

**FUTURE FISHERIES IMPROVEMENT PROGRAM
GRANT APPLICATION**

(please fill in the highlighted areas)

I. APPLICANT INFORMATION

A. Applicant Name: Beaverhead Watershed Committee/Beaverhead Conservation District

B. Mailing Address: 420 Barrett Street

C. City: Dillon State: MT Zip: 59725

Telephone: (406) 683-3802 E-mail: beaverheadwatershed@gmail.com

D. Contact Person: Katie Tackett

Address if different from Applicant: _____

City: _____ State: _____ Zip: _____

Telephone: (406) 988-0191 E-mail: beaverheadwatershed@gmail.com

E. Landowner and/or Lessee Name
(if other than Applicant): Montana Fish, Wildlife & Parks

Mailing Address: 730 ½ N. Montana

City: Dillon State: MT Zip: 59725

Telephone: (406) 683-9310 E-mail: mattjaeger@mt.gov

II. PROJECT INFORMATION*

A. Project Name: Poindexter Slough Habitat Restoration

River, stream, or lake: Poindexter Slough

Location: Township: 7 S Range: 9 W Section: 34, 35

Latitude: _____ Longitude: _____ *within project (decimal degrees)*

County: Beaverhead

B. Purpose of Project:

This is the final phase of a project that will improve the quality of Poindexter Slough, a unique spring creek-type fishery occurring primarily on public lands, by adjusting channel dimensions to effectively convey fine sediment and maintain pool habitat using designed flushing flows. This project will also increase the quality and quantity of riffle spawning habitat that support fisheries in Poindexter Slough and the Beaverhead River. Because the entirety of this project occurs on lands administered by FWP and accessible to anglers, we expect that a direct and clear public benefit will be realized by a measurable increase in angler days spent on Poindexter Slough.

C. Brief Project Description:

Poindexter Slough is a 4.7 mile long valley-bottom channel of the Beaverhead River fed by a combination of groundwater and flow from the Beaverhead River. The lower 3.2 miles are located on a FWP Fishing Access Site and provide one of the few publically accessible spring creek angling experiences in southwest Montana. Under good habitat conditions, abundances of over 2,000 adult trout per mile and excellent angling are supported by Poindexter Slough. Because of its accessibility and close proximity to the city of Dillon, Poindexter Slough is a heavily frequented sport fishery that has accommodated up to 4,095 angler days per year. Poindexter Slough is also important to the local economy; during periods of high angler use it is estimated that over \$433,000 of direct expenditures are made annually in Beaverhead County by anglers fishing Poindexter Slough. However, periodic surveys completed by FWP have documented a steady decline in the fishery and angler use of Poindexter Slough over the past 15 years. Abundances of adult brown trout declined from about 2,400 fish per mile in 1999 to between 500 and 1,000 fish per mile during most of the 2000's. Annual angler use declined commensurately during this period from over 4,000 angler days to a low of 610 angler days and average angler satisfaction rating transitioned from "excellent" to "poor."

The observed declines are primarily related to indirect habitat degradation following conversion from flood to sprinkler irrigation in the areas surrounding Poindexter Slough. Poindexter Slough was traditionally fed largely by groundwater returning from flood irrigation. These "spring" sources were adequate to meet the irrigation demands of the Dillon Canal, which diverts its water right about half way down the slough, and create a very productive and stable spring creek fishery. As sprinklers replaced flood irrigation, groundwater inputs decreased and Poindexter Slough was supplemented with increasingly more water from the Beaverhead River in order to meet the Dillon Canal's water right. Diverted Beaverhead River water carries and deposits a large amount of fine sediment into Poindexter Slough, which progressively filled pools and degraded riffles resulting in declines in fish abundance, angler use, and aquatic insect habitat. Because Poindexter Slough is a relict Beaverhead River channel its present dimensions require relatively large flows of up to 500 cfs to most effectively mobilize and flush fine sediments from pools and riffles. The pre-project infrastructure allowed a maximum of only about 50 cfs to be diverted from the Beaverhead River in addition to the up to 25 cfs of accreted flows Poindexter Slough gains over its length. Additionally, a 2,000 foot reach of stream was backwatered by the Dillon Canal diversion that further degraded habitat and complicated sediment transport issues in Poindexter Slough.

In order to most effectively mobilize and transport fine sediment and restore and maintain better habitat conditions a larger flushing flow, appropriately sized channel dimensions, and elimination of backwatered reaches was required (Attachment B). In 2014 the Beaverhead River headgates were replaced to allow adequate flushing flows (150 to 200 cfs) in upper reaches. The Dillon Canal and adjacent channel of Poindexter Slough were re-graded and narrowed and associated infrastructure replaced such that all water rights could be satisfied without changing water surface elevation during almost all flow conditions (Attachment C and D). A flow management plan that describes desired magnitude and duration of flushing flows required to mobilize various sized particles was developed (Attachment E) and an agreement to execute flushing flows was formalized with stakeholders (Attachment F). This work fully restored the upper 2.6 miles of Poindexter Slough and provided all infrastructure required for effective sediment maintenance throughout the stream.

This grant would be applied towards narrowing the lower 2.1 miles of Poindexter Slough from bankfull dimensions of 500 cfs to about 200 cfs, which will allow maintenance of riffle and pool habitat in perpetuity with sediment flushing flows. This work will occur entirely on a FWP Fishing Access Site and complete the Poindexter Slough Habitat Restoration Project.

D. Length of stream or size of lake that will be treated: 2.1 miles

E. Project Budget:

Grant Request (Dollars): \$ 75,000

Contribution by Applicant (Dollars): \$ _____ In-kind \$ _____
(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): \$ 30,000 this phase (\$375,683 total) In-kind \$ \$0 this phase (\$156,679 total)
(attach verification - See page 2 budget template)

Total Project Cost: \$ \$105,000 this phase (\$637,363 total)

F. Attach itemized (line item) budget – See Attachment A

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)

G. Attachment A: Budget

Attachment B: Preliminary Engineering Report and Alternative Analysis

Attachment C: Final Design

Attachment D: Pictures of work completed to date and conditions in remaining project area

Attachment E: Flow Management Plan

Attachment F: Operation and Maintenance and Project Agreement

Attachment G: Water Management and Rights Memorandum

Attachment H: Letters of support

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

H. Attachment F

III. PROJECT BENEFITS*

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

Brown trout, rainbow trout, mountain whitefish, Rocky Mountain sculpin

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

The project will enhance wild fish habitat by narrowing the lower 2.1 miles of Poindexter Slough so periodic flushing flows can mobilize and transport fine sediment that is presently degrading fish habitat. All infrastructural changes required to deliver flushing flows and associated upstream channel work have been completed. This project will increase the quantity and depth of pool habitats, restore appropriate width-to-depth ratios for riffles and pools, remove or isolate fine sediment deposits from the streambed, and encourage natural recruitment of willows and other woody riparian vegetation. These improvements will restore the quality and quantity of spawning, rearing, and adult fish and aquatic macroinvertebrate habitat that previously supported high fish abundances and an excellent recreational fishery in Poindexter Slough. These changes will have the added benefit of reducing thermal loading, reducing habitat for *Tubifex tubifex* (the intermediate host for whirling disease), and increasing aquatic insect populations.

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

The proposed habitat modifications will result in increased fish abundances and improved angling. Providing the channel dimensions required to realize the benefits of periodic sediment flushing flows will maintain habitat and re-establish high abundances of fish relative to the present state in Poindexter Slough. Abundances of over 2,000 adult trout per mile were supported by the habitat conditions that occurred prior to sediment loading, which this project will restore. There is a direct and strong correlation between abundance of adult trout and angler use and satisfaction on Poindexter Slough; pre-sedimentation trout abundances supported annual use of over 4,000 angler days and average rating by anglers as "excellent." Following sediment loading over the past 15 years adult fish abundances declined by 60 to 80%, angler use by 85%, and angler rating from "excellent" to "poor." It is our expectation that this project will result in a return to fish abundances and levels of angler use and satisfaction comparable to pre-sedimentation levels.

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

Because the entirety of this project occurs on lands administered by FWP and accessible to anglers, we expect that a direct and clear public benefit resulting from this project will be realized by a measurable increase in angler days spent on Poindexter Slough. Poindexter Slough is one of the few valley bottom spring creeks open to public fishing in southwest Montana; 3.2 of its 4.7 mile length occur on public lands. The declining fish population resulting from habitat degradation has been noted by area fishermen and guides, with fewer and fewer anglers visiting Poindexter Slough to fish. As described above, as many as 3,485 angler days have been lost annually on Poindexter Slough and angler ratings of the quality of their experience have declined precipitously. Because over 67% of Poindexter Slough occurs on a FWP Fishing Access Site these improvements to fisheries habitat and fish abundances will uniquely translate directly into improved publically accessible recreational fishing opportunity.

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

This project will require annual maintenance to coordinate, monitor, and execute flushing flows in Poindexter Slough. FWP is committed to overseeing and executing these tasks in perpetuity as part of a signed agreement with all involved parties (Attachments E and F).

The ultimate success of this project will be quantified by changes in 1) fish abundances, 2), angler use, and 3) angler ratings of their quality of experience. FWP will monitor fish abundances annually for a period of no less than five years following completion of the project in its entirety. Additionally, a University of Montana Western class and the Beaverhead Watershed Committee will annually inspect channel stability, survey permanent cross-sections, estimate fine sediment quantities and distribution before and after flushing flows, monitor vegetation and macroinvertebrates, and conduct redd counts. All monitoring data will be evaluated annually to determine whether project goals are being met and to identify potential maintenance needs. Any maintenance needs will be scheduled for repair and funded through additional grants as needed unless they are the result of design or installation errors, in which case they will be corrected by the design contractor and/or construction contractor.

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

Habitat degradation of Poindexter Slough was indirectly caused by conversion from flood to sprinkler irrigation in the areas surrounding Poindexter Slough. Poindexter Slough was traditionally fed largely by groundwater returning from flood irrigation. These "spring" sources were adequate to meet the irrigation demands of the Dillon Canal and create a very productive and stable spring creek fishery. As sprinkler replaced flood irrigation, groundwater inputs decreased and Poindexter Slough was supplemented with increasingly more water from the Beaverhead River in order to meet water rights. Diverted Beaverhead River water carries and deposits a large amount of fine sediment into Poindexter Slough, which has progressively filled pool habitat and degraded riffle habitat. In addition to the aforementioned declines in fish abundance and angler use, aquatic insect habitat has been reduced as the streambed has been covered by fine sediment. Because Poindexter Slough is a relict Beaverhead River channel, its present dimensions require relatively large flows of up to 500 cfs to most effectively mobilize and flush fine sediments from pools and riffles in some reaches. A 2,000 foot reach of stream backwatered by the Dillon Canal diversion further degraded habitat and complicated sediment transport issues in Poindexter Slough. A pin-and-plank diversion structure was used to raise water surface elevation several feet to serve an adjacent landowner's irrigation pump and feed the Dillon Canal. This structure resulted in seasonal creation of a small impoundment, which inundated stream habitat and captured sediment throughout the irrigation season. Following irrigation, the boards were removed and the stream recolonized a channel, resulting in relatively low quality habitat in the previously backwatered reach and transport of the sediment trapped there downstream, thereby causing further habitat degradation. Additionally, the diversion structure served as a seasonal barrier to upstream fish movements.

In order to effectively mobilize and transport fine sediment and restore and maintain better habitat conditions a larger flushing flow, appropriately sized channel dimensions, and elimination of backwatered reaches was required. In 2014 the Beaverhead River headgates were replaced to allow adequate flushing flows (150 to 200 cfs) in upper reaches. The Dillon Canal and adjacent channel of Poindexter Slough were re-graded and narrowed. The Dillon Canal headgates and adjacent irrigation pump were replaced at an elevation that required no changes in water surface elevation to deliver their water right. The pin and plank diversion was replaced with a similar smaller structure that will only be used in emergencies, resulting in year round fish passage. A flow management plan that describes desired magnitude and duration of flushing flows required to mobilize various sized particles was developed. This work fully restored the upper 2.6 miles of Poindexter Slough and provided all infrastructure required for effective sediment maintenance throughout the stream.

This grant would be applied towards narrowing the lower 2.1 miles of Poindexter Slough from bankfull dimensions of 500 cfs to about 200 cfs, which will allow maintenance of riffle and pool habitat in perpetuity with sediment flushing flows. This work will occur entirely on a FWP Fishing Access Site and complete the Poindexter Slough Habitat Restoration Project.

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

Because the majority of this project occurs on lands administered by FWP and accessible to anglers, we expect that a direct and clear public benefit resulting from this project will be realized by a measurable increase in angler days spent on Poindexter Slough. This project will improve the habitat quality of Poindexter Slough in perpetuity by modifying irrigation infrastructure and adjusting channel dimensions to effectively mobilize and convey fine sediment and maintain pool habitat using designed flushing flows and increasing the quality and quantity of spawning habitat that support fisheries in Poindexter Slough and the Beaverhead River. These changes will restore habitat conditions similar to those that previously supported high abundances of adult trout and angler use. Because 67% of this project occurs on a FWP Fishing Access Site, these improvements to irrigation infrastructure, fisheries habitat, and fish abundances will uniquely translate directly into improved publically accessible recreational fishing opportunity.

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

No. Please see the attached memorandum regarding the water rights implications of conveying flushing flows through the Poindexter Slough channel (Attachment G). Representatives of the Dillon Canal and local landowners have been involved with this project throughout its development and implementation. The Beaverhead Watershed Committee and FWP worked closely with the Dillon Canal and all adjacent landowners to coordinate and develop a mutually acceptable flushing flow plan for Poindexter Slough (Attachment E). The attached agreement specifies roles and responsibilities of all stakeholders, including description of how a flushing flow would be executed (Attachment F).

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

Commercial recreational use is presently authorized and does occur on Poindexter Slough; this project will not develop new commercial recreational use. However, it is anticipated that improving the fishery in Poindexter Slough will provide local outfitters and guides with an additional opportunity for clients and possibly help to relieve fishing pressure on other nearby streams.

Because of its accessibility and close proximity to the city of Dillon, Poindexter Slough is a heavily frequented sport fishery that is important to the local economy, including both angling and non-angling related businesses. During periods of high fish abundance and angler use it is estimated that over \$433,000 of direct expenditures are made annually at Beaverhead County businesses by anglers fishing Poindexter Slough. At present fish abundances and levels of angler use these direct expenditures have decreased to approximately \$100,595.

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: Byron Martinell Date: 27 May 2015

Sponsor (if applicable): Beaverhead Conservation District, Chair.

*Highlighted boxes will automatically expand.

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Habitat Protection Bureau
PO Box 200701
Helena, MT 59620-0701

E-mail To: Michelle McGree
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.*****

