

**FUTURE FISHERIES IMPROVEMENT PROGRAM
GRANT APPLICATION**

(please fill in the highlighted areas)

I. APPLICANT INFORMATION

A. Applicant Name: Montana Fish, Wildlife & Parks

B. Mailing Address: 54078 U.S. Highway 2 W

C. City: Glasgow State: MT Zip: 59230

Telephone: 406-228-3706

D. Contact Person: Steve Dalbey (Montana Fish, Wildlife & Parks Region 6 Fish Manager)

Address if different from Applicant:

City: State: Zip:

Telephone:

E. Landowner and/or Lessee Name (if other than Applicant): State of Montana Department of Natural Resources & Conservation

Mailing Address: 321 Main Street

City: Miles City State: MT Zip: 59301

Telephone: 406-232-2034

II. PROJECT INFORMATION*

A. Project Name: Nickwall Crossing Fish Passage Project

River, stream, or lake: Redwater River

Location: Township 153 N Range 50 E Section 36

County: McCone

B. Purpose of Project:

To provide fish passage at Nickwall Crossing on the lower Redwater River, McCone County. Currently a manmade barrier exists in the form of a concrete structure with four 24 inch diameter concrete culverts spaced across the stream. The culverts are currently above the elevation of the stream and do not provide fish passage. The structure is located approximately 1.25 river miles upstream of the confluence of the Missouri River. Creating fish passage at this road crossing would free up approximately 25 river miles of habitat for migratory fishes.

C. Brief Project Description:

Construct a new road crossing that contains four 12 ft wide by 5 ft tall pre-cast concrete or aluminum box culverts. The box culverts would be embedded below grade by about one foot and backfilled with gravel to provide resting area for slow swimming fishes. This alternative would meet the criteria of maximum water velocities of 1 ft/sec or less for 8 months of the year. In addition, minimum depth would be 0.4 ft or greater during all months of the year.

In 2010 FWP had an alternative assessment to provide fish passage at the Nickwall road crossing on the Redwater River completed. This document is attached. The budget was formulated from this assessment, with our preferred alternative being 2b (four aluminum box culverts). See attached document to better understand where the budget we submitted comes from.

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

Just the stream crossing, but would open 25 river miles of habitat for fish migrating from the Missouri River.

E. Project Budget:

Grant Request (Dollars): \$ **100,000**

Contribution by Applicant (Dollars): \$ 5,627.50 In-kind \$ _____
(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): \$ 200,000 In-kind \$ _____
(attach verification - See page 2 budget template)

Total Project Cost: \$ **305,627.50**

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).

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?:

The Redwater River is one of the largest tributaries to the lower Missouri River in Montana. Due to the presence of Fort Peck Dam on the Missouri River, which discharges colder than normal summer water, reduces the sediment load and acts as a nutrient sink, perennial tributaries are extremely important to the ecological function of the river. Scientists are finding that prairie tributaries play an important role in producing small cyprinids that spend a portion of their life cycles in mainstem rivers. Therefore, having adequate fish passage on large tributaries can not only increase resident fish populations, but can also increase mainstem populations. Native cyprinids such as flathead chubs, longnose dace, sturgeon chubs, etc., provide an important prey base for native predatory fishes such as sauger, channel catfish and pallid sturgeon. While much attention is spent on large habitat alterations on mainstem rivers (e.g. Fort Peck Dam), smaller perturbations on tributaries can have a compounding negative effect to the drainage.

The Missouri and Redwater River's contain an extremely high diversity of fishes, including several Montana species of special concern. Species of special concern that have been documented in the Redwater River include northern redbelly dace, sauger, Iowa darter and sturgeon chub. Game fish that have been documented include channel catfish, northern pike, walleye and sauger. The Nickwall Crossing fish barrier currently precludes fish from migrating up the Redwater River on "normal" water years. The barrier is situated just 1.25 river miles upstream from the confluence of the Missouri River. During the high water year of 2011, when water was toppling over the concrete structure, several game fishes, including native sauger were documented above the crossing. This was an extremely rare event, since the elevation of the Missouri River was high enough that water crossing the Nickwall structure had lower than normal water velocities and there was little elevation difference upstream and downstream of the structure. Although it was a rare event where fish could pass this structure, it provided solid evidence that if passage is available, several native fish species would utilize the Redwater River upstream of the current barrier.

Fish species that have been documented in the Redwater River include, bigmouth buffalo, black bullhead, brassy minnow, channel catfish cisco, common carp, emerald shiner, fathead minnow, flathead chub, freshwater drum, goldeye, green sunfish, longnose dace, northern pike, northern redbelly dace, plains minnow, river carpsucker, sand shiner, sauger, shorthead redhorse, smallmouth buffalo, stonecat, sturgeon chub, western silvery minnow, white crappie and white sucker. Having free river passage for all species of fish within the Redwater River would likely benefit a plethora of species. During times of drought fish would be able to seek refuge in pools or in extreme cases seek refuge in the Missouri River. New spawning habitats would likely be opened up for fish migrating out of the Missouri River into the Redwater River.

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

The project would open up an additional 25 miles of the Redwater River for migratory fish. This would likely include spawning habitat for channel catfish and sauger as well as native cyprinids that use tributaries to complete their life cycle. Due to the influence of Fort Peck Dam, water temperatures are too cold for channel catfish spawning in a large portion of the Missouri River downstream of Fort Peck Dam. Therefore, warm water tributaries including the Redwater River are important spawning tributaries for channel catfish. Currently, migratory channel catfish can only use 1.25 miles of the Redwater River due to the obstruction at the Nickwall Road crossing.

Channel catfish require relatively warm water for successful spawning and 27 C is considered optimum spawning temperature. However, successful spawning has been documented in water temperatures ranging from 21-29 C. Water temperatures in the Missouri River downstream of Fort Peck Dam rarely, if ever reach 27° C. For instance, during 2012 the warmest water temperature recorded in the main channel of the Missouri River from Wolf Point to the North Dakota border was only 20.5 C. Furthermore, the warmest temperature recorded upstream of Wolf Point was only 18.4 C. Therefore, warm tributaries are likely very important to channel catfish spawning. In addition to water temperatures, most documented spawning sites for channel catfish have identified gravel substrate as a part of the nests. Very little gravel substrate exists within the lower Missouri River from Wolf Point downstream to the confluence of the Yellowstone River. The Redwater River system contains gravel substrate throughout the system as well as bank cavities and large woody debris that is often cited as spawning habitat for channel catfish.

Sauger have been found to migrate up to the current barrier at the Nickwall road crossing during the early spring when they spawn. During 2011 with the extremely high water year of both the Missouri and the Redwater Rivers sauger were found upstream of Nickwall Crossing. With sufficient passage, sauger may migrate upstream on an annual basis. Sauger are known for using gravel and cobble substrate to attach their eggs during spawning. Since very little cobble and gravel substrate exists within the lower Missouri River, the Redwater River could potentially increase sauger production.

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

The lower Redwater River is currently a popular fishery for residents of McCone County. Increased fish passage and presumably increased production with the increase in available habitat would improve the fishery. Currently native channel catfish are found in great numbers downstream of Nickwall Crossing. Creating fish passage would likely improve channel catfish numbers upstream for an additional 25 river miles.

FWP is in the preliminary stages of developing a fishing access site (FAS) on BLM land at the mouth of the Redwater River. The creation of this FAS will likely increase fishing pressure on the lower Redwater and Missouri River. Providing fish passage and more accessibility to upstream habitats will be important in maintaining a healthy sport fishery.

In addition, the potential increase in cyprinid production that the Redwater River may produce if fish passage is provided could have a significant positive impact on endangered pallid sturgeon that reside in the lower Missouri River. Currently the views of fisheries professionals is that food may be limiting pallid sturgeon that have switched to piscivory. Slow growth rates and late maturation of hatchery stocked pallid sturgeon within the lower Missouri River lend evidence to the food limitation hypothesis. Reconnecting large tributaries to the Missouri River could significantly increase the forage base for pallid sturgeon within the Missouri River. Recent studies by graduate students at Montana State University found that small tributaries produce a large proportion of the cyprinid biomass within the lower Yellowstone River. Those studies further support the need to reconnect tributaries to mainstem rivers.

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

Yes. By increasing the amount of spawning habitat for channel catfish and sauger, production and recruitment should increase and more fish will be available to harvest.

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

The project should not require more maintenance than the current road crossing, however if maintenance is needed McCone County would be responsible

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

A road crossing was constructed that impedes fish migration from the Missouri River upstream into the Redwater River. By removing the barrier native fishes should be able to freely migrate upstream and downstream of the road crossing.

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

Better fishing and better sediment transport. In addition, the current high water fjord is not crossable for traffic at higher flows, the proposed alternative would convey more water under the road crossing, which will allow the public to use the crossing for a greater portion of the year.

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

No. The road crossing is on State land and the new structure will not significantly alter the river elevation upstream of the crossing. Downstream is owned by BLM, which is a collaborator on the project.

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

No.

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:

5-30-13

Sponsor (if applicable):

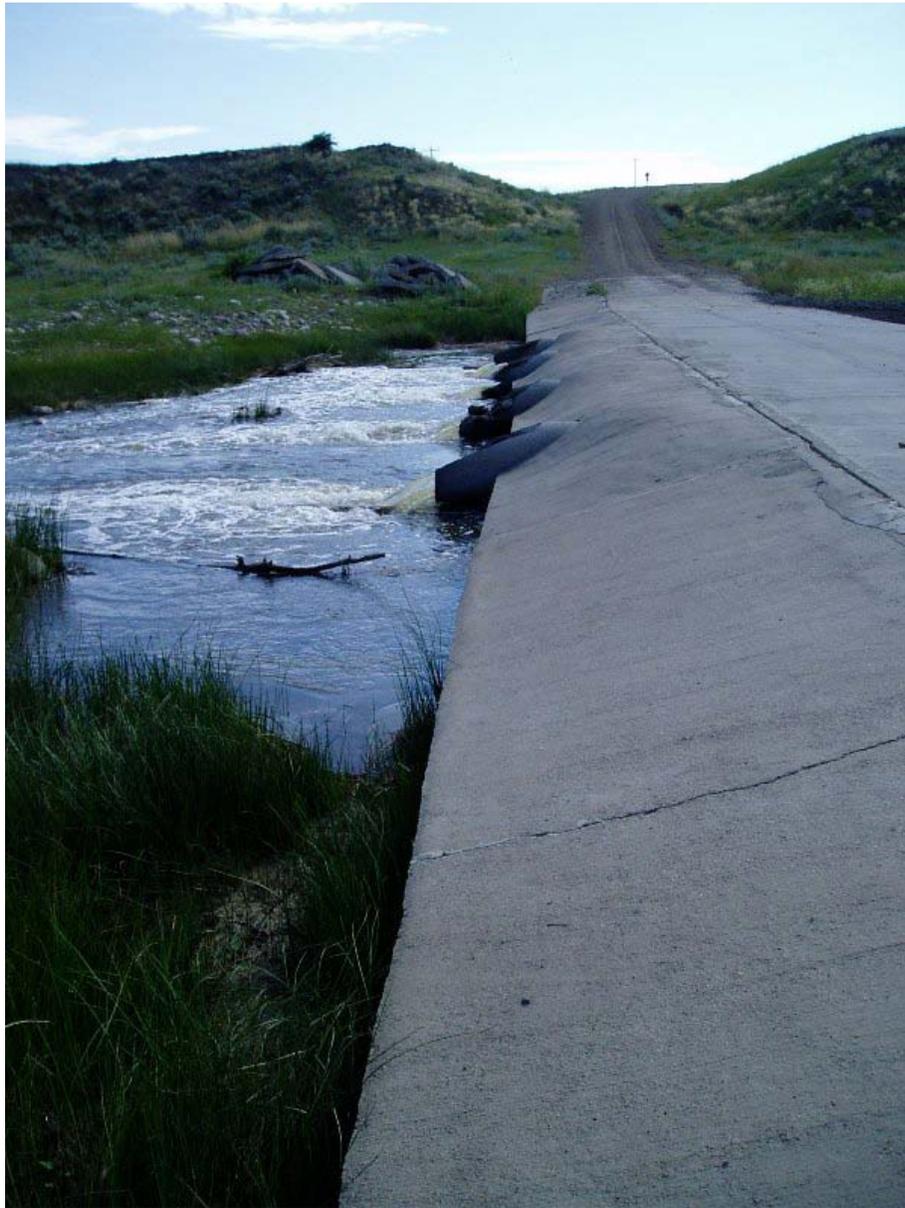
***Highlighted boxes will automatically expand.**

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

Incomplete or late applications will be returned to applicant.

Applications may be rejected if this form is modified.

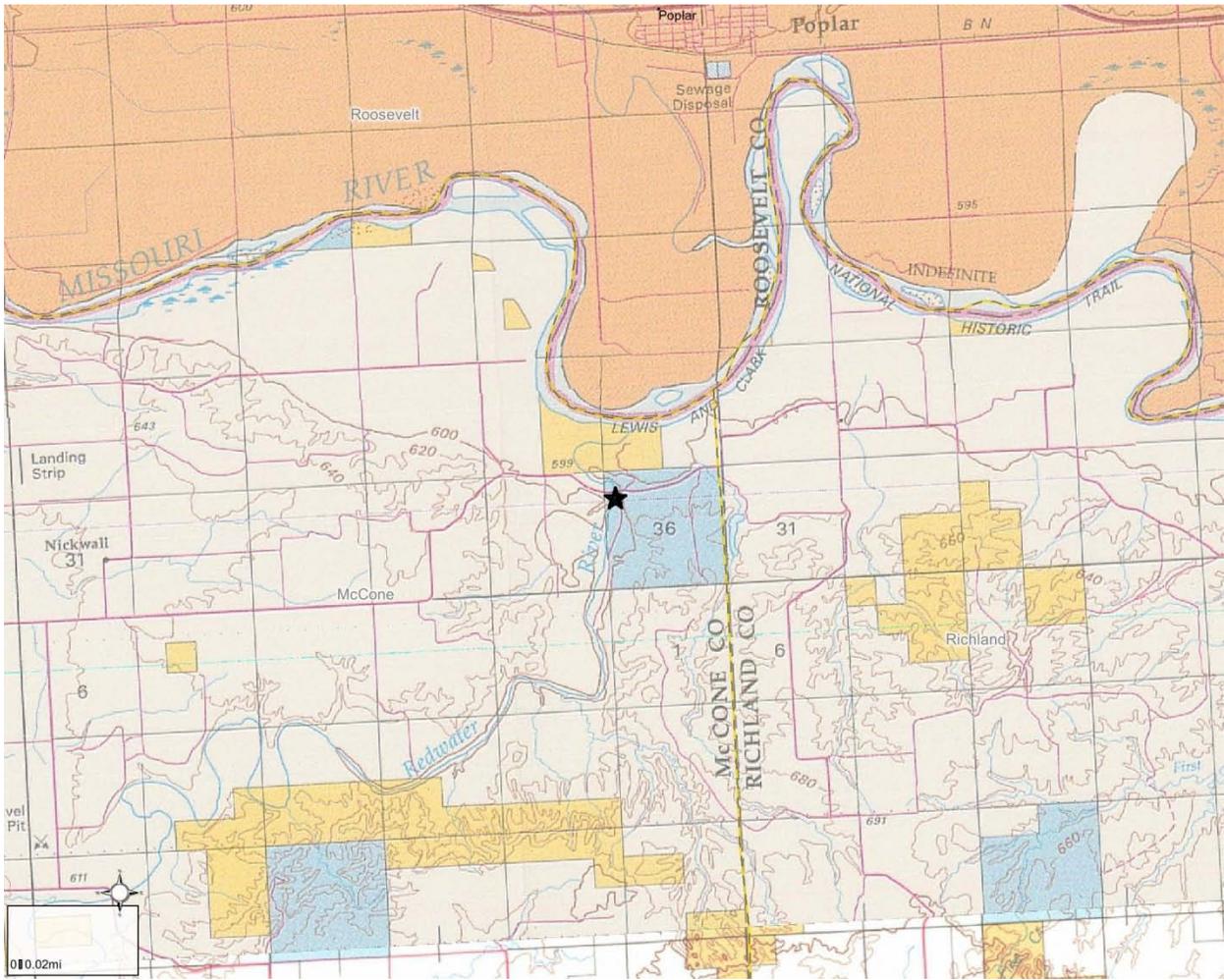
*****Applications may be submitted at anytime, but must be received by the Future Fisheries Program office in Helena before December 1 and June 1 of each year to be considered for the subsequent funding period.*****



Photograph of Nickwall Crossing on the Redwater River, McCone County.



Photograph of Nickwall road crossing on the Redwater River.



Map of the Nickwall road crossing on the Redwater River, McCone County. Black star indicates road crossing.