FUTURE FISHERIES IMPROVEMENT PROGRAM

FUNDING RECOMMENDATIONS
WINTER 2022

1) **Shields River Chadbourne Diversion retrofit (010-2022).** The Chadbourne diversion (Park County) is an irrigation structure and fish barrier on the Shields River, a tributary to the Yellowstone River near Clyde Park. The Shields River is a stronghold of Yellowstone cutthroat trout. The diversion is located about 8 miles upstream of the confluence with the Yellowstone and was built in the early 1900s. It prevented the rapid invasion of rainbow trout and as a result, Yellowstone cutthroat remain in most waters of the Shields River. Most of the fish are genetically unaltered and the area is a high conservation priority. In 2011, a project was funded through Future Fisheries to improve the diversion and improve its ability to serve as a barrier. Improvements included removal of concrete in front of the diversion, rebuilding the structure, and creating an ogee front to eliminate backwater and the opportunity for fish to ascend past the diversion. This project improves the diversion to eliminate an area that was going to be used for a selective fish ladder and eliminate a vulnerable spot on the structure. A rebar reinforced wingwall and increase the diversion face height while also maintaining the structure. The goal is to reinforce the diversion as a fish barrier to project Yellowstone cutthroat trout.

<table>
<tr><td>REQUEST</td><td>$11,244</td><td rowspan="5">ITEMS REQUESTED BY APPLICANT</td><td rowspan="5">Permitting, wall forming and reinforcement, dewatering</td></tr>
<tr><td>MATCH</td><td>$20,881</td></tr>
<tr><td>OTHER CONTRIBUTIONS</td><td>$0</td></tr>
<tr><td>% REQUESTED</td><td>35%</td></tr>
<tr><td>TOTAL COST</td><td>$32,125</td></tr>
<tr><td colspan="4">FWP STAFF RECOMMENDATION: Fully fund ($11,244). Please describe the water user participation / investment.</td></tr>
<tr><td colspan="4">REVIEW PANEL RECOMMENDATION: Fully fund ($11,244).</td></tr>
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Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103859

2) **Blackfoot River fish screen (001-2022).** The Blackfoot River (Powell County) is one of the most popular rivers in Montana and is home to native bull trout and westslope cutthroat trout. It is designated as critical habitat for these species, and is also a popular fishery for rainbow trout and brown trout. The project area is located within an important migration corridor for native fish. Near river-mile 46, an unscrewed diversion (pump) is entraining fish. This project would be upgraded with a river screen, with the goals to eliminate fish entrainment, support irrigation, and protect the migratory corridor.

<table>
<tr><td>REQUEST</td><td>$8,900</td><td rowspan="2">ITEMS REQUESTED</td><td rowspan="2"></td></tr>
<tr><td>MATCH</td><td>$21,474.80</td></tr>
</table>

OTHER CONTRIBUTIONS	$0	BY APPLICANT	Construction materials (crane, screen)
% REQUESTED	29%		
TOTAL COST	$30,374.80		
FWP STAFF RECOMMENDATION: Fully fund ($8,900). Please provide additional detail on the specifications of the fish screen.			
REVIEW PANEL RECOMMENDATION: Fully fund ($8,900).			

Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103850

3) **Johnson Creek fish screen (006-2022).** Johnson Creek (Powell County) is a tributary to the lower Blackfoot River and contains pure westslope cutthroat trout, rainbow trout, and brown trout. It serves as a thermal refugia to the mainstem Blackfoot. Previous studies indicated that Johnson Creek is an important tributary for migrations as far as the Clark Fork River near Thompson Falls. Past work in the drainage included culvert upgrades, and this project seeks to improve the last remaining impact to the creek. An unscreened diversion near the mouth entrains trout, and this project would install a headgate and Zinvent fish screen and upgrade the diversion. The goal is to improve fish passage, prevent entrainment, and regulate flow for conservation benefits.

REQUEST	$7,750	ITEMS REQUESTED BY APPLICANT	Construction materials (fish screen, headgate, valve, pipe) and equipment and labor (excavator)
MATCH	$23,330.70		
OTHER CONTRIBUTIONS	$0		
% REQUESTED	25%		
TOTAL COST	$31,080.70		
FWP STAFF RECOMMENDATION: Fully fund ($7,750). Please provide additional information on the fish screen, including examples of installation and success, and landowner support.			
REVIEW PANEL RECOMMENDATION: Fully fund ($7,750).			

Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103855

4) **Nevada Creek restoration project phase 5 (009-2022).** 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 2017-2020, nearby channel restoration projects improved 24,400 feet of instream and riparian habitat. These projects reduced sediment (>50% reduction), increased stream complexity, improved riparian condition, and created fish habitat that resulted in increased trout abundance (100% increase in abundance). This project is considered phase 5 and would continue the restoration downstream. This project would focus on reducing sediment loading through stream bank treatments, floodplain connectivity, aquatic habitat complexity, and stream function on 9,100 feet of Nevada Creek. Unlike previous phases, planform modifications are not proposed, instead

habitat will be improved strategically. The goal is to increase habitat capacity for trout and reduce sediment loading through healthy riparian areas, functional streams, and floodplain connection. The location is in a highly visible reach of Nevada Creek and the previous projects have had important demonstration value. Phase 3A was funded in Winter 2019 at $49,000, 3B in Summer 2019 at $69,200 and phase 4 in 2020 at $66,000.

REQUEST	$35,000	ITEMS REQUESTED BY APPLICANT	Construction materials (wood, willows, fencing), equipment and labor (excavator, articulated truck)
MATCH	$295,641		
OTHER CONTRIBUTIONS	$0		
% REQUESTED	11%		
TOTAL COST	$330,641.00		
FWP STAFF RECOMMENDATION: Fully fund ($35,000).			
REVIEW PANEL RECOMMENDATION: Fully fund ($35,000).			

Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103858

5) **Browns Gulch fish screen (002-2022).** Browns Gulch (Silver Bow County) is a tributary to Silver Bow Creek and contains populations of brook trout and genetically pure cutthroat trout. Westslope cutthroat trout are present throughout the drainage but most prevalent in the upper reaches. This project builds upon previous work in the drainage that includes improving fish passage (irrigation diversions and culverts), channel restoration, and riparian improvements. This project would address one of the remaining fish habitat priorities, to remove an irrigation barrier and source of entrainment. The applicant would rebuild the irrigation diversion at Costin Ditch and install a small corrugated water screen. The diversion would be rebuilt with four rock weirs in a step pool design. The goal is to reduce entrainment and improve connectivity of upper Browns Gulch, which will protect and improve habitat for genetically pure westslope cutthroat trout.

REQUEST	$31,987	ITEMS REQUESTED BY APPLICANT	Mileage (not allowable), construction materials (headgate, box, pipe, rock, seed), equipment and labor
MATCH	$23,000		
OTHER CONTRIBUTIONS	$0		
% REQUESTED	58%		
TOTAL COST	$54,987		
FWP STAFF RECOMMENDATION: Partial fund ($23,000), equal to the match. Mileage costs are not an eligible expense.			
REVIEW PANEL RECOMMENDATION: Partial fund ($20,500).			

Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103851

6) **Flint Creek riparian restoration phase 2 (004-2022).** Flint Creek (Granite County) is a tributary to the Clark Fork River near Hall. Species present include brown trout, bull trout, westslope cutthroat

trout, rainbow trout, and mountain whitefish. The project area is a high priority foraging, overwinter habitat, and migration corridor for westslope cutthroat trout and bull trout. This project would address 0.5 mile of stream that has been impaired by past land use practices. The applicant proposes build upon a previous phase and incorporate improvements to grazing management, complete active revegetation, and restore 1200 feet of streambanks using techniques to improve functional channel morphology and improve fish habitat complexity. The goals are to improve and protect riparian and instream habitat that has been impaired by past land uses and improve fish populations in Flint Creek and the Clark Fork River.

<table>
<tr><td>REQUEST</td><td>$43,000</td><td rowspan="5">ITEMS REQUESTED BY APPLICANT</td><td rowspan="5">Construction Materials (riparian fence), Equipment and labor</td></tr>
<tr><td>MATCH</td><td>$53,800</td></tr>
<tr><td>OTHER CONTRIBUTIONS</td><td>$225,313</td></tr>
<tr><td>% REQUESTED</td><td>14%</td></tr>
<tr><td>TOTAL COST</td><td>$296,613</td></tr>
<tr><td colspan="4">FWP STAFF RECOMMENDATION: Fully fund ($43,000).</td></tr>
<tr><td colspan="4">REVIEW PANEL RECOMMENDATION: Partial fund ($37,500), without fencing request.</td></tr>
</table>

Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103853

7) **Glen Lake Outlet stream restoration and fish barrier (005-2022).** Glen Lake (Gallatin County) is a reclaimed gravel pit fed by a spring creek, within Glen Lake Rotary Park (Bozeman). The applicant intends to restore the Glen Lake outlet ditch to include gravel substrate, adjacent wetlands, riparian vegetation, and additional instream habitat. A barrier will contain the stocked fish within the lake and reclaimed outlet ditch. The purpose of the project is to increase fish habitat and educational opportunities within the city of Bozeman.

<table>
<tr><td>REQUEST</td><td>$23,500</td><td rowspan="5">ITEMS REQUESTED BY APPLICANT</td><td rowspan="5">Construction materials (plants, seed, irrigation, rock, fish block), Permitting, Equipment rental</td></tr>
<tr><td>MATCH</td><td>$41,000</td></tr>
<tr><td>OTHER CONTRIBUTIONS</td><td>$16,764 not eligible unless part of this project</td></tr>
<tr><td>% REQUESTED</td><td>29%</td></tr>
<tr><td>TOTAL COST</td><td>$81,364</td></tr>
<tr><td colspan="4">FWP STAFF RECOMMENDATION: Do not fund ($0) and suggest the applicants apply to the Community Pond Program. Because 2,000 rainbow trout are stocked in the lake annually, wild fish benefits are uncertain (a requirement of the Program). More information on the expected instream flow from the lake through the constructed channel, as well as discussions regarding construction design would be necessary to determine if spawning habitat is possible. Regardless, the highest value of this project is to expand angler opportunity, which is a goal of the Community Pond Program. We support the project and</td></tr>
</table>

encourage the applicants to work with FWP to further develop this project to create the best fish habitat possible and provide opportunities to anglers.
REVIEW PANEL RECOMMENDATION: Deny funding ($0).

Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103854

8) **Upper Red Rock Lake overwinter habitat (012-2022).** Upper Red Rock Lake (Beaverhead County) is located within Red Rock Lakes National Wildlife Refuge in the Centennial Valley and is home to one of the last aboriginal Arctic grayling populations in the lower 48 states. The majority of the grayling population migrates into and occupies Upper Red Rock Lake for the majority of the winter, but available habitat is limited due to water depth and oxygen. To address a main limiting factor for Arctic grayling, the applicants propose to increase available overwinter habitat. Several alternatives were considered, and a pipeline to deliver oxygenated water to deeper portions of the lake was chosen as the only feasible option. A pipe will deliver oxygenated water from a nearby tributary (Shambow Pond & East Shambow Creek) and deliver it to deeper portions of the lake, and an aeration structure will be installed to increase the dissolved oxygen of water in the pipe. The goal is to improve the population of Arctic grayling by addressing the primary factor driving survival and population dynamics. Yellowstone cutthroat trout will also benefit from this project.

REQUEST	$100,000	ITEMS REQUESTED BY APPLICANT	Inland trench pipe, installed
MATCH	$502,956		
OTHER CONTRIBUTIONS	$0		
% REQUESTED	17%		
TOTAL COST	$602,956		
FWP STAFF RECOMMENDATION: Fully fund ($100,000).			
REVIEW PANEL RECOMMENDATION: Fully fund ($100,000).			

Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103861

9) **Upper Ruby River restoration project phase 2 (013-2022).** The Ruby River (Madison County) is a tributary to the Beaverhead River and supports populations of brown trout, rainbow trout, Arctic grayling, and whitefish. In the project area, the river is a single-thread channel that is actively downcutting and abandoning the floodplain. Removal of beaver and land management led to degradation, loss of vegetation, downcutting, and erosion. The applicants intend to build upon previous work and restore 1.7 miles of the river by installing brush matrix treatments, adding channel length, and improving riparian and aquatic habitat. Bank treatments will be combined with riparian fencing and grazing management to reduce erosion, increase instream habitat diversity, and promote establishment of woody vegetation. Channel length will be added by moving the channel into abandoned meanders. Bed aggradation structures will elevate the water surface elevation and encourage aggradation. The project is expected to increase floodplain connectivity, leading to groundwater infiltration and water storage for late season streamflow. Fish should benefit from increased spawning gravel, pool refugia, and slack water.

REQUEST	$50,000	ITEMS REQUESTED BY APPLICANT	Survey, Oversight, Mileage/Per Diem (not eligible), Equipment, Labor, Mobilization
MATCH	$418,948		
OTHER CONTRIBUTIONS	$0		
% REQUESTED	10%		
TOTAL COST	$477,088.90		
FWP STAFF RECOMMENDATION: Partial fund ($46,309), as mileage and per diem are not eligible expenses for grant funding.			
REVIEW PANEL RECOMMENDATION: Partial fund ($46,309).			

Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103862
Design Part 1: https://myfwp.mt.gov/getRepositoryFile?objectID=103865
Design Part 2: https://myfwp.mt.gov/getRepositoryFile?objectID=103866
Permits and other materials: https://myfwp.mt.gov/getRepositoryFile?objectID=103867

10) **East Fork Lolo and Lost Park Creeks instream habitat enhancement (003-2022).** East Fork Lolo and Lost Park Creeks (Missoula County) are tributaries to Lolo Creek that include designated bull trout habitat. They support high densities of westslope cutthroat trout and remnant bull trout populations. These project areas have been impacted by channelization, stream-side roads, past intensive grazing, and large wood removal. Low habitat complexity and roughness contributed to reduced fish habitat and population sizes. This project would continue previous restoration efforts in the Lolo Creek watershed that improved fish passage and reduced sediment loading through culvert removal and road decommissioning. Lcarge stream spanning log jams would be installed into East Fork Lolo and Lost Park Creeks to dissipate stream energy, trap sediment, and create aquatic habitat diversity such as spawning beds and pools. Smaller jams will also be installed to reduce energy adjacent to road fill. Old channels and floodplains will be activated. The overall goal is to increase native fish populations in the Upper Lolo watershed.

REQUEST	$33,000	ITEMS REQUESTED BY APPLICANT	Equipment and labor (excavator use)
MATCH	$61,780		
OTHER CONTRIBUTIONS	$10,000		
% REQUESTED	31%		
TOTAL COST	$104,780		
FWP STAFF RECOMMENDATION: Fully fund ($33,000).			
REVIEW PANEL RECOMMENDATION: Fully fund ($33,000).			

Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103852

11) **Mill Creek 5 Bar 6 restoration project (007-2022).** Mill Creek (Park County) is a tributary to the Yellowstone River in the Paradise Valley. Of the remaining Yellowstone cutthroat trout strongholds, Mill Creek is one of the largest watersheds outside of Yellowstone National Park. Past land

management degraded lower Mill Creek, leading to channelization and dikes that cut the stream off from its side channels and floodplain. Lack of large wood and instream habitat complexity indicates that wood was removed, and the channel became simplified. Despite the limitations, the project area is an important spawning and rearing area for migratory Yellowstone cutthroat trout as it is upstream of detwatering in lower Mill Creek. This project would begin restoration on Mill Creek in the upstream section by installing 10-15 engineered log jams and breaching two berms. The goal is to improve spawning, rearing, and overwintering habitat for Yellowstone cutthroat trout and other fish species.

REQUEST	$25,002.44	ITEMS REQUESTED BY APPLICANT	Construction materials (wood posts, logs), Labor
MATCH	$116,500		
OTHER CONTRIBUTIONS	$0		
% REQUESTED	18%		
TOTAL COST	$141,502.44		
FWP STAFF RECOMMENDATION: Fully fund ($25,002.44). Please provide additional budget detail. What is the grazing management plan?			
REVIEW PANEL RECOMMENDATION: Fully fund ($25,002.44).			

Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103856

12) **Murphy Spring Creek instream flow restoration renewal (008-2022).** Murphy Spring Creek (Powell County) is a tributary to the North Fork of the Blackfoot River. It is a primary fluvial bull trout spawning tributary and conservation area. The stream supports juvenile bull trout rearing near the mouth and westslope cutthroat trout are present throughout the stream. It is an FWP high priority area for native species. Previous projects in the drainage include removal of fish barriers, improved diversions via new headgates, fish ladders, and fish screens, stream and riparian restoration, and land management changes. This project would continue an instream flow agreement that improve streamflows for the last 16 years by renewing it for an additional 10 years. Because of the previous lease, instream flow increased from 0-0.5cfs below the diversion to 2.2 cfs and fish population data show a steady increase in native fish populations. The overall goal is to continue to lease instream flow and protect spawning and rearing habitat for native fish.

REQUEST	$15,000	ITEMS REQUESTED BY APPLICANT	Water lease payment
MATCH	$66,200		
OTHER CONTRIBUTIONS	$932.20		
% REQUESTED	18%		
TOTAL COST	$82,532.20		
FWP STAFF RECOMMENDATION: Fully fund ($15,000). Please provide detail on water user support.			

REVIEW PANEL RECOMMENDATION: Fully fund ($15,000).

Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103857

13) **Upper French Gulch fish passage and restoration (011-2022).** Upper French Gulch (Deer Lodge County) is a tributary to Deep Creek and the Big Hole River that will support populations of Arctic grayling and westslope cutthroat trout. The entire French Creek drainage is the focus of native fish restoration efforts, and past projects include stream restoration, riparian restoration, and barrier construction. Non-native fish removals above the barrier took place in 2021 and Arctic grayling and westslope cutthroat trout will be restocked, creating a significant conservation area for native species. In the specific project area, the first gold strike in the Big Hole drainage took place in the 1860s, and mining continued through the early 1900s. Heavy mining occurred in the vicinity, and there is a large headcut cascade present (30-40 feet of drop from the former channel elevation to the mining work). The elevation drop, in combination with a perched culvert immediately downstream, created a complete barrier to fish passage. This project would replace the existing cascade and culvert barrier with a constructed step-pool fish passage system that reconnects the stream to the upper 1.7 miles of French Gulch. The primary goal of this project is to restore fish passage connectivity for Artic grayling and westslope cutthroat trout in upper French Gulch and expand available habitat for these species.

REQUEST	$20,000	ITEMS REQUESTED BY APPLICANT	Earthwork
MATCH	$199,832*		
OTHER CONTRIBUTIONS	$0		
% REQUESTED	9%		
TOTAL COST	$217,832		
FWP STAFF RECOMMENDATION: Fully fund ($20,000). *Note that government salaries cannot be used as in-kind match.			
REVIEW PANEL RECOMMENDATION: Table proposal ($0) and request additional details for a future submission.			

Link to application: https://myfwp.mt.gov/getRepositoryFile?objectID=103860