales. The diversion typically spans approximately 75% of the river with up to 100% during low flows. The t-posts, tarps and straw bales are generally left in the river and wash away annually, leaving unsightly debris and potential hazards for recreational users along the river downstream. In 2014, modest improvements were made to the diversion through the placement of additional rocks, although challenges persist with the structure for irrigators during low flow conditions.

Water Usage: The 1.5-mile Alvi-Beck Ditch has extensive water rights claims for over 25 cfs of direct flow from the Clark Fork River, with the diversion located on the Dry Cottonwood Creek Ranch (DCCR). Based on ditch measurements conducted by the Clark Fork Coalition in 2017, diverted flows ranged on average from 5-10 cfs from May to mid-June and diminished to 3-5 cfs until October 19th. DCCR represents the majority water right holder on the ditch with most of the irrigated land, although there are five other water users that hold small portions of the original water rights from when the ranch was subdivided many years ago. The water rights held on the Alvi-Beck ditch are primarily senior rights, one of which dates back to 12/31/1875, which is the most senior right on the mainstem Upper Clark Fork. While there are a number of pumps that serve sprinkler irrigated land along the ditch, the majority of acres served by this ditch are by wild flood irrigation on the DCCR. The predominant crop grown on these acres is wild hay, which receives approximately 1 cutting.

Potential Water Opportunities: Currently only two of the five owners regularly divert water from the ditch. Some of these small water users have expressed an interest in possibly leasing their water rights for instream use or selling their property altogether. While some opportunities may exist with these smaller users, the time and effort to convert these rights to instream use would be significant. Opportunities to conserve irrigation water may be more significant on the DCCR. Preliminary designs to reduce the number of irrigated acres on DCCR and install 1-2 pivots have been completed, although given the marginal production of these irrigated acres (~1 ton/acre), this investment from an agricultural point of view has been prohibitively expensive. Rather than invest in sprinklers on marginally productive irrigated ground, a split or full season retirement of irrigation use would be recommended. The challenge of discontinuing irrigation use on the flood irrigated acres served by this ditch on DCCR is that the ditch meanders through those acres and serves other small water users/pumps along the way. It would not be feasible to shut down the ditch entirely given the other water users and water would continue to flow through the flood irrigated acres even if DCCR were not attempting to irrigate and likely sub-irrigate those fields to some degree. Demonstrating to DNRC that these acres could be dried up could be challenging, but still possibly worth pursuing at least a smaller irrigation footprint, especially given the seniority of this water right. One benefit of keeping the existing flood irrigation practices on this ditch is that any return flow from these fields is likely to return to the river below the West Side Ditch (which could be challenging to marshal water past as an instream right).

Additional Project Opportunities: A fish screen could be considered to prevent entrainment at the site. A screen could be installed in conjunction with any irrigation efficiency improvements or as a stand-alone

project. In addition, the Alvi-Beck diversion dam structure could be improved to reduce annual maintenance, reduce hazards or nuisance from debris left in stream, and improve sediment transport at the site.



Figure 1 – Alvi-Beck Ditch Diversion.

Clark Fork Coalition Photo

Whalen Ditch

Diversion Description: The Whalen Ditch diversion is located just upstream of the West Side Ditch near Racetrack. The diversion is constructed of a full-spanning rock and concrete rubble weir. Tarps are occasionally placed across the rocks to improve water delivery into the ditch during low flow conditions. The structure is unlikely to impede upstream fish passage for adult salmonids but could pose a seasonal barrier to some species and life stages. The dam is moderately challenging for boat passage, particularly during low flows.

Water Usage: The 3-mile long Whalen ditch has two water users and typically diverts 8-12 cfs. The cumulative water rights for this ditch total 30 cfs, of which 25 cfs constitutes a relatively senior Clark Fork River water right. The majority of the land irrigated from the Whalen Ditch is held by the Whalen Ranch (leased by 2 Bar Ranch) and is sprinkler irrigated. The other user is a small flood irrigated parcel on the West side of the interstate.

Potential Water Opportunities: This ditch is flat, weedy and highly inefficient (54% losses). It is also a somewhat difficult ditch to maintain and improve given that it runs parallel to the West Side Ditch and through some wet swampy areas. Consolidation of water delivery with a piped West Side Ditch has been proposed in order to conserve up to 4.2 cfs of flow. No further water conservation or leasing efforts have been identified at this location to date.

Additional Project Opportunities: A potential diversion improvement and fish screen has been conceptually proposed in conjunction with the West Side Ditch piping project. Alternatively, a diversion improvement and fish screen could be considered to prevent entrainment at the site, improve fish passage, improve recreational passage, and improve sediment transport. A screen could be installed in conjunction with any irrigation efficiency improvements or as a stand-alone project. In addition, the Alvi-Beck diversion dam structure could be improved to reduce annual maintenance, reduce hazards or nuisance from debris left in stream, and improve sediment transport at the site.



Figure 2 – Whalen Ditch Diversion.

Clark Fork Coalition Photo

West Side Ditch

Diversion Description: The diversion is a full spanning pin-and-plank style concrete and timber flat weir. Metal supports (pins) are manually raised to support check boards which are inserted to form a dam across the entire river. The diversion is supported by a cast-in-place concrete apron and abutments that are very effective at maintaining the water elevation necessary to divert flow through the headgate. Another small tributary called Little Modesty Creek is spilled directly into the ditch approximately 100 yards down the ditch from the headgate. Tarps or plastic are occasionally placed in front of the wood boards to seal off cracks so that all remaining flow in the river can be diverted at times. The structure is a seasonal upstream fish passage barrier and the canal entrains fish. Large numbers of fish have also been observed within the ditch. The diversion dam presents a significant challenge to boat passage and poses a recreational safety hazard when in use.

Water Usage: This 12-mile long ditch system has seven water users and diverts on average 38 cfs. The West Side Ditch Company holds 85 cfs of claimed water rights, of which 40 cfs is relatively senior. The ditch is highly inefficient, with an average seepage rate of 54% or 20 cfs across the entire ditch confirmed through multiple studies. Water usage at this location contributes to some of the most severe dewatering in the Upper Clark Fork River.

Potential Water Opportunities: Piping and consolidation with the Whalen Ditch has been proposed in the first 3.8 miles of the canal, where the greatest water losses have been measured. Two additional small locations further down the canal have been prioritized for piping as well (.5 miles). This project alone could contribute up to 15 cfs of instream flow in a critical area of the river. Additional opportunities are also being explored to purchase or lease existing shares for instream use, although these opportunities may be limited.

Additional Project Opportunities: Discussions are ongoing with West Side Ditch water users to conceptually include a fish screen and diversion improvement project in conjunction with the proposed piping project. Preliminary design options have been developed for the project, although operation during low flow conditions has been identified as a concern until water usage could be reduced. If the piping project is not advanced, a stand-alone project could potentially be developed to improve the diversion and install a fish screen that could potentially have significant benefits to fish and recreational users.



Figure 3 – West Side Ditch Diversion.

Trout Unlimited Photo

Valiton Ditch

Diversion Description: The diversion is a full-spanning rock and concrete rubble weir, located mid-way between Racetrack and Sager Lane. The dam is reconstructed regularly and reinforced with plastic, tarps and other debris during low flow conditions. The structure is unlikely to pose an upstream passage barrier for adult salmonids but could be a seasonal barrier to some species and life stages, particularly during low flow. The dam is moderately challenging/hazardous for boat passage, particularly during low flows. The water right holder has also relayed personal knowledge of thousands of fish being entrained in the ditch on an annual basis, which perish when the ditch is turned off. The water right holder appears to be quite interested in considering improvements to this diversion.

Water Usage: The Valiton Ditch is 4.5-miles long with diversion quantities ranging from 8-13 cfs. There is a 40 cfs senior water right claim (10/1/1891) associated with the ditch and place of use. The first turnout is 2.7 miles down the ditch and management is challenging for the water user due to debris and aquatic growth in the ditch. There are five pump sites that convey water from the ditch to sprinkler systems above consisting mostly of pivots. There are also turnouts below the ditch for flood irrigation of some wild hay meadows along the river. Ditch seepage losses appear to be somewhat variable based on a prior study, ranging from 1-5 cfs. Flow as low as 22 cfs were recorded in 2017 above the Valiton Ditch, which under normal operating conditions would leave 9-14 cfs in the river below the diversion.

Potential Water Opportunities: Based on the location, inefficiencies of the current ditch and magnitude of water use, the Valiton Ditch is a high priority for future water conservation actions. No specific water conservation measures have been discussed or endorsed by the water right holder to date. Ditch piping for this distance would likely be prohibitively expensive, given the seepage values. Changing the point of diversion downstream closer to the pump sites adjacent to the river would be one option to eliminate or reduce ditch seepage (up to 5 cfs). Most of the pump sites along the ditch are not that far from the Clark Fork River. A consolidation or reduction of historically irrigated acres could also be combined with change in point of diversion. Another option would be to work with the water right holder to see if it might be possible to engage in some split season leasing or a diversion reduction associated with a flow trigger in the river. If engineering for of the diversion is conducted, it is recommended that alternatives for improving irrigation efficiency or additional points of diversion should also be considered as part of this process so the cost/benefits of any improvements compared. The property is actively listed for sale (\$13 million), which could provide new opportunities to explore water conservation activities, depending on the buyer.

Additional Project Opportunities:

As noted above, diversion and screening project could easily be incorporated into a water conservation project at the site. Fish screens could be considered as part of a pump intake relocation project for instance. If a larger water conservation project is deemed infeasible, a stand-alone fish screen project and diversion improvement could be considered at the site that could considerably improve the infrastructure for fish and recreational traffic.



Figure 4 – Valiton Ditch Diversion Dam.

Clark Fork Coalition Photo

Broken Circle Pump Diversion

Diversion Description: The water user maintains a channel spanning push-up dam at the site utilizing concrete debris and tarps to seasonally check up the water surface for a pump intake. The water user utilizes a makeshift debris screen on the headgate for a concrete box housing a large 135-HP irrigation pump. We were unable to assess the fish passage or navigation impacts of the push-up dam because it had already been pulled for the season but it likely has some season impacts to float traffic.

Water Usage: According to the water right holder, the pump typically withdraws around 900 gpm (2 cfs) of water which feeds a buried mainline that services an up gradient hand-line and wheel line irrigation system. The water rights associated with this point of diversion appear to be provisional permits (3 cfs), meaning the water right claims were submitted post 1973 and they junior rights are subject to call by all prior claims. According to the water right holder, the diversion structure and irrigation system requires a lot of maintenance/labor and is not efficient.

Potential Water Opportunities: The water right holder has expressed an interest in converting the hand and wheel line irrigation systems to center pivots in order to decrease water withdrawals, pumping costs and labor. Converting to center pivots could also decrease the number of irrigated acres slightly due to the shape of the fields, which could result in further water savings. Given the uncertain nature of these water rights and difficult obtaining a water right change for these types of conversions, a private diversion reduction agreement could be a good option. By decreasing water use at this location, a much smaller diversion structure would be necessary to meet the irrigation needs. While the actual water savings from such a project would be relatively small 1-2 cfs, the resulting benefit of removing a partial barrier to fish and recreationists could be significant. In addition, any water savings at this location would likely pass a significant distance downstream since the next major diversion also has fixed pump withdrawals. This potential project could also be rolled into a larger project with the upper ditch which looks at improving irrigation infrastructure to maximize efficiency and decreasing the irrigated acres.

Additional Project Opportunities:

Fish screening and permanent diversion improvements for a pump intake could minimize impacts to fish and recreational users at this site and could easily be incorporated into a larger water conservation project at the site.



Figure 5 – Broken Circle Pumps Dam, push-up debris and intake with makeshift screen. Trout Unlimited Photos

Sager Lane Pumps and Diversion Dam

Diversion Description: This diversion located immediately upstream of the Sager Lane bridge is a full-spanning pin-and-plank style concrete and timber weir. Metal supports are manually raised to support check boards that form a dam across the entire river. The dam is supported by a concrete apron and abutments used to check up the water surface for pumps located northwest of the bridge. Tarps are also used to seal the dam during low flows which can significantly dewater the river below the diversion (< 10 cfs). The diversion presents a formidably recreational obstacle when raised and poses a complete seasonal fish passage barrier. The pumps are located about 100 yards down a ditch on the far side of Sager Lane. The pump location happens to also intersect Dempsey Creek, which continues to flow north through a series of wetlands before entering the river. Dempsey Creek may also help meet some of the irrigation needs due to the pump location, even though there appears to be no water right associated with this source.

Water Usage: Water usage at this location occurs via a large irrigation pump that feeds an underground pipeline that distributes water on up to 780 acres held by three owners located West of Interstate 90. The claimed flow for this junior water right (9/28/1966) is 15 cfs and the irrigated lands appear to be all served by sprinklers (mostly center pivot and some wheel lines). Some of the irrigated acres have overlapping water rights that are served from the Morrison Ditch, which originates from Racetrack Creek. The pump appears to be operated in the latter part of the irrigation year (July/August) when these other water rights are no longer sufficient to meet the irrigation requirements. The water right holders have mentioned that the pumping costs at this location, but aside from that the current diversion works fine for meeting their water needs.

Potential Water Opportunities: Water conservation opportunities have not yet been discussed or fully explored at this location. Given that the system is mostly piped and serviced by sprinklers, few water conservation opportunities may exist outside of split season leasing or reductions in irrigated acres. Due to the high pumping costs at this location and uncertain water supply (if downstream call were made), encouraging split season water leasing or partial season forbearance agreements could be a beneficial arrangement for all parties. Another possible arrangement could be explored is a minimum flow agreement at this location. Given the junior nature of these rights, they are susceptible to call by senior uses such as the Milltown instream right. Improving the existing diversion/pump location could result in more flow being left in the river.

Additional Project Opportunities: Additional survey work and investigation of existing water use could help determine conceptual options at the site. There appears to be opportunity to improve conditions for both fish passage and recreational traffic while providing for irrigation withdrawal at the site with design improvements. A more modern and better designed (less intrusive) structure could allow for less water to pass by the pumps, but still meet the water requirement. The pump location in proximity to the diversion should also be looked at as part of a potential diversion improvement and possibly an alternative pump bypass channel that discharges more directly back into the river (rather than into the Dempsey Creek channel/wetland complex). Eliminating or reducing usage of Lower Dempsey Creek

water could result in some improved habitat and cooler water entering the Clark Fork River downstream of this location.



Figure 6 – Sager Lane Diversion Dam and Intake.

Trout Unlimited Photo

Kohrs Manning Ditch

Diversion Description:

The Kohrs and Manning Ditch is a full spanning rock weir diversion on the Clark Fork River. The infrastructure for this ditch also includes a full spanning pin and plank style diversion and canal crossing on Cottonwood Creek. The ditch entrains fish from both the Clark Fork River and from Cottonwood Creek and restricts fish movement during low water. Entrainment from Cottonwood Creek is particularly problematic because this ditch often diverts nearly 100% of the flow of Cottonwood Creek only about 50 feet before it enters the Clark Fork. The current structure at Cottonwood Creek also impedes upstream passage of all fish except during exceptional high flows. The Kohrs and Manning diversion structure in the Clark Fork River needs annual maintenance, discouraging its use during early season high water if Cottonwood Creek has sufficient flow to satisfy irrigator demand.

Water Usage:

The irrigators divert up to 80 cfs out of Cottonwood Creek during spring flows (May to mid-June), when Cottonwood Creek is their primary source of irrigation water. The K&M Ditch Company has a large, very junior water right out of Cottonwood Creek. As flows decline in Cottonwood Creek, the K&M Ditch opens their headgate on the Clark Fork River, and switches to that Point of Diversion for their primary source of irrigation water. However, under current operation, the structure continues to divert all of the Cottonwood Creek low flows into the K&M Ditch throughout the irrigation season.

Potential Water Opportunities:

Discussions have occurred between the Watershed Restoration Coalition (WRC), NRDP, TU and the Ditch Company to rely primarily upon their Clark Fork River water rights to satisfy their irrigation needs and leave a portion of their Cottonwood Creek water instream. Those negotiations stalled out due to water rights concerns among some of the members. If sentiment changes amongst the Ditch Company there are significant opportunities to reconnect lower Cottonwood Creek and allow for year round fish passage at this location.

Additional Project Opportunities:

As mentioned above, the project is currently on hold due to concerns by the Ditch Company, although if this changes, the following components have been considered at this location:

- 1) The first component of the project is to install a new canal crossing structure with integrated fishway on Cottonwood Creek.
- 2) The second component of the project is to install a large volume (60-80 cfs) fish screen which would be located on the K&M Ditch just downstream of the Cottonwood Creek crossing. This location would allow the fish screen to pass downstream migrating fish from Cottonwood Creek, as well as fish entrained in the K&M headgate on the Clark Fork River, back down into the river. Montana FWP's 2010 sampling showed the K&M Ditch downstream of Cottonwood Creek crossing to entrain large numbers of

salmonids, particularly brown trout. The FWP also had radio-tracked fluvial westslope cutthroat from the Clark Fork into the Cottonwood Creek drainage, so future fluvial westslope cutthroat use of this site is anticipated

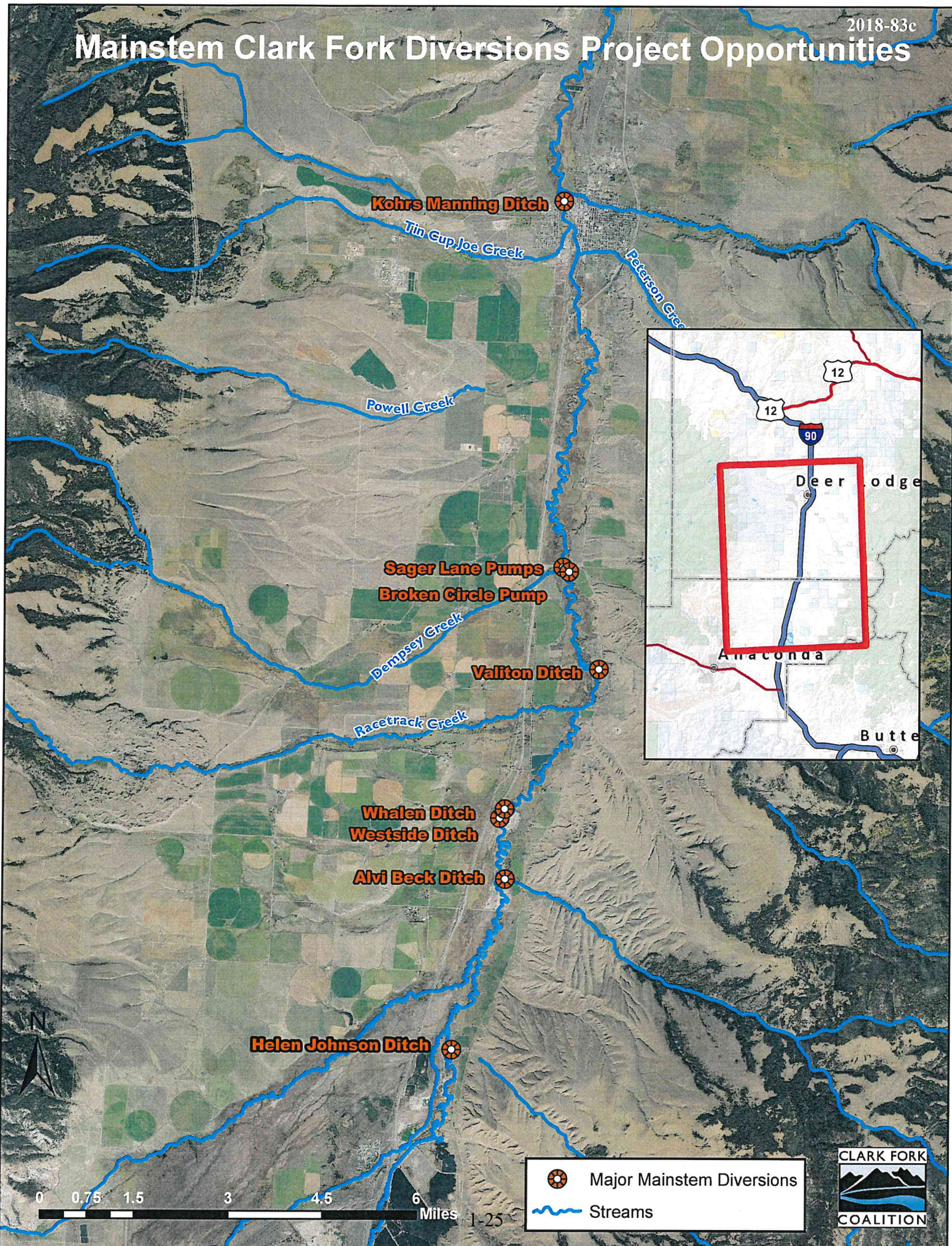
3) The third component of the project is a new permanent diversion structure in the Clark Fork River just 100 yards upstream of Cottonwood Creek. This new diversion structure, which will provide the Ditch Company's senior water rights from the Clark Fork, is an essential project feature because it increases the reliability of adequate irrigation water from the Clark Fork at all times of year, including spring high flows, and thereby provides the Ditch Company more flexibility to incorporate fish passage features at the Cottonwood Creek diversion into their operation.



Figure 7 – Kohrs Manning Diversion, Clark Fork River

Clark Fork Coalition Photo

Mainstem Clark Fork Diversions Project Opportunities



Major Mainstem Diversions



Streams



1. PROJECT TITLE: Gold Creek Fish Passage and Habitat Project**2. ORGANIZATION AND CONTACTS:**

Contact:	Address:	Phone:
Ted Dodge, Executive Director, Watershed Restoration Coalition of the UCF (WRC).	1002 Hollenback Rd. Deer Lodge, MT 59722	Tel. 406-579-3762 Tel. 406-846-1703 x4
Will McDowell, Project Coordinator	same	406-396-7716 cell

3. PROJECT PURPOSE AND BENEFITS: The purpose of the Project is to enhance riparian and aquatic habitat, and improve fish passage in Gold Creek, a tributary to Reach B of the Upper Clark Fork River east of Drummond. The Project should provide significant fisheries benefits to the public, as Gold Creek is the number one source of brown trout recruitment to Reach B of the Upper Clark Fork. Gold Creek also holds a significant population of westslope cutthroat trout, which may recruit more successfully to the river if connectivity and habitat is improved.

GOALS AND SPECIFIC PROJECT OBJECTIVES:

Goal 1. Reduce entrainment and mortality of juvenile and adult salmonids in several large irrigation ditches in Gold Creek.

Objective: Work with private irrigators to design and build fish screens for large ditches which drastically reduce entrainment and mortality of salmonids of all age classes.

Goal 2. Improve potential spawning, rearing, and migratory habitat for native westslope cutthroat trout and sport fish (brown trout) in Gold Creek.

Objective: Work with private landowners on projects which reduce livestock and agricultural impact on the stream channel integrity, riparian habitat, aquatic habitat, and water quality.

Goal 3. Replace lost trout angling opportunities in the river mainstem by improving fish populations, and providing public access to high-quality trout habitat.

Objective: Work with landowners to clarify locations and times when the public can access small stream fishing opportunities on private land in this drainage.

OUTCOMES:

- 1) Enhanced recruitment of native and sport salmonids from Gold Creek to the mainstem, improving the Upper Clark Fork River fishery.
- 2) Enhanced tributary aquatic and riparian habitat and fisheries.
- 3) Enhanced access for the public to fish on Gold Creek.

Gold Creek was declared a Priority 2 stream for fisheries restoration in the January 2018 "Prioritization of Areas in the Upper Clark Fork Basin for Fisheries Enhancement," by Montana Fish Wildlife and Parks and Natural Resources Damage Program. This new higher ranking is partly due to its dominant role in recruiting sport fish to Reach B of the Upper Clark Fork River fishery. If the entrainment and habitat issues in Gold Creek can be successfully addressed, this important tributary may be able to contribute more effectively to the restoration of the Upper Clark Fork's fishery in Reach B. Reach B is becoming a more popular sport fishing venue in the Upper Clark Fork basin by both outfitters and recreational anglers. The new Gold Creek fishing access site being constructed by Montana FWP is located in this Reach of the River.

4. PROJECT LOCATION AND MAP: The Project covers about six miles of channel upstream of the confluence of Gold Creek and the Upper Clark Fork. The entire reach is on private land. (see Map). Gold Creek is a **Priority 2 stream** for fisheries restoration in the Montana Fish Wildlife and Parks (FWP) and Natural Resource Damage Program (NRDP) tributary prioritization for aquatic restoration.

5. PROJECT DESCRIPTION:

This Project will address what are believed to be the primary limiting factors in Gold Creek's fishery: a) entrainment and mortality of juvenile and adult salmonids, b) fragmentation of habitat connectivity by irrigation diversions and localized dewatering, and c) stream corridor habitat degradation. In 2010 FWP electro-shocked multiple ditches in Gold Creek. The average number of trout entrained in the first 100 meters of each ditch was 100 to 200 fish, with a majority being brown trout, and 10% to 20% of these entrained fish being native westslope cutthroat. The numbers of fish entrained per canal reach were among the very highest numbers detected by FWP in any Upper Clark Fork tributary. An assessment by Trout Unlimited in 2010 indicated entrainment was the key passage problem on Gold Creek.

The Project intends to address up to six (6) major diversions for fish passage/entrainment, based on an assessment of which ditches are most likely to impair recruitment, and landowner willingness. Four of the key diversions are adjacent to one another on the left bank just above the Wall City Bridge. One landowner on Gold Creek already has implemented and modified two fish/debris screens successfully, with help from WRC, FWP, and CFC. The WRC has received interest from several landowners in exploring fish screens for their diversions on Gold Creek.

In 2010 the WRC did riparian assessment of the lower six (6) miles of Gold Creek. The assessment found five reaches totaling 1.6 linear miles of stream were in the lower tier of "sustainable at risk" or ranked "non-sustainable" for stream resilience and function. It is believed that these conditions still prevail, hence these reaches will be the primary focus of efforts to improve riparian condition, and reduce water quality issues.

All fish passage and habitat projects will be developed in cooperation with private landowners, who will get involved on a voluntary basis. Agencies such as NRDP, FWP and the local Conservation District will be key partners in developing viable, cost-effective, and beneficial projects for each irrigation diversion or stream reach where landowners are interested in participating.

Tasks/Activities by Goal:

Goal 1: Reduce Entrainment in Irrigation Ditches:

- a) **Prioritization and Design:** The WRC will work with FWP to prioritize ditches for entrainment risk and impact. The fish passage structures require careful design to meet all agricultural, fisheries, and hydraulic criteria required for success. The WRC has an excellent relationship with some of the key irrigators using these diversions, and close coordination with the irrigators will be critical to success. The WRC will work with Clark Fork Coalition (CFC) to contract an appropriate engineering design firm to develop the fish screen designs, which may require diversion and headgate modifications as well. One of the options to be considered in the design process is consolidation of some diversions to allow one fish screen to cover what are today two or more distinct ditches.
- b) **Financing and Construction:** The WRC will evaluate potential sources of match for funding once more information about fisheries impacts, hydrology and cost estimates are developed. Systems

for addressing potential maintenance issues will be a key criteria in finalizing these projects. WRC and its funders will select an experienced construction firm to complete these projects. Construction in the irrigation off-season (especially fall) is ideal.

Goal 2: Improve spawning, rearing and migratory habitat.

- a) **Prioritization and Design:** Develop plans for riparian grazing improvements with landowners on the lower 6 miles of Gold Creek, based on landowner interest, and potential cost-benefit value of potential projects. These improvements will reduce livestock pressure on stream banks and riparian vegetation in Gold Creek and possibly other small tributaries to Gold Creek. If larger structures or off-stream water systems are required to protect stream banks, those may be designed by consulting engineers, as necessary.
- b) **Financing and Construction:** The WRC will procure experienced contractors for fencing and water systems based on State procurement regulations and prior experience with this work.

Goal 3: Replace trout angling opportunities: The WRC will work with landowners to arrange some public access for fishing on Gold Creek, as a condition for NRDP financial assistance for projects approved in Goals 1 and 2.

c) **Landowner management agreement and maintenance:** Cooperation with landowners for long-term maintenance of conservation investments will be required for maximum positive impact. The WRC will require a long-term (20-year) maintenance agreement with ability to inspect the site.

Progress to date:

2009: The WRC, FWP, and NRCS helped implement riparian land use and irrigation efficiency projects on lower Gold Creek with two landowners. In 2018 the fish screen/debris screens installed on one project were renovated to improve fish passage function using funding from CFC.

2010: The WRC performed flow measurement, water temperature measurement, and riparian assessment stream walks on the lower six miles of Gold Creek, and identified four to five reaches recommended for conservation practices, particularly in livestock corrals and grazing management to reduce streamside impacts.

2010: An assessment of irrigation diversions by Trout Unlimited (funded by WRC), and FWP identified fish entrainment issues on several major diversions in Gold Creek.

***Lead entity and partners:** The WRC is the project lead, but the landowners, NRCS, the Conservation District, and CF Coalition will be partners.

6. PROJECT SCHEDULE:

<u>ITEM:</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
<u>Assessment & Design</u>							
<u>Funding Agreements</u>							
<u>Permits & Bids</u>							
<u>Construction</u>							
<u>Management:</u>							

If funded, this project would begin immediately and first phases would be constructed in late fall-winter 2020.

7. BUDGET:

ITEM:	UNIT:	QUAN- TITY:	UNIT COST:	TOTAL COST:	MATCH:	NRDP:
<i>Salaries (WRC): Project development & coordin</i>	<i>days</i>	<i>75</i>	<i>480</i>	<i>36,000</i>	<i>6000</i>	<i>30,000</i>
<i>Contracts: Engineering</i>	<i>days</i>	<i>100</i>	<i>800</i>	<i>80,000</i>	<i>0</i>	<i>80,000</i>
Materials & Construction (installed)				<i>0</i>	<i>0</i>	<i>0</i>
<i>Off-stream water systems (pipeline/tanks)</i>	<i>system</i>	<i>1</i>	<i>30,000</i>	<i>30,000</i>	<i>2000</i>	<i>28,000</i>
<i>Fencing (public/private)</i>	<i>feet</i>	<i>15,000</i>	<i>1.75</i>	<i>26,250</i>	<i>2500</i>	<i>23,750</i>
<i>4 Fish passage structures (diversions/screens)</i>	<i>Per struct</i>	<i>4</i>	<i>70,000</i>	<i>280,000</i>	<i>10,000</i>	<i>270,000</i>
SUBTOTAL:				<i>452,250</i>	<i>20,500</i>	<i>431,7500</i>
<i>Administration:</i>	<i>5%</i>			<i>22,612</i>		
<i>Contingency:</i>	<i>5-10%</i>			<i>45,225</i>		
TOTALS:				\$520,087	20,500	\$499,587

Match funding is a minimum estimate, and is expected to increase significantly as other the project progresses and other sources of funding are secured. A portion of matching funds (in-kind and cash) must come from the landowners/ irrigators. Unsecured sources of match, which may be other state and federal grant programs, are not included in this budget.

The project development salaries are for WRC staff and contractors to coordinate various elements of the project including landowner outreach, procure funding, write permits, conduct selection of engineers, selection of construction firm (with landowners), supervise project engineering and construction contracts, and participate in project construction oversight. Projects of this type also require post-construction monitoring and maintenance. Total cost of all these services is approximately 7% of total project budget.

Administration is for processing payments and preparing reports to the NRDP and other funders, at approximately 5% for a project this size. Engineering and construction management is approximately 15% of total project budget, which is reasonable for this size of project and types of construction.

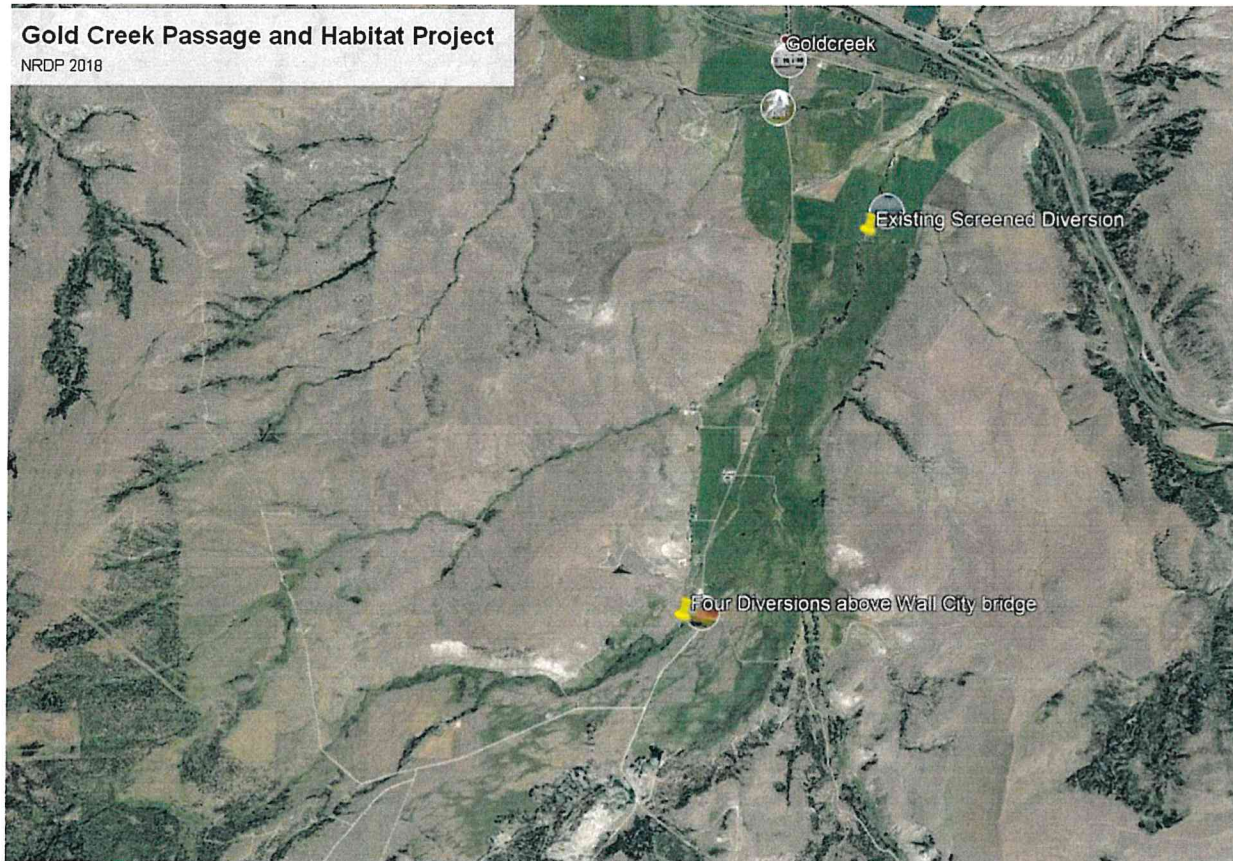
References:

*FWP-FRIMA, 2011, "An Inventory of Irrigation Structures in the Upper Clark Fork River Drainage," Final Report 2011, USFWS Agreement No. 601818J270, by Will Schreck, Ryan Kreiner, Brad Liermann, and Jason Lindstrom.

*Trout Unlimited, 2012, "Upper Clark Fork Diversion Inventory," for Watershed Restoration Coalition, Deer Lodge, MT.

*WRC, 2012, "Upper Clark Fork Tributary Assessment for Restoration Planning: Watershed Health Monitoring Report, " for Montana DEQ, 319 Program, DRAFT, May.

PROJECT SITE MAP: GOLD CREEK



1. PROJECT TITLE: Lower Flint Creek Habitat and Fish Passage Project**2. ORGANIZATION AND CONTACTS:**

Contact:	Address:	Phone:
Ted Dodge, Executive Director, Watershed Restoration Coalition of the UCF (WRC)	1002 Hollenback Rd. Deer Lodge, MT 59722	Tel. 406-579-3762 Tel. 406-846-1703 x4
Will McDowell, Project Coordinator	same	406-396-7716 cell

3. PROJECT PURPOSE AND BENEFITS: The purpose of the Project is to enhance riparian and aquatic habitat, and improve fish passage in Lower Flint Creek, from Hall down to the confluence with the Clark Fork River near Drummond. The Project should provide significant fisheries benefits to the public, as Lower Flint Creek is a large stream with a significant sport fishery providing replacement value for lost Clark Fork River fisheries, and providing recruitment of fish to the Clark Fork. Lower Flint Creek is a migratory corridor for native westslope cutthroat and bull trout, although fish passage issues are severe. Enhancement of riparian and aquatic habitat along Flint Creek can improve sport fishing opportunities for resident fish. Several spring creeks and Lower Willow Creek also provide trout spawning and rearing habitat in this reach; these systems could provide significant recruitment of fish to both Flint Creek and the Clark Fork if conditions are improved.

GOALS AND SPECIFIC PROJECT OBJECTIVES:

Goal 1. Improve potential spawning, rearing, and migratory habitat for native fish and sport fish (brown trout) in Lower Flint Creek and its local tributaries (spring creeks and Lower Willow Creek).

Objective: Work with private landowners on projects which reduce livestock and agricultural impact on the stream channel integrity, riparian habitat, aquatic habitat, and water quality.

Goal 2. Reduce entrainment and mortality of juvenile and adult salmonids in several large irrigation ditches in Lower Flint Creek.

Objective: Work with private irrigators to design and build fish screens for selected ditches which to reduce entrainment and mortality of salmonids and other native fish of all age classes.

Goal 3. Replace lost trout angling opportunities in the river mainstem by improving resident fishery in Lower Flint Creek, and providing public access to high-quality trout habitat.

Objective: Work with landowners to clarify locations and times when the public can access small stream fishing opportunities on private land in this drainage.

OUTCOMES:

- 1) Enhanced recruitment of native and sport salmonids from Lower Flint Creek to the mainstem, improving the Upper Clark Fork River fishery.
- 2) Enhanced tributary aquatic and riparian habitat and fisheries.
- 3) Enhanced access for the public to fish on Lower Flint Creek.

Lower Flint Creek was declared a Priority 2 stream for fisheries restoration in the January 2018 "Prioritization of Areas in the Upper Clark Fork Basin for Fisheries Enhancement," by Montana Fish Wildlife and Parks and Natural Resources Damage Program. If the entrainment and habitat issues in Lower Flint Creek can be successfully addressed, this important tributary may be able to contribute more effectively to the restoration of the Upper Clark Fork's fishery in Reach B. Reach B is becoming a

more popular sport fishing venue in the Upper Clark Fork basin by both outfitters and recreational anglers. The major investments by NRDP and partners on Boulder Creek and Flint Creek (Allendale Ditch fish screen) provide significant habitat and fish passage improvements in this basin. Work on Lower Flint Creek can build on these opportunities to enhance both the resident fishery and the recruitment of fish from Flint Creek to the Clark Fork River. The WRC and partners have identified specific opportunities on Lower Flint Creek for improving aquatic habitat and passage on a series of larger private ranches.

4. PROJECT LOCATION AND MAP: The Project covers about six miles of channel upstream of the confluence of Lower Flint Creek and the Upper Clark Fork near Drummond. The entire reach is on private land. (see Map). Lower Flint Creek **Creek is a Priority 2 stream** for fisheries restoration in the Montana Fish Wildlife and Parks (FWP) and Natural Resource Damage Program (NRDP) tributary prioritization for aquatic restoration.

5. PROJECT DESCRIPTION:

This Project will address what are believed to be the primary limiting factors in Lower Flint Creek's fishery: a) entrainment and mortality of juvenile and adult salmonids, b) fragmentation of habitat connectivity by irrigation diversions, and c) stream corridor habitat degradation. Flint Creek contributes 17% of the brown trout in Reach C of the Upper Clark Fork (Cook, personal comm., 2018), but this proportion is probably depressed by the severe entrainment issues in Flint Creek above Hall (Allendale ditch, etc.). There are also entrainment issues below Hall, but the cumulative effect of entrainment is likely to be lower for fish which spawn closer to the mouth of Flint Creek. Several spring creeks and Lower Willow Creek have good spawning and rearing habitat for trout and other fishes, and flow into Flint Creek not far above Drummond, so enhancing these sites and connecting them to the mainstem is an important opportunity for improvement of recruitment from Flint Creek. These areas can recruit fish to both Lower Flint Creek and the Clark Fork, with the advantage of relatively fewer diversions blocking their migratory corridor to the Clark Fork.

The Project intends to address two major diversions for fish passage/entrainment, based on an assessment of which ditches are most likely to impair recruitment (TU, 2013). Both of these diversions serve a large property near the bottom of the Flint Creek drainage (locations: Parke 2 @ 46.6229, -113.1521 and Parke 3 @ 46.6344 -113.1542). Entrainment is likely to be the most important issue at these sites at most flow rates, although there also may be upstream passage issues at these rustic rock diversions at extremely low flows. Further fish sampling by FWP is needed to assess the severity of entrainment issues, and make a determination of how cost-effective screening projects could be on these ditches. There is also a small ditch off of a spring creek in Reach F-33 which may entrain fish, and this will also be assessed. Once screening priorities are set by FWP and NRDP, then WRC can work with engineering contractors to provide solutions that work for landowners, are cost-effective, and provide significant biological results. The severe fish passage issues posed by the wooden multi-user diversion just below the public road at Hall (Diversion Multi-User 8 in the 2013 TU report) should be addressed by a separate design process, and budget for this diversion is not included here.

In 2014-2015 the NRDP contractors Watershed Consulting LLC and Great West Engineering did a riparian assessment of the Flint Creek mainstem. The Lower Flint Creek reaches F32ra-1 down to F33 at the confluence included approximately eight (8) miles of channel below Hall. These reaches are all in private land, owned by 10 mostly large ranching operators. The riparian assessment indicated that one reach was in excellent condition (just downstream of Hall), five reaches were "sustainable at risk" with substantial issues, and one reach (the lowest and longest) was "not sustainable." The WRC and its

contractor CFC have worked with four (4) of these landowners, and believe that substantial progress can be made in improving stream corridor conditions for fish and wildlife on these private lands.

The Watershed Consulting/Great West assessment recommended a combination of off-stream stock water, riparian fencing, grazing management, and some localized bio-engineering structures to address the problems on Lower Flint Creek. Many stream reaches assessed in the report had over-widened channel, poor cover, and receding banks with no woody vegetation. Stream walks by WRC/CFC in 2017 indicate that there also are portions of Lower Flint Creek which still exhibit naturally stable banks, and accessible floodplain, especially on inside meanders. These areas are naturally vegetated with sedge/willow species which provide excellent undercut bank fish habitat and stable banks. This Project will look for opportunities to re-establish these high quality bank and floodplain habitats using targeted revegetation and riparian electric fencing, and bio-engineering features only as needed. There is also valuable spring creek habitat very near the Flint Creek mainstem which could be substantially enhanced by better grazing management, as could the mouth and lowest reach of Lower Willow Creek where it joins Flint Creek. Providing connectivity and better habitat for these potential spawning and rearing areas may be some of the highest potential for fisheries improvements in all of Lower Flint Creek.

All fish passage and habitat projects will be developed in cooperation with private landowners, who will get involved on a voluntary basis. Agencies such as NRDP, FWP and the local Conservation District will be key partners in developing viable, cost-effective, and beneficial projects for each irrigation diversion or stream reach where landowners are interested in participating.

Tasks/Activities by Goal:

Goal 1: Reduce Entrainment in Irrigation Ditches:

- a) **Prioritization and Design:** The WRC will work with FWP to prioritize ditches for entrainment risk and impact in Lower Flint Creek. The fish passage structures require careful design to meet all agricultural, fisheries, and hydraulic criteria required for success. The WRC has a good existing relationship with some of the key irrigators using these diversions, and close coordination with the irrigators will be critical to success. The WRC will work with Clark Fork Coalition (CFC) to contract an appropriate engineering design firm to develop the fish screen designs, which may require diversion and headgate modifications as well. One of the options to be considered in the design process is consolidation of some diversions to allow one fish screen to cover what are today two or more distinct ditches.
- b) **Financing and Construction:** The WRC will evaluate potential sources of match for funding once more information about fisheries impacts, hydrology and cost estimates are developed. Systems for addressing potential maintenance issues will be a key criteria in finalizing these projects. WRC and its funders will select an experienced construction firm to complete these projects. Construction in the irrigation off-season (especially fall) is ideal.

Goal 2: Improve spawning, rearing and migratory habitat.

- a) **Prioritization and Design:** Develop plans for riparian grazing improvements with landowners on the eight (8) miles of Lower Flint Creek, based on landowner interest, and potential cost-benefit value of potential projects. Off-stream stock water will be provided where necessary. Projects to enhance bank and floodplain vegetation will require protection from grazing. Three landowners in this reach have already manifested their interest and willingness to consider fencing (electric or conventional) certain areas to protect new vegetation and/or bio-engineered structures which will enhance habitat quality and bank integrity. These improvements will reduce livestock pressure on stream banks and riparian vegetation in Lower Flint Creek and on

spring creeks and Lower Willow Creek near its mouth with Flint Creek. If bio-engineered structures to enhance habitat (debris jams or other types) are required, those will be designed by qualified consulting engineers, as necessary.

- b) **Financing and Construction:** The WRC will procure experienced contractors for fencing and water systems based on State procurement regulations and prior experience with this work. The WRC will work closely with NRDP on any engineering contracts.

Goal 3: Replace trout angling opportunities: The WRC will work with landowners to arrange some public access for fishing on Lower Flint Creek, as a condition for NRDP financial assistance for projects approved in Goals 1 and 2.

c) **Landowner management agreement and maintenance:** Cooperation with landowners for long-term maintenance of conservation investments will be required for maximum positive impact. The WRC will require a long-term (20-year) maintenance agreement with ability to inspect the site.

Progress to date:

2013: An assessment of irrigation diversions by Trout Unlimited (funded by WRC), and FWP identified fish passage and entrainment issues on several major diversions in Lower Flint Creek.

2015: "The Riparian Habitat Assessment for Flint Creek and Boulder Creek, Granite County," was produced by Watershed Consulting and Great West Engineering, recommending restoration priorities for the whole Flint Creek corridor by landowner and sub-reach.

2017: The WRC began working with Spencer Ranch on Flint Creek and spring creek enhancements on this reach, and began stream walks and discussions with other large landowners in this reach.

2018: The WRC implemented a revegetation/ creek fencing project with Spencer Ranch to protect valuable spring creek aquatic and wetland habitat near Mullan Road.

***Lead entity and partners:** The WRC is the project lead, but the landowners, NRCS, the Conservation District, and CF Coalition will be partners.

6. PROJECT SCHEDULE:

<u>ITEM:</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
<u>Assessment & Design</u>							
<u>Funding Agreements</u>							
<u>Permits & Bids</u>							
<u>Construction</u>							
<u>Management:</u>							

If funded, this project would begin immediately and first phases would be constructed in late fall-winter 2020.

7. BUDGET:

ITEM:	UNIT:	QUAN- TITY:	UNIT COST:	TOTAL COST:	MATCH:	NRDP:
Salaries (WRC): Project development & coordin	days	75	480	36,000	6000	30,000
Contracts: Engineering	days	90	800	72,000	0	72,000
Materials & Construction (installed)				0	0	0
Off-stream water systems (pipeline/tanks)	system	2	20,000	30,000	2000	28,000
Fencing (public/private)	feet	20,000	1.75	35,000	2500	32,250
3 Fish passage structures (diversions/screens)	Per struct	3	70,000	210,000	10,000	200,000
Revegetation of banks and floodplains/some bio-engineered structures	Feet of bank	2000	60	120,000	10,000	110,00
SUBTOTAL:				502,750	30,500	472,250
Administration:	5%			25,137		25,137
Contingency:	5-10%			50,275		50,275
TOTALS:				\$578,162	30,500	\$548,162

Match funding is a minimum estimate, and is expected to increase as the project progresses and other sources of funding are secured. A portion of matching funds (in-kind and cash) must come from the landowners/ irrigators. Unsecured sources of match, which may be other state and federal grant programs, are not included in this budget.

The project development salaries are for WRC staff and contractors to coordinate various elements of the project including landowner outreach, procure funding, write permits, conduct selection of engineers, selection of construction firm (with landowners), supervise project engineering and construction contracts, and participate in project construction oversight. Projects of this type also require post-construction monitoring and maintenance. Total cost of all these services is approximately 6% of total project budget.

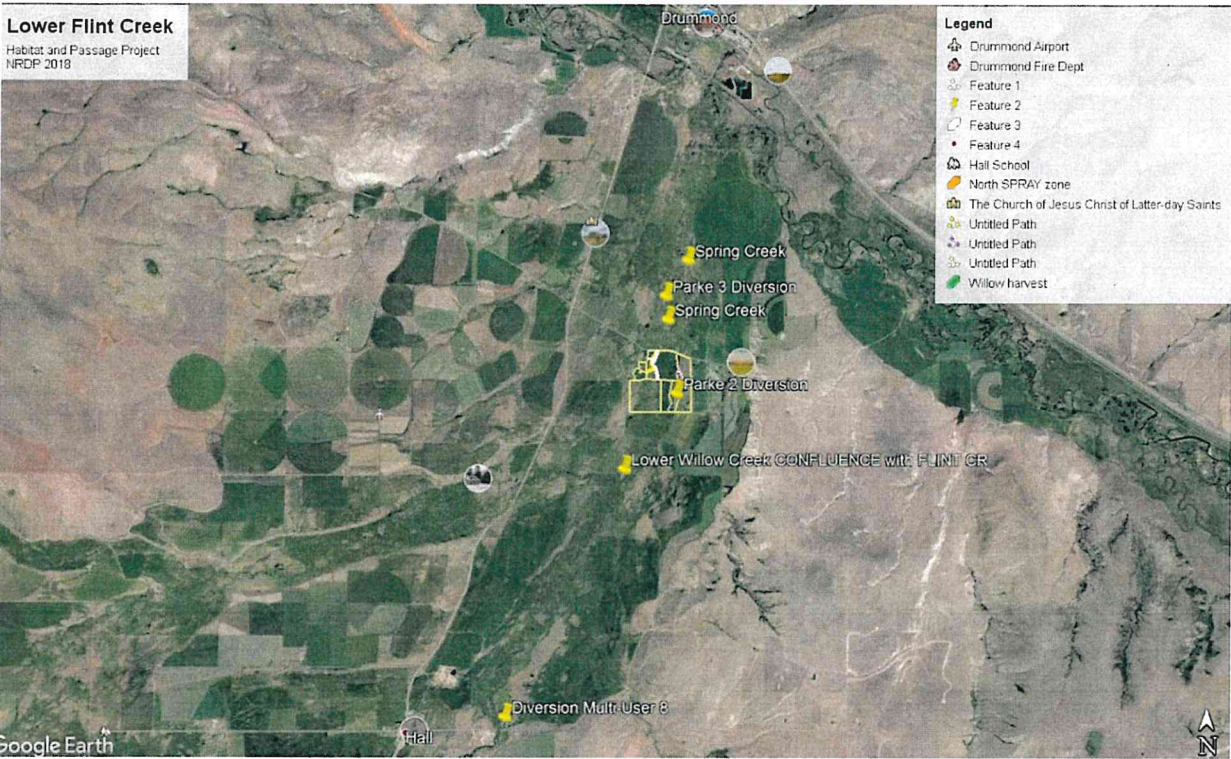
Administration is for processing payments and preparing reports to the NRDP and other funders, at approximately 5% for a project this size. Engineering and construction management is approximately 13% of total project budget, which is reasonable for this size of project and types of construction.

References:

*Watershed Consulting, and Great West Engineering, 2015, "Riparian Habitat Assessment for Flint Creek and Boulder Creek, Granite County." Funded by NRDP.

*Trout Unlimited, 2013, "Flint Creek Diversion Inventory," for NRDP.

PROJECT SITE MAP: LOWER FLINT CREEK



1. PROJECT TITLE: O'Neill Creek Fish Passage and Habitat Project**2. ORGANIZATION AND CONTACTS:**

Contact:	Address:	Phone:
Ted Dodge, Executive Director, Watershed Restoration Coalition of the UCF (WRC)	1002 Hollenback Rd. Deer Lodge, MT 59722	Tel. 406-579-3762 Tel. 406-846-1703 x4
Will McDowell, Project Coordinator	same	406-396-7716 cell

3. PROJECT PURPOSE AND BENEFITS: The purpose of the Project is to enhance riparian and aquatic habitat, and improve fish passage in O'Neill Creek, a tributary to Reach A of the Upper Clark Fork River north of Deer Lodge. The Project should provide important fisheries benefits to the public, as O'Neill Creek is a significant source of westslope cutthroat trout recruitment to the Upper Clark Fork. The significant population of westslope cutthroat trout in O'Neill Creek may recruit more successfully to the river if connectivity and habitat is improved; as it is, O'Neill Creek is one of only a few fluvial runs of westslope cutthroat in the Upper Clark Fork. Although the lowest reaches are private, most of O'Neill Creek runs through State land (Spotted Dog WMA).

GOALS AND SPECIFIC PROJECT OBJECTIVES:

Goal 1. Reduce entrainment and mortality of juvenile and adult salmonids in several small irrigation ditches in O'Neill Creek, and enhance upstream passage past irrigation barriers/culverts as needed.

Objective: Work with private irrigators to assess, design and build new diversions and fish screens for any ditch judged to limit upstream passage or significantly entrain salmonids.

Goal 2. Improve potential spawning, rearing, and migratory habitat for native westslope cutthroat trout in O'Neill Creek.

Objective: Work with private and State landowners (FWP) on projects which reduce livestock and agricultural impact on the stream channel integrity, riparian habitat, aquatic habitat, and water quality.

OUTCOMES:

Enhanced recruitment of native westslope cutthroat trout from O'Neill Creek to the mainstem, improving the Upper Clark Fork River fishery.

Protection of native westslope cutthroat trout population which includes fluvial migratory life form.

O'Neill Creek was declared a Priority 2 stream for fisheries restoration in the January 2018 "Prioritization of Areas in the Upper Clark Fork Basin for Fisheries Enhancement," by Montana Fish Wildlife and Parks and Natural Resources Damage Program. This new higher ranking is partly due to its role in recruiting native westslope cutthroat trout to Reach A of the Upper Clark Fork River fishery. If the entrainment and habitat issues in O'Neill Creek can be successfully assessed and addressed, this small but important tributary may be able to contribute more effectively to the restoration of native fish into the Upper Clark Fork's fishery in Reach A. Reach A is becoming a more popular sport fishing venue in the Upper Clark Fork basin by both outfitters and recreational anglers. The relatively new Kohrs Bend Creek fishing access site constructed by Montana FWP is located just below the confluence with O'Neill Creek. The middle and upper watershed of O'Neill Creek is within the Spotted Dog Wildlife Management Area, managed by FWP.

4. PROJECT LOCATION AND MAP: The Project covers about two miles of channel upstream of the confluence of O'Neill Creek and the Upper Clark Fork. The lowest one mile reach is on private land. (see Map). O'Neill Creek is a Priority 2 stream for fisheries restoration in the Montana Fish Wildlife and Parks (FWP) and Natural Resource Damage Program (NRDP) tributary prioritization for aquatic restoration, as revised in January 2018.

5. PROJECT DESCRIPTION:

This Project will address what are believed to be the primary limiting factors in O'Neill Creek's fishery: a) fragmentation of habitat connectivity by irrigation diversions, culverts, and localized dewatering, contributing to upstream fish passage issues; b) stream corridor habitat degradation from intensive livestock use, and c) possible entrainment issues. O'Neill Creek fish passage/entrainment issues have not yet been well assessed. The FWP has radio-tracked adult cutthroat trout from the UCF River entering O'Neill Creek during spawning season, and there are other indications of fluvial spawners using the system. This Project will assess each potential barrier to passage.

The Project intends to work with the private landowner to upgrade existing irrigation diversions which cause fish passage or entrainment. There are three diversions in O'Neill Creek, but not all are actively used. This Project will assess which, if any, ditches are most likely to impair recruitment. Assessment will lead to evaluation and prioritization (in coordination with FWP and NRDP) of potential barriers. Once priorities are clear, the Project will offer design and construction funding for upgrades.

All fish passage and habitat projects will be developed in cooperation with private landowners, who will get involved on a voluntary basis. Agencies such as NRDP, FWP and the local Conservation District will be key partners in developing viable, cost-effective, and beneficial projects for each irrigation diversion or stream reach where landowners are interested in participating.

Aquatic and riparian habitat apparently are impaired by intensive livestock use of the lowest two reaches of the stream, due to use as a seasonal feeding area. The Project will work to develop viable, cost-effective off-stream stock water and/or riparian pasture fencing alternatives.

Tasks/Activities by Goal:

Goal 1: Reduce Entrainment in Irrigation Ditches:

Assessment, Prioritization and Design: The WRC will assess all the potential passage barriers as a first phase of work. Then WRC will work with FWP to prioritize ditches/culverts for passage and entrainment risk and impact. The WRC will work with Clark Fork Coalition (CFC) to contract an appropriate engineering design firm if a fish screen is recommended.

Financing and Construction: The WRC will evaluate potential sources of match for funding once more information about fisheries impacts, hydrology and cost estimates are developed. Systems for addressing potential maintenance issues will be a key criteria in finalizing these projects. WRC and its funders will select an experienced construction firm to complete these projects.

Construction in the irrigation off-season (especially fall) is ideal.

Goal 2: Improve spawning, rearing and migratory habitat.

Assessment, Prioritization and Design: WRC will assess pastures and develop plans for riparian grazing improvements with private landowners on the lower one mile of O'Neill Creek, based on landowner interest, and potential cost-benefit value of potential projects. WRC will consult with FWP on potential grazing management needs on State lands. These improvements will reduce livestock pressure on stream banks and riparian vegetation in O'Neill Creek and possibly other small tributaries to O'Neill

Creek. If larger structures or off-stream water systems are required to protect stream banks, those may be designed by consulting engineers, as necessary.

Financing and Construction: The WRC will procure experienced contractors for fencing and water systems based on State procurement regulations and prior experience with this work.

Landowner management agreement and maintenance: Cooperation with landowners for long-term maintenance of conservation investments will be required for maximum positive impact. The WRC will require a long-term (20-year) maintenance agreement with ability to inspect the site.

Progress to date:

2009: The WRC and CFC will begin the phase one assessment of the stream corridor in summer 2018. .

*Lead entity and partners: The WRC is the project lead, but the landowners, NRDP, FWP, NRCS, the Conservation District, and CF Coalition will be partners.

6. PROJECT SCHEDULE:

ITEM:	2018	2019	2020	2021	2022	2023	2024
Assessment & Design							
Funding Agreements							
Permits & Bids							
Construction							
Management:							

If funded, this project would begin immediately and first phases would be constructed in late fall-winter 2020.

7. BUDGET:

ITEM:	UNIT:	QUAN-TITY:	UNIT COST:	TOTAL COST:	MATCH:	NRDP:
Salaries (WRC): Project development & coordin	days	20	480	9600	1000	8600
Contracts: Engineering	days	25	800	20,000	0	20,000
Materials & Construction (installed)				0	0	
Off-stream water systems (pipeline/tanks)	system	1	15,000	15,000	2000	13,000
Fencing (public/private)	feet	10,000	1.75	17,500	2500	15,000
2 Fish passage structures (diversions/screens)	Per struct	2	25,000	50,000	5,000	45,000
SUBTOTAL:				112,500	10,500	101,600

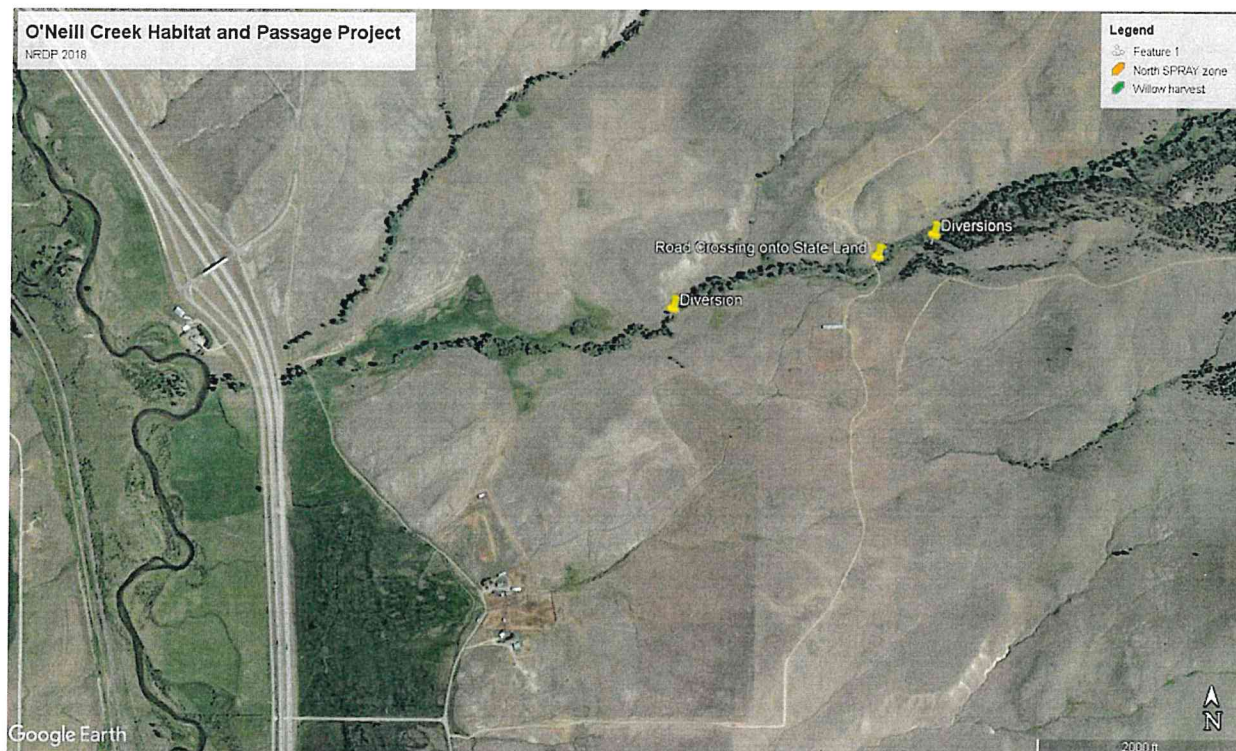
Administration:	5%			5600		5600
Contingency:	5-10%			11,000		11,000
TOTALS:				\$128,700	10,,500	\$118,200

Match funding is a minimum estimate. A portion of matching funds (in-kind and cash) must come from the landowners/ irrigators. Unsecured sources of match, which may be other state and federal grant programs, are not included in this budget.

The project development salaries are for WRC staff and contractors to coordinate various elements of the project including landowner outreach, procure funding, write permits, conduct selection of engineers, selection of construction firm (with landowners), supervise project engineering and construction contracts, and participate in project construction oversight. Projects of this type also require post-construction monitoring and maintenance. Total cost of all these services is approximately 7% of total project budget.

Administration is for processing payments and preparing reports to the NRDP and other funders, at approximately 5% for a project this size. Engineering and construction management is approximately 15% of total project budget, which is reasonable for this size of project and types of construction.

Project Area MAP:





Rock Creek Fish Passage Improvement

1. CONTACT INFORMATION

Trout Unlimited

312 N. Higgins Ave, Suite 200
Missoula, MT 59802
Tess Scanlon, Project Coordinator
tscanlon@tu.org
406-552-2168

2. PROJECT PURPOSE AND BENEFITS:

The purpose of the Rock Creek Fish Passage Improvement project is to improve fish passage and reduce fish entrainment in irrigation ditches in the watershed. Recent research shows Rock Creek contributes more fish into the Upper Clark Fork River than any other tributary in the basin. By connecting habitat and improving fish populations in Rock Creek, this project will increase recruitment to and restore fish populations in the Upper Clark Fork River Basin.

Goals:

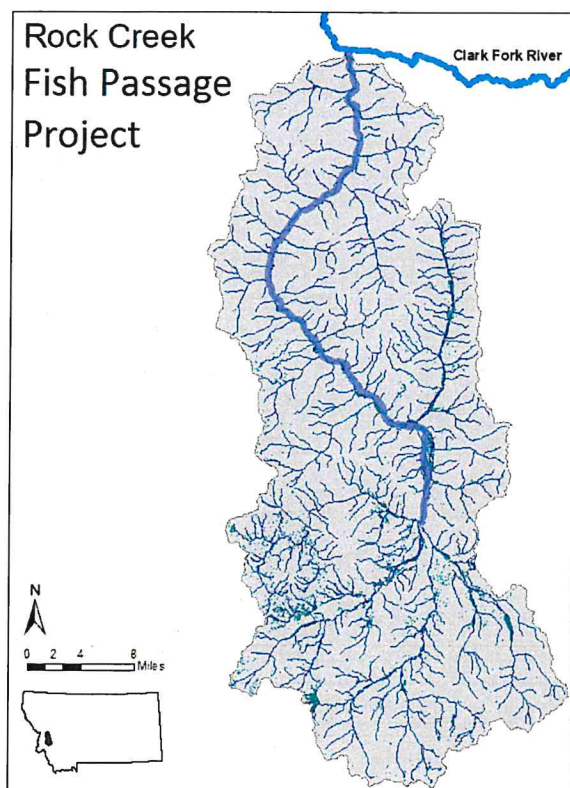
- Increase recruitment of bull trout, westslope cutthroat trout, and game fish populations to the Clark Fork River
- Reduce entrainment of native and game fish in irrigation diversions
- Improve upstream fish passage in the Rock Creek watershed for bull trout, westslope cutthroat trout, and game fish populations
- Replace lost angling opportunities in the Clark Fork River Basin
- Improve irrigation infrastructure and reduce maintenance to landowners

Objectives:

- Install fish screens on irrigation diversions on the mainstem of Rock Creek
- Improve diversion infrastructure on the mainstem of Rock Creek to improve flow regulation, fish passage and reduce maintenance

3. LOCATION AND MAP:

The project is located in the Rock Creek Watershed in Granite County, MT.



4. PROJECT DESCRIPTION:

Rock Creek is one of the largest tributaries in the Upper Clark Fork River Basin (UCFRB), draining a 596,000 acre watershed. Fish, Wildlife, and Parks (FWP) data on fish populations in the UCFRB shows that Rock Creek is one of the most robust fishery in the basin. FWP data also shows that Rock Creek recruits more fish into the Upper Clark Fork River than any of the other tributaries.

Trout Unlimited completed an inventory of diversions on Rock Creek in 2017 and identified nearly 100 discrete diversions in the watershed. At least nine major diversions are on the mainstem of Rock Creek. TU's inventory did not find any of the mainstem diversions to be year-round fish passage barriers, but all the diversions are unscreened and likely entrain fish in proportion to their diverted flow.

Research indicates that recruitment of fish from Rock Creek to the Clark Fork River is limited by entrainment of fish into unscreened irrigation diversions. FWP surveyed diversions and electrofished mainstem and other ditches in Rock Creek during 2007 and 2011. All the surveyed diversions rated as having a medium or high risk to trout entrainment.

The Rock Creek Fish Passage Project will prioritize collaborative, voluntary installation of fish screens on diversions that will improve fish passage and out-migration survival rates into the Clark Fork River. Additional streamflow monitoring is also necessary to quantify the impact of diversions on the fishery and help prioritize projects that will have the most benefit. Trout Unlimited will work in collaboration with NRDP and FWP to identify projects and landowners willing to improve irrigation infrastructure and

install fish screens on mainstem diversions and install headgates, flow measuring devices, and other structural improvements as necessary.

5. INTEGRATION INTO AQUATIC RESOURCE RESTORATION PLAN

This spring, FWP and NRD updated the *Prioritization of Areas in the Upper Clark Fork River Basin for Fishery Enhancement*. Rock Creek was raised to a level 2 priority, based on its potential to contribute to ongoing mainstem remediation and restoration efforts. FWP and NRD maintain that fisheries restoration throughout the UCFRB relies upon the enhancement of both Clark Fork River and tributary habitats. This abstract to improve fish passage in Rock Creek will be integrated into UCFRB aquatic restoration plan, with the goal to reconnect fish habitat in Rock Creek, improve fish populations in the Clark Fork, and replace lost angling opportunities in the basin.

6. PROJECT SCHEDULE:

The Rock Creek fish passage project is expected to take five years to complete. Project development with water users and landowners will take one to five years to complete, and project design, engineering and construction will take one to two years. One to three fish screens can be installed each year after project initiation.

7. PROJECT COST

Item	Total	Matching (anticipated)	NRDP
Salaries/Benefits	\$ 100,000	\$ 40,000	\$ 60,000
Contracted Services	\$1,080,000	\$190,000	\$890,000
Travel	\$ 10,000	\$ 5,000	\$ 5,000
TOTAL	\$1,190,000	\$235,000	\$955,000



ROCK CREEK RIPARIAN HABITAT RESTORATION

1. ORGANIZATION AND CONTACT:**Trout Unlimited**

312 N. Higgins Ave, Suite 200

Missoula, MT 59802

Tess Scanlon, Project Coordinator

tscanlon@tu.org

406-552-2168

2. PROJECT PURPOSE AND BENEFITS:

The purpose of the Rock Creek Riparian Restoration Project is to protect and enhance the riparian corridor along Rock Creek. Trout Unlimited (TU) will identify and develop projects on private lands on Rock Creek to enhance valuable riparian and wetland habitats that are currently unprotected.

Goals:

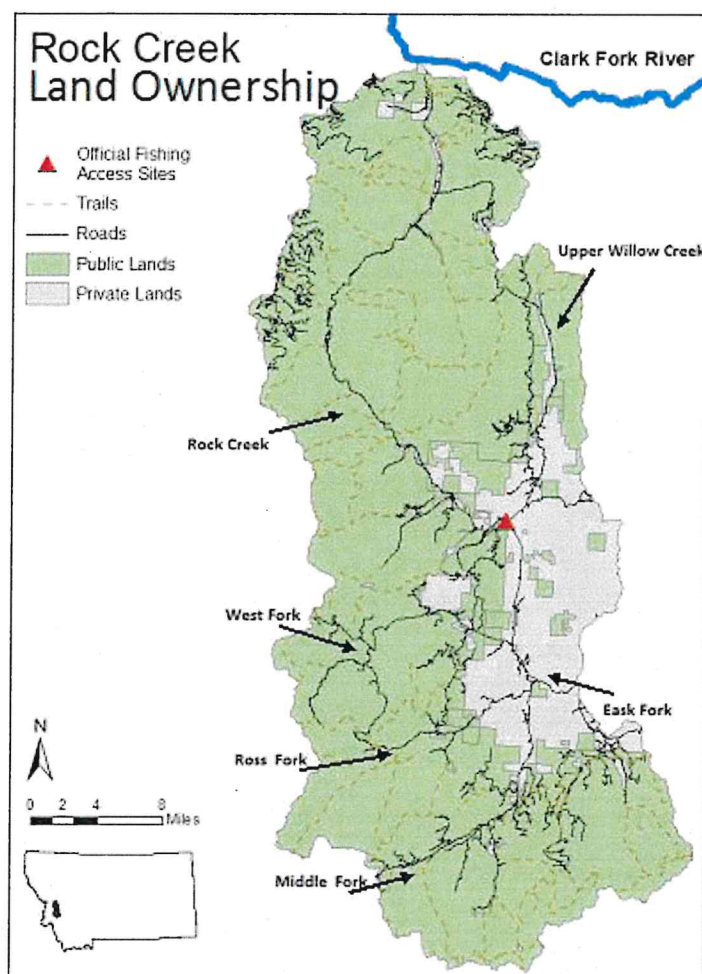
- Protect intact, high-quality riparian and wetland habitat
- Enhance riparian areas for fish and wildlife
- Replace recreational angling opportunities and protect public access to recreational opportunities

Objectives:

- Install fencing to protect riparian and wetland areas from grazing impacts
- Complete conservation easements to protect riparian lands that are in excellent condition
- Perform riparian leases to enclose and enhance or protect intact habitat

3. PROJECT LOCATION AND MAP:

The project will focus on Rock Creek in Granite County, MT. Restoration activities will focus on private lands on the mainstem of Rock Creek.



Data Sources: Montana Fish, Wildlife and Parks, The Montana Transportation Framework, USDA Forest Service, USGS

4. PROJECT DESCRIPTION:

Rock Creek is one of the largest tributaries to the Upper Clark Fork River Basin. The Rock Creek watershed consists of approximately 600,000 acres. The Rock Creek Riparian Restoration Plan will identify and develop projects to restore habitat in these areas as well as the rest of Rock Creek. Project activities will also improve recreation and angling opportunities in the watershed.

TU will work in cooperation with private landowners and state and federal land managers to identify, prioritize, and complete conservation easements, riparian leases, install riparian fencing, and perform stream channel restoration. The Rock Creek Riparian Restoration Project will protect high quality habitat for both terrestrial and aquatic wildlife species from further degradation, enhance degraded habitat, and improve access for recreation and angling opportunities in Rock Creek.

5. INTEGRATION INTO THE TERRESTRIAL RESOURCE RESTORATION PLAN

This spring, FWP and NRD updated the *Prioritization of Areas in the Upper Clark Fork River Basin for Fishery Enhancement*. Rock Creek was raised to a Priority 2 tributary, based on its potential to contribute to ongoing mainstem remediation and restoration efforts. FWP and NRD maintain that riparian corridors and wetlands are critical habitat for fish and other aquatic species. This abstract will implement restoration actions to improve riparian and wetland habitat on Rock Creek. This approach will be integrated into UCFRB aquatic restoration plan, with the goal to improve aquatic habitat in Rock Creek, improve fish populations in the Clark Fork, and replace lost angling opportunities in the basin.

6. PROJECT SCHEDULE:

The project is anticipated to take 4-7 years to complete. Project development for fencing projects, stream channel restoration, riparian leases and conservation easements will take two to four years. Project design and construction will take two to three years.

7. GENREAL PROJECT COSTS:

Item	Total	Matching (anticipated)	NRDP
Salaries/Benefits	\$ 60,000	\$ 30,000	\$ 30,000
Contracted Services	\$575,000	\$260,000	\$ 315,000
Travel	\$ 5,000	\$ 2,500	\$ 2,500
TOTAL	\$640,000	\$292,500	\$ 347,500



Harvey Creek Fish Passage and Habitat Improvement

1. Contact Information:

Trout Unlimited
Casey Hackathorn
312 N. Higgins Ave, Suite 200
Missoula, MT 59802
(406)546-5680 - casey.hackathorn@tu.org

2. Project Purpose and Benefits:

The project would seek to complete fish passage and habitat improvements on Harvey Creek. The benefits of the project would include increased recruitment to the Clark Fork River in an area with the lowest fish densities in the entire upper Clark Fork. In addition the project would improve and protect native fish habitat in a high-quality recreational fishery on public lands.

3. Project Location:

The project location includes the lower four miles of Harvey Creek, a Clark Fork tributary located in Granite County west of Drummond. Two specific project areas are highlighted by this proposal. The first is a mile-long section of Harvey Creek currently owned by Stimson Lumber. The second is located on a DNRC parcel at the mouth that includes private irrigation infrastructure.

4. Project Description:

NRDP has invested significant resources over the last five years in protecting and restoring 2.5 miles of Harvey Creek on private lands near the mouth with the Clark Fork River. Projects include riparian protection, fish passage improvements, screening, irrigation efficiency, instream flow, and a fish barrier. While these projects have resulted in significant gains for Harvey Creek, two opportunities remain that should be considered for future funding should project opportunities become available with landowners/irrigators.

The first, is for riparian restoration of over a mile of native fish spawning habitat currently owned by Stimson Lumber upstream of the Harvey Creek Ranch. The Trust for Public Land has actively been engaged in fundraising to acquire the land and turn it over to the Forest Service. Should that transaction be completed there is a significant opportunity to improve grazing impacted riparian habitat with revegetation and riparian protection.

The second is to make improvements to private irrigation infrastructure near the mouth of Harvey Creek on DNRC land that currently entrains most Harvey Creek outmigrant fish and prevents Harvey Creek from providing a cold water refuge in this reach of the Clark Fork. NRDP previously funded survey work and conceptual design at the site but the irrigators are currently not interested in any changes to their infrastructure. Should this change, project work at the site could provide a significant uplift to the Clark Fork River in this reach.

5. Integration/Coordination with Restoration Plans:

The projects have been previously identified and included in the Restoration Plans. These projects implement Proposed Actions 1, 3, and 4 for the Flint Creek watershed identified in section 3.2.2.9 of the 2016 Restoration Plans and would complete all currently identified projects on Harvey Creek.

6. Project Schedule:

Both projects could be implemented within a year of reaching agreements with irrigators and agencies.

7. General Cost Information:

Item	Total	Matching (anticipated)	NRDP
Salaries/Benefits	\$ 20,000	\$	\$ 20,000
Contracted Services	\$300,000	\$50,000	\$250,000
Travel	\$ 1,000	\$	\$ 1,000
TOTAL	\$321,000	\$50,000	\$271,000



Flint Creek Habitat Improvement

1. Contact Information:

Trout Unlimited
Casey Hackathorn
312 N. Higgins Ave, Suite 200
Missoula, MT 59802
(406)546-5680 - casey.hackathorn@tu.org

2. Project Purpose and Benefits:

Flint Creek habitat projects will improve riparian and stream habitat on Flint Creek on a priority reach from Boulder Creek to the Clark Fork River. The projects will improve and sustain fish populations in Flint Creek as well as potentially improve recruitment to the Clark Fork River.

3. Project Location:

Trout Unlimited is proposing to continue working with NRDP, FWP and private landowners on Flint Creek riparian habitat from the mouth of Boulder Creek to Hall, MT.

4. Project Description:

Trout Unlimited proposes to assist NRDP, FWP and private partners to develop and implement projects to improve and protect habitat conditions on Flint Creek by implementing riparian protection, grazing management, and riparian restoration projects on private lands.

5. Integration/Coordination with Restoration Plans:

The projects have been previously identified and included in the Restoration Plans. These projects implement Proposed Action 4 for the Flint Creek watershed identified in section 3.2.2.7 of the 2016 Restoration Plans. These projects would improve habitat for fish populations and recreation fishing in Flint Creek and potentially provide a benefit for the Clark Fork fishery downstream by improving water quality and reducing stream temperatures.

These projects will be integrated with the fish passage work underway with irrigators complementing the work to restore migratory populations and reducing entrainment. The combined impact is intended to increase fish populations and aquatic health in both the Flint Creek watershed and the Clark Fork River.

6. Project Schedule:

TU is currently engaged in project development work with four private landowners upstream of Hall, MT totally over three miles of habitat. These projects are projected to be implemented over the next two years. We anticipate moving upstream to engage other landowners over the next two to four years with project implementation over the next six years.

7. General Cost Information:

Item	Total	Matching (anticipated)	NRDP
Salaries/Benefits	\$ 48,000	\$	\$ 48,000
Contracted Services	\$600,000	\$200,000	\$ 400,000
Travel	\$ 6,000	\$	\$ 6,000
TOTAL	\$654,000	\$200,000	\$ 454,000



Flint Creek Fish Passage Improvement

1. Contact Information:

Trout Unlimited
Casey Hackathorn
312 N. Higgins Ave, Suite 200
Missoula, MT 59802
(406)546-5680 - casey.hackathorn@tu.org

2. Project Purpose and Benefits:

Trout Unlimited proposes to continue working with irrigators in the Flint Creek watershed to improve and replace irrigation diversion infrastructure that impairs fish passage and install fish screens on ditches that entrain fish. The project will reconnect migratory fish populations from Boulder Creek to the Clark Fork River improving recreational and native fisheries in Boulder Creek, Flint Creek and the Clark Fork River.

3. Project Location:

Projects are located on Boulder Creek and Flint Creek from Hall to Drummond, MT.

4. Project Description:

Trout Unlimited proposes to continue working with FWP, NRDP, and Flint Creek irrigators develop and implement priority projects that reduce fish entrainment and improve fish passage in the Flint Creek watershed from Boulder Creek to the Clark Fork River. We are currently engaged in project development on two projects on Boulder Creek and several on Flint Creek. Recent FWP modelling effort indicates that screening the top 9 priority diversions on Flint Creek could reduce the predicted entrainment of outmigrants in this reach from approximately 89% to less than 10%.

5. Integration/Coordination with Restoration Plans:

This suite of projects have been previously identified and included in the Restoration Plans. These projects implement Proposed Actions 2 and 3 for the Flint Creek watershed identified in section 3.2.2.7 of the 2016 Restoration Plans to reduce entrainment and improve fish passage. The projects will address all three goals of the Restoration Plans by improving the mainstem Clark Fork fishery, improving a popular replacement fishery, and restoring migratory native trout populations.

6. Project Schedule:

Project development is currently underway on two diversions on Boulder Creek and three diversions on Flint Creek. Successful implementation of these first fish passage and screening projects in the Flint Creek valley should improve opportunity to develop new projects moving forward. The total project is likely to take 6-8 years to complete.

7. General Cost Information:

Item	Total	Matching (anticipated)	NRDP
Salaries/Benefits	\$ 60,000	\$	\$ 60,000
Contracted Services	\$1,500,000	\$500,000	\$1,000,000
Travel	\$ 6,000	\$	\$ 6,000
TOTAL	\$1,566,000	\$500,000	\$1,066,000



Little Blackfoot River Habitat Improvement

1. Contact Information:

Trout Unlimited
312 N. Higgins Ave, Suite 2009
Missoula, MT 59802

Rob Roberts, Project Manager
rroberts@tu.org
406-540-2944

2. Project Purpose and Benefits:

The purpose of the project is to identify and implement projects in the Little Blackfoot River watershed through voluntary, collaborative activities with private landowners that will improve instream and riparian habitat for fish and wildlife. The project is intended to improve fish populations in the Little Blackfoot River, its priority tributaries, and the Clark Fork River.

Goals:

- Improve instream habitat conditions for adult fluvial bull trout, westslope cutthroat trout, and non-native game fish
- Improve terrestrial wildlife conditions, primarily in riparian areas.

Objectives:

- Evaluate and identify priority reaches for habitat projects through detailed analysis of fisheries data, past riparian assessments, consultation with NRD and MTFWP staff, and information from other sources.
- Develop and implement at least 3 riparian and habitat improvement projects in prioritized reaches through installation of fencing, riparian leases, instream habitat improvement, or other measures related to fish passage and water conservation projects.

3. Project Location:

Little Blackfoot River from the mouth at Garrison to confluence with Dog Creek.

4. Project Description:

Past studies of the Little Blackfoot River on the lower 32 found 30,000 feet of eroding streambanks and 5,000 feet of critical sediment sources. Streambank erosion along Dog Creek and Spotted Dog Creek also

identified active channel bank erosion and poor riparian vegetation health. IN 2013, NRD contracted a riparian assessment of the Little Blackfoot River to:

- 1) Evaluate the condition of riparian habitat in the lower Little Blackfoot River, Dog Creek, Snowshoe Creek and Spotted Dog Creek watersheds; and
- 2) Identify reach-specific problems and sources as well as opportunities for riparian and in-stream habitat improvements.

Based on the results of this assessment, a number of restoration actions were identified that can support reaching fisheries, riparian, and terrestrial wildlife goals for the Little Blackfoot River. The primary restoration actions for the Little Blackfoot River include: 1) preservation and conservation of high quality habitat; 2) management changes to land use where possible; 3) constructing exclosure fencing around the riparian area to allow woody vegetation to establish; 3) implementing streambank stabilization and revegetation measures; and 4) developing comprehensive restoration strategies for reaches with multiple constraints and land management issues.

As a result, in 2017 Trout Unlimited develop a demonstration project with one landowner on the Little Blackfoot River to construct a one mile long fence exclosure along the Little Blackfoot River. Further opportunities exist to work collaboratively with landowners to develop projects that reduce impacts to riparian habitats and – along with water conservation and habitat improvement activities – could improve fisheries and wildlife populations in the watershed and the recruitment to the Clark Fork River. Furthermore, prioritizing reaches based upon their location in the watershed, habitat quality, proximity to know spawning and rearing areas, and willingness of landowners to voluntarily participate in these conservation activities will maximize the benefit of these comprehensive projects.

5. Integration/Coordination with Restoration Plans:

The Little Blackfoot River is listed as a priority 1 stream in the *2018 Prioritization of Areas in the Upper Clark Fork River Basin for Fishery Enhancement*. The Little Blackfoot River also includes Priority 1 and Priority 2 Terrestrial Areas such as Avon North, Deer Lodge North, and Garnets.

Benefits from this project will:

- 1) Restore the mainstem trout fishery by improving recruitment of fish from tributaries;
- 2) Replace lost trout angling in the mainstem by improving trout populations in tributaries;
- 3) Replace injured terrestrial wildlife resources by protecting and enhancing grassland, shrub-steppe, riparian, wetland, and conifer forest habitats in the UCFRB that are similar to those injured. This involves maintaining or improving wildlife species diversity, functions, and habitat connectivity in grassland, forest, and riparian ecological systems.
- 4) Replace lost hunting, wildlife viewing, bird watching, and other wildlife-related outdoor recreational opportunities by enhancing wildlife habitat, and consequently, wildlife

populations, and ensuring public access to these wildlife resources.

6. Project Schedule:

This project is expected to take at least five years to complete. One to two field seasons will be required to fill data gaps related habitat impairments for the Little Blackfoot River, as well as prioritize projects based upon a set of biological, social, and cost/benefit criteria. Project development with private landowners will take three to five years to complete. Engineering, design and construction will take one to two years to complete following project development.

7. General Cost Information:

Project Development -	\$75,000
Design/Technical –	\$100,000
Construction –	\$400,000
Monitoring –	\$30,000
<i>Total</i>	<i>\$705,000</i>



Little Blackfoot River Fish Passage

1. Contact Information:

Trout Unlimited
312 N. Higgins Ave, Suite 2009
Missoula, MT 59802

Rob Roberts, Project Manager
rroberts@tu.org
406-540-2944

2. Project Purpose and Benefits:

The purpose of the project is to identify and implement projects in the Little Blackfoot River watershed through voluntary, collaborative activities with private landowners and water users that will improve upstream fish passage and decrease entrainment of fish at irrigation diversion sites. The project is intended to improve fish populations in the Little Blackfoot River, its priority tributaries, and the Clark Fork River.

Goals:

- Improve upstream fish passage for adult fluvial bull trout, westslope cutthroat trout, and non-native game fish
- Reduce entrainment of juvenile and adult fluvial bull trout, westslope cutthroat trout, and non-native game fish
- Improve fish populations in the Little Blackfoot River, its tributaries and the Clark Fork River
- Reduce maintenance and/or improve the efficiency of agricultural operations for private landowners

Objectives:

- Evaluate and identify priority reaches for fish passage projects through detailed analysis of fisheries data, stream temperature data, instream flow data and information from other sources.
- Develop and implement 15 fish passage projects in prioritized reaches through installation of fish screens or reconstruction of diversion infrastructure.

3. Project Location:

Little Blackfoot River from the mouth at Garrison to confluence with Dog Creek.

4. Project Description:

There is an estimated 30 irrigation diversions along the mainstem Little Blackfoot River from the confluence with Dog Creek downstream to the Clark Fork River. In 2013 TU investigated irrigation diversions along this reach and multiple tributaries to quantify impacts to fish passage. Since that time, TU has continued to add to the level of detailed information about fish passage barriers, implemented one demonstration project on the mainstem, and continued working with NRD and Montana FWP to identify priority reaches for fish passage activity.

TU's analysis indicates that there are 15 diversion structures on the Little Blackfoot River from the mouth upstream to the confluence with Spotted Dog Creek. There are an additional 15 diversions structures from Spotted Dog Creek upstream to the confluence with the Dog Creek. None of these structures appear to be a full fish passage barrier at all flow levels, as no dams or other major structures exist. However, numerous diversions are considered to be upstream barriers to fish migration at baseflow, which will impact the majority of fish species in the drainage. Furthermore, since there are currently no fish screens on any ditches in the Little Blackfoot River, fish entrainment in irrigation ditches is very high.

Research indicates that fish entrainment is directly proportional to the proportion of overall streamflow that is diverted into a particular ditch – with other factors such as diversion orientation, timing of water and other factors also influencing the relative rate of entrainment. Given that irrigation use is very high in the watershed, fish entrainment is assumed to be a major limiting factor to fisheries potential. TU's data collection efforts confirm that larger ditches on the Little Blackfoot River may entrain 1,000 fish per mile of ditch or more, depending on the time of year.

However, opportunities exist to work collaboratively with landowners to develop projects that reduce impacts to fish passage and entrainment, and – along with water conservation and habitat improvement activities – could improve fisheries populations in the watershed and the recruitment to the Clark Fork River. Furthermore, prioritizing reaches based upon their location in the watershed, habitat quality, proximity to know spawning and rearing areas, and willingness of landowners to voluntarily participate in these conservation activities will maximize the benefit of any instream flow enhancement projects.

5. Integration/Coordination with Restoration Plans:

The Little Blackfoot River is listed as a priority 1 stream in the *2018 Prioritization of Areas in the Upper Clark Fork River Basin for Fishery Enhancement*. This abstract builds upon goals for Fish Passage as listed in the *2012 Final Upper Clark Fork River Basin Aquatic and Terrestrial Resources Restoration Plans*.

Benefits from this project will:

- 1) Restore the mainstem trout fishery by improving recruitment of fish from tributaries;
- 2) Replace lost trout angling in the mainstem by improving trout populations in tributaries;

6. Project Schedule:

This project is expected to take at least five years to complete. One field season will be required to fill data gaps related to diversions for the Little Blackfoot River, as well as prioritize projects based upon a set of biological, social, and cost/benefit criteria. Project development with private landowners and irrigators will take three to five years to complete. Engineering, design and construction will take one to two years to complete following project development with project construction following thereafter. It is reasonable to expect an overall 10 year timeframe to complete an comprehensive fish passage program.

7. General Cost Information:

Project Development -	\$100,000
Design/Engineering –	\$350,000
Construction –	\$2,000,000
Monitoring –	\$50,000
<i>Total</i>	<i>\$2,500,000</i>



Snowshoe Creek Integrated Restoration Project

1. Contact Information:

Trout Unlimited
312 N. Higgins Ave, Suite 2009
Missoula, MT 59802

Rob Roberts, Project Manager
rroberts@tu.org
406-540-2944

2. Project Purpose and Benefits:

The purpose of the project is to identify and implement projects in Snowshoe Creek - tributary to the Little Blackfoot River - that will improve fish passage, instream and riparian habitat, and increase water quantity. The project is intended to improve fish populations in the Little Blackfoot River, its priority tributaries, and the Clark Fork River.

Goals:

- Improve fish populations in the Little Blackfoot River, its tributaries and the Clark Fork River
- Reduce maintenance and/or improve the efficiency of agricultural operations for private landowners
- Improve streamflow and the amount of wetted perimeter for instream fisheries habitat
- Reduce water temperatures during periods of peak water demand
- Improve riparian and instream habitat conditions

Objectives:

- Identify projects that improve fish passage, promote water conservation or improve riparian habitat through detailed analysis of fisheries data, stream temperature data, instream flow data, landowner coordination and information from other sources.
- Develop and implement 4 fish passage projects in the lower 5 miles of Snowshoe Creek through installation of fish screens or reconstruction of diversion infrastructure.
- Develop and implement 2 riparian improvement projects in the lower 5 miles of Snowshoe Creek through installation of riparian fencing, offstream watering, or other conservation practices.
- Develop and implement 2 water conservation projects in the lower 5 miles of Snowshoe Creek that will improve instream flow conditions during periods of critical biological demand

3. Project Location:

The Snowshoe Creek watershed is located to the north of the Little Blackfoot River near the town of Avon, Montana. This project abstract focuses on the lower 5 miles of Snowshoe Creek, from the confluence with the Little Blackfoot River upstream to the dam on Lois Lake.

4. Project Description:

In 2013 TU investigated irrigation diversions in the Snowshoe Creek watershed to quantify impacts to fish passage and entrainment and documented 6 irrigation diversions on the lower 5 miles of Snowshoe Creek. Because of the limited summer flow on Snowshoe Creek and irrigation demand, some of these structures are complete barriers to upstream fish migration. More recently, TU developed and implemented a successful diversion improvement project on the lowest structure in 2016 by rebuilding the instream diversion for fish passage and installing a fish screen on the ditch. TU expects to completed an additional diversion improvement project in the fall of 2018. Pursuant to those efforts, TU has developed relationships with the private landowners on Snowshoe Creek and expects to be able to improve the remaining 4 four irrigation diversions in the next three years.

Additionally, TU has identified instream flow as a limiting factor to fisheries in the Snowshoe Creek watershed. Flow monitoring, anecdotal observation, and a riparian assessment by NRD contractors in 2015 has documented critical dewatering on reaches of Snowshoe Creek during the period of July 15 to September 15, as well as reaches with opportunities for riparian improvement.

However, TU believes working collaboratively with landowners to develop projects that reduce impacts to fish passage and entrainment— along with water conservation and habitat improvement activities – could improve fisheries populations in the watershed and the recruitment to the Clark Fork River. Therefore, TU has begun developing projects to increase the amount of instream flow in Snowshoe Creek through ditch lining, improving irrigation technology, flow leases and other measures. TU will be working with private landowners to identify and develop projects that maintain or improve existing agricultural practices with associated improvements to instream flow quantity. At the same time, TU will be identifying opportunities to improve riparian density and diversity through riparian fencing, riparian leases, offstream watering and other measures.

5. Integration/Coordination with Restoration Plans:

Snowshoe Creek is listed as a priority 2 stream in the *2018 Prioritization of Areas in the Upper Clark Fork River Basin for Fishery Enhancement*. This project builds upon existing project work proposed in the existing NRD plan for Snowshoe Creek.

Benefits from this project will:

- 1) Restore the mainstem trout fishery by improving recruitment of fish from tributaries. Snowshoe Creek is a documented, primary spawning area for brown trout in the Little Blackfoot River watershed.

- 2) Replace lost trout angling in the mainstem by improving trout populations in tributaries. The Little Blackfoot River is a heavily used recreational fishery, with access points at MFWP fishing access sites, private land and bridge crossings.

6. Project Schedule:

This project is expected to take at least three to five years to complete. One to two field seasons will be required to continue project development, finalize design plans and work with private landowners where appropriate. Project implementation can be phased over multiple years as needed.

7. General Cost Information:

Project Development -	\$75,000
Design/Technical –	\$125,000
Construction –	
Fish passage -	\$350,000
Water quantity -	\$200,000
Riparian Improvement -	\$100,000
Monitoring –	\$25,000
<i>Total</i>	<i>\$875,000</i>



Spotted Dog Creek Integrated Restoration Project

1. Contact Information:

Trout Unlimited
312 N. Higgins Ave, Suite 2009
Missoula, MT 59802

Rob Roberts, Project Manager
rroberts@tu.org
406-540-2944

2. Project Purpose and Benefits:

The purpose of the project is to identify and implement projects in Spotted Dog Creek, a tributary to the Little Blackfoot River watershed, that will improve fish passage, water quantity and instream and riparian habitat. If completed, this project represents the best opportunity to reconnect Spotted Dog Creek to the Little Blackfoot River and restore fisheries populations. The project is intended to improve fish populations in the Little Blackfoot River, its priority tributaries, and the Clark Fork River.

Goals:

- Improve fish populations in the Little Blackfoot River, its tributaries and the Clark Fork River
- Improve streamflow and the amount of wetted perimeter for instream fisheries habitat
- Reduce water temperatures during periods of peak water demand
- Improve riparian and instream habitat conditions
- Reduce maintenance and/or improve the efficiency of agricultural operations for private landowners

Objectives:

- Identify projects that improve fish passage, promote water conservation or improve riparian habitat through detailed analysis of fisheries data, stream temperature data, instream flow data, landowner coordination and information from other sources.
- Develop and implement 5 fish passage projects in the lower 3 miles of Spotted Dog Creek through installation of fish screens or reconstruction of diversion infrastructure.
- Develop and implement 2 riparian improvement projects in the lower 3 miles of Spotted Dog Creek through installation of riparian fencing, offstream watering, or other conservation practices.
- Develop and implement 1 comprehensive water conservation project in the lower 3 miles of Spotted Dog Creek that will improve instream flow conditions during periods of critical biological demand

- Develop and implement 2 stream restoration projects in the lower 3 miles of Spotted Dog Creek that will restore and improve instream and riparian habitat conditions.

3. Project Location:

The Spotted Dog Creek watershed is located to the south of the Little Blackfoot River near the town of Avon, Montana. This project abstract focuses on the lower 3 miles of Spotted Dog Creek, from the confluence with the Little Blackfoot River upstream to the dam on Spotted Dog Creek. This area is entirely owned and managed by one agricultural operation.

4. Project Description:

Spotted Dog Creek originates near the Continental Divide and flows for approximately 14.8 miles before entering the Little Blackfoot River near Avon, Montana. The 4 uppermost miles of the creek flow through land managed by the U.S. Forest Service and the middle 5 miles flow through land managed by Montana Fish Wildlife and Parks. A 16-acre private reservoir is located at river mile 5.5. The lower 5.5 miles flow through privately owned lands, with the lowermost 2 miles flowing through Cross Canyon Ranch.

In 2013 TU investigated irrigation diversions in the Spotted Dog Creek watershed to quantify impacts to fish passage and entrainment and documented 5 irrigation diversions on the lower 3 miles of Spotted Dog Creek. Because of the limited summer flow on Spotted Dog Creek and irrigation demand, some of these structures are completed barriers to upstream fish migration. More recently, TU has collected data on instream flow, fisheries, riparian habitat, temperature and other metrics to develop a comprehensive conservation project that would address the known limitations for the creek – dewatering, fish passage, and instream and riparian habitat. Additionally, TU has identified instream flow as a limiting factor to fisheries in the Spotted Dog Creek watershed. Flow monitoring, anecdotal observation, and a riparian assessment by NRD contractors in 2015 has documented critical dewatering on reaches of Spotted Dog Creek during the period of July 1 to September 15, as well as reaches with opportunities for riparian improvement.

Pursuant to those efforts, TU developed a draft project plan for the private landowner on Spotted Dog Creek that would eliminate all fish passage barriers, reduce fish entrainment in ditches, improve summer streamflow and improve the efficiency of the agricultural operation. The project involves multiple components, including: 1) fish screen installation; 2) irrigation consolidation and efficiency; 3) stream restoration; 4) riparian fencing; and 5) related conservation measures.

5. Integration/Coordination with Restoration Plans:

Spotted Dog Creek is listed as a priority 2 stream in the *2018 Prioritization of Areas in the Upper Clark Fork River Basin for Fishery Enhancement*. This project builds upon existing project work proposed in the existing NRD plan for Spotted Dog Creek.

Benefits from this project will:

- 1) Maintain or improve native trout populations in the UCFRB to preserve rare and diverse gene pools, and improve the diversity and resiliency of the trout fishery. Spotted Dog Creek is a documented spawning and rearing area for westslope cutthroat trout.
- 2) Restore the mainstem trout fishery by improving recruitment of fish from tributaries. Snowshoe Creek is a documented, primary spawning area for brown trout in the Little Blackfoot River watershed.
- 3) Replace lost trout angling in the mainstem by improving trout populations in tributaries. The Little Blackfoot River is a heavily used recreational fishery, with access points at MFWP fishing access sites, private land and bridge crossings.

6. Project Schedule:

This project is expected to take at least three to five years to complete. One to two field seasons will be required to continue project development, finalize design plans and work with private landowners where appropriate. Project implementation can be phased over multiple years as needed.

7. General Cost Information:

Project Development -	\$80,000
Design/Technical –	\$150,000
Construction –	
Fish passage -	\$500,000
Water quantity -	\$300,000
Riparian Improvement -	\$100,000
Stream restoration -	\$200,000
Monitoring –	\$30,000
<i>Total</i>	<i>\$1,260,000</i>



Trout Creek Fish Passage and Habitat Project

1. Contact Information:

Trout Unlimited
312 N. Higgins Ave, Suite 2009
Missoula, MT 59802

Rob Roberts, Project Manager
rroberts@tu.org
406-540-2944

2. Project Purpose and Benefits:

The purpose of the project is to identify and implement projects in Trout Creek - tributary to the Little Blackfoot River - that will improve fish passage and instream and riparian habitat. The project is intended to improve fish populations in the Little Blackfoot River, its priority tributaries, and the Clark Fork River. Goals:

- Improve fish populations in the Little Blackfoot River, its tributaries and the Clark Fork River
- Improve native fish populations in the Little Blackfoot River, primarily bull trout and westslope cutthroat

Objectives:

- Identify projects that improve fish passage or improve riparian habitat through detailed analysis of fisheries data, stream temperature data, instream flow data, landowner coordination and information from other sources.
- Develop and implement 2 fish passage projects in Trout Creek through installation of fish screens or reconstruction of diversion infrastructure.
- Develop and implement 2 riparian and instream improvement projects in Trout Creek through stream restoration, installation of riparian fencing, offstream watering, or other conservation practices.

3. Project Location:

The Trout Creek watershed is located to the southeast of the Little Blackfoot River near the town of Avon, Montana. This project abstract focuses on Trout Creek, from the confluence with the Little Blackfoot River upstream to the headwaters.

4. Project Description:

Trout Creek is a tributary to the Little Blackfoot River that drains for approximately 11.5 miles before reaching its mouth near the town of Avon at Little Blackfoot RM 16.2 (Figure 6). According to the *2008 Assessment of Fish Populations and Riparian Habitat in Tributaries of the Upper Clark Fork River Basin: Phase II* much of the stream flows through private lands, although isolated parcels of State ownership are present in the lower and middle portions of the drainage. Additionally, the U.S. Forest Service also manages a few parcels interspersed among private land in the upper extent of the watershed. The primary land uses in the drainage are livestock grazing, flood irrigated hay production (lower four miles of the drainage) and timber harvest (upper half of the watershed).

Brook trout and westslope cutthroat comprise the fish population on lower Trout Creek. Higher in the watershed, westslope cutthroat trout are the most abundant species. Westslope cutthroat trout genetic samples collected in Trout Creek in 1989 showed that the fish tested were genetically pure.

TU believes working collaboratively with landowners to develop projects that reduce impacts to fish passage and entrainment— along with water conservation and habitat improvement activities – could improve fisheries populations in the watershed and the recruitment to the Clark Fork River. Additionally, instream and riparian habitat improvement projects on state and federal land higher in the watershed could improve the viability and distribution of native fish populations in Trout Creek.

5. Integration/Coordination with Restoration Plans:

Trout Creek is listed as a priority 2 stream in the *2018 Prioritization of Areas in the Upper Clark Fork River Basin for Fishery Enhancement*. This abstract includes new project proposals for that area.

Benefits from this project will:

- 1) Maintain or improve native trout populations in the UCFRB to preserve rare and diverse gene pools, and improve the diversity and resiliency of the trout fishery.
- 2) Improve fish populations in the Little Blackfoot River, its tributaries and the Clark Fork River

6. Project Schedule:

This project is expected to take at least five to ten years to complete. One to two field seasons will be required to fill data gaps related to features impairing water quality in this upper reach of the Little Blackfoot River, as well as prioritize projects working with state and federal land management agencies, and private landowners where appropriate. Project development with private landowners and agencies will take three to five years to complete. Engineering, design and construction will take one to two years to complete following project development.

7. General Cost Information:

Project Development -	\$50,000
Design/Technical –	\$50,000

Construction –

Fish passage -	\$100,000
Riparian Improvement -	\$50,000
Stream restoration -	\$75,000

<i>Total</i>	<i>\$325,000</i>
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Basin Creek Fish Passage Improvement

1. Contact Information:

Trout Unlimited
Casey Hackathorn
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Missoula, MT 59802
(406)546-5680 - casey.hackathorn@tu.org

2. Project Purpose and Benefits:

The project will improve fish passage for upper Basin Creek above the Basin Creek Reservoir. The project will benefit native westslope cutthroat trout populations in Basin Creek and the reservoir as well as improve public recreational fishing opportunity in the watershed.

3. Project Location:

The project is located on Basin Creek at the upper end of Basin Creek Reservoir south of Butte, MT.

4. Project Description:

Trout Unlimited proposes to assist NRDP, FWP and BSB to develop and implement a project to improve fish passage at a sediment control structure on Basin Creek at the upper end of Basin Creek Reservoir that has been identified by FWP as a fish passage barrier. The project will provide access to spawning habitat upstream of the reservoir and provide the opportunity to restore an a migratory population of westslope cutthroat trout.

5. Integration/Coordination with Restoration Plans:

Upper Basin Creek was reprioritized as a Priority 1 tributary under the 2018 revision of the *Prioritization of Areas in the Upper Clark Fork River Basin for Fishery Enhancement*. This project will enhance a replacement recreational fishery near Butte, MT as well as enhance isolated native fish habitat.

6. Project Schedule:

Project development could be initiated as soon as funding is made available for the project. Tentatively coordination of a design process with Butte Silver Bow Public Works, FWP, and NRDP could be completed in 2019 with project implementation in 2020.

7. General Cost Information:

Limited project scoping has been completed at this time. Based on past projects, we estimate the project could be completed for less than \$252,000.

Item	NRDP Cost
Salaries/Benefits	\$ 10,000
Contracted Services	\$240,000
Travel	\$ 2,000
TOTAL	\$252,000



Little Blackfoot River Flow Restoration

1. Contact Information:

Trout Unlimited
312 N. Higgins Ave, Suite 2009
Missoula, MT 59802

Rob Roberts, Project Manager
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406-540-2944

2. Project Purpose and Benefits:

The purpose of the project is to identify and implement water conservation measures in the Little Blackfoot River watershed through collaborative activities with private landowners and water users that will augment flows in key reaches during periods of critical water demand. The project is intended to improve fish populations in the Little Blackfoot River, its priority tributaries, and the Clark Fork River.

Goals:

- Improve streamflow and the amount of wetted perimeter for instream fisheries habitat
- Reduce water temperatures during periods of peak water demand
- Improve fish populations in the Little Blackfoot River, its tributaries and the Clark Fork River
- Reduce maintenance and/or improve the efficiency of agricultural operations for private landowners

Objectives:

- Evaluate and identify priority reaches for instream flow enhancement through detailed analysis of fisheries data, stream temperature data, instream flow data and information from other sources.
- Develop and implement 3 irrigation efficiency or water leasing projects in prioritized reaches to augment streamflow and decrease stream temperature.

3. Project Location:

Little Blackfoot River from the mouth at Garrison to confluence with Dog Creek.

4. Project Description:

There is an estimated 288 cfs of paper water rights in the Little Blackfoot River watershed. Irrigation demand in the Little Blackfoot River far exceeds the baseflow capacity, especially during drought years, and gaging data consistently shows that spring runoff is starting earlier in the spring and that the duration of high

flow is decreasing – causing greater and more prolonged drought conditions. Furthermore, with only one permanent USGS stream gage on the river near the mouth, the amount of quality streamflow data is currently limited and more information will be needed to fully understand the hydrologic budget for the full length of the river.

In 2013 TU investigated irrigation diversions along the length of the mainstem Little Blackfoot and tributaries and quantified impacts to fish passage and dewatering. Since that time, TU has continued working with NRD and Montana FWP to identify priority reaches for flow augmentation through field data collection, analysis of aerial imagery, and interactions with landowners and water users in the Little Blackfoot.

TU's analysis indicates that the period of critical flow in the watershed on an average year is roughly from July 15 through September 15, with the highest water temperatures showing in late July and the lowest flows in late August to early September. The USGS gage at the mouth of the Little Blackfoot River has demonstrated flows around or below 10 cfs during the summer on multiple occasions.

However, opportunities exist to work collaboratively with landowners to develop projects that mitigate the impacts of low flow to stream temperatures and fisheries impacts. Furthermore, prioritizing reaches based upon their location in the watershed, habitat quality, proximity to known spawning and rearing areas, and contribution from groundwater, tributaries and/or return flow sources will maximize the benefit of any instream flow enhancement projects.

5. Integration/Coordination with Restoration Plans:

The Little Blackfoot River is listed as a priority 1 stream in the *2018 Prioritization of Areas in the Upper Clark Fork River Basin for Fishery Enhancement*. This abstract builds upon goals for Water Quantity as listed in the *2012 Final Upper Clark Fork River Basin Aquatic and Terrestrial Resources Restoration Plans*.

Benefits from this project will:

- 1) Restore the mainstem trout fishery by improving recruitment of fish from tributaries;
- 2) Replace lost trout angling in the mainstem by improving trout populations in tributaries;

It should be noted that there are potentially beneficial projects for streamflow augmentation in the Little Blackfoot River that may not successfully go through the DNRC's Change of Use Process for conversion to instream flow, and may not need to go through this process to have real, tangible on-the-ground beneficial impacts to fisheries and streamflow in the basin. NRD may consider the potential need to revise the project review and approval process as a result.

6. Project Schedule:

This project is expected to take at least five years to complete. One to two field seasons will be required to fill data gaps related to streamflow. And an additional stream gage or flow monitoring program may be

necessary to provide valid, reliable data for project development. Project development with private landowners and irrigators will take two to five years to complete. Engineering, design and construction will take one to two years to complete following project development. Overall, this effort may take five to ten years to complete an effective, long term response to drought and dewatering in the basin.

7. General Cost Information:

Project Development -	\$100,000
Design/Engineering –	\$250,000
Construction –	\$1,500,000
Monitoring –	\$50,000
<i>Total</i>	<i>\$1,900,000</i>



Little Blackfoot Water Quality

1. Contact Information:

Trout Unlimited
312 N. Higgins Ave, Suite 2009
Missoula, MT 59802

Rob Roberts, Project Manager
rroberts@tu.org
406-540-2944

2. Project Purpose and Benefits:

The purpose of the project is to identify and implement project in the Little Blackfoot River watershed that will improve water quality in the mainstem, primarily upstream of the confluence with the Dog Creek. The project is intended to improve fish populations in the Little Blackfoot River, its priority tributaries, and the Clark Fork River.

Goals:

- Improve water quality in the Upper Little Blackfoot River
- Improve fish populations in the Little Blackfoot River, its tributaries and the Clark Fork River
- Improve native fish populations in the Little Blackfoot River, primarily bull trout and westslope cutthroat

Objectives:

- Characterize water quality problems, primarily through metals contributions, that are impacting water quality and fisheries in the Upper Little Blackfoot River and headwaters tributaries
- Develop and implement water quality improvement projects in the Upper Little Blackfoot River, primarily through reclamation and restoration of abandoned mining areas and related features.

3. Project Location:

The Upper Little Blackfoot River from the confluence with Dog Creek upstream to the headwaters.

4. Project Description:

In 2010, the Montana Department of Environmental Quality (DEQ) identified the Upper Little Blackfoot River stream segment as one of seven reaches in the watershed impaired by metals on the 303(d) list of water-quality-limited stream segments.

The Little Blackfoot watershed is home to multiple mining districts, and waste rock and tailings deposits still exist in the area. The Elliston District, where most of the mining in this watershed occurred, is near the headwaters of the Little Blackfoot River. TMDLs were written in 2011 for the Upper segment of the Little Blackfoot River for arsenic, cadmium, copper, cyanide, and lead. There are five known DEQ priority mines in the Upper Little Blackfoot sub-basin responsible for these water quality impacts: Charter Oak, Kimball, Mountain View, Golden Anchor, and SE SW Section 10. The Charter Oak mine was partially reclaimed in 1998 by the US Forest Service. The site had waste rock removed, tailings removed, hazardous openings closed, and an onsite repository constructed. The Forest Service completed partial reclamation activities at the Kimball mine and nearby sites in 2004.

More recently, in 2016, TU, DEQ and the Forest Service initiated a plan to reclaim a complex mine sites in the Upper Little Blackfoot watershed, including the Mountain View and Golden Anchor priority mines sites

Montana Department of Fish, Wildlife and Parks (FWP) listed bull trout and westslope cutthroat trout as "Species of Concern" and the U.S. Fish and Wildlife Service (USFWS) listed bull trout as "threatened" in 1998 (Montana Natural Heritage Program (MNHP) & FWP 2013). Further, eDNA data collection by TU and the Forest Service indicates that this upper reach of the Little Blackfoot harbors an interconnected bull trout population. Interestingly, the positive hits for bull trout end abruptly on the downstream end where historic mining activity and the metals impact on water quality is the most impactful.

Phase I of the Tramway Creek Mine Reclamation Project will commence in 2019 and remove approximately 20,000 cubic yards of mine waste from the Little Blackfoot River and adjoining tributaries at a cost of 1.2 million. Further work downstream on the Little Blackfoot will be necessary in the vicinity of the Charter Oak mine to accomplish significant metals loading reductions in this reach and restore full fisheries suitability.

5. Integration/Coordination with Restoration Plans:

The Upper Little Blackfoot River is listed as a priority 2 stream in the *2018 Prioritization of Areas in the Upper Clark Fork River Basin for Fishery Enhancement*.

Benefits from this project will:

- 1) Maintain or improve native trout populations in the UCFRB to preserve rare and diverse gene pools, and improve the diversity and resiliency of the trout fishery.

6. Project Schedule:

This project is expected to take at least five to ten years to complete. One to two field seasons will be required to fill data gaps related to features impairing water quality in this upper reach of the Little

Blackfoot River, as well as prioritize projects working with state and federal land management agencies, and private landowners where appropriate. Project development with private landowners and agencies will take three to five years to complete. Engineering, design and construction will take one to two years to complete following project development.

7. General Cost Information:

TU anticipates the opportunity for substantial cost-share from state, federal and other grant sources for these water quality improvement projects. To date, more than \$1 million has been spent on mine reclamation work in the Little Blackfoot headwaters, with an estimated \$1.5 million already secure for reclamation work (ie. Mine waste removal and containment) in 2019-2020. NRD financial resources would leverage additional funds for work in this area for these projects and future efforts.

Construction: \$100,000



SILVER LAKE FLOW ENHANCEMENT PROJECT

1. Name and Contact Information:

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 Trout Unlimited, Montana Water and Habitat Project
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 Telephone: 406-449-9922(o); 406-465-7330©
 Email: sbradshaw@tu.org

2. Project Purpose and Benefits:

Background. The 2012 Upper Clark Fork Aquatic and Terrestrial Resources Restoration Plan ("Plan") characterizes Clark River between Galen and Deer Lodge as "the worst dewatered area in the Clark Fork River." (Plan at p. 3-11), and indicates that "projects that may supply instream flows" to that area receive the highest priority. (Plan at p. 3-12). While there are several flow projects proposed for that reach, the largest source of potential instream flow resides in Silver Lake, located in the head of the Warm Springs Creek watershed. Uncertainty about the status of Silver Lake, but in recognition of its potential importance to the restoration effort led Governor Schweitzer to append a special statement to his approval of the Plan in 2013 directing the NRD staff to "investigate and analyze the costs and benefits of acquiring Silver Lake versus other potential sources for instream flow."

In response to the initial solicitation of project abstracts, the government of Butte Silver Bow submitted a proposal to initiate repairs to the Silver Lake system that it projected would cost \$20 million in exchange for instream flow releases. Although NRD has apparently rejected that proposal, NRD staff worked with trout Unlimited, Butte Silver Bow, and other partners in the summer of 2017 to initiate a release of 32 cfs from Silver Lake down Warm Springs Creek and into the upper Clark Fork to test the feasibility of using Silver Lake water to augment instream flows between Galen and Deer Lodge. The release, which was done without attempting to regulate the activities of any diversions within that reach, demonstrated that it is possible to deliver a measurable increase in flows to that reach. The report summarizing the release suggested several options going forward, all but one of which contemplate pursuing a long-term agreement with Butte Silver Bow.

At the start of June, Dave Schultz, the BSB public works director resigned his position, and suggested that Tu approach Jon Sesso, the Superfund coordinator for BSB, about future Silver Lake efforts. TU has contacted Mr. Sesso, and, pursuant to his suggestion, contacted Brian Wilkins, BSB Water Divisions operations manager about conducting test release in 2018. TU has not received a reply to its inquiry

Project Purpose. In the wake of the 2017 effort, the project proposed by this abstract would be to

simultaneously pursue additional pilot releases, successfully completing negotiations with Butte Silver Bow, and implementing a long-term (this proposal assumes a term of 20 years for this abstract) flow-release program in cooperation with Butte Silver Bow.

Project Benefits. While there are already projects underway to secure instream flow agreements with some of the largest diversions in the Galen/Deer Lodge reach, this project would complement those efforts by allowing for a strategically-timed pulse of water through the reach at times of greatest flow need in the reach. While releases from Silver Lake might not be able to achieve the flow goals in the Plan,

3. Project Location:

Silver Lake is located high in the Warm Springs Creek watershed approximately 1.5 miles east of Georgetown lake in SW1/4SE1/4SW1/4 of Section 22, T5N R13W, in Deer Lodge County. The effect of a release from Silver Lake would potentially extend downstream as far as the town of Deer Lodge.

4. Project Description:

The Silver Lake Flow Enhancement Project would include the following components:

- A) Advise and assist NRDP in its negotiations with BSB and work with both entities to secure an additional flow release agreement in 2018 and to explore with both entities various approaches for securing a long-term release.
- B) Coordinate with all stakeholders, including NRDP, BSB, Montana Fish, Wildlife and Parks (FWP), Clark Fork Coalition(CFC), landowners (including riparian landowners). Identify critical irrigators with potential diversions in the targeted reach and identify critical measurement cross-sections locations. Assist NRDP with scheduling and announcement dates of the release, and identifying and addressing any potential impacts or issues that may result from the release(s);
- C) Consult with and advise NRDP on any legal issues related to Silver Lake flow releases as NRDP requests.
- D) Work with BSB, FWP, other project partners, and water users to implement any release(s) including the management and monitoring of flows before, during, and immediately after the release(s).
- E) Draft a report summarizing the release effort and discussing future options to pursue.
- F) Implement a long-term agreement, including establishing the protocol for requesting a release; maintaining a monitoring system between Silver Lake and Deer Lodge to track any release from Silver Lake pursuant to a long-term agreement.

5. Integration/Coordination with Restoration Plans: In addition to the terms of the 2012 Plan described above, the 2018 Aquatic Prioritization Plan underscored earlier state commitments to augmenting flows in the reach between Galen by up to 50 cfs. (See Prioritization of Areas in the

Upper Clark Fork River Basin for Fishery Enhancement, p. 4.) This project will integrate with other instream transactions efforts being conducted by the Clark Fork Coalition (CFC), and will—as did last year’s project—utilize the monitoring sites on the Clark Fork that CFC has in place.

While the other projects, if they come to fruition, will secure some valuable base flows, they alone cannot provide augmentation of flows of up to 50 cfs, nor can they provide a sustained pulse of water during the most severe low-flow events. Releases from Silver Lake can provide that pulse flow. A Silver Lake flow project provides the best—indeed the only—hope of realizing that goal.

6. Project Schedule:

Item	July 2018	August 2018	September-December 2018	2019-2039
1. Project development-- Work with NRDP and BSB to review and critique 2017 test release; discuss possible 2018 release.				
2. Communicate/negotiate with BSB and other partners to schedule an August release.				
3. Review 2017 monitoring plan, make revisions as necessary, contact landowners along WSC and UCFR and other partners; work with BSB on a scaled release regime.				
4. Conduct pre-release monitoring; monitor release and measurement and conduct follow-up. Analysis and report the results of the test release.				
5. Complete Evaluation and Assessment of 2018 effort, continue discussion with BSB.				
6. Complete negotiation of a long-term flow-release agreement and implement the agreement.				

7. General Cost Information:

Item	Total	Matching (anticipated)	NRDP
Salaries/Benefits	\$132,000	\$60,000	\$ 72,000
Supplies/Materials	\$ 2,000	\$	\$ 2,000
Contracted Services	\$ 25,000	\$	\$ 25,000
Travel/Communication	\$ 8,000	\$	\$ 8,000
Equipment	\$ 5,000	\$	\$ 5,000
TOTAL	\$172,000	\$60,000	\$112,000

1. PROJECT TITLE: Clark Fork Restoration Discovery & Research Center: Concept Development and Implementation Project

2. ORGANIZATION AND CONTACTS:

Contact:	Address:	Phone:
Karen Knudsen, Clark Fork Coalition, Executive Director	140 S 4th St W # 1, Missoula, MT 59801	Tel. 406-542-0539 x203
Will McDowell, Clark Fork Coalition Restoration Director	same	Tel. 406-542-0539 x 204 406-396-7716 cell
Lily Haines, Clark Fork Coalition Education Manager	same	Tel. 406-542-0539 x. 200 406-361-7069 cell

3. PROJECT PURPOSE AND BENEFITS:

The purpose of the project is to conceptualize, design, and implement plans to convert the Clark Fork Coalition's ranch house and five-acre property on Dry Cottonwood Creek near Galen into a community resource for research, education, and outreach about the recovery of the Upper Clark Fork River. Funds would support a community-driven process to explore and develop a facility and property for uses that could include, but are not limited to, a hands-on watershed learning classroom; a field station for research, monitoring, and interpretation of the recovery of the river; and a community resource and gathering place for the public to engage in the unique story, science, and processes of the historic cleanup and transformation of the Upper Clark Fork River.

The project addresses a need to amplify broader engagement in the cleanup and restoration of the Upper Clark Fork River corridor. This includes increasing awareness of the work, successes, lessons learned, and ongoing investments of NRDP and other public and private entities in the restoration and recovery of the river and surrounding ecosystems. A community center located on the banks of the Clark Fork in the heart of the Superfund cleanup area could provide accessible, timely, and accurate cleanup and restoration information, as well as user-friendly interpretation of that information. Community involvement in the conceptualizing and development of such a resource would build public trust in a venue and programming that directly connects them to the science, partners, processes, and progress of the cleanup, thereby increasing public investment in its success.

Benefits:

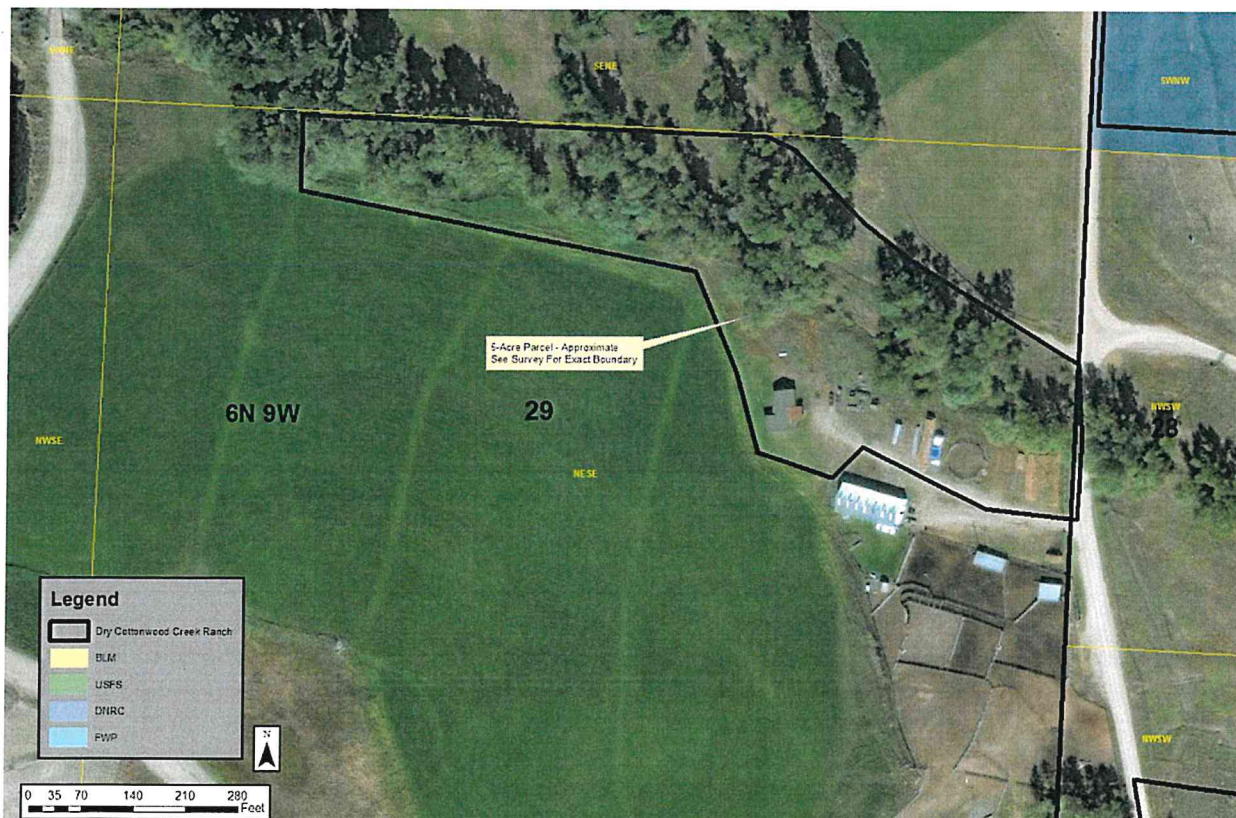
- Improve community understanding of key river functions (i.e., connectivity, aquatic habitat complexity, and functioning floodplain and riparian connections) and the objectives of restoration in the UCF that affect successful recovery.
- Empower citizens to engage in the challenges and opportunities for cleanup and restoration as advocates for an ecologically-sound river system.
- Leverage long-standing relationships among the Clark Fork Coalition, its conservation partners, public schools, user groups, county and city officials, and agricultural landowners to deepen public involvement and investment in cleanup and restoration efforts.

- Help meet community needs identified via recent (2017) Coalition-administered interviews with Deer Lodge Valley community members and key partners, including:
 - Lack of access to expert knowledge
 - Lack of public access to Superfund cleanup
 - Misinformation and lingering questions about how and why cleanup and restoration work is being conducted
 - Lack of community gatherings or an organizing body to provide information about current cleanup strategies

4. PROJECT LOCATION AND MAP:

The Clark Fork Coalition's ranch house and five-acre property is located near Galen, Montana, nine miles south of Deer Lodge, Montana off of East Side Road near the mouth of Dry Cottonwood Creek and the mainstem of the Clark Fork River (see map below). This property is unique in that most of the surrounding land in the Superfund cleanup zone (from Warm Springs to Garrison) is private agricultural land. The ranch house and surrounding land are adjacent to the restored river and floodplain.

MAP of Clark Fork Coalition Ranch House and Property (5 acres):



5. PROJECT DESCRIPTION:

Background:

Since 2005 the Clark Fork Coalition (Coalition) has operated Dry Cottonwood Creek Ranch (DCCR) as a Superfund cleanup demonstration site. Because most of the river corridor undergoing remediation flows through private ranchlands, the Coalition volunteered to be first in line for cleanup, with the goal of demystifying the process of cleaning up an active agricultural operation, sharing the experience with other the public, and securing 100% participation in cleanup by other ranchers.

Superfund cleanup on DCCR started in 2014 and finished in 2016. During this period, and throughout its ownership, the Coalition, with significant support from NRDP, has also worked to enhance aquatic and terrestrial resources throughout the 2,300-acre property, including stream restoration and enhancement, weed management, and other conservation projects. Beginning in 2012, the Coalition also developed a watershed science education program for local high school students that incorporates the science behind cleanup and stream restoration into classroom- and field-based learning. The Coalition also used this property to reach out to, engage, and educate other landowners about Superfund cleanup, providing a forum in which they could ask questions, take tours, speak with agency representatives, and get a firsthand look at cleanup progress and processes.

With Superfund cleanup complete on the portions of the river that flow through DCCR (Phases 5, 6), the Coalition began working with NRDP to purchase the ranch from its conservation partners, buy the adjacent Deer Lodge River Ranch, combine the two ranches, place both under conservation easements, provide for public access, and then sell the combined properties, preferably to a local agricultural producer. This process is still underway as of this writing. As part of this transaction, the Coalition will maintain ownership of the five-acre parcel and ranch house described above.

In preparing for its strategic planning sessions in 2017 and 2018, the Coalition interviewed local agency and community partners about the future of the Superfund cleanup and restoration of the Upper Clark Fork River. Several issues emerged from this process: notably, the lack of community access to information and expert knowledge of the Superfund process, and the resulting lack of investment, interest, and understanding of the river's restoration.

In response, the Coalition is creating strategies to address these issues, including re-imagining and re-purposing the ranch house and surrounding property to serve as point of community access to, and advocacy for, a successful and ecologically-sound, restoration.

This strategy emerged because this property's location, and the Coalition's history with it as an education, outreach, and restoration hub, makes it an ideal venue to provide rich, dynamic interaction between the public and the restoration of the Upper Clark Fork. It is a rare gateway to Superfund cleanup, as it is one of the few reaches with public access. Developing a discovery and research center through a community-driven process would provide the public, scientists, researchers, restoration specialists, conservation partners, agencies, and the local community with a unique gathering place to engage in their river and learn about and be part of the story of its recovery.

However, the current 1,500 square-foot building is not compatible with significantly-increased public use. Desired upgrades to serve a range of possible public uses include creating a community room for trainings, workshops, meetings, and after-hours small community discussions; research areas; interactive displays and interpretive signage; a river-viewing area; a bunkhouse or other capacity for overnight or extended stays for researchers; improved restrooms, access, and parking; and more.

Project Goal:

Enhance community investment in and engagement with the restoration and recovery of the Upper Clark River and associated ecosystems.

Objective:

Create a community-envisioned and trusted venue that provides information about and opportunities to engage in cleanup and restoration activities, decisions, progress, and successes.

Tasks/Activities:

a) Design: The Coalition will coordinate with diverse community partners to facilitate a collaborative design process to reimagine and improve the Dry Cottonwood Creek ranch house property to better facilitate meaningful interaction with the restoration and cleanup of the Upper Clark Fork River, floodplain, and associated ecosystems. Design elements will be community-directed, and could include: a) interpretive information about the remediated and restored river, b) renovations to the ranch house to better serve as a place for meetings, research, signage, river viewing and exploration, and other uses.

b) Construction: The Coalition will coordinate bidding and selection of appropriate contractors to design and implement improvements to the ranch house and surrounding 5 acres. This work will include reviewing designs, managing contracts, securing matching funds as needed, overseeing construction work, keeping the public informed about progress, and ensuring successful implementation.

c) Community outreach and access: The Coalition will develop and coordinate educational programming that: 1) provides information about Superfund cleanup and river/floodplain restoration processes 2) creates opportunities for community discussion and engagement; and 3) offers access to expert knowledge and interpretation the river's recovery. Programming will include the Coalition's established youth programming with Deer Lodge, Anaconda, and Garrison schools; opportunities for university researchers and students to engage in studying the cleanup and restoration; opportunities for partners to host educational events, meetings, and community discussions at the property; and more.

Progress to date:

(Also see information provided in "Background" section above.)

The Coalition became co-owner and manager of Dry Cottonwood Creek Ranch in 2005 and, in cooperation with NRDP, is now purchasing DCCR and an adjacent ranch to consolidate the properties, protect them with a conservation easement, then sell the united property to an agricultural producer, maintaining ownership of the ranch house and surrounding 5 acres. Over the last 13 years, the Coalition has worked extensively to implement conservation measures on the ranch, including improving soil conditions, converting to pivot irrigation, increasing flow in Dry Cottonwood Creek, carrying out stream restoration and fish barrier removal projects, improving grazing practices, and much more.

As described above, during this time the Coalition also created a watershed science education program for local youth, and worked extensively to reach out to, engage, and keep informed local landowners and ranchers (including conducting tours of cleanup and restoration sites; holding "Superfund Supper Club" meetings to answer questions about the cleanup; serving on CFRTAC; and serving as a liaison between the public and state and federal agencies conducting cleanup and restoration activities).

In preparation for a future, public use of the ranch house and property, the Coalition has:

- initiated a planning process to explore strategies to increase public engagement and investment in cleanup and river restoration activities in the Upper Clark Fork
- met with partner organizations and stakeholders to get initial input on the future of the ranch house and opportunities for community use and programming
- engaged in real estate transactions to secure the ranch house and surrounding property
- explored potential funding for the project with at least one private foundation

Lead entity and partners: The Coalition is the project lead, with the NRDP, county governments, Anaconda and Powell County schools districts, Clark Fork Watershed Education Program, and the Montana University system as key partners.

6. PROJECT SCHEDULE:

Item:	2019	2020	2021-2023
Community Design Process			
Secure Funding			
Permits/ Bids / Contracting (design & construction)			
Construction			
Project Management / programming			

7. ESTIMATED BUDGET:

Item	Total Cost	Anticipated Match	NRDP	Notes
Project Management (Salaries & Benefits)	\$50,000	10,000	40,000	Program directors, education coordinator
Contracted Services	\$100,000	20,000	80,000	Design; construction
Construction	\$500,000	50,000	450,000	Direct costs – building remodel or additions, ADA compliance, infrastructure, trails, signage, exhibits, etc.
Travel	\$5,000	5,000	0	Missoula to Galen
Supplies/Equipment	\$2,500	2,500	0	Community engagement; education and outreach
Total:	\$657,500	\$87,500	\$570,000	

Matching funds will be gleaned from private, state, and federal sources. Match is likely to increase as the project progresses, but unsecured match is not included in the budget at this time.

The salaries are for Coalition staff to coordinate the project, including facilitating a community design process, procuring funding, writing permits, selecting, coordinating, and supervising contractors, and developing education and outreach materials, activities, and curricula, assisting with creation of exhibits and signage, and coordinating community educational programming.

From: [Zarling, Rory](#)
To: [Natural Resource Damage Program](#)
Cc: [Skaar, Donald](#); [Kuser, Allan](#); [Saffel, Patrick](#); [Martin, Douglas](#); [Downing, Beau](#); [Mostad, Tom](#)
Subject: UCFRB Aquatic and Terrestrial Resources Restoration Plans, 2018 Update, Solicitation of New Restoration Action Concepts and Potential Revisions
Date: Friday, July 6, 2018 6:24:16 PM
Attachments: [image001.png](#)

NRDP,

Please consider this submittal (email) as a request for additional funding to complete the goal of acquiring and developing a series of Fishing Access Sites (FASs) on the upper Clark Fork River. During the 2012 process, FWP was successful in being allocated \$1,000,000 to acquire and develop approximately 10 FASs on the Clark Fork from its headwaters downstream to Beavertail Hill near Clinton, Montana. Due to complications, delays, permitting and social issues, increases in construction costs and underestimating the actual costs of acquisition and development, we are requesting additional funding (\$600,000) to complete the original work.

To date, we have spent or allocated for approximately \$650,000 of the original \$1,000,000 on four sites—Racetrack Pond, Kohr's Bend, Gold Creek, and Bearmouth. To be completed yet are Garrison, Beavertail Hill, DNRC Section 16, Jens, and a BLM site or Bear Gulch. We anticipate that an additional \$600,000 is needed to complete the sites.

Our original paperwork submitted in 2012 remains accurate with only the need of additional funding in the amount of \$600,000.

Hopefully this request can be considered adequate for consideration. The 2018 flooding issues are currently consuming all of our time and personnel in getting sites repaired and reopened for the public, but if you need more information we could provide that over time.

Thank you!

Rory Zarling

Fishing Access Site Manager, Region 2

Fisheries Division

Montana Fish, Wildlife & Parks

3201 Spurgin Road

Missoula, MT 59804

Office (406) 542-5561 Cell (406) 552-5231

rzarling@mt.gov



Your Name and Contact Information: Provide mailing address, phone number, and e-mail contact information.

Carl Hamming, Powell County Planner, 409 Missouri Ave. Suite 101, 406-846-9729,
chamming@powellcountymt.gov

Project Purpose and Benefits: Indicate why the project or revisions is being proposed. Include the expected goals, objectives, and outcome of the project or revision. Describe how the project or revision would benefit aquatic or terrestrial resources within the Upper Clark Fork River Basin (UCFRB), how the project coordinates with priorities listed in the Restoration Plans, how project integrates with restoration actions being implemented by these plans, and/or would benefit the public's use and enjoyment of those resources.

This project would inventory and identify potential linkages between the recreational assets, opportunities and river access points within the Upper Clark Fork River watershed, from Warm Springs to Drummond. The inventory would identify existing facilities and/or access points, those currently in development and those that have the potential to be developed in conjunction with restoration activities. The inventory would be meant to enhance and connect recreational assets in the watershed (i.e. fishing access sites, hiking and biking trails, parks, public access for hunting, etc.).

The watershed contains many completed and ongoing recreational projects. A formal planning effort to identify and align these projects would provide an overall vision and guidance to recreational projects (and the recreational component of restoration projects) in the Upper Clark Fork. Analyzing the status of existing recreational opportunities and identifying potential projects would help the Advisory Council and NRDP prioritize the allocation of future restoration and recreation dollars in an efficient and logical manner.

Members of the Advisory Council have previously voiced their desire to see public recreational access and connectivity emphasized in future projects that provide access to the injured areas of the Clark Fork River Basin. Conducting an inventory of what exists and identifying potential linkages would produce a guiding document that would assist the Advisory Council and NRDP with future Restoration Plan updates and project prioritization. As part of assessment, for each specific project, it would be crucial to analyze feasibility to inform project prioritization and improve the likelihood of on-the-ground success.

Project Location: Provide a short description of the project location, along with a project map.

The scope of this planning project encompasses recreational assets and opportunities from Warm Springs to Drummond within the Upper Clark Fork River.

Project Description: Describe the components of the project and how it will be implemented. Also indicate any suggested lead entity and project partners for implementing the project. Indicate what progress, if any, has been accomplished to date on the project.

Powell County is proposing to be the lead entity on the project, though if the project were funded, the County would hire a contractor to manage the project across the tri-county region. The contractor would analyze existing recreational-focused master plans, interview stakeholders and potential partners, conduct an inventory of current developments and proposed restoration activities to produce a visionary document with different options and alternatives to enhance existing recreational projects

and . The final document would highlight potential linkages and high-priority areas as well as increase coordination and dialogue between partners and stakeholders.

Potential project partners may include the Anaconda Sportsmen, Powell County Parks Board and Trails Subcommittee, Anaconda Trails Society, Granite County, Deer Lodge County, MT DEQ, MT FWP, MT DNRC, the National Park Service. The guiding document would build upon the previously completed recreational Master Plans such as the Powell County Trails Master Plan and Arrowstone Park Master Plan.

Integration/Coordination with Restoration Plans: Describe how the components of the project or revision will integrate and coordinate with current projects being implemented as part of the Restoration Plans.

Substantial investments have been made to remediate and restore sections of the Clark Fork River below Warm Springs, although improvements to restore recreational opportunities to these areas have been on a case by case basis with no formal integration into a larger recreational or access plan. This proposal will take a coordinated approach to inventory existing facilities and access points and future routes or access points. This proposal seeks to prioritize recreational opportunities by focusing on those that:

1. Minimize or reduce user impacts to the resource through designated access points or travel corridors
2. Improve the use of existing sites, projects or access points through linkages
3. Develop access to hunting, fishing and other forms of recreation in the injured areas that ensure sufficient protection to the habitat and resource

Coordination between partners and integration of ongoing and proposed restoration/recreation projects is the overarching goal of the abstract proposal. Producing such an overall planning and coordination document would bring cohesion to the ongoing efforts of NRDP, DEQ and other agencies such as FWP and help direct future efforts and allocations. Ultimately, this effort will assist with prioritizing future investments in recreational projects by identifying where access or facilities are needed most within the injured area along the Clark Fork between Warm Springs and Drummond.

Project Schedule: Indicate the timeframe needed to complete the project and any specific completion deadlines that would apply.

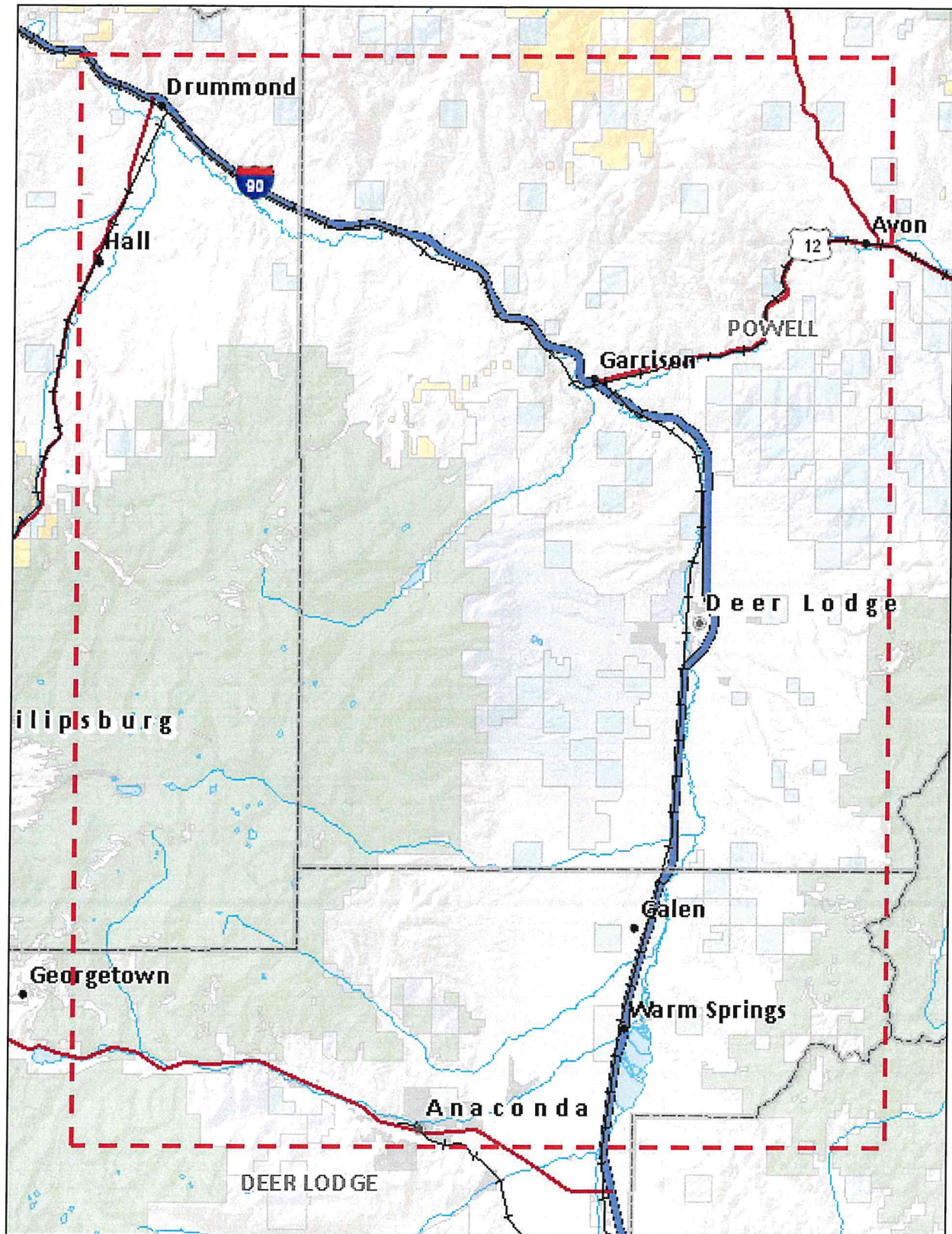
The planning effort could be completed in six (6) to nine (9) months depending on the level of public outreach and the number of parties participating. With the final report, future proposals for facilities, access points and travel routes will be proposed and discussed.

General Cost Information: Provide an estimate of total project costs. If possible, provide a categorical breakdown of the costs for the following categories: salaries/benefits; contracted services; supplies and materials; travel and communication; equipment; or other (specify). Indicate committed or anticipated matching funds.

A specialized consultant completed the Arrowstone Park Master Plan (~\$49,000 in 2015) and the Deer Lodge Valley Trails Plan (~\$34,000 in 2016) for Powell County Parks Board and Powell County Trails Sub-Committee. For the planning portion of the project, Powell County is requesting \$55,000 to hire a consultant to conduct the inventory and finalize the results. Due to the uncertainty of recreational projects being funded in future updates of the Restoration Plan, it would be important

to begin work on implementing the findings as soon as the inventory assessment is completed. Therefore, in addition to the planning effort, Powell County requests \$120,000 to begin work on the short-term goals and projects highlighted in vision document.

In-kind support will be supplied by Powell County's Planning Department through grant administration and coordination.



TO: Natural Resource Damage Program
1720 9th Ave
P.O. Box 201425
Helena, MT 59620-1425
Phone: (406) 444-0205
E-mail: nrdp@mt.gov

FROM: Anaconda Trail Society
118 East 7th Street
Anaconda, MT 59711
Phone: 4065635538
Email: lydiabjanosko@gmail.com

DATE: July 06, 2018

SUBJECT: Proposed Restoration Action Concept Abstract Form, West Valley Trail

Anaconda Trail Society submits this project abstract for consideration by the Natural Resource Damage Program for inclusion in the 2018 Restoration Plan update. Below is the basic information indicated in Abstract A of the solicitation published on May 25th, 2018.

Thank you for your time and consideration.

Kindest Regards,

Lydia Janosko | Board Treasurer

Name and Contact Information:

Lead Entity: Anaconda Trail Society

Address: 118 E 7th Street

Phone: 406 563 5538

Contact Person: Lydia Janosko

Phone: 4065635538

Email: lydiabjanosko@gmail.com

Project Purpose and Benefits

Anaconda Trail Society respectfully submits for consideration the West Valley Trail – a recreational trail utilizing a remediated railroad bed parallel to Montana Highway 1 West from Linden Street to Olson Gulch Road in Anaconda-Deer Lodge County – as a restoration action concept to be included in the 2018 Restoration Plan Update. Repurposing the remediated railroad bed existing in the terrestrial injured resource area, for which the State made restoration claims, as a recreational trail will protect and enhance the wildlife resources in this resource area, while also enhancing access to existing NRD recreational projects (Washoe Park Duck Pond and Hefner's Dam).

The West Valley Trail (WVT) will extend the urban trail network westward by roughly three miles, establishing a cohesive system of over nine miles of trail; three times the entire length of the city of Anaconda. This urban trail network currently consist of five individual trails: the Washoe Park trails, the Upper and Lower Old Works trials, the Red Sands Trail, and the Hefner's Dam Trail. The addition of the West Valley Trail (WVT) will create an alternative transportation route to neighborhoods and recreational resources previously inaccessible such as the West Valley community and the Blue-eyed Nelly recreation area. The WVT will also enhance access to existing NRD recreational projects within the city limits of Anaconda. The goals, objectives, and outcomes of this restoration action concept are as follows:

Goal 1: Enhance existing NRD recreational projects.

Objective A: Create alternative transportation access from the western neighborhoods of Anaconda (West Valley and New Addition) to the Hefner's Dam and Washoe Park trails.

Outcomes: 1) Increase the accessibility and visitation of Washoe Park and the newly restored Duck Pond by the western neighborhoods of Anaconda-Deer Lodge County. 2) Increase the accessibility and visitation of the Hefner's Dam fishing area from the western neighborhoods of Anaconda-Deer Lodge County.

Objective B: Any other NRD projects in the area?

Outcomes:

Goal 2: Prevent resource degradation by the user public.

Objective A: Create designated walking and bicycling pathways along Montana Highway 1 west to prevent further damage to the terrestrial injured resource area.

Outcomes: 1) Encourage appropriate recreational use of Anaconda-Deer Lodge County's natural resources. 2) Create a maintainable path to ensure Superfund Remedy 3) Provide a surface to withstand all users.

Goal 3: Offer resource benefits in addition to recreational benefits.

Objective A: Create an alternate transportation route for residents of West Valley and Olson gulch to reach the amenities and services in Anaconda without driving a vehicle.

Outcomes: 1) Healthier individuals 2) Connectivity for residents that cannot drive to cost or disability.

Project Location:

The proposed crushed gravel trail will utilize a remediated railroad bed that runs parallel to Montana Highway 1 between Linden Street and Olson Gulch Road; a distance of roughly three miles.

Project Description:

The West Valley Trail (WVT) will repurpose a remediated railroad bed existing within the right-of-way of Montana Highway 1 West, owned by the Montana Department of Transportation, for a crushed gravel trail from the western edge of the Anaconda city limits (Linden Street) to Olson Gulch Road. Anaconda Trail Society, the lead entity of this project, began developing a plan for a recreational trail west of Anaconda with the Montana Department of Transportation (MDT) in 2010. The Montana Department of Transportation (MDT) included the West Valley Trail (WVT) into their plan in 2015. Understanding the importance of establishing a transportation system that serves both motorized and non-motorized users, MDT has not only agreed to grant indefinite trail easements for the WVT, but also to complete the construction of the trail. To implement this project, all that remains is for Anaconda Trail Society to gather the funds necessary to purchase the materials for construction; an estimated cost of \$500,000. Due to the successful collaboration between Anaconda Trail Society and MDT, the West Valley Trail project will break down during the Montana Highway 1 West construction between 2020 – 2025.

Integration/Coordination with Restoration Plans: Describe how the components of the project or revisions will integrate and coordinate with current projects being implemented as part of the Restoration Plans.

Project Schedule: Indicate the timeframe needed to complete the project and any specific completion deadlines that would apply.

The project is slated between 2020 and 2025 by the Montana Department of Transportation. Anaconda Trail Society will need to have the necessary funds by the time of construction start on the Montana Highway 1 West remodel.

General Cost Information:

Anaconda Trail Society's project partner, the Montana Department of Transportation (MDT), will provide the matching funds for this project. MDT will complete the construction of the West Valley Trail, an estimated value of \$600,000. Funds are needed to purchase the supplies and materials for construction of this crushed gravel trail. This is estimated at \$500,000. Anaconda Trail society will also be working with other state agencies, and local fundraising to reach that amount.

Cost Category	NRD Funds	Matching Funds	Total Category Cost
Salaries/Benefits	\$0.00		
Contracted Services	\$0.00		
Supplies and Materials	\$200,000	\$300,000	\$500,000
Travel and Communication	\$0.00	\$0.00	\$0.00
Equipment	\$0.00		
Other (specify):	\$0.00	\$0.00	\$0.00
TOTAL:	\$200,000	\$300,000	\$500,00

Proposed Restoration Action Concept Abstract (7/5/18)

Name and Contact Information: Michael Kustudia, MT FWP, 3201 Spurgin Road, Missoula, MT 59804, mkustudia@mt.gov

Project Purpose and Benefits: Indicate why the project or revisions is being proposed. Include the expected goals, objectives, and outcome of the project or revision. Describe how the project or revision would benefit aquatic or terrestrial resources within the Upper Clark Fork River Basin (UCFRB), how the project coordinates with priorities listed in the Restoration Plans, how project integrates with restoration actions being implemented by these plans, and/or would benefit the public's use and enjoyment of those resources.

Montana FWP has received previous financial support from NRDP to provide enhanced recreational access and facilities for public use at Milltown State Park in the area surrounding the confluence of the Blackfoot and Clark Fork Rivers. In 2018, the Confluence and Gateway areas of the park were opened to the public with a community-based grand opening celebration held on June 23rd. With initial development now complete and the park open to the public, the next phase of projects (proposed here) represent the next step to enhance the recreational developments that will benefit the public, community, local economies and the state's restoration efforts.

Milltown has been an excellent example of how cleanup and restoration work. Continued NRDP support through this next stage of park development would leave an amazing legacy of what can be done and done well in the restoration economy, from start to finish. We can set the bar for integrated remediation, restoration and redevelopment or in this case natural resource-related recreational replacement. More important, though, is that successful park development and management will protect the NRDP's substantial investment in the Milltown remediation and restoration effort.

Project Location: Provide a short description of the project location, along with a project map.

This project area is within the Milltown Restoration Project area and Milltown Reservoir Sediments Superfund site at Milltown State Park. The Confluence area is located at 7501 Juniper Drive. Tunnel 16 ½ is part of the old Milwaukee Road railroad grade and connects the restored Clark Fork River floodplain area to the Bandmann Flats area off of Deer Creek Road. The BDG property is currently a community park that is immediately adjacent to Milltown State Park upstream of the confluence on the Clark Fork River.

Project Description: Describe the components of the project and how it will be implemented. Also indicate any suggested lead entity and project partners for implementing the project. Indicate what progress, if any, has been accomplished to date on the project.

Tunnel Safety Improvements

Milltown State Park received funding from the Recreational Trails Program in 2018 to begin work on an ADA-accessible trailhead at the Bandmann Flats area and develop new non-motorized trails at the Park. (Additional funds for the trailhead and trail will be requested from the Missoula County Park & Trail Bond Program later in 2018.)

This project will continue the work toward creating a greater trail network in the state park with linkages to a regional system connecting to Montana's second largest urban area. The larger trail effort includes safety improvements to the Milwaukee Tunnel 16 ½, which will afford an accessible connection between Bandmann Flats and NRDP-funded trails on the restored Clark Fork River floodplain. The tunnel is approximately 700 feet long. Most of the tunnel is in adequate shape, though the western end (~100 feet) is in need of safety improvements. Montana FWP has worked with adjunct faculty at Montana Tech in Butte on a design for the safety improvements. Some funds from NRDP (approximately \$50,000) have been earmarked for this effort from the 2013 NRDP allocation. Estimated cost for the tunnel safety improvements is approximately \$80,000.

Requested amount: \$30,000.

Ranger Station

Milltown State Park is certain to be a park with very high year-round, day-use visitation. Given the proximity to Missoula, the existing popularity of the lower Blackfoot River, an extensive trail system and related attractions, park management/maintenance will be a significant effort. Having a visible, established site presence is essential to good management of the park. Milltown State Park has a fulltime park manager whose duty station should be on-site at the park to help oversee a workforce, counsel staff and the public, provide for safety and oversee maintenance. A ranger station is needed for the public to seek aid or information, a central and known location for volunteers to check work schedules, verify group reservations, store first aid and other supplies, cache tools, and other basic needs.

Currently, the park manager works out of the FWP Region 2 headquarters, located more than 10 miles from the park. The ranger station was part of the original development plan for the park though it was not included in the bid package. Through frugal project management, FWP has in reserve approximately \$200,000 set aside for the ranger station. Additional funds are needed to develop a modest but adequate facility.

At the administrative area in the Confluence, Montana State Parks proposes a Ranger Station (less than 2,000 square feet) and maintenance shop. The ranger station would allow for a visitor contact area and office space for park staff. The footprint for the administrative center could also include the original shop. Working with partners at Missoula County, and drawing possibly on historic mitigation funds set aside under the Superfund settlement, FWP is exploring options to modestly renovate the 900 square foot building to display and interpret representative examples of Milltown dam artifacts and history. **Requested amount: \$300,000**

Bonner Learning Park Acquisition and Enhancements

For two years, FWP has been in discussions with the Bonner Development Group and pursuing due diligence on the Bonner Learning Park. The BLP is a 36-acre parcel along the Clark Fork River, adjoining Milltown State Park. Most of the property is located on the north side of the river but the southwest corner of it extends across the river into the state park. Milltown State Park is the immediate upstream and downstream neighbor to the private park.

The purpose of the acquisition would be threefold: to ensure protection of the state's restoration work; to ensure public access to Milltown State Park along the north bank of the Clark Fork River (park property upstream and down of the BLP); and to enhance recreational and educational opportunities at the park. The only access to the north side of the Clark Fork River at Milltown State Park is through the BLP property.

In terms of recreational possibilities, the park has several amenities on site that include: a stone and timber-framed picnic shelter with built-in grill, a vault toilet, a kiosk, a sun dial, a built-in spotting scope, a short trail network and small space for limited parking. The Bonner Learning Park is adequately developed to serve in its current capacity as a neighborhood park. However, as a state park it falls short as a turn-key facility. As part of a larger state park -- and system -- we need to ensure some consistency with other facilities. In our preliminary assessment, we've identified these development needs, along with cost estimates:

- Delineate spaces on the parking lot with parking stops and striping: \$1500
- Parking area lighting -- \$1500
- Kiosk -- \$2000
- Overhead protection on rail line (if required by MRL) -- \$22,000 +
- Fencing (between property and Clark Fork Arena) -- \$1700 (~1000 feet x \$1.70 a foot)
- Sign package -- \$2000

- Bear proof trash cans/mutt mitt stations --\$1000
- Replace picnic tables -- \$500
- Small trail kiosk – \$1000
- Shelter lighting and electrical – \$1000

Requested amount: \$35,000

Integration/Coordination with Restoration Plans: Describe how the components of the project or revision will integrate and coordinate with current projects being implemented as part of the Restoration Plans.

Development at Milltown State Park has complemented the state's Restoration Plan. The State's Milltown restoration actions were completed in 2012. Managed public use helps ensure the success and integrity of the Restoration Plan. Several volunteer day revegetation projects over the last seven years have augmented the restoration efforts. In addition, much of the park's interpretive and educational effort is aimed at highlighting and celebrating the two rivers' restoration.

Project Schedule: Indicate the timeframe needed to complete the project and any specific completion deadlines that would apply.

If funded, projects at the Confluence, the tunnel and the Bonner Learning Park would be carried out between 2019 and 2021.

General Cost Information: Provide an estimate of total project costs. If possible, provide a categorical breakdown of the costs for the following categories: salaries/benefits; contracted services; supplies and materials; travel and communication; equipment; or other (specify). Indicate committed or anticipated matching funds.

Tunnel safety improvements: \$30,000

Ranger station: \$300,000

Bonner Learning Park enhancements: \$35,000

Appendix 2: Public Comment Letters

List of Comments

No.	Individual/Association	City/Area
1	City of Deer Lodge – Zane Cozby, Mayor	Deer Lodge, MT
2	Trout Unlimited – Casey Hackathorn	Missoula, MT

RESOLUTION NO. 1313

A RESOLUTION BY THE DEER LODGE CITY COUNCIL SUPPORTING THE SUBMISSION OF AN ABSTRACT BY THE CLARK FORK COALITION FOR COTTONWOOD CREEK TO THE 2018 UPDATE OF THE UPPER CLARK FORK RIVER BASIN AQUATIC AND TERRESTRIAL RESOURCES RESTORATION PLANS AS OVERSEEN BY THE MONTANA NATURAL RESOURCES DAMAGE PROGRAM.

WHEREAS, the Deer Lodge City Council is aware of the importance of Cottonwood Creek as a waterway for the community; and

WHEREAS, Cottonwood Creek is a Priority Two Tributary of the Clark Fork River as described in the 2012 Final Upper Clark Fork River Basin Aquatic and Terrestrial Resources Restoration Plans; and

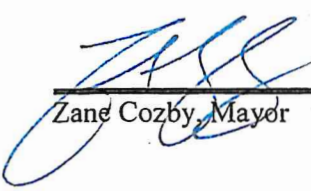
WHEREAS, the Deer Lodge City Council recognizes the need for a comprehensive effort that identifies restoration opportunities and recommends policies to reestablish naturalistic elements to Cottonwood Creek; and

WHEREAS, the Deer Lodge City Council acknowledges the effort of the Clark Fork Coalition and their willingness to assist with the preparation and submission of an abstract to the Montana Natural Resources Damage Program; and

WHEREAS, the abstract would examine various themes including restoring natural habitats, promoting aesthetic values, and increasing hydrologic capacity; and

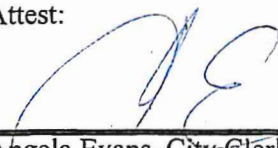
NOW, THEREFORE, BE IT RESOLVED, the Deer Lodge City Council deems it is in the best interest of the Deer Lodge Community as well as for the ecological health of Cottonwood Creek to support the effort of the Clark Fork Coalition to submit an abstract to the Montana Natural Resources Damage Program.

Passed and approved this 18th day of June, 2018 at a regular session by the Deer Lodge City Council. The effective date of Resolution NO. 1313 is June 18, 2018.



Zane Cozby, Mayor

Attest:



Angela Evans, City Clerk



July 5, 2018

Montana Natural Resource Damage Program
Doug Martin, Restoration Program Chief
P.O. Box 201425
Helena, MT 59620

RE: Trout Unlimited input for *UCFRB Aquatic and Terrestrial Resources Restoration Plans, 2018 Update, Solicitation of New Restoration Action Concepts and Potential Revisions*

Dear Mr. Martin,

Thank you for the opportunity to revisit the Upper Clark Fork River Basin Aquatic and Terrestrial Resources Restoration Plans and share our suggestions for the 2018 update. With this letter, we include the attached 14 Abstract Forms your consideration. In addition, we offer the following comments and suggestions for plan revisions that could help NRDP and its restoration partners efficiently and cost-effectively meet the goals of the Restoration Plans. Specifically:

1. Trout Unlimited (TU) supports plan revisions to provide funding flexibility for project development and implementation of flow augmentation projects. Specifically, we support changes to provide funding for both Group 1 and Group 2 flow restoration projects identified in the original plan. We understand the intent of the 2012 plan to fully vet Group 1 projects that target flow restoration in the most dewatered reach of the mainstem Clark Fork before consideration of other project opportunities but the length of time and uncertainty associated with negotiating streamflow improvement projects warrants a more flexible approach to be most effective with the funding set aside for flow restoration.
2. TU supports plan revisions to provide potential funding support for aquatic projects on tributaries to Priority 1 and Priority 2 streams that meet the goals for those priority waters. In recognition of the biological and physical influence of tributaries to priority waters we suggest plan revisions that provide NRDP staff the discretion to fund project work on tributaries to priority streams that contribute to meeting the goals of those systems.
3. Consider plan revisions to support projects that improve streamflow, but may not require formal changes to a water right. Expanding the Plan's definition of "flow augmentation" to include other flow enhancement tools—such as source changes and irrigation efficiency improvements—equips partners with a needed diversity of ways to tailor projects to the opportunities on the ground, especially where a successful water right change may not be feasible.

4. On priority headwaters tributaries such as Mill and Willow Creeks that have been considered flow-limited and ineligible for funding of non-flow aquatic projects prior to addressing flow impairments, consider concurrent non-flow and flow project development and implementation. Our project development experience with private landowners and irrigators suggests that the trust developed through successful habitat and infrastructure-related fish passage work is often necessary to develop and implement flow restoration projects. Integrating project development and implementation of habitat and flow projects is a cost-effective strategy that could net the best outcomes for both the Clark Fork and these priority tributaries.
5. TU supports continued investment in targeted monitoring and research efforts that answer critical fisheries and aquatic habitat questions and guide the cost-effective implementation of on-the-ground projects. The recent otolith microchemistry and cutthroat telemetry projects funded by NRDP are good examples of applied science that guide improved restoration decision-making.

Thank you for soliciting public input in revision of the Restoration Plans. We look forward to continuing to partner with NRDP to restore the Upper Clark Fork.

Sincerely,

A handwritten signature in black ink, appearing to read 'Casey Hackathorn', is written over the printed name.

Casey Hackathorn
Upper Clark Fork Program Manager