

Brewster Creek fish passage  
**FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION**

Please fill in the highlighted areas  
*all sections (IA, IB, IC, etc.) must be addressed or the application will be considered invalid*

**I. APPLICANT INFORMATION**

- A. Applicant Name: Trout Unlimited
- B. Mailing Address: 312 N. Higgins Ave. Suite 200
- C. City: Missoula State: MT Zip: 59802  
Telephone: 406-552-2168 E-mail: tscanlon@tu.org
- D. Contact Person: Teresa Scanlon  
Address if different from Applicant: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Telephone: 406-552-2168 (cell) E-mail: tscanlon@tu.org
- E. Landowner and/or Lessee Name (if other than Applicant): Jim Kelly  
Mailing Address: 879 Rock Creek Rd  
City: Clinton State: MT Zip: 59825  
Telephone: 252-922-3308 E-mail: jkelly@emeraldadventuregroup.com

**II. PROJECT INFORMATION\***

- A. Project Name: Brewster Creek Fish Passage Reconnection Project  
River, stream, or lake: Brewster Creek  
Location: Township: 19 Range: 16W Section: 10N  
Latitude: 46.613208 Longitude: -113.651697 *within project (decimal degrees)*  
County: Granite
- B. Purpose of Project:  
To reconnect fish habitat for native westslope cutthroat trout, bull trout, and other wild fish on Brewster Creek, a spawning tributary to Rock Creek.

Brewster Creek fish passage

C. Brief Project Description:

Brewster Creek is located in Granite County in the Rock Creek watershed in township 10 north, range 16 west. The Brewster Creek watershed is 10,500 acres and flows in a westerly, emptying into Rock Creek. The first six miles of Brewster Creek are on the Lolo National Forest, and the last mile flows through private land. The Brewster Creek Fish Passage Reconnection Project will remove a fish passage barrier and reconnect Brewster Creek, a major tributary to the mainstem of Rock Creek. An inventory of irrigation structures in the Rock Creek watershed in 2017 by Trout Unlimited identified this project as the only major fish passage barrier on lower Brewster Creek. Brewster Creek is a spawning tributary for lower Rock Creek and sustains both resident and migratory populations of native Westslope cutthroat, as well as other trout and non-game fish. Bull trout are also present in Rock Creek, indicating a potential to reconnect a bull trout spawning tributary to the larger Rock Creek watershed.

The project will remove an undersized, four-foot-wide culvert that is located on Brewster Creek, just 400 feet upstream from its confluence with Rock Creek. Because bankfull width on Brewster Creek is greater than 8 feet, the culvert causes high velocities which impedes fish from migrating to spawning areas upstream on Brewster Creek in the spring. In the summer, water depth in the culvert is shallow and the landowners use a checkboard at the upstream end of the culvert to block the culvert entrance and push water into a 12" irrigation pipe- effectively impeding fish that are migrating later in the year or seeking thermal refuge upstream in Brewster Creek. The irrigation pipe feeds a small pond used for irrigation and fire suppression that outlets back to Brewster Creek and is therefore not a fish entrainment issue.

With support from the Future Fisheries Improvement Program, Trout Unlimited proposes to remove the undersized culvert and replace it with a farm bridge. Irrigation water will be maintained by building an engineered rock weir diversion. An additional two rock weirs will be built in the project section to maintain streambed stability after the culvert is removed. The bridge design follows an adapted NRCS farm bridge design and will be 12-foot by 14-foot wide. The bridge will be built 1.5 feet above bankfull and will use 8-inch by 18-inch stringers, 4-inch by 6-inch decking and concrete eco- blocks for bridge abutments. The abutments will be backfilled using material from the project site. Locally sourced rock will be placed on the inside of the abutments to prevent scour.

Trout Unlimited will coordinate with the landowner and provide permitting, contracting and manage the project implementation. This project is part of a new Rock Creek Restoration Program established by Trout Unlimited (TU). In 2017, TU conducted an inventory of diversion structures in the watershed found that at least 29 of the 92 identified diversions are partial or full fish passage barriers. As a result, TU launched the Rock Creek Restoration Program and is working in partnership with the Natural Resource Damage Program, United States Fish & Wildlife Service, United States Forest Service, Montana Fish, Wildlife, & Parks, Bureau of Land Management, other state and federal partners, and private landowners to enhance the fishery and reconnect fish passage and habitat in Rock Creek and its tributaries.

D. Length of stream or size of lake that will be treated: 7 miles of Brewster Creek reconnected to Rock Creek

E. Project Budget:

Grant Request (Dollars): \$ \$16,000

Contribution by Applicant (Dollars): \$ 6,600 In-kind \$ 345

(salaries of government employees are not considered as matching contributions)

Brewster Creek fish passage

Contribution from other Sources (Dollars): \$ 2,800 In-kind \$ 3,300  
(attach verification - See page 2 budget template)

**Total Project Cost: \$ 28,670**

F. Attach itemized (line item) budget – see template

G. Attach **specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support and fish biologist support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete a *supplemental questionnaire*** (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

H. **Attach land management & maintenance plans that will ensure protection of the reclaimed area.**

**III. PROJECT BENEFITS\***

A. What species of fish will benefit from this project?:

Westslope cutthroat trout, bull trout, and other native trout and wild fish.

B. How will the project protect or enhance wild fish habitat?:

Reconnecting Brewster Creek will provide an additional 7 miles of spawning and rearing habitat as well as habitat refugia during summer months for fish populations in the mainstem.

C. Will the project improve fish populations and/or fishing? To what extent?:

Yes, the project will likely improve fish populations and fishing potential. It will improve access to additional habitat in Brewster Creek for spawning and rearing, thus improving recruitment of fish to and fishing in the mainstem. Reconnecting fish passage to Brewster Creek from the mainstem Rock Creek will also improve the fishing potential in Brewster Creek.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?:

The project has the potential to increase recruitment to the mainstem of Rock Creek as well as improve fish populations in Brewster Creek, both of which have public fishing access from public roads, recreational floating and nearby Montana FWP Sawmill fishing access site and Lolo National forest Norton Campground fishing access.

E. The project agreement includes a 20-year maintenance commitment. Please discuss your ability to meet this commitment.

Trout Unlimited will coordinate with the private landowner to ensure that the farm bridge crossing and diversion structure are maintained in the long term. The landowner has also provided cash match for the project.

F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:

Brewster Creek fish passage

The current 4-foot-wide by 30-foot-long culvert is undersized and creates very high velocities during spring run-off and storm events. Further, the inlet of the culvert gets blocked by woody debris, and the creek overtops during high flows at the culvert crossing. The adjacent property above the culvert becomes flooded, and the creek jets out the bottom of the culvert. Increased velocities at the outlet actively erode the downstream streambanks, increase sedimentation, and cause channel incision. High stream velocities and the build-up of debris obstructs upstream fish passage in these high flow events. In low flow periods, water depth in the culvert is shallow and the checkboard used for irrigation blocks upstream fish passage beyond the culvert.

The undersized culvert will be replaced with a bridge that spans the bankfull width of Brewster Creek to reconnect fish passage, reduce downstream erosion, and flooding on the adjacent property. Rock weirs built instream will stabilize the stream grade and repair the stream habitat and channel.

G. What public benefits will be realized from this project?:

The project has the potential to improve the recreational fishery in Rock Creek, a blue-ribbon fishery. This project is also a demonstration project to show nearby landowners that Trout Unlimited can work to benefit the resource and the landowners in Rock Creek. Through additional coordination with neighboring landowners, Trout Unlimited will continue to implement projects that reconnect fish passage throughout Rock Creek.

H. Will the project interfere with water or property rights of adjacent landowners? (explain):

No, the project will not interfere with water rights of landowners. The landowner has a valid water right for the instream diversion and the water rights will not be altered.

I. Will the project result in the development of commercial recreational use on the site?: (explain):

No, the project will not result in the development of recreational use on the site.

J. Is this project associated with the reclamation of past mining activity?:

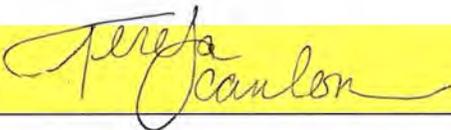
No

**Each approved project applicant must enter into a written agreement with Montana Fish, Wildlife & Parks specifying terms and duration of the project. The applicant must obtain all applicable permits prior to project construction. A competitive bid process must be followed when using State funds.**

**IV. AUTHORIZING STATEMENT**

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature:



Date:

5/29/2018

Sponsor (if applicable):

[Redacted]

Brewster Creek fish passage  
Project Location



Brewster Creek fish passage  
Project site aerial image



Uptream of culvert— May 2018



Brewster Creek fish passage

Culvert inlet– May 2018



Culvert outlet –May 2018



Brewster Creek fish passage  
Culvert inlet –June 2017



Brewster Creek upstream of culvert– June 2017



Brewster Creek fish passage

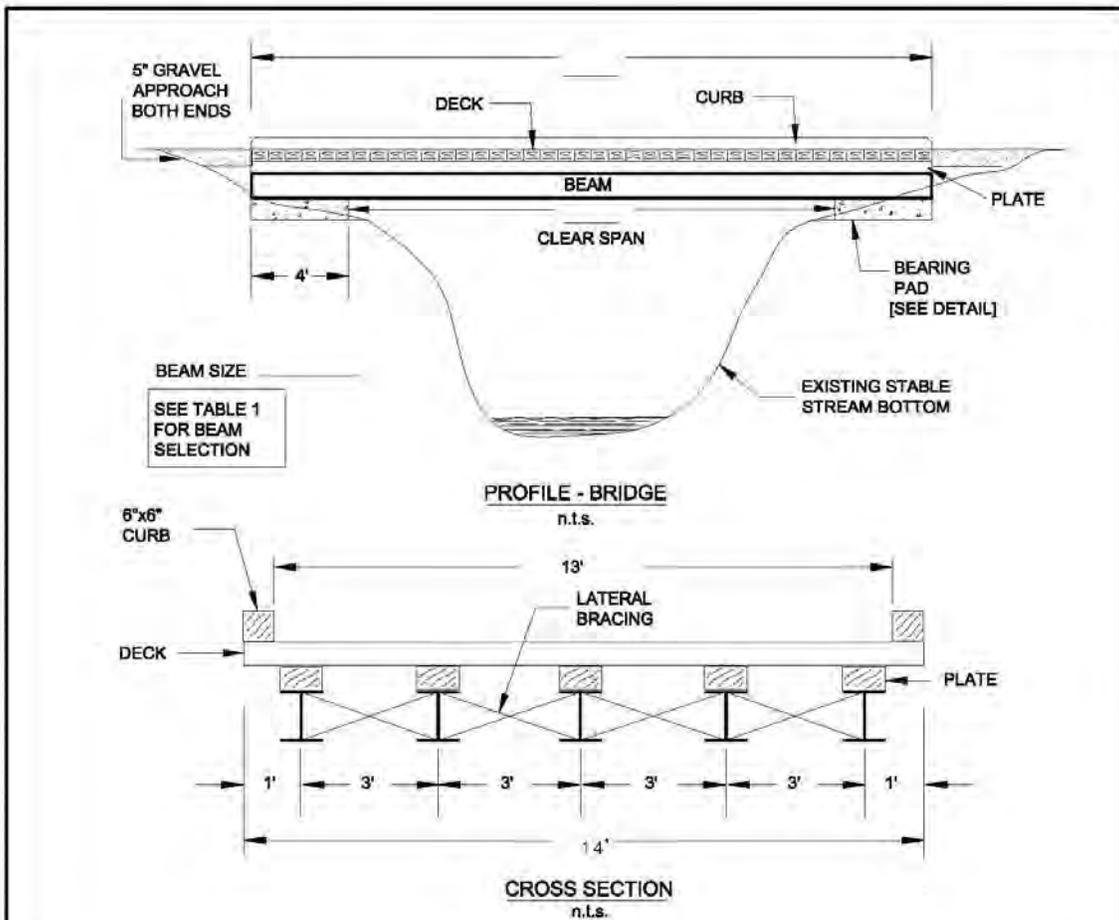
Brewster Creek downstream of culvert –November 2017



Culvert inlet–November 2017



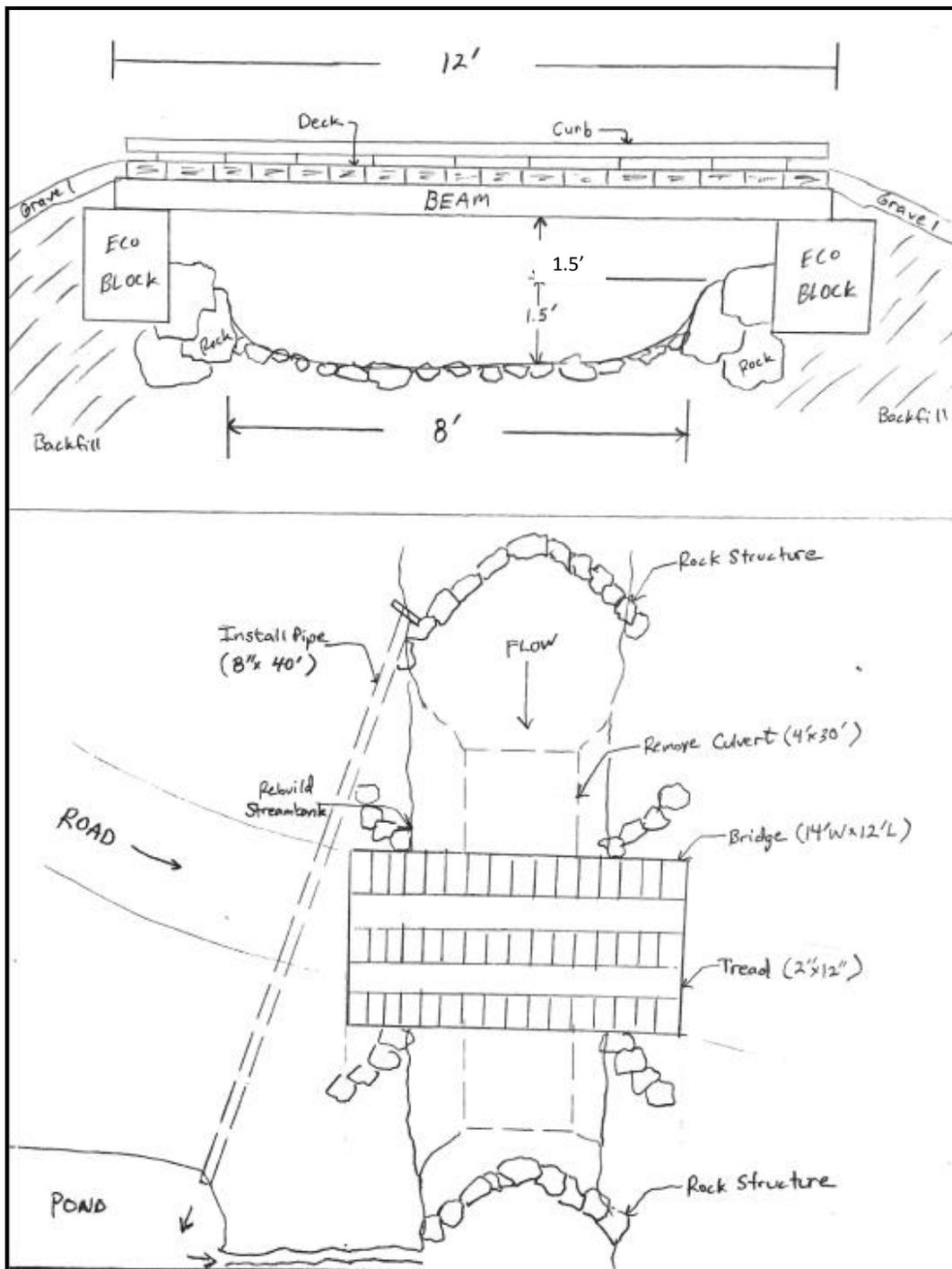
Brewster Creek fish passage  
NRCS Bridge Design Framework



BILL OF MATERIALS			
	CLEAR SPAN LENGTH = 20'	CLEAR SPAN LENGTH = 30'	CLEAR SPAN LENGTH = 40'
I-BEAMS	5@28'=140 L.F.	5@38'=190 L.F.	5@48'= 240 L.F.
DECK (14'X3'X10" BOARDS)	33 EA.	45 EA.	57 EA.
WOOD PLATE (3" X 8" or 3" X 6")	5@ 28' = 140 L.F.	5@ 38' = 190 L.F.	5@ 48' = 240 L.F.
WOOD CURB (6" X 6")	2@ 28' = 56 L.F.	2@ 38' = 76 L.F.	2@ 48' = 96 L.F.
LATERAL BRACING (2 1/2"X2 1/2"X3/8")	24 EA. (APPROX. 55 L.F.)	32 EA. (APPROX. 75 L.F.)	40 EA. (APPROX. 90 L.F.)
BEARING PAD CONCRETE	2.8 CU. YD.	2.8 CU. YD.	2.8 CU. YD.
#5 BARS	618 L.F. = 645 LBS.	618 L.F. = 645 LBS.	618 L.F. = 645 LBS.
ALTERNATE BEARING PAD CONC.	1.04 CU. YD./FT. PAD HEIGHT	1.04 CU. YD./FT. PAD HEIGHT	1.04 CU. YD./FT. PAD HEIGHT
#5 BARS (ALT. BEARING PAD)	119 LBS./ FT. PAD HEIGHT	119 LBS./ FT. PAD HEIGHT	119 LBS./ FT. PAD HEIGHT
4" X 1/2" PLATE BOLTS	75 EA.	100 EA.	125 EA.
10" X 5/8" CURB BOLTS	16 EA.	22 EA.	26 EA.
5 1/2" X 1/2" LAG BOLTS (DECK)	132 EA.	180 EA.	228 EA.
1/2" X 6" ANCHOR BOLTS	20 EA.	20 EA.	20 EA.

 <p>Natural Resources Conservation Service United States Department of Agriculture.</p>	<p><b>TIMBER BRIDGE FOR LIVESTOCK AND FARM EQUIPMENT</b></p>	Date _____ Designed: _____ Drawn: _____ Checked: _____ Approved: _____	File Name DETAIL NO. TB-2 Drawing Name AL-ENG-578-002 ISSUE DATE: 6/12 Sheet of _____
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Brewster Creek fish passage  
Brewster Bridge Design





72 Rock Creek Rd  
Clinton, MT 59825  
May 29, 2018

Montana Fish, Wildlife and Parks  
Attn: Michelle McGree  
1420 East 6<sup>th</sup> Ave.  
Helena, MT 59620

Future Fisheries Panel:

This memo represents a letter of support for the Brewster Creek Fish Passage Reconnection Project. Brewster Creek is a tributary to the mainstem of Rock Creek in the lower Rock Creek drainage and supports an abundant native westslope cutthroat trout population as well as other wild fish populations. The Rock Creek drainage also supports both resident and migratory populations of bull trout, and eDNA sampling in Brewster Creek found evidence of bull trout in the drainage. No bull trout were sampled in two electrofishing surveys completed previously in Brewster Creek by MFWP, so densities are likely low if bull trout are present.

This project could provide significant benefits to the fishery of Rock Creek and Brewster Creek. In the spring of 2018, Brewster Creek overtopped the culvert. High flows and excessive debris above the culvert likely blocked all fish passage both into and above the culvert at that time. Excessive scouring of streambanks and stream channel at the outlet of the culvert led to additional sedimentation in Brewster Creek and downstream of the mouth in Rock Creek. During the summer, there is minimal flow moving through the culvert and the checkboard for an irrigation pipe at the top of the culvert likely blocks upstream fish passage. Removing the fish passage barrier by replacing the culvert with a bridge above bankfull at this site will open up approximately seven miles of habitat for spawning and rearing westslope cutthroat trout that was at least seasonally blocked and potentially blocked year-round. Thank you for considering funding this project and please do not hesitate to contact me regarding any questions you have on this project.

Thanks,

A handwritten signature in blue ink, appearing to read "Brad Liermann". The signature is fluid and cursive, with a long horizontal stroke at the end.

Brad Liermann, Fisheries Biologist

**BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS**

Both tables must be completed or the application will be returned

WORK ITEMS (ITEMIZE BY CATEGORY)	NUMBER OF UNITS	UNIT DESCRIPTION*	COST/UNIT	TOTAL COST	CONTRIBUTIONS			
					FUTURE FISHERIES REQUEST	IN-KIND SERVICES**	IN-KIND CASH	TOTAL
<b>Personnel</b>								
Survey	4	Hours	\$50.00	\$ 200.00		200.00		\$ 200.00
Engineering	20	Hours	\$100.00	\$ 2,000.00	-	2,000.00		\$ 2,000.00
Permitting	20	Hours	\$50.00	\$ 1,000.00		1,000.00		\$ 1,000.00
Oversight	40	Hours	\$50.00	\$ 2,000.00		2,000.00		\$ 2,000.00
Labor	40	Hours	\$25.00	\$ 1,000.00	1,000.00			\$ 1,000.00
			Sub-Total	\$ 6,200.00	\$ 1,000.00	\$ 5,200.00	\$ -	\$ 6,200.00
<b>Travel</b>								
Mileage	400	Miles	\$0.55	\$ 220.00			220.00	\$ 220.00
Per diem	5	Days	\$25.00	\$ 125.00			125.00	\$ 125.00
			Sub-Total	\$ 345.00	\$ -	\$ -	\$ 345.00	\$ 345.00
<b>Construction Materials***</b>								
Rock	20	Cubic Yard	\$50.00	\$ 1,000.00		1,000.00		\$ 1,000.00
Backfill	10	Cubic Yard	\$30.00	\$ 300.00		300.00		\$ 300.00
Eco Block	6	Each	\$100.00	\$ 600.00	600.00			\$ 600.00
Stringers (Delivered)	100	Foot	\$20.00	\$ 2,000.00		1,500.00	500.00	\$ 2,000.00
Decking (2x6)	250	Foot	\$1.00	\$ 250.00	250.00			\$ 250.00
Tread (2x12)	25	Foot	\$2.00	\$ 50.00	50.00			\$ 50.00
Curb (4x4)	25	Foot	\$1.00	\$ 25.00	25.00			\$ 25.00
Hardware	1	LS	\$500.00	\$ 500.00	400.00		100.00	\$ 500.00
12" HDPE Pipe	40	Foot	\$15.00	\$ 600.00			\$ 600.00	\$ 600.00
12"Screwgate	1	each	\$1,000.00	\$ 1,000.00			\$ 1,000.00	\$ 1,000.00
Pipe	80	Foot	\$20.00	\$ 1,600.00		\$ 1,400.00	\$ 200.00	\$ 1,600.00
			Sub-Total	\$ 4,200.00	\$ 1,325.00	\$ 4,200.00	\$ 2,400.00	\$ 7,625.00
<b>Equipment</b>								
Excavator	40	Hours	\$125.00	\$ 5,000.00	5,000.00			\$ 5,000.00
Dump Truck	40	Hours	\$100.00	\$ 4,000.00	4,000.00			\$ 4,000.00
Skid Steer	40	Hours	\$85.00	\$ 3,400.00	3,400.00			\$ 3,400.00
Trash Pump Rental	5	days	\$100.00	\$ 500.00			500.00	\$ 500.00
Compactor Rental	5	days	\$80.00	\$ 400.00			400.00	\$ 400.00
			Sub-Total	\$ 12,400.00	\$ 12,400.00	\$ -	\$ 900.00	\$ 13,300.00
<b>Mobilization</b>								
Mobilization	1	LS	\$1,200.00	\$ 1,200.00	1,200.00			\$ 1,200.00
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
			Sub-Total	\$ 1,200.00	\$ 1,200.00	\$ -	\$ -	\$ 1,200.00
<b>TOTALS</b>				\$ 24,345.00	\$ 15,925.00	\$ 9,400.00	\$ 3,645.00	\$ 28,670.00

**BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS**

\*Units = feet, hours, inches, lump sum, etc.

\*\*Can include in-kind materials. Justification for in-kind labor (e.g. hourly rates used for calculations). Describe here or in text.

\*\*\*The Future Fisheries Review Panel recommends a maximum fencing cost of \$1.50 per foot

**MATCHING CONTRIBUTIONS** (do not include requested funds)

CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL	Verified? (Y/N)
Montana FWP (Missoula)	\$ 1,500.00		\$ 1,500.00	Yes
Trout Unlimited	\$ 6,600.00	\$ 345.00	\$ 6,945.00	Yes
Landowner	\$ 1,300.00	\$ 2,300.00	\$ 3,600.00	Yes
Montana Trout Unlimited	\$ -	\$ 1,000.00	\$ 1,000.00	Yes
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
<b>TOTALS</b>	\$ 9,400.00	\$ 3,645.00	\$ 13,045.00	