

FUTURE FISHERIES IMPROVEMENT PROGRAM

FWP RECOMMENDATIONS TO THE REVIEW PANEL

WINTER 2019

- 1) **Big Creek instream flow lease (001-2019).** Big Creek (Park County) is a tributary to the upper Yellowstone River and supports substantial recruitment of Yellowstone cutthroat trout to the river. Big Creek is considered critical Yellowstone cutthroat trout spawning habitat within the upper Yellowstone River drainage. Lower Big Creek was dewatered often during the irrigation season prior to a significant water conservation project and several associated water leases. The current instream flow leases have been in place for 20 years and are set to expire prior to the 2019 irrigation season. The total instream flow lease would be 10 cubic feet per second (cfs), with the water split between two ownerships:
- a. John L. Lake, Jr. and Yellowstone State Stop Estates Water User’s and Homeowners Association; 2.8 cfs. [renewal for 10 years]
 - b. Mountain Sky Guest Ranch; 7.2 cfs. [renewal up to 5 years, 1 year requested in this application, due to anticipated changes to its irrigation rights]. Providing in-kind water lease value.

The lease with Montana Land Reliance for 1-16 cfs is also being renewed for 10 years, not funded through this proposal. This project would continue providing water for 95% of the redds in Big Creek, allowing for successful emergence and outmigration to the Yellowstone River. The goal is to preserve the streamflow obtained from the leases and continue achieving successful recruitment of Yellowstone cutthroat trout.

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| REQUEST | \$51,150 | ITEMS REQUESTED BY APPLICANT | Water lease |
| MATCH | \$51,150 | | |
| % MATCH | 50% | | |
| TOTAL COST | \$102,300 | | |
| FWP STAFF RECOMMENDATION: We recommend full funding (\$51,150) but request clarification on the contingency plan, should DNRC not accept the change in irrigation right. | | | |
| REVIEW PANEL RECOMMENDATION: | | | |

- 2) **Cottonwood Creek irrigation diversion repair (002-2019).** Cottonwood Creek (Missoula County) is a tributary to Blackfoot River and supports populations of bull trout and westslope cutthroat trout. This project addresses an existing, abandoned irrigation point of diversion that failed in the spring runoff of 2018. The old structure failed, water began entering the ditch from Cottonwood Creek, and the gabion structure was displaced into the creek, causing constrictions to the channel. Because a significant amount of streamflow currently enters the ditch, entrainment is a likely problem. The point of diversion was previously moved downstream, so the project applicant intends to install an engineered log jam to

plug the old ditch. Additionally, the failed gabion would be removed, the channel would be returned to reference conditions, and the site would be revegetated to stabilize the log jam. The goal is to eliminate entrainment, restore the stream to natural conditions and prevent a channel avulsion, retain flow to an existing fish screen and ditch system, and improve habitat for bull and westslope cutthroat trout.

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| REQUEST | \$7,589.60 | ITEMS REQUESTED BY APPLICANT | Construction materials, equipment/labor, mobilization |
| MATCH | \$7,170.20 | | |
| % MATCH | 49% | | |
| TOTAL COST | \$14,759.80 | | |
| FWP STAFF RECOMMENDATION: Fully fund (\$7,589.60) but request clarification on the engineered log jam (is it incorporating a plug?) and the current fishing opportunities. | | | |
| REVIEW PANEL RECOMMENDATION: | | | |

- 3) **Crow Creek phase 2 stream restoration** (003-2019). Crow Creek (Sanders County) is a tributary to upper Prospect Creek on the Lolo National Forest and supports populations of bull trout, westslope cutthroat trout, and cedar sculpin. Historically, the Crow Creek valley was affected by two major powerline corridors that resulted in loss of old growth riparian conifers along 1/3 of a mile of forest. This left the stream over-widened, shallow, braided, and lacking pools, shade, and complexity. In 2007, a channel restoration project was completed just upstream of the proposed project area and was considered phase 1. This project was successful in improving the habitat complexity, stream function, and fish numbers and biomass. The proposed project, phase 2, would continue stream restoration and enhancement by reconfiguring the stream alignment to provide grade control, habitat complexity, and floodplain connectivity. Meanders, pools, and shade would be increased. Grade control structures would be installed using large woody debris and rock, and vegetation would be planted to provide shade and increase bank stability. The goal is to restore a degraded segment of stream and floodplain and improve native fish habitat. Improved habitat is intended to improve the carrying capacity of native salmonids in this portion of Crow Creek, similar to phase 1.

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| REQUEST | \$23,000 | ITEMS REQUESTED BY APPLICANT | Equipment and labor |
| MATCH | \$81,134 | | |
| % MATCH | 78% | | |
| TOTAL COST | \$104,134 | | |
| FWP STAFF RECOMMENDATION: We recommend full funding (\$23,000), but request clarification on: 1) why the oversight is so high, 2) the use of beaver analogs, 3) the USFS contribution, 4) how dynamic Crow Creek might be, and 5) whether or not the power companies need to come back and trim/cut the project area because of the power line conflict. | | | |
| REVIEW PANEL RECOMMENDATION: | | | |

4) **French Creek sediment reduction** (004-2019). French Creek (Deer Lodge County) is a tributary to Deep Creek, which flows into the Big Hole River. It is part of the Mount Haggin Wildlife Management Area and within the proposed Artic grayling and westslope cutthroat trout recovery area. Past projects in the watershed funded by Future Fisheries include French Gulch channel restoration (completed; 2015, 2016 grants), French Creek riparian fencing (completed; 2016), and the French Creek fish barrier (in progress). The goal of restoration in the upper French Creek drainage is to restore mining-related damage and establish an interconnected stream system (over 40 miles of stream) for Artic grayling and westslope cutthroat trout. This project would address mining-related damages due to an unnatural dike that has been confining the stream channel and leading to significant erosion and sediment deposition. Reference stream conditions would be used to construct an unconfined stream channel in the floodplain away from the hillslope (400 lineal feet). Native sods and willows would be used to construct the banks of the new channel and bioengineering techniques would be used at meander bends. The goal is to enhance fish habitat by reducing a major sediment source that impacts spawning substrate and water quality.

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| REQUEST | \$66,495 | ITEMS REQUESTED BY APPLICANT | Stream channel restoration, contingency (ineligible) |
| MATCH | \$354,245 | | |
| % MATCH | 84% | | |
| TOTAL COST | \$420,240 | | |
| FWP STAFF RECOMMENDATION: We support the project (with the exception of contingency funding) but request clarification before recommending a funding amount. In particular, 1) how did you come up with \$60,450 in channel restoration costs and what does that entail (how many of each structure); 2) what would the cost be if you used sod mats or transplants in all (or most) of the reconstructed areas 3) what is the in-kind match of FFIP (2019); and 4) how has this project changed since Summer 2018? *it is noted that salaries can't be used as matching funds. | | | |
| REVIEW PANEL RECOMMENDATION: | | | |

5) **Hells Canyon Creek instream flow renewal** (005-2019). Hells Canyon Creek (Madison County) is a tributary to Jefferson River near Twin Bridges that currently supports populations of rainbow trout, rainbow/cutthroat trout hybrids, brown trout, and non-game species. In 1995, three landowners converted open ditches into a single gravity pipeline system. FWP and NRCS provided cost share, and FWP has been leasing the water for 20 years. In 2016, FWP negotiated a 3-year extension while a long-term lease was being negotiated. As part of the negotiated lease, a pivot was to be installed to save water for instream flow. The pivot system was installed in 2017, sooner than expected. Currently, the applicant is requesting to renew the instream flow lease for an additional 10 years. Hells Canyon Creek has demonstrated value for trout rearing and spawning and provides important recruitment to the Jefferson River. Since the instream flow has been in place, the stream was never dewatered.

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| REQUEST | \$47,500 | ITEMS REQUESTED BY APPLICANT | Water lease |
| MATCH | \$2,500 (\$123,918 expended in 2017 with pivot install) | | |
| % MATCH | 5% | | |
| TOTAL COST | \$50,000 | | |
| FWP STAFF RECOMMENDATION: We recommend full funding (\$47,500) and consider the match to be appropriate given the contribution of the pivot that was meant to be part of this project application. | | | |
| REVIEW PANEL RECOMMENDATION: | | | |

- 6) **Lolo Creek fish screen (006-2019).** Lolo Creek (Missoula County) is the third largest drainage in the Bitterroot watershed and its upper tributaries are strongholds for bull trout and westslope cutthroat trout. Brown trout, rainbow trout, and mountain whitefish are also present. The stream is impacted by dewatering and high water temperatures in the lower reaches, and entrainment, sediment, and fish passage are issues in the higher reaches. The Lolo Ditch is the largest irrigation diversion on Lolo Creek and can divert up to 75% of flow in low flow periods. The fish that enter the ditch become entrained and cannot return to Lolo Creek. This project would install a fish screen on the Lolo Ditch and keep fish within the Lolo Creek and Clark Fork drainages. Maintenance would be the responsibility of the Clark Fork Coalition and its partners, in coordination with the water users. The goal is to improve fish populations and enhance fishing opportunities through improved survival.

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| REQUEST | \$100,000 | ITEMS REQUESTED BY APPLICANT | Construction materials, equipment and labor |
| MATCH | \$83,040 | | |
| % MATCH | 45% | | |
| TOTAL COST | \$183,040 | | |
| FWP STAFF RECOMMENDATION: We recommend tabling this proposal to obtain additional information. We have concerns over the use of the corrugated metal screen (considered experimental), the impact of floodplain permitting, and the investment/contribution of the ditch users when it comes to maintenance. We encourage the applicant to discuss the reason for picking the screen and the maintenance plan. | | | |
| REVIEW PANEL RECOMMENDATION: | | | |

- 7) **Nevada Creek phase 3A restoration (007-2019).** Nevada Creek (Powell County) is a tributary to the middle Blackfoot River and supports populations of westslope cutthroat trout, rainbow trout, and brown

trout. The project area was historically straightened, and a non-functional riparian area caused the channel to erode and downcut. In 2010 and 2017, adjacent channel restoration projects reduced sediment, increased stream complexity, improved riparian condition, and created fish habitat that resulted in increased trout abundance. This project is considered phase 3A and would continue the restoration downstream. Approximately 4,700 feet of Nevada Creek would be tied into phase 2 and the channel would be restored to proper dimensions. Habitat would be improved by increasing overhead and in-stream cover, sediment inputs would be reduced, floodplain connectivity would be improved, vegetation growth would be encouraged, and a grazing management system would be implemented. The location is in a highly visible reach of Nevada Creek and the previous projects have had important demonstration value.

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| REQUEST | \$49,000 | ITEMS REQUESTED BY APPLICANT | Construction materials, equipment and labor |
| MATCH | \$178,235 | | |
| % MATCH | 78% | | |
| TOTAL COST | \$227,235 | | |
| FWP STAFF RECOMMENDATION: We recommend full funding (\$49,000) but request that the applicant address the following questions: 1) why is there no rock or soil in the budget; 2) is there an opportunity to minimize the constructed streambed, and would that impact the cost? | | | |
| REVIEW PANEL RECOMMENDATION: | | | |

- 8) **Rattlesnake Creek dam removal (008-2019).** Rattlesnake Creek (Missoula County) is a tributary to Clark Fork River and supports populations of bull trout, westslope cutthroat trout, and rainbow trout. Rattlesnake Creek Dam was constructed in 1901 to be the primary water source for Missoula. In the early 1980s, contamination with giardia led to a change in water supply and Missoula’s water source was transferred to groundwater wells. Since that time, the dam had no storage or water delivery purpose, but has remained in place. A fish ladder, partially funded by Future Fisheries, was installed in 2003. Several ditches on Rattlesnake have also been screened. The applicant proposes to remove all infrastructure on the dam site and tie into existing Rattlesnake Creek, which would include 2,000 feet of stream channel reconstruction and bank treatments and 14,000 cubic yards of fill to raise the channel to floodplain level. This project would remove the last remaining migration barrier on Rattlesnake Creek. Rattlesnake Creek is the primary rearing and spawning habitat for trout in the Missoula Clark Fork River area and supports the only viable bull trout population in the area. The goal is to improve habitat and migratory corridors for trout.

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| REQUEST | \$50,000 | ITEMS REQUESTED BY APPLICANT | Design, fish ladder removal/salvage, bank reconstruction, mobilization |
| MATCH | \$855,029 | | |
| % MATCH | 94% | | |
| TOTAL COST | \$905,029 | | |

FWP STAFF RECOMMENDATION: We recommend fully funding the project (\$50,000) but request that the applicant describe what “bank reconstruction” entails in terms of number and type of structures.

REVIEW PANEL RECOMMENDATION:

- 9) **Ross Fork Rock Creek fish passage** (009-2019). Ross Fork Rock Creek (Granite County) is a tributary to Rock Creek and supports populations of westslope cutthroat trout and bull trout, and is considered critical bull trout habitat. An inventory of instream structures identified this project as the only major upstream fish passage barrier on Ross Fork. This project would remove two undersized, 5’ wide culverts that are located 0.5 miles downstream of the USFS boundary. The culverts are undersized and are a velocity barrier at critical times of the year. This project would remove the undersized culverts and replace them with a farm bridge made from a railcar and eco-blocks. Two rock weirs would be constructed to maintain streambed stability. The goal is to reconnect an additional 15 miles of spawning and rearing habitat and refugia in Ross Fork. This has the potential to improve both resident and fluvial populations of bull and westslope cutthroat trout.

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| REQUEST | \$21,400 | ITEMS REQUESTED BY APPLICANT | Construction materials, equipment, mobilization |
| MATCH | \$21,420 | | |
| % MATCH | 50% | | |
| TOTAL COST | \$42,820 | | |
| FWP STAFF RECOMMENDATION: We recommend full funding (\$21,400). | | | |
| REVIEW PANEL RECOMMENDATION: | | | |

- 10) **Selway Creek fish barrier** (010-2019). Selway Creek (Beaverhead County) is a tributary to Bloody Dick Creek and Horse Prairie Creek upstream of Clark Canyon Reservoir and supports populations of non-native trout and native western pearlshell mussels. This project would install a fish barrier to re-establish a genetically pure westslope cutthroat trout population in 48 miles of stream. The applicant proposes to install a fish barrier and non-native fish would be removed. The westslope cutthroat trout would be reestablished, which would make the Selway watershed among the strongest cutthroat trout strongholds in the upper Missouri River basin. The goal is to conserve and protect native westslope cutthroat trout.

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| REQUEST | \$80,000 | ITEMS REQUESTED BY APPLICANT | Structure construction |
| MATCH | \$329,845 | | |
| % MATCH | 80% | | |
| TOTAL COST | \$409,845 | | |

FWP STAFF RECOMMENDATION: We recommend funding the project (\$80,000) but ask the applicant to consider how a delay in funding (Summer 2019 cycle) might affect construction.

REVIEW PANEL RECOMMENDATION:

- 11) **Wilson Ditch fish screen** (011-2019). Wilson Ditch is located on the upper West Fork Bitterroot River (Ravalli County), which above Painted Rocks Reservoir. The West Fork Bitterroot supports populations of bull trout, westslope cutthroat trout, and brook trout. The Wilson Ditch was silted in after fires in the upper watershed, but recently water users decided to reactivate the ditch, which is located in an important area for bull trout spawning. This project would screen the Wilson Ditch, the highest diversion on the West Fork Bitterroot, and update the diversion. Once installed, the screen would contain 1.7 cfs, approximately 15% of baseflow. This project would prevent native trout entrainment in the ditch, which is top priority for bull trout conservation in the Bitterroot. The irrigator will assume primary maintenance responsibilities, but TU and the USFS will contribute.

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| REQUEST | \$28,083 | ITEMS REQUESTED BY APPLICANT | Oversight, travel (ineligible), construction materials, equipment and labor, mobilization |
| MATCH | \$25,705 | | |
| % MATCH | 47% | | |
| TOTAL COST | \$54,788 | | |

FWP STAFF RECOMMENDATION: We recommend tabling the proposal to encourage discussion about the use of a corrugated water screen, that is considered experimental and does not comply with NMFS fish screen criteria. We request the applicant address the following: 1) who would be responsible for construction oversight; 2) what is the justification for the high cost of a spider excavator; 3) is there a fish screen alternatives analysis, and why was the corrugated water screen chosen; and 4) how might the fires and associated sediment load affect the screen?

REVIEW PANEL RECOMMENDATION: