



**Montana Fish,  
Wildlife & Parks**

2300 Lake Elmo Drive  
Billings MT 59105

November 26, 2014

Dear Future Fisheries Board Members,

Thank-you for your service on the Future Fisheries Board. Included in this grant application for the Egge Diversion Dam removal are engineering plans, "Egge Diversion Dam Removal Project Located on the Musselshell River near Lavina, MT FWP #14-38", maps and drawings, and a projected budget prepared by Allied Engineering services, Inc. July 11, 2014. I've provided a River Assessment Triage Team (RATT) report prepared for Jim Ballard. He irrigated with pumps but formerly relied on the dam's reservoir to supply water to the pumps. Also included are the Future Fisheries Application and budget outline and two letters of support from affected landowners.

The RATT team was created through the Musselshell Water Coalition. The RATT report was intended to help Jim Ballard make decisions as he lost a pump site and land as a result of the dam failing. The dam watered nearly 160 acres for 1 land owner, Robert Tate. He currently resides out of state and was interested in retiring the diversion. He wished to sell water rights to FWP for in-stream flow protections and was interested in a conservation easement for this property. He recently sold the land to Trent Wallis who farms and ranches across the river. Trent intends to continue working on the easement which is partially funded. He is considering options for a Fishing Access Site as he develops a long term irrigation and management plan for the land.

The Musselshell was identified as a focal stream by FWP to help direct State Wildlife Grant (SWG) funds complete projects directed at species and habitats of concern. The majority of the funding will come from SWG. Last week a 223 grant from DNRC was approved for a portion of this project. The grant was requested by the Lower Musselshell Conservation District which demonstrates their support of this project.

Dam removal will enhance connectivity in the Musselshell River creating a 24 mile continuous stretch between diversions. This will help all species of fish present by reconnecting two subbasins, Painted Robe Creek and Big Coulee Creek both with multiple species of concern. This area has potential for a good catfish fishery and already has a smallmouth bass fishery. This reach supports 18 native fish species, native mussels, amphibians, and turtles.

I look forward to meeting you at the next meeting to provide additional information and to answer any questions you may have about this opportunity. Thank-you for your review and time.

Sincerely,

A handwritten signature in blue ink that reads "Mike Ruggles".

Mike Ruggles  
Montana Fish Wildlife and Parks

**FUTURE FISHERIES IMPROVEMENT PROGRAM  
GRANT APPLICATION**

*(please fill in the highlighted areas)*

**I. APPLICANT INFORMATION**

- A. Applicant Name: Montana Fish Wildlife and Parks
- B. Mailing Address: 2300 Lake Elmo Drive
- C. City: Billings State: MT Zip: 59105  
 Telephone: 406-247-2963 E-mail: mikeruggles@mt.gov
- D. Contact Person: Mike Ruggles  
 Address if different from Applicant: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Telephone: \_\_\_\_\_ E-mail: \_\_\_\_\_
- E. Landowner and/or Lessee Name (if other than Applicant): Trent Wallis  
 Mailing Address: P.O. Box 185  
 City: Lavina State: MT Zip: 59046  
 Telephone: 406-591-4512 E-mail: trentwallis@hotmail.com

**II. PROJECT INFORMATION\***

- A. Project Name: Musselshell River Egge Diversion Removal and Bank Rehabilitation  
 River, stream, or lake: Musselshell  
 Location: Township: 6 N Range: 23 E Section: 9SENE  
 Latitude: 46.2856 Longitude: -108.8431 *within project (decimal degrees)*  
 County: Golden Valley
- B. Purpose of Project:  
 Maintain the recent connectivity in a reach of the Musselshell River as a result of a diversion dam being flanked by the 2011 flood. The diversion deflects natural flow and should be removed. The adjacent bank was severely eroded as a result of the diversion flanking this will be repaired using a soil lift method rather than traditional riprap.
- C. Brief Project Description: \_\_\_\_\_

A 115 long 15 foot wide and 4 foot tall diversion has been in place for nearly 100 years. It was modified and repaired as recently as the mid 1980's. This former fish barrier will be removed allowing the Musselshell to flow naturally. Although there are other diversions upstream and downstream this will open up a continuous 24 mile reach and allow for connection between two important tributaries Big Coulee Creek and Painted Robe Creek both contain the northern redbelly dace and hybrid finescale dace species of concern as well as many other native species of fish and the spiny softshell turtle also a species of concern. Fatmucket clams will also benefit as they are dispersed by fish. This is the only reach I've found living clams on the Musselshell although shells can be found throughout downstream of this area. Furthermore, 180 feet of bank line will be restored using a bioengineered willow soil lift design in the area that was eroded when the river went around the diversion in the flood of 2011. This site will be used as a demonstration site as most bank projects use traditional rock riprap or concrete rubble in the Musselshell River. This part of the project is also being funded by a DNRC 223 grant. The proposed technique has been used in other areas more typically in western Montana but has not been tried at this scale on the Musselshell.

D. Length of stream or size of lake that will be treated:

At river mile (rm) 220.8 ensuring this dam is removed and not repaired will connect 24 miles of the Musselshell and two subbasins Big Coulee Creek and Painted Robe Creek. The next upstream diversion is at rm 238 and downstream at rm 214.

E. Project Budget:

**Grant Request (Dollars): \$ 20,000**

Contribution by Applicant (Dollars): \$ 91,300 with a contingency of 21,300 In-kind \$  
MTFWP SWIG funds  
 (salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): \$ 19,900 DNRC 223 grant In-kind \$ 9,500 landowner  
approved. Less 5% overhead  
 (attach verification - See page 2 budget template)

**Total Project Cost: \$ 147,100 without contingency and 161,810 with 10% contingency funding**

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/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete supplemental questionnaire ([fwp.mt.gov/habitat/futurefisheries/supplement2.doc](http://fwp.mt.gov/habitat/futurefisheries/supplement2.doc)).

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

### III. PROJECT BENEFITS\*

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

Black bullhead, brassy minnow, channel catfish, common carp, emerald shiner, fathead minnow, flathead chub, green sunfish, goldeye, lake chub, longnose dace, longnose sucker, mountain sucker, northern redbelly dace, plains minnow, redbelly finescale dace hybrid, River carpsucker, sand shiner, shorthead redhorse, smallmouth bass, stonecat, western silvery minnow, white sucker, other aquatic species benefit will be for spiny softshell turtle, and fatmucket clam.

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

Removal of the dam will maintain connectivity allowing tributary fish to utilize multiple tributaries in this reach and maintain 24 miles of connected Musselshell river for mainstem fish. Catfish reintroduction above this reach is being considered as part of another project. The reach around the Egge Diversion will likely retain a very good catfish population overtime.

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

The project will improve catfish and smallmouth bass populations by allowing for better selection of summer and winter habitats increasing recruitment and survival. Maintaining the once lost connections to tributary streams will result in improved conditions for minnows and suckers improve forage fish conditions that can be utilized by predatory fish and other animals.

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

Fishing Access may be enhanced through negotiations with the adjacent landowner either by conservation easement or establishment of a Fishing Access Site. Trent Wallis has actively been pursuing an easement and considering a FAS. This is being pursued through other activities. Many landowners in this reach allow public access upon request. Within this reach public access is allowed on the Highway 3 bridge crossing. Improvements in the fishery will improve fishing at this site. MDT plans on improving access with people friendly fencing and potential pull out improvement.

E. If the project requires maintenance, what is your time commitment to this project?

Its unlikely maintenance will be required as the dam will be removed. Some replanting on or around the soil lifts may occur if suitable growing conditions are not present during the first year.

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

The flood of 2011 flanked the diversion causing erosion around the dam. The dam is an impediment to normal stream flow by deflecting water 90 degrees into the adjacent property (Jim Ballard. Removal of the dam will restore normal flow patterns. Restoration of the adjacent bank will help ensure stability of the reach and reduce erosion.

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

Improved fisheries, implementation of a soil lift in an area that has had limited experience and confidence with an alternative to rock riprap. This fishery has public access near Lavina on the Highway 3 bridge. Improving overall fishery conditions will influence the fishery near the bridge. I'm working with MDT to improve the river access as part of a bridge replacement project.

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

No effect. The water rights associated with the dam will be delivered by pumps rather than the diversion. Trent Wallis is pursuing the change.

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

This will not result in a commercial recreational area.

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

No.

Each approved project sponsor must enter into a written agreement with the Department specifying terms and duration of the project.

**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: 11/26/2014

Sponsor (if applicable): \_\_\_\_\_

\*Highlighted boxes will automatically expand.

**Mail To: Montana Fish, Wildlife & Parks  
Habitat Protection Bureau  
PO Box 200701  
Helena, MT 59620-0701**

**E-mail To: Michelle McGree  
[mmcgree@mt.gov](mailto:mmcgree@mt.gov)**

**Incomplete or late applications will be returned to applicant.  
Applications may be rejected if this form is modified.**

**\*\*\*Applications may be submitted at anytime, but must be received by the Future Fisheries Program office in Helena before December 1 and June 1 of each year to be considered for the subsequent funding period.\*\*\***

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

Musselshell River Egge Diversion removal

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				\$ -				\$ -
Design				\$ -				\$ -
Engineering				\$ -				\$ -
Permitting				\$ -				\$ -
Oversight				\$ -				\$ -
Labor				\$ -				\$ -
			Sub-Total	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Travel</b>								
Mileage				\$ -				\$ -
Per diem				\$ -				\$ -
			Sub-Total	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Construction Materials</b>								
demolition remove dam	1	lump sum	\$20,000.00	\$ 20,000.00	20,000.00			\$ 20,000.00
remove headgate	1	lump sum	\$2,000.00	\$ 2,000.00			2,000.00	\$ 2,000.00
reclaim ditch	500	cubic yards	\$10.00	\$ 5,000.00			5,000.00	\$ 5,000.00
riverbed excavation	900	cubic yards	\$5.00	\$ 4,500.00			4,500.00	\$ 4,500.00
fill scour hole	900	cubic yards	\$5.00	\$ 4,500.00			4,500.00	\$ 4,500.00
fill scour hole	1200	cubic yards	\$10.00	\$ 12,000.00			12,000.00	\$ 12,000.00
fill scour hole	500	cubic yards	\$25.00	\$ 12,500.00			12,500.00	\$ 12,500.00
fill scour hole	900	cubic yards	\$25.00	\$ 22,500.00			22,500.00	\$ 22,500.00
top soil	450	cubic yards	\$20.00	\$ 9,000.00		2,000.00	7,000.00	\$ 9,000.00
salvage rock placement	40	cubic yards	\$30.00	\$ 1,200.00			1,200.00	\$ 1,200.00
soil lift construction	200	linear feet	\$50.00	\$ 10,000.00		2,000.00	8,000.00	\$ 10,000.00
Willow pole	6800	each	\$1.00	\$ 6,800.00		3,400.00	3,400.00	\$ 6,800.00
Conifer Facine	1000	each	\$1.00	\$ 1,000.00		500.00	500.00	\$ 1,000.00
wood in trench	10	each	\$200.00	\$ 2,000.00		1,000.00	1,000.00	\$ 2,000.00
seed	4200	square yards	\$0.50	\$ 2,100.00			2,100.00	\$ 2,100.00
erosion fabric	1000	square yards	\$5.00	\$ 5,000.00			5,000.00	\$ 5,000.00
straw waddle	400	linear feet	\$3.50	\$ 1,400.00			1,400.00	\$ 1,400.00
			Sub-Total	\$ 121,500.00	\$ 20,000.00	\$ 8,900.00	\$ 92,600.00	\$ 121,500.00
<b>Equipment</b>								
			Sub-Total	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Mobilization</b>								

012-2015

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

Mobilization	1	lump sum	\$12,000.00	\$	12,000.00			12,000.00	\$	12,000.00	
control of water	1	lump sum	\$10,000.00	\$	10,000.00			10,000.00	\$	10,000.00	
staging	1	lump sum	\$3,000.00	\$	3,000.00			3,000.00	\$	3,000.00	
fencing removal and replace	300	linear feet	\$2.00	\$	600.00		600.00		\$	600.00	
		Sub-Total		\$	25,600.00	\$	600.00	\$	25,000.00	\$	25,600.00
<b>TOTALS</b>				\$	147,100.00	\$	20,000.00	\$	9,500.00	\$	147,100.00
						14,710.00	contingency of	may be available from SWIC	\$	161,810.00	

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

**MATCHING CONTRIBUTIONS**

CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL	Verified? (Y/N)
MTFWP SWIG	\$ -	\$ 100,000.00	\$ 100,000.00	Y
MTFWP SWIG contingency	\$ -	\$ 12,410.00	\$ 12,410.00	Y
DNRC 223 Grant	\$ -	\$ 19,900.00	\$ 19,900.00	Y
MTFWP Future Fisheries	\$ -	\$ 20,000.00	\$ 20,000.00	N
Landowner Jim Ballard	\$ 9,500.00	\$ -	\$ 9,500.00	Y
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
<b>Total</b>	\$ -	\$ -	\$ 161,810.00	

Musselshell River Egge Diversion removal

012-2015

## Egge Diversion Dam Removal Project

Cost Estimate Date: 07/11/14

Cost Estimate Description: Construction Plans

Estimated Construction Cost (w/out contingency): \$147,100

Contingency Percent: 10%

Contingency Amount: \$14,710

Estimated Construction Cost (with contingency): \$161,810

Total Estimated Project Cost With Contingency: \$162,000

No.	Activity	Quantity	Unit	Unit Price	Cost	Percent of Total	Subtotal Cost	Assumptions and Comments
<b>1.0</b>	<b>Site Preparation</b>							
1.1	Mobilization and Demobilization	1	LS	\$12,000	\$12,000	8.2%	<b>\$25,600</b>	Percentage of 8-10% recommended by FWP
1.2	Control of Water	1	LS	\$10,000	\$10,000	6.8%		Rough estimate
1.3	Site Access and Staging Areas Reclamation	1	LS	\$1,000	\$1,000	0.7%		Rough estimate
1.4	Construct and Reclaim River Ingress/Egress Areas	1	LS	\$2,000	\$2,000	1.4%		Rough estimate
1.5	Remove & Replace Fence	300	LF	\$2	\$600	0.4%		
<b>2.0</b>	<b>Site Improvements</b>							
2.1	Demolition: Remove Concrete Dam	1	LS	\$20,000	\$20,000	13.6%	<b>\$121,500</b>	Very rough estimate, not based on explorations
2.2	Demolition: Remove Headgate	1	LS	\$2,000	\$2,000	1.4%		Rough estimate
2.3	Demolition: Fill Irrigation Ditch with Removed Concrete & Reclaim	500	CY	\$10	\$5,000	3.4%		
2.4	Earthwork: Excavation in Riverbed	900	CY	\$5	\$4,500	3.1%		Material from FES foundation excavation, excavation under and near dam
2.5	Earthwork: Fill Scour Hole with On-Site Excavated Sand/Gravel Material	900	CY	\$5	\$4,500	3.1%		Material from excavation in riverbed
2.6	Earthwork: Fill Scour Hole with Common Backfill	1,200	CY	\$10	\$12,000	8.2%		Imported common backfill
2.7	Scour Hole Fill: Fill Scour Hole w/Imported Gravel Material (Rock Type 1)	500	CY	\$25	\$12,500	8.5%		Should only need 50 CY to combine with Item 2.5 for scour hole fill but estimated at 500 CY in case less riverbed material is excavated than estimated
2.8	Scour Hole Fill: Fill Scour Hole w/Imported Pit-Run (Rock Type 2)	900	CY	\$25	\$22,500	15.3%		1.5 ft layer of cobble on top of scour hole fill
2.9	Scour Hole Fill: Place Imported Topsoil	450	CY	\$20	\$9,000	6.1%		Topsoil on reconstructed field, side slopes from field to floodplain, floodplain and in FES
2.10	Bank Construction: Place Salvaged Rock	40	CY	\$30	\$1,200	0.8%		Very rough estimate based on surveyed area of rock
2.11	Bank Construction: Construct Fabric Encapsulated Soil (FES) - 2 Lifts	200	LF	\$50	\$10,000	6.8%		180 feet of bank plus 10 feet on each end for key in
2.12	Bank Construction: FES - Willow Pole	6,800	Each	\$1	\$6,800	4.6%		Assumes 12 poles per foot FES, 2 lifts FES, 6 poles per foot vertical in anchor trench; 20 in each Wood Material in Trenches; 6 per foot in floodplain bench transition area
2.13	Bank Construction: FES - Conifer Facine	1,000	Each	\$1	\$1,000	0.7%		Assumes 5 facines per foot of FES, 1 lift at top of 1st FES lift
2.14	Floodplain Treatment: Wood Material in Trenches	10	Each	\$200	\$2,000	1.4%		
2.15	Site Restoration: Seed Disturbed Areas	4,200	SY	\$0.50	\$2,100	1.4%		Seed reconstructed field and side slopes, floodplain bench, river ingress/egress, staging areas
2.16	Erosion Control: Erosion Control Fabric (provisional)	1,000	SY	\$5.00	\$5,000	3.4%		
2.17	Erosion Control: Straw Wattle (provisional)	400	LF	3.50	\$1,400	1.0%		

100.0%

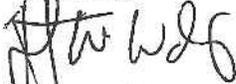
Dear Future Fisheries Panel,

This letter is intended to show my support for the proposed Egge Diversion removal. I look forward to improved river flow and a better fishery in this area. I'm considering a conservation easement on the newly acquired Tate property and the home place as well to help protect the associated riparian area.

I recently purchased the Tate property that was served by the diversion. The diversion and canal system were heavily damaged by the 2011 flood. I've farmed and ranched just downstream of this diversion all my life and we have used pump irrigation and didn't benefit from the dam. I feel pump irrigation requires less water than the diversion and its associated canal. Improvements to the irrigation system with pumps should result in more water available for the river due to this change which should help the fish, other animals and riparian community that relies on the river.

Please support this project to help remove the diversion.

Sincerely,

A handwritten signature in black ink, appearing to read 'Trent Wallis', written over the printed name.

Trent Wallis

November 24<sup>th</sup>, 2014

Dear Future Fisheries Panel,

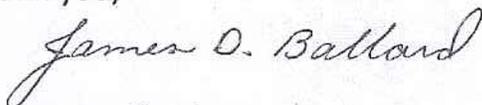
I am writing to you in regards to the Egge Diversion Dam Removal Project. I am also the landowner of the south river bank and field that has suffered damage when the river flanked the diversion in 2011. I do not own the diversion or have ever received a benefit from the use of it.

I have an irrigation pump site upstream to be replaced because of the head loss.

I am in full support to bank repairs with soil lift and removal of the diversion dam. I also believe this could be a demonstration of partnering and education along with positive stewardship of a Montana river bed.

I understand this project may well improve the fisheries of the Musselshell River. The LMCD has awarded a 223 grant for the bank project, I will also participate. I would encourage this panel to assist with the diversion removal from the river bed.

Thank you,

A handwritten signature in cursive script that reads "James D. Ballard".

James D. Ballard