# 2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1**: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**Priority 2:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

**Priority 3:** 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

**All TAC project proposals must include the following information:**

Project Title: 2019 Annual Monitoring Project

Date: October 23, 2018

Explain how this Project addresses a specific Project 2188 License Article(s): This is a Priority 1project because it meets License Article requirements and PM&E for fisheries populations or their habitats within the Missouri River system from Hauser Reservoir to Fort Peck Reservoir as required by FERC license 2188.

Provide justification for Priority 1, 2 or 3 (above) that you selected: PM&E is required by the FERC license. The 9 year agreement ensures consistent and reliable monitoring to fulfill FERC license requirements.

Project Sponsor (submitted by): Jason Mullen, Montana Fish, Wildlife & Parks

Location of Proposed Project: Missouri River from Hauser Reservoir to Fort Peck Reservoir.

Total Project Cost: Estimated $600,863 per year.

TAC Funds (Cost-Share) Requested for Project: $244,977 in 2019.

I. Introduction; brief statement of project to be completed with pertinent background information.

Throughout most of the 2188 project area in the mainstem Missouri River drainage, the FERC license requires annual fish population monitoring, evaluation, and development of measures to reduce hydroelectric project impacts on fisheries and aquatic habitats (see list of conditions above). Fisheries monitoring is critical to: 1) determine the influence of hydroelectric projects operations on river and reservoir fish populations; 2) to evaluate the need and type of protection mitigation and enhancement projects; and 3) to evaluate the success of protection, mitigation and enhancement activities. Montana Department of Fish, Wildlife and Parks (MFWP) has conducted periodic monitoring in many areas of the drainage, but due to changing priorities and fiscal conditions there is no long-term guarantee that current monitoring activities will continue. The intent of this proposal is to forge a long-term cooperative agreement that insures NorthWestern Energy (NWE) is able to meet FERC-mandated fisheries monitoring and evaluation requirements as well as to facilitate MFWP participation in the development and implementation of mitigation and enhancement measures in a cost-effective manner.

Montana FWP and NWE entered into a longterm monitoring agreement intended to enable NWE to meet the requirements of FERC license 2188 and to provide valuable information necessary for the effective management of the states' fisheries resources. The contract spans January 1, 2018 through December 30, 2026.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

Monitoring, reporting and recommendations as identified in the 2018-2026 agreement.

III. Methods; description of how Project objectives will be accomplished.

Work will be performed using standard methods currently employed by MFWP in similar surveys. Methods are subject to change pending discussion and approval by Technical Advisory Committee.

IV. Schedule; when the Project work will begin and end. Work will be conducted from January 1, 2019 through June 30, 2020.

Seasonal schedule of activities is provided for each item in Section II. Several elements in the monitoring plan will require assistance from existing NWE Hydro Compliance personnel. Specific areas requiring assistance include Hauser & Holter tailwater electrofishing, Cascade section electrofishing, Great Falls reservoirs monitoring, and monitoring of Missouri River downstream from Morony Dam. Deviations from seasonal and annual schedules may occur if approved by Technical Advisory Committee.

V. Personnel; who will do the work? Identify Project leader or principal investigator.

| | |
|---|---|
| Project Leader: | Jason Mullen, Acting (As needed) Region 4 Fisheries Manager, MFWP |
| Project Biologists: | Adam Strainer, Helena, MFWP |
| | Jason Mullen, Great Falls, MFWP |
| | Luke Holmquist, Lewistown, MFWP |
| Project Technicians: | Troy Humphrey, Helena, MFWP |
| | Matt Pumfery, Great Falls, MFWP |
| | Rob Beattie, Lewistown, MFWP |
| | Katie Vivian, Great Falls, MFWP |
| | Other temporary and seasonal technicians |

VI. Project budget must include amounts for the following:

Direct Labor = $179,955
Travel and Living = $30,942
Materials - NA
Other Direct Expenses - trammel net cleaning paid directly to vendor = $3,500
Direct Overhead = $30,580
All cost-share sources and amounts, including estimation of “in-kind” contributions

A. NorthWestern Energy estimated personnel and operations:

The budget from last year has been modified and updated with new salary levels, operations, and overhead as shown below. Salaries have been adjusted to actual cost levels for specific personnel, as provided by MFWP Human Resources department on September 21, 2018. The State overhead rate remains 14.5% for state FY2019.

Operations amounts are based on the amounts negotiated in the fish monitoring agreement for 2018 through 2026 between NWE and MFWP. This amount increases by 2.0% each year. In January 2016 the federal Patient Protection and Affordable Care Act mandates all Montana state employees receive health care insurance benefits. The 2018 proposal reflects benefit rates as mandated by the Act. The proposed 2018 budget is as follows:

| | Item | FTE | Hours | Pay rate including benefits | Amount |
|---|---|---|---|---|---|
| **Hauser and Holter Reservoirs and Tail waters** | | | | | |
| 93474-TH | F&W Tech | 0.29 | 603 | $30.31 | $18,277 |
| 93472-RS | Creel Survey Tech | 0.35 | 728 | $22.30 | $16,234 |
| 93473-CH | F&W Tech | 0.2 | 416 | $22.55 | $9,381 |
| 93472-RS | F&W Tech (012-07) | 0.3 | 624 | $22.30 | $13,915 |
| | Operations ($11,142 + 2%) | | | | $11,365 |
| | Subtotal | | | | $69,172 |
| | Overhead (14.5%) | | | | $10,030 |
| | **Total** | 1.14 | 2,371 | | **$79,202** |
| | | | | | |
| **Missouri River Below Holter Dam** | | | | | |
| 93474-KV | F&W Tech | 0.3 | 624 | $27.31 | $17,041 |
| | Operations ($4,457 + 2%) | | | | $4,546 |
| 93474-KV | NWE Fieldwork Tech | 0.05 | 104 | $27.31 | $2,840 |
| | Subtotal | | | | $24,427 |
| | Overhead (14.5%) | | | | $3,542 |
| | **Total** | 0.35 | 728 | | **$27,969** |
| | | | | | |
| **Great Falls Reservoirs and Tailwaters** | | | | | |
| 37340-LH | F&W Biologist | 0.5 | 1040 | $37.10 | $38,584 |
| 37341-RB | F&W Tech | 0.5 | 1040 | $30.09 | $31,294 |
| 93474-MS | F&W Tech | 0.4 | 874 | $27.31 | $23,869 |
| | Operations ($14,736 + 2%) | | | | $15,031 |
| 93474-MS | F&W Tech Trammel Net Repair | 0.1 | 208 | $27.31 | $5,680 |
| 93474-MS | NWE Fieldwork Tech | 0.05 | 104 | $27.31 | $2,840 |
| | Subtotal | | | | $117,298 |
| | Overhead (14.5%) | | | | $17,008 |
| | Trammel Net Cleaning | | | | $3,500 |
| | **Total** | 1.55 | 3,266 | | **$137,806** |
| | | | | | |
| | **Grand Total** | 3.04 | 6,365 | | **$244,977** |

B. Montana FWP Cost Share:

MFWP will provide matching personnel time, equipment, operations, and other assets amounting to approximately $356,000 per year. This includes the Helena, Great Falls, and Lewistown offices.

In addition, MFWP will continue habitat protection and enhancement activities throughout the system and will monitor other biological parameters in the system, such as the status of fish diseases, aquatic invasive species and westslope cutthroat trout. MFWP fisheries improvements will be funded primarily through the Future Fisheries Program, grants or donations which are likely cost-share for 2188 fisheries PM&E projects. MFWP specialists in water rights and allocation, habitat protection and enhancement, engineering, and land acquisition/easement will be available on a case-by-case basis for specific projects. MFWP fisheries staff in northcentral Montana will participate in the 2188 Technical Advisory Committee, and will be key personnel for identification and implementation of PM&E projects, including fisheries research, habitat protection and enhancement projects. MFWP also conducts a statewide biennial fishing pressure survey, which provides useful fishing pressure information for the Missouri River and reservoirs. The exact value of these additional matching resources cannot presently be valued but is substantial and will vary year-to-year.

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this

Project. How will "success" for this project be monitored or demonstrated?

The main products of this project will be: 1) annual reports based on sound scientific procedures which describe the current trends of key fish populations and fish species of special concern in the Missouri River and reservoirs, and 2) effective fisheries and aquatic habitat PM&E projects in northcentral Montana. Reports will satisfy FERC requirements for annual monitoring of fish populations for the purposes listed in 2188 license. The information generated by this project will be critical for determining the effects of project operations on fisheries resources and will also be the primary method for determining the effectiveness of fisheries PM&E measures.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management: There are no ground breaking activities associated with fisheries monitoring.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines: There are no water rights associated with fisheries monitoring.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Grant.Grisak@northwestern.com
- andrew.welch@northwestern.com

**Project Title:** Habitat Project Consultant Assistance

**Which PM&E measure(s) in the Project 2188 License will this proposal enhance or support?**

This project is Priority #1 because it typically involves habitat restoration projects on the mainstem Missouri River. Some elements of this project are Priority #2 because they involve restoration work on primary tributaries to the Missouri River. The project supports FERC license articles 414, 415 and 416, which specify enhancement of tributary spawning adn mitigation for impacts of operation of Hauser, Holter, and the Great Falls dams.

**Proposal Submitted by:** Grant Grisak (NorthWestern Energy)

**Date:** November, 2018

**Location of Proposed Project:** Upper Missouri River Watershed

**Total Project Cost:** $20,000

**TAC Funds (Cost-Share) Requested:** $20,000

**I. Introduction.**
Habitat projects addressed in the FERC license agreement (Articles 414-9 and 416-7) have been proposed and funded since the inception of the PM&E funding program. Viable habitat projects have sometimes been difficult to identify and implement. This proposal is to continue a contract with McNeal Resources (Allen McNeal) to continue working on habitat restoration projects in the Great Falls area and in the Helena Valley. Consultant may also work on identifying and development of projects on other streams and rivers in the FERC Project 2188 project area as opportunities arise. This project will cover the cost of project design and permitting and also will defray construction oversight costs.

**II. Objectives**. Depending on availability, investigate feasibility and initiate design of restoration projects on Missouri River and reservoir tributaries.

**III. Methods.** A contract would be established between NWE and McNeal Resources to complete this work.

**IV. Schedule.** Investigative and scoping work on other projects will proceed during the year as time allows.

**V. Personnel.** Work on this project will be accomplished by McNeal Resources Inc. (Allen McNeal) in cooperation with private landowners, construction contractors, MDFWP staff, and staff from other organizations and agencies.

**VI. Budget** must include amounts for the following items:

| | |
|---|---|
| Direct Labor | Consultant and contractors will design and construct. FWP biologists and staff will provide oversight. |
| Direct Overhead | N/A – claims will be submitted directly from consultant to NWE for payment |
| Travel and Living | N/A |
| Materials | Raw materials required for stream reconstruction will be incorporated into stream specific proposals. |

**VII. Deliverables.** This proposal is designed to design and complete habitat projects in the MoTAC project area. Success will be measured in habitat projects completed and stream/river length that has been restored. Project completion reports will be prepared by project partners.

**VIII. Cultural Resources.** Cultural resource surveys will be conducted and SHPO clearance will obtained prior to the initiation of any ground disturbing activities on habitat improvement projects funded by MoTAC.

**IX. Water Rights.** This project requires no new water rights or changes to existing rights. Water rights issues will be handled on a case-by-case basis by trained experts as the need arises.

**Project Title:** Field Operations - NWE

**Which PM&E measure(s) in the Project 2188 License will this proposal enhance or support?**
This is a Priority #1 project because it involves work completed on the mainstem Missouri River. The project supports FERC 2188 license Articles 414, 416, and 417. NWE staff provide assistance on Hauser and Holter reservoirs and tailwaters, the Great Falls reservoirs, and the Missouri River downstream from the Great Falls reservoirs.

**Proposal Submitted by:** Grant Grisak

**Date Submitted:** November, 2018

**Location of Proposed Project:** Missouri River from Canyon Ferry Dam to headwaters of Fort Peck Reservoir.

**Total Project Cost:** $20,000

**TAC Funds (Cost-Share) Requested:** $10,000

**I. Introduction.**
This is an ongoing annual proposal to offset some of NWE's operating costs for implementation of the Missouri River fisheries Protection Mitigation & Enhancement (PM&E) program. Project proposal includes: operation and maintenance of NWE electrofishing boat; purchase of fish tagging and surgical supplies; purchase of basic field monitoring supplies; vehicle operation and travel expenses; and operation and maintenance of the Holter boat house including utilities (electricity).

**II. Objectives.** Support Montana Department of Fish, Wildlife and Parks and other agencies and organizations in the implementation of the Missouri River 2188 fisheries PM&E program.

**III. Methods.** Methods vary depending on project and area.

**IV. Schedule.** This work is done throughout the entire field season.

**V. Personnel.** Grant Grisak is the NWE project leader. Assistance is provided by FWP technicians and biologists, NWE employees, and other individuals depending on project and area.

**VI. Requested Budget**

| | |
|---|---|
| Direct Labor……. | $ 0 |
| Direct Overhead…… | $ 0 |
| Travel and Living……. | $2,000 |
| Materials | |
| Boat gas, oil, maintenance……. | $3,000 |
| Supplies & equipment…… | $2,000 |
| Vehicle operation & maintenance ……..…… | $3,000 |
| Other Direct Expenses…….. | $ 0 |
| **TOTAL** | **$10,000** |

**List all other funding (cost-share) sources and amounts for this project:** Total NWE operations costs are approximately $20,000/year for this project. NWE will provide $10,000 of the total amount required for this project from other Company accounts.

**VII. Deliverables.** Completion reports are provided by partner agencies and organizations.

**VIII. Cultural Resources.** This proposal does not include any ground-disturbing activities in need of cultural clearance.

**IX. Water Rights.** No water rights issues associated with this project.

# 2017 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1**: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**Priority 2:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

**Priority 3:** 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

**All TAC project proposals must include the following information:**

Project Title: Holter boat house maintenance.

Date: October 30, 2018

Explain how this Project addresses a specific Project 2188 License Article(s): This is a Priority 1 project. It facilitates PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

Provide justification for Priority 1, 2 or 3 (above) that you selected: Storage and maintenance of equipment necessary to fulfill license 2188 PM&E for fish and wildlife.

Project Sponsor (submitted by): Grant Grisak

Location of Proposed Project: Holter Dam administrative area.

Total Project Cost: $11,000

TAC Funds (Cost-Share) Requested for Project: $11,000

I. Introduction; brief statement of project to be completed with pertinent background information.

In 2001 MoTAC funded proposal 002-01 for $26,000 to construct a storage and maintenance building at holter Dam for a reservoir boat, river boat and equipment necessary to conduct license PM&E. The boat house is used by NWE for equipment storage and maintenance. FWP uses the boat house during monitoring for equipment maintenance and for lodging. The boat house is in need of basic maintenance such as a new roof, door trim painting and minor electrical upgrades.

II. Objectives; explicit statement(s) of what is intended to be accomplished. Remove old dilapidated roof, install new roof, scrape, paint door trim, install outdoor electrical outlet, install additional lighting inside.

III. Methods; description of how Project objectives will be accomplished.
A NWE contractor would remove the dilapidated t-lock shingle roof and replace it with new wrap and architectural shingles. This contractor would scrape and paint door trim. A NWE contractor would install an outdoor electrical outlet and install additional lighting inside the building.

IV. Schedule; when the Project work will begin and end.
Work would be conducted in early 2019.

V. Personnel; who will do the work ? Identify Project leader or principal investigator.
Guy Tobacco Construction would replace the roof and paint door trim
Western Sky Electric would conduct the electrical upgrades.

VI. Project budget must include amounts for the following:

Roof and paint – estimate of $10,500 for stripping old roof, installing with new and painting trim.
Electrical – Estimate of $500 for installing outdoor GFCI outlet and new bench light.

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

New roof and trim paint.
New electrical outlet and additional lighting.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

No ground breaking activities are associated with this project.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:
No water rights are invoilved.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@Northwestern.com
- Brent.Mabbott@northwestern.com
- Grant.Grisak@Northwestern.com\

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 1315 N Last Chance Gulch, Helena, MT 59601; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.

Figure 1. T-lock shingles on Holter boat house south side. October 2018.

Figure 2. T-lock shingles on Holter boat house west side. October 2018.

# 2016 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1**: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**Priority 2:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

**Priority 3:** 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

**All TAC project proposals must include the following information:**

Project Title: Missouri River Riparian Fence – Willo Ranch

Date: October 23, 2018

Explain how this Project addresses a specific Project 2188 License Article(s): This is a priority 1 project.

Provide justification for Priority 1, 2 or 3 (above) that you selected:

It is designed to protect Missouri River streambanks from livestock encroachment, which improves or maintains trout habitat.

Project Sponsor (submitted by): Jason Mullen

Location of Proposed Project: Missouri River near Pelican Point FAS.

Total Project Cost: $20,084

TAC Funds (Cost-Share) Requested for Project: $18,584

Cost share:

Missouri River Flyfishers -$500 (approved)
Pat Barnes Trout Unlimited -$1,000 (approved)

I. Introduction; brief statement of project to be completed with pertinent background information.

Leach Holdings (dba Willo Ranch) grazes cattle on a 131 acre pasture along the Missouri River. The ranch would like to install a 5,280 foot long riparian fence and 1,780 foot cross fence to keep cattle away from the river banks. This project would restrict cattle access to the river except at designated water gaps.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

Install a riparian fence to keep cattle off of the river banks. Preserve riparian habitat.

III. Methods; description of how Project objectives will be accomplished.

Installing a fence would restrict cattle from accessing the river banks except at designated watering sites. Cattle would not have access to riparian vegetation. Riparian vegetation would help maintain stability of the bank.

IV. Schedule; when the Project work will begin and end.

Project would be conducted during the late winter/spring 2019.

V. Personnel; who will do the work ? Identify Project leader or principal investigator.
Jason Mullen would oversee the project.
A contractor would be hired to install the fence .

VI. Project budget must include amounts for the following:

Labor, materials and equipment will be provided by the contractor to install 7,060 feet of 4 wire fence with 2 water gaps.
Direct Overhead – No OH. NWE will pay contractor directly.
All cost-share sources and amounts, including estimation of "in-kind" contributions. Landowner will provide materials necessary to complete the water gaps. Estimated amount is $900.

$1,000 cultural survey
$19,084 materials, equipment and labor for 7,060 feet of 4 wire fence with 2 water gaps to allow for livestock to water from the river.

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

Success will be defined as 7,060 feet of fence, 2 water gaps and preservation of riparian vegetation/habitat. Photo points will be taken to illustrate the influence of the fence on preserving riparian vegetation.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

Hire Legacy Consulting to conduct a cultural survey.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

The landowner has a water right to water livestock from the river. Water gaps would be installed at designated sites to allow water right to be exercised.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:

NA no water rights would be affected by this project.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Grant.Grisak@northwestern.com
- andrew.welch@northwestern.com

Figure 1. Map of 131 acre pasture on Willo Ranch with proposed riparian fence alignment and cross fence alignment.

# 2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project Title: Middle Missouri River Blue Sucker Movement and Habitats Publication

Date: October 26, 2018

Article 417: 1) Protect and provide for the recovery of Threatened and Endangered species and other species of special concern in the Missouri River downstream of Morony Dam.

Location of Proposed Project: N/A

Priority 1 – This work was funded by the NorthWestern Energy (NWE) in 2017 (service agreement CLM0003654) and the final report was submitted in October 2018. We would like to prepare the report for publication and are asking for funds for publication costs.

Project Sponsor (submitted by): Luke Holmquist, Montana Fish, Wildlife & Parks

Total Project Cost: <$2000 (approximate cost, no overhead)

TAC Funds (Cost-Share) Requested for Project: <$2000 (approximate cost, no overhead)

I. Introduction; brief statement of project to be completed with pertinent background information.

Blue Suckers, are a Montana Species of Concern that make long annual migrations. A Blue Sucker radio telemetry study was conducted from 2006–2014 on the 200-mile reach of the Middle Missouri River from Carter Ferry to Fort Peck Lake. A total of 62 Blue Suckers were tagged at three different sites, the Marias Confluence (river mile 2050); Judith Landing (river mile 1982) and Robinson (river mile 1921). Fish were monitored by remote radio receiving stations and with manual boat relocations. Remote stations were located at 8–11 sites between river mile (RM) 1901 and 2089 with additional stations on the Judith and Marias Rivers. Manual relocations were typically done biweekly during the spawning season and monthly during the rest of the field season for about 1,500 miles of boat travel annually. During the study, there were about 4,400 Blue Sucker relocations; 2,640 of the relocations were from remote stations and the rest were from a jet boat. A total of 351 habitat measurements were collected.

The analyses and report were completed in October 2018. We found that Blue suckers used sizable expanses of river throughout the study and seasonal home ranges were largest during spawning, but home ranges were about two times smaller than reported elsewhere. Increasing discharge and water temperature were associated with movement rate and movement probability, and cued spawning movements of blue suckers in the Missouri River. Movement rates increased with increasing discharge and decreased prior to peak discharge. Additionally, movement rate and probability were highest at the lowest water temperatures we observed (~1–5°C) and declined thereafter. We observed peak movement at lower water temperatures than reported elsewhere. Blue suckers aggregated and showed interannual fidelity mostly during spawning, but also in summer and winter. Aggregation and seasonal fidelity to specific sites suggest that optimal spawning areas, which exist in tributaries, may be limited within our study area. Our results support evidence that riverine fishes require natural trends in discharge and water temperature, including occasional flood pulses, and connectivity among seasonal habitats. Preserving these features, and entire riverscapes, would maintain natural environmental cues and habitats required by riverine fishes to complete their life histories.

The ultimate goal is a published report and manuscript that will inform management of Blue Suckers in large rivers and add better understand the ecology of this species.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

The objective is to publish the manuscript in a major fisheries journal (Transactions of the American Fisheries Society or North American Journal of Fisheries Management)

Brian Tornabene has experience publishing and has published six peer-reviewed articles. Two of these articles were for work funded by NWE from 2010-2014:

Tornabene, B.J., Bramblett, R.G., Zale, A.V. and Leathe, S.A., 2017. Spatiotemporal Ecology of Apalone spinifera in a Large, Great Plains River Ecosystem. **Herpetological Conservation and Biology**, 12:252–271. http://herpconbio.org/contents_vol12_issue1.html

**Tornabene, B.J.**, R.G. Bramblett, A.V. Zale, and S.A. Leathe. 2018. Factors affecting nesting ecology of *Apalone spinifera* in a Great Plains river of the United States. **Chelonian Conservation and Biology 17:63–77**. https://doi.org/10.2744/CCB-1298.1

See attached curriculum vitae for a full list of publications.
III. Methods; description of how Project objectives will be accomplished.

The report funded in 2017 (service agreement CLM0003654) is complete. Brian Tornabene will lead in editing and reformatting the report for publication. Currently the report is too thorough and long for submission. Ann Tews, Steve Leathe, Rob Beattie, Troy Smith, Lisa Eby, and Luke Holmquist will also provide insight and expert opinions.

IV. Schedule; when the Project work will begin and end.

November 2018 – January 2019; Brian Tornabene will prepare the report for publication with initial feedback from collaborators.

January 2018 – February 2018; Brian Tornabene will receive edits from collaborators and incorporate all suggestions into manuscript.

February 2019–April 2019; Brian Tornabene will submit the manuscript in or before February, and take lead on submission and the peer-review process of making alterations with assistance from collaborators.

This is a request for assistance in publishing the final article.

V. Personnel; who will do the work? Identify Project leader or principal investigator.

FWP staff:

- Luke Holmquist, FWP, biologist, project leader funded by FWP and NWE.
- Rob Beattie, FWP, senior fish tech, co-project leader, funded by FWP and NWE.

University of Montana contractors:

- Brian Tornabene, M.S., Doctoral candidate, will lead manuscript preparation
  - Brian's research focuses on aquatic ecology of herpetofauna and fishes, with particular interest in natural history, spatiotemporal ecology, community ecology, disease ecology, and ecotoxicology. Brian has conducted similar analyses with softshell turtle habitat use and movement data from the Missouri River, Montana (Tornabene et al. 2017 and 2018) and in an unpublished analysis of native fishes and spiny softshell turtles in the Yellowstone River, Montana (R.G. Bramblett et. al 2016) that will be submitted as a manuscript in November 2018.

- Troy Smith, Undergraduate, will assist manuscript preparation
  - Troy has a bachelor's in English from UM and is interested in aquatic ecology and fish ecology. He is obtaining his post-baccalaureate degree in wildlife biology with an emphasis on aquatics at the University of Montana.

- Dr. Lisa Eby, Associate Professor of Vertebrate Ecology, will assist with manuscript preparation
  - Lisa's previous research has spanned a range of questions and ecosystems from examining chronic stress (low oxygen zones) and catastrophic disturbances (floods and hurricanes) on individuals, populations, and communities in estuaries, to exploring the role of population shifts on food web interactions and trophic transfer in lakes, to analyzing long-term community changes in desert stream fish communities. https://www.cfc.umt.edu/personnel/details.php?ID=1131

VI. Project budget must include amounts for the following:

Direct Labor: None

Travel and Living: None

Materials: None

Other Direct Expenses: Publication costs at $100 / printed page. We estimate no more than 20 printed pages at a total cost of <$2,000

Direct Overhead: If NWE pays publication cost to journal directly no overhead is necessary

Total: < $2,000

All remaining funds will be returned to NWE.

All cost-share sources and amounts, including estimation of "in-kind" contributions:

Brian Tornabene is a UM graduate student and will donate time for editing the publication and facilitating submission and the peer review process at no cost to NWE.

Troy Smith, UM undergraduate, will also donate time for editing the publication and facilitating submission and the peer review process at no cost to NWE.

Dr. Lisa Eby is funded by the University of Montana and will provide expert opinions and assistance manuscript preparation at no cost to NWE.

Luke Holmquist and Rob Beattie are funded by FWP and NWE and will provide expert opinions and assistance with interpretation and writing.

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

The deliverable for this project is a published, peer-reviewed article that will inform management of Blue Suckers in large rivers and add a better understanding of the ecology of this species.

VIII. Cultural Resources. No ground disturbance associated with this project

IX. Water Rights. This project will not involve enhancement of wetlands.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Grant.Grisak@northwestern.com
- brent.mabbott@northwestern.com
- andrew.welch@northwestern.com

# 2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

## Project Title: Middle Missouri River Radio Telemetry Study

Date: February 10, 2022

Explain how this Project addresses a specific Project 2188 License Article(s):

Article 417: 1) Protect and provide for the recovery of Threatened and Endangered species and other species of special concern in the Missouri River downstream of Morony Dam. 2) Monitor the relative abundance of the most common fish species in the Missouri River downstream of Morony Dam. 3) Provide assistance to FWP for ongoing evaluation of pallid sturgeon recovery in the Missouri River downstream of Morony Dam. Priority 1 and 2.

Project Sponsor (submitted by): Luke Holmquist

Location of Proposed Project: Missouri River from Morony Dam to Fort Peck Reservoir; Lower Marias River

Total Project Cost: 194,037

Other associated funding: $136,391

- $45,000 annual cost share BOR funds (5 year contract; 2016-2021)
- $20,000 by USFWS section 6 funding personnel on this project
- $5,000 WAPA funding for Pallid Sturgeon radio transmitters
- $4,000 approximate – WAPA funds to Bozeman Fish Technology Center for blood plasma steroid analysis
- $62,391 WAPA funding to the Montana Cooperative Fishery Research Unit (Dr. Chris Guy and Tanner Cox) for graduate work on Pallid Sturgeon spawning success and associated movements.

TAC Funds (Cost-Share) Requested for Project: $57,646

I. Introduction;

Radio telemetry has been an invaluable tool for advancing our understanding of fish movements in the Missouri River above Fort Peck Reservoir. The Missouri River between Morony Dam and Fort Peck Reservoir is a semi-regulated system, and movements of several fish species in relation to environmental conditions are of particular interest. This includes the impacts of anthropogenically altered discharge and temperature, on federally endangered species and species of concern. In 2019, efforts will focus on relocating fish that are currently tagged throughout the year and also implanting additional radio tags into wild and older year-class hatchery-origin pallid sturgeon (HOPS). Currently the radio-tagged population of fish includes eight wild pallid sturgeon, seventy-two HOPS (sixty-six 1997 year-class, three 2005 year-class, one 2007 year-class, and two 2009 year-class), twenty-four shovelnose sturgeon, twenty-one smallmouth buffalo, and two northern pike. In addition to tracking and tagging new fish, we may need to begin replacing radio tags that were implanted into pallid sturgeon prior to 2013. These tags are advertised to have an 8-year battery life, but are only guaranteed to last ~6.5 years. Many of the pallid sturgeon containing such tags have been serially sampled in successive years for information about spawning periodicity and age/size at first maturity. Keeping active tags in these fish is vital to developing our understanding of sexual maturity and spawning ecology for this endangered species.

A combination of boat and stationary telemetry receivers have been utilized in recent years. The land based stationary receivers provide important spatial and temporal data regarding course movements and habitat used by tagged fish in this stretch of river. In 2018, thirteen land based stations between Carter Ferry and Fort Peck Reservoir, including three stations on the Marias River. The thirteen stations include: Carter Ferry, Fort Benton, Loma area, Coal Banks, Judith Landing, Stafford Ferry, Bird Rapids, Power Plant Ferry, King Island and Roads End on the Mainstem Missouri, and three stations on the Marias River. Many of these stations have been maintained for over a decade and as such have experienced wear-and-tear to antennas, cables, and in some cases the telemetry receiver and switch box. We typically service one receiver a year as issues present themselves (bad batteries, decreased detection efficiency, etc.), however as the current SRX 400 receivers continue to age, they are malfunctioning more frequently. Keeping this array functioning allows for many more telemetry contacts at a much lower cost than if we relied on boat relocations alone. In most years, we estimate that roughly 40% of the fish relocations have been by boat; thus, the ground stations effectively more than double our telemetry contacts. Furthermore, the array of land based stations generates a continuous monitoring effort at multiple locations, which is not possible with boat based tracking efforts.

II. Objectives;

1. Manually track from Fort Benton to Fort Peck Reservoir at least once per month from April through October.
    a. Enter data and combine with land-based telemetry array data in existing data file.
2. Increase telemetry effort to monitor spawning related movement and habitat use of reproductively-active pallid sturgeon in May and June.
    a. Identify pallid sturgeon spawning and aggregation sites.
    b. Assist MSU graduate student (WAPA Funded Project) with relocation and recapture efforts if needed.
    c. Use information collected to inform the timing and location of larval sampling efforts.
3. Continue to implant radio tags into HOPS and wild pallid sturgeon that exceed 2000 g.
    a. Replace any expiring radio tags in HOPS and wild pallid sturgeon.
4. Continue to conduct reproductive assessments, including gonadal biopsies and blood samples, in all wild, 1997 year-class, and other older age classes of HOPS.
    a. Transfer samples to Bozeman Fish Technology Center or MSU graduate student in a timely manner so that maturity and sex will be known and can inform tracking efforts.
5. Maintain and improve the existing land based telemetry station array and download stations at least once every 6 weeks.
    a. Enter and proof downloaded data using manual tracking and tagging data.

III. Methods; description of how Project objectives will be accomplished. See schedule below.

IV. Schedule; 2019

January……. Download data from stations every 5-6 weeks and summarize data and prepare report.
February …….. Download data from stations every 5-6 weeks and summarize data and prepare report.
March ……..…. Download data from stations every 5-6 weeks and summarize data and prepare report.
April ……...… Prep gear, install stations, manually track fish, download data from stations, and maintain stations.
May ……. Manually track fish, download data from stations, install new radios, and maintain stations.
June ……. Manually track fish, download data from stations, install new radios, and maintain stations.
July…..……. Manually track fish, download data from stations, install new radios, and maintain stations.
August ……. Manually track fish, download data from stations, install new radios, and maintain stations.
September……...… Manually track fish, download data from stations, install new radios, and maintain stations.
October……. Manually track fish, download data from stations, install new radios, and maintain stations.
November……. Download data from stations every 5-6 weeks and summarize data and prepare report.
December…….. Download data from stations every 5-6 weeks and summarize data and prepare report.

V. Personnel;

Fish Tech II; 0.45 FTE filled by incumbent Michael Schilz (30.53/hour with benefits)

Additional Staff;

Luke Holmquist – Project Lead; Biologist funded by NWE and FWP
Robert Beattie - Conservation Technician funded by NWE and FWP
Nate Beckman - Fish Tech funded by NWE and USFWS

VI. Project budget must include amounts for the following:

Materials

-Supplies & Materials ……. $3,300
-Boat Gas ($400/month for 8 months)……..... $3,200
-SRX400 Telemetry Receiver Service Fees ……...…… $2,600
-(4 receivers @ $100 shipping, $350 service fee, $200 replace battery)

-MATERIALS TOTAL……...… **$9,100**

Direct Labor

-NWE funded Wages/Benefits for Tech II (0.45 FTE) ……. $28,576
-Tech II $30.53/hour with benefits

-DIRECT LABOR TOTAL……. **$28,576**

Travel and Living

-Trailer Pad at Loma (7 months at $150/month)…….. $1,050

-Entire Day Per Diem for Tech II ($23/day; 13 days/month; 8 months)..…... $2,392
-Partial Day Per Diem for Tech II ($18/day; 6 days/month; 8 months)..…..... $ 864
-Vehicle Mileage (1700 miles/month; $0.51/mile; 7 months)……..... $6,069
-Vehicle Mileage (900 miles/month; $0.51/mile; 5 months)……$2,295

-TRAVEL AND LIVING TOTAL…….. **$12,670**

Project funds to FWP……..…….. **$50,346**
Direct Overhead (14.5%):……**$ 7,300**
**TOTAL NWE FUNDING REQUESTED…….……..... $57,646**

All cost-share sources–

Materials
-USBOR funded Boat Gas ……..... $ 1,746
-WAPA funded Contracted Services to MSU grad study……..……$ 5,640
-WAPA funded steroid analysis materials to BFTC (approximate…..... $ 1,000
-WAPA funded materials to MSU grad study……...…..$ 3,000
-WAPA funded radio tags to FWP……..……..……...$ 5,000
-MATERIALS TOTAL……..……...… **$16,386**

Direct Labor
-WAPA funded blood steroid analysis at BFTC……..……..$ 3,000
-USBOR funds to FWP for personnel services
- Tech II (Schilz); 0.55 FTE (30.53/hour with benefits)……..…..…$34,926
- Additional Personnel Services……..…$ 4,836
-USFWS funds (Section 6) to FWP for personel services
- Tech II; 0.35 FTE (27.31/hour with benefits)……..…$20,000
-WAPA Funded MSU grad study personnel……..……..$34,761
-DIRECT LABOR TOTAL……..……. **$97,523**

Travel and Living
-WAPA funded Travel to MSU grad study……. $18,990
-USBOR Funded Travel and Living Expenses to FWP……..…….$ 3,492
-TRAVEL AND LIVING TOTAL…….……. **$22,481**

**TOTAL COST-SHARE FUNDS (Overhead included) = $136,391**

VII. Deliverables; Annual Report Completed September 2020.

How will “success” for this project be monitored or demonstrated? Completed Annual report by September 2020.

VIII. Cultural Resources. No ground disturbance associated with this project.

IX. Water Rights. No wetland development associated with this project.

# 2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project Title: Middle Missouri River Fisheries Outboard Motor Purchase - 2019

Date: February 10, 2022

Explain how this Project addresses a specific Project 2188 License Article(s):

Article 417: 1) Protect and provide for the recovery of Threatened and Endangered species and other species of special concern in the Missouri River downstream of Morony Dam. 2) Monitor the relative abundance of the most common fish species in the Missouri River downstream of Morony Dam. 3) Provide assistance to FWP for ongoing evaluation of pallid sturgeon recovery in the Missouri River downstream of Morony Dam. Priority 1 and 2.

Justification: This outboard will replace the existing outboard on our smallest jet boat that is used for creel surveys and other tasks on the Missouri River from Moroney Dam to Fort Peck Reservoir (Priority 1). It can also be utilized on the Lower Marias River for radio telemetry during high flows (Priority 2).

Project Sponsor (submitted by): Luke Holmquist

Location of Proposed Project: Missouri River from Morony Dam to Fort Peck Reservoir; Lower Marias River

Total Project Cost: $11,700

TAC Funds (Cost-Share) Requested for Project: $11,700

I. Introduction; brief statement of project to be completed with pertinent background information.

The 115 HP motor on the 17ft Woolridge Alaskan is old and becoming undependable. The boat is primarily used for creel survey and is often crewed by a single seasonal employee with minimal jet boat experience in remote reaches of the Missouri River. A dependable outboard is necessary for creel survey success, but more importantly for the safety of our creel clerk. The current 115 hp Yamaha outboard was purchased in 2008 and has 1390 service hours. Townsend Marine will not take the current motor as trade in.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

Have a reliable outboard for the Alaskan (which is owned by NWE). This outboard is necessary to complete objectives for Missouri River Monitoring and the associated Creel Survey in the Missouri River above Fort Peck Dam.

III. Methods; description of how Project objectives will be accomplished. Purchase the new motor and have it installed prior to the initiation of the creel survey in May 2019.

IV. Schedule; when the Project work will begin and end. The new outboard should last about 8 years (2019-2027) with three years of heavy use during creel survey years (2019, 2023, and 2027) and with additional use for other tasks.

V. Personnel; who will do the work? Identify Project leader or principal investigator. Luke Holmquist

VI. Project budget must include amounts for the following:

Materials: New $11700 Yamaha F115 with Jet Pump (see email below)

Direct Labor N/A
Travel and Living N/A
Other Direct Expenses N/A
Direct Overhead: purchase by NWEC should not require overhead

All cost-share sources– FWP will coordinate and deliver the boat for installation of the new motor and pick up when installation is complete.

VII. Deliverables; New 115/80 HP Yamaha jet outboard for existing Wooldridge Alaskan Boat in 2019.

How will “success” for this project be monitored or demonstrated? Dependable outboard for creel survey and other projects.

VIII. Cultural Resources.  No ground disturbance associated with this project.

IX. Water Rights.  No wetland development associated with this project.

Reply Reply All Forward IM

T

Wed 9/12/2018 5:34 PM

Dave J. Townsend Marine Sales <TMSALES@MT.NET>

**Re: Yamaha 115 Fourstroke Jet**

To Holmquist, Luke

You replied to this message on 9/20/2018 3:41 PM.
If there are problems with how this message is displayed, click here to view it in a web browser.

Action Items + Get more add-ins

Luke,

Assuming the controls are good and we just replace the cables you would be $11700 installed on a new Yamaha 115/80 Jet. MSRP on just the motor $13080. If you want a new control also add $400. I guess I would have to hook up a computer to check hours and codes, plus overall condition as far as trading. Why are you guys replacing it?

Have a good one,

Dave
Townsend Marine
tmsales@mt.net
1-800-598-5700

----- Original Message -----

# 2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project Title: Middle Missouri River Creel Survey 2019

Date: February 10, 2022

Explain how this Project addresses a specific Project 2188 License Article(s):

Article 417: This 2019 creel survey is listed as an objective in the 10-year (2018 – 2028) Fisheries Monitoring and Enhancement Plan as part of the General Fish Population Monitoring under article 417. 1) Monitor the relative abundance of the most common fish species in the Missouri River downstream of Morony Dam. 2) Protect and provide for the recovery of Threatened and Endangered species and other species of special concern in the Missouri River downstream of Morony Dam. 3) Provide assistance to FWP for ongoing evaluation of pallid sturgeon recovery in the Missouri River downstream of Morony Dam.

Article 426: 1) This study would provide information pertinent to the Comprehensive Recreational Plan for managing recreational resources in the Missouri River downstream of Morony Dam.

Justification: The Creel survey will be conducted on the Missouri River (Priority 1) and also include the lower Marias River (Priority 2).

Project Sponsor (submitted by): Luke Holmquist

Location of Proposed Project: Missouri River between Morony Dam and Fort Peck Reservoir.

Total Project Cost: $76,917

**TAC Funds (Cost-Share) Requested for Project: $67,465 (includes $8,465 in overhead)**

Other Associated Funding: $9,452

*Biologist (Holmquist) funded by FWP (50%) and another NWE project (50%)*
*-Administer and write reports (120 hours at $37.10 w/benefits)…….....$ 4,452*

*Shuttle Service- FWP Volunteers (Estimated Cost)……..$ 5,000*

I. Introduction; brief statement of project to be completed with pertinent background information.

Creel Surveys have been conducted every four years since 2003, with a previous survey performed in 1977-78. The survey provides valuable information regarding angler use, satisfaction, demographics, catch-rates, and the management of our valuable native and non-native gamefish populations. Repeated surveys every 4 years allow for FWP to gauge changes to these metrics over time.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

1. Interview anglers that are encountered in the 205-mile study area.
    - Survey data gathered will include; angler origin, fishing methods, target species, catch and harvest by species, length and weight of harvested fish.
2. Collect information on previously tagged fish that are caught by anglers.
3. Evaluate the size and age structure of game fish populations in this reach.
    - Collect spines and/or otoliths for aging certain angler harvested game fish

- Assess how well the data verify or refute the findings from our standard sampling efforts.

4. Provide public outreach regarding the pallid sturgeon recovery program in the study area.
5. Compare 2019 results with data summaries from the 1977-78, 2003, 2007, 2011, and 2015 surveys.

III. Methods; description of how Project objectives will be accomplished.

A roving creel survey will be conducted on the 205-mile river reach, from Morony Dam to 20 miles downstream of the Robinson Bridge area. Study design will be similar to the 2015 study to best facilitate comparisons between surveys. Because of the remote conditions and special recreational management within the study area it takes 8 days to do a complete sampling run of the river with shuttle service. Anglers present in this reach will be contacted at access sites or on the river if they are using watercraft. Anglers will help fill out a survey form with angler information, numbers of fish caught, kept, and released, hours fished, angler satisfaction (with numbers and size of fish caught), and provide space for angler comments. Anglers who continue to fish for the day will be given a post-card to record their info for the rest of their day.

IV. Schedule; 2019

April ……...… Assemble gear and initiate survey
May ……. Conduct survey; Coordinate with Region 6 paddlefish crew
June ……. Conduct survey; Coordinate with Region 6 paddlefish crew
July…..……. Conduct survey
August ……. Conduct survey
September.……...… Conduct survey
October……. Conduct survey (weather permitting) and summarize data
November……. Conclude survey (weather permitting) and summarize data

September 2020…… Complete Report

V. Personnel;
Project Leader: Luke Holmquist
Fisheries Tech II (Band 4) for 8 Months

VI. Project budget must include amounts for the following:

Materials

Supplies and Materials (postage, prizes, printing costs).……..…..$ 1,500
Spot X Satellite Messenger and Annual Plan…...……..…….$ 630
Boat Gas (15 trips, 280 miles/trip, 4 mpg, $3.50/gal.) ...……....…$ 3,675
Maintenance……..……...$ 1,250

MATERIALS TOTAL……..….....$ 7,055

Direct Labor

Tech II (Band 4 w/ benefits, [$27.31 for 1400 hours])…….....$38,234

LABOR TOTAL……...$38,234

Travel and Living

Vehicle Mileage (Rate for ¾ ton truck is $0.51/mile)

Tech II (30 weeks, 300 miles/week)……...…$ 4,590
Volunteer Shuttle Upper (15 trips, 250 miles/trip)..……..…..$ 1,912
Volunteer Shuttle Lower (15 trips, 430 miles/trip).....……....$ 3,290

Per Diem

Tech II ($23, 8 days/trip, 15 trips)…..……..…….…….....$ 2,760
Tech II Tent Camp ($12, 3 nights/trip, 15 trips)……...…...$ 540
Volunteer ($18, 2 People, 15 trips)…..……..…….....$ 540

TRAVEL AND LIVING TOTAL…….…..…$13,632

Other Direct Expenses: None

Direct Overhead (14.5%): 0.145 * 58,921 = $8,544
**Total TAC funds requested: $67,465**

VII. Deliverables; Final Report September 2020.

How will "success" for this project be monitored or demonstrated?

This project will be successful if the number of anglers surveyed is similar to the number interviewed during past creel surveys.

VIII. Cultural Resources. No ground disturbance associated with this project.

IX. Water Rights. No wetland development associated with this project.

# 2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project Title: Marias and Teton River PIT Tag Antenna Array Maintenance - 2019

Date: February 10, 2022

Explain how this Project addresses a specific Project 2188 License Article(s):

Article 417: 1) Monitor the relative abundance of the most common fish species in the Missouri River downstream of Morony Dam. 2) Protect and provide for the recovery of Threatened and Endangered species and other species of special concern in the Missouri River downstream of Morony Dam. This is priority one (Missouri) and two (Marias) since it evaluates movement between the two systems.

Project Sponsor (submitted by): Luke Holmquist

Provide justification for Priority 1, 2 or 3 (above) that you selected: The PIT tag arrays in the Marias and Teton allow us to evaluate movement of fish between the Missouri (Priority 1) and these two tributaries (Priority 2).

Location of Proposed Project: These readers are on the Marias and Teton Rivers near Loma, Montana.

Total Project Cost: $880 plus in-kind installation by FWP personnel

TAC Funds (Cost-Share) Requested for Project: $880

I. Introduction;

Pit tag readers were installed in the Marias (2017) and Teton Rivers (2018) to evaluate fish migrations from the Missouri River. High discharge events damaged the array at both sites, most equipment was replaced through insurance, but we still need a few minor pieces of equipment to redeploy the readers and antennas. The current anchoring system using "duckbill" type anchors does not appear to be working very well for securing the antennas to the shifting sandy substrate. We would like to try a combination of metal T-post and arrowhead anchors.

Both Blue Suckers (Species of Concern) and Shovelnose Sturgeon (Threatened due to similarity of appearance to pallid sturgeon) use the Marias and Teton Rivers for spawning when flows are sufficient. PIT tags give us a cheaper alternative to radio telemetry for evaluating the timing of entry into these tributaries, which better develops our understanding of the environmental conditions that drive tributary spawning for these species. Additionally, the lower Marias River has seen use by juvenile and reproductive pallid sturgeon in the past few years. The Recovery Team has decided to make the switch to 134.2 kHz PIT tags as the primary unique identifier for pallid sturgeon, which makes this array a valuable tool for assessing use of the tributaries by juvenile pallid sturgeon.

II. Objectives;

-Redeploy PIT tag readers and antennas in the Marias and Teton Rivers.
-Continue to download stations a minimum of once per month.
-Perform maintenance as needed.

III. Methods; description of how Project objectives will be accomplished.

-Equipment will be purchased and stations will be redeployed in Spring 2019

IV. Schedule; Redeploy PIT tag readers and antennas in April 2019

V. Personnel; who will do the work?

-NWE will purchase the supplies
-FWP will redeploy the stations, continue tagging fish, and download the stations.

FWP Personnel
-Luke Holmquist, Biologist, FWP
-Katie Vivian, Fisheries Technician, FWP
-Rob Beattie, Fisheries Technician, FWP
-Mike Schilz, Fisheries Technician, FWP

Identify Project leader or principal investigator. Luke Holmquist

VI. Project budget must include amounts for the following:
Materials Only:

-Arrowhead Earth Anchors (25 pack)……...…$210
-Arrowhead Drive Rod……..$ 75
- T-posts (10 posts at 5.49/post)……...….$ 55
-OregonRFID Standard Remote Tuner Board……...$220
- TEMCO 30 Gauge Welding Cable (225 foot spool)……...$300

MATERIALS TOTAL…….....$880

Direct Labor: NA; Travel and Living: NA; Other Direct Expenses: NA;
Direct Overhead: Not necessary if purchase is made by NWE

In-kind contribution - FWP will conduct the work to reinstall the readers and antenna.

VII. Deliverables; NA

VIII. Cultural Resources. No ground disturbance associated with this project.

IX. Water Rights. No water rights associated with this project.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Grant.Grisak@northwestern.com
- brent.mabbott@northwestern.com
- andrew.welch@northwestern.com

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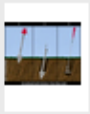
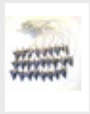
Your Online Source for Ground Anchors and Accessories.





Milspec Anchors LLC

## (25) - 4" Ground Anchors Contractor Bulk Set

**Not Rated**

**$209.99**

**SKU:** 4-4CA30K25W/DR

**Weight:** 30.00 LBS

**Options:**

(25) - 4" Ground Anchors Co...

**Quantity:** 1

ADD TO CART ☑ Wishlist

Project Title: **Sonar/GPS units for Middle Missouri River Boats**

Date: February 10, 2022

Explain how this Project addresses a specific Project 2188 License Article(s):

Article 417: 1) Monitor the relative abundance of the most common fish species in the Missouri River downstream of Morony Dam. 2) Protect and provide for the recovery of Threatened and Endangered species and other species of special concern in the Missouri River downstream of Morony Dam. This is priority one (Missouri) and two (Marias).

Project Sponsor (submitted by): Rob Beattie, Luke Holmquist

Provide justification for Priority 1, 2 or 3 (above) that you selected: These units will be used during radio tracking and sampling efforts in the Missouri (Priority 1) and Marias Rivers (Priority 2).

Location of Proposed Project: These Sonar/GPS units will be used on boats while conducting fisheries monitoring activities on the Missouri River from Carter Ferry to Fort Peck reservoir and in the lower Marias River.

Total Project Cost: **$ 699.98**
TAC Funds (Cost-Share) Requested for Project

I. Introduction;

Two of our current Sonar/GPS units (Garmin 168 GPSmap Sounder) experienced issues in 2018. One quit working all together and the screen on the other unit has become very difficult to read on sunny days. These units are very old (produced in the late 1990s and early 2000s) and have been needing to be replaced for some time now. These GPS/Sonar units will be used to record location, depth, and water temperature while monitoring the fish communities in the Middle Missouri River and during pallid sturgeon investigations. Furthermore, newer sonar technologies such as CHIRP allow for more accurate depths and images to be recorded and in some conditions even allow depth to be displayed while the boat is on plane. Our current units do not do this, but this ability would useful from a safety aspect. Especially when boats are being driven by less experienced seasonal employees.

II. Objectives;

-Purchase and install new Sonar/GPS units on two of our boats.

III. Methods; description of how Project objectives will be accomplished. NA

IV. Schedule;

-Purchase and install two sonar/gps units prior to 2019 field work.

V. Personnel; who will do the work? Identify Project leader or principal investigator. NA

VI. Project budget must include amounts for the following:

-Materials Only: Two units similar to "Humminbird Helix 5 CHIRP DI GPS Locator" units (349.99 per unit) .

-Note we would like to be able to get our hands on a few different units prior to selecting the exact model, but something similar to the unit listed above would be preferable.

**Total Cost = $699.98**

Direct Labor: NA; Travel and Living: NA; Other Direct Expenses: NA; Direct Overhead: NA – Purchase by NWE

VII. Deliverables; NA

VIII. Cultural Resources. No ground disturbance associated with this project.

IX. Water Rights. No water rights associated with this project.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Grant.Grisak@northwestern.com
- brent.mabbott@northwestern.com
- andrew.welch@northwestern.com


# Humminbird Helix 5 CHIRP DI GPS Locator

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**$349.99**

Free Shipping

**Quantity:** - 1 +

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# 2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project Title: Middle Missouri River Fisheries Trammel Nets Purchase - 2019

Date: February 10, 2022

Explain how this Project addresses a specific Project 2188 License Article(s):

Article 417: 1) Monitor the relative abundance of the most common fish species in the Missouri River downstream of Morony Dam. 2) Protect and provide for the recovery of Threatened and Endangered species and other species of special concern in the Missouri River downstream of Morony Dam. This is priority one (Missouri) and two (Marias).

Project Sponsor (submitted by): Rob Beattie, Luke Holmquist

Provide justification for Priority 1, 2 or 3 (above) that you selected: Trammel nets are the main sampling gear used to evaluate long term trends of Pallid Sturgeon and Shovelnose Sturgeon.
Location of Proposed Project: These nets will be used on the Missouri River from Carter Ferry to Fort Peck reservoir (Priority 1) and in the lower Marias River (Priority 2).

Total Project Cost: $3,965
TAC Funds (Cost-Share) Requested for Project: $3,965

I. Introduction;

Sampling with trammel nets is necessary to assess the populations of target deep-water fish species as required by the monitoring plan. Also, trammel net sampling is integral for evaluating pallid sturgeon stocking program and for capture of fish for radio tagging. We complete approximately 150 - 400 sets/year. In 2018 we completed 210 trammel net sets. This method is useful to maximize pallid sturgeon collections and obtain shovelnose sturgeon information. The wear and tear these nets receive during the sampling process requires that some of the nets get replaced each year. We have also started using more nets to maximize our river field work time. This year we are requesting 15 new 1-inch mesh nets.

II. Objectives;
These nets will be used in monitoring of the fish communities in the Middle Missouri River and for pallid sturgeon investigations.

III. Methods; description of how Project objectives will be accomplished. NA

IV. Schedule; Purchase 15 nets for 2019 year.

V. Personnel; who will do the work? Identify Project leader or principal investigator. NA

VI. Project budget must include amounts for the following: Note the price for 1-inch nets this year remained the same as last year.

Materials Only: 15 – 150 x 6 x 10 x 1” @ $253/net……..$3,795

Shipping $170
Total $3,965

Direct Labor: NA; Travel and Living: NA; Other Direct Expenses: NA; Direct Overhead: NA – Purchase by NWE

VII. Deliverables; NA

VIII. Cultural Resources. No ground disturbance associated with this project.

IX. Water Rights. No water rights associated with this project.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Grant.Grisak@northwestern.com
- brent.mabbott@northwestern.com
- andrew.welch@northwestern.com

DULUTH NETS
by H. Christensen Co.

# Quote

| Quote # | 1690 |
|---|---|
| Date | 10/10/2018 |

**Customer Information**

MT DEPT. FISH, WILD & PARKS
PO BOX 938
LEWISTOWN, MT 59457

**Shipping Information**

MT DEPT. FISH, WILD & PARKS
215 W. AZTEC DR.
LEWISTOWN, MT 59457

| | |
|---|---|
| **Contact:** | Robert Beattie |
| **Phone:** | 406-538-4658 |
| **Email:** | Rbeattie@mt.gov |

| | |
|---|---|
| **Rep:** | BJS |
| **Memo:** | |

| QTY | Product Description | Rate | Amount |
|---|---|---|---|
| 15 | 150'x6' Trammel Nets<br>-Two Outside Walls 10" Square #9 Twine(8MD Folded)<br>-One Inside Wall of 1" Square #139 Multi 54 MD<br>-Top Rope: 3/8" Foamcore Rope<br>-Bottom Rope: 30lb Leadcore Rope | 253.00 | 3,795.00 |
| 1 | Shipping ~$170 | 170.00 | 170.00 |

| | |
|---|---|
| **Subtotal** | $3,965.00 |
| **Sales Tax (7.375%)** | $0.00 |
| **Total** | $3,965.00 |

Quotes Valid for 90 Days.

4976 Arnold Rd Duluth MN 55803 office@duluthnets.com duluthnets.com

**Project Title:** Equipment – Holter/Hauser gillnets (floating and sinking)

**Date:** 10/24/2018

**Explain how this Project addresses a specific Project 2188 License Article(s):**
**Provide justification for Priority 1, 2 or 3 (above) that you selected:**

*Article 414, 8) Monitor the effects of project operations on Hauser Reservoir fish populations; and Article 416, 6) Monitor the effects of project operation on Holter Lake fish populations.* This proposal is to purchase 6 gillnets (3 floating, 3 sinking) for sampling fisheries population trends on two Missouri River reservoirs (Holter and Hauser). Given the nets would motor would be used to conduct fisheries population trends on two Missouri River reservoirs (Hauser and Holter), this proposal is considered priority 1.

**Project Sponsor (submitted by):** Montana Fish, Wildlife and Parks

**Location of Proposed Project:** Two Missouri River reservoirs (Holter and Hauser).

**Total Project Cost:** $1,372.41

**TAC Funds (Cost-Share) Requested for Project:** $1,372.41

**I. Introduction.** This proposal is to buy 6 experimental gillnets (3 floaters, 3 sinkers). Reservoir fish populations are monitored annually in spring and fall using experimental floating and sinking gillnets set in 33 standardized locations in Hauser Reservoir and 30 locations in Holter Reservoir. These netting series have been conducted annually since 1986 and are the best indicators of fish population changes that may be caused by project operations. Normal operational life-span of a gillnet used for standardized sampling is typically 2-5 years.

**II. Objectives.** Purchase 6 gillnets for standardized sampling in Holter and Hauser Reservoirs.

**III. Methods.** Gillnets will be purchased prior to standardized field sampling in spring 2019.

**IV. Schedule.** Will purchase as soon as funds are available in 2019

**V. Personnel.** Adam Strainer – MTFWP Fisheries Biologist – Project Leader

**VI. Project budget:**

| | |
|---|---|
| 3 floating gillnets (Memphis Net and Twine): | $618.78 |
| 3 sinking gillnets (Memphis Net and Twine): | $633.63 |
| Shipping: | $120.00 |
| **Total:** | **$1372.41** |

**VII. Deliverables**. Results from standardized fisheries population monitoring surveys will be presented annually in a report to NWE.

**VIII. Cultural Resources.** No ground-breaking activity. Not applicable.

**IX. Water Rights.** No water rights. Not applicable.

**Project Title:** Equipment – Electric trolling motor for Holter and Hauser Reservoir boats

**Date:** 10/24/2018

**Explain how this Project addresses a specific Project 2188 License Article(s):**
**Provide justification for Priority 1, 2 or 3 (above) that you selected:**

*Article 414, 8) Monitor the effects of project operations on Hauser Reservoir fish populations; and Article 416, 6) Monitor the effects of project operation on Holter Lake fish populations.* This proposal is to purchase a new electric portable/detachable trolling motor for multiple boats to sample two Missouri River reservoirs (Holter and Hauser). Given the motor would be used on boats while conducting field work on two Missouri River reservoirs (Hauser and Holter), this proposal would be considered priority 1.

**Project Sponsor (submitted by):** Montana Fish, Wildlife and Parks

**Location of Proposed Project:** Motor to be used primarily two Missouri River reservoirs (Holter and Hauser)

**Total Project Cost:** $329.98

**TAC Funds (Cost-Share) Requested for Project:** $329.98

**I. Introduction.** This proposal is to buy a new portable/detachable electric trolling motor for up to three main boats on two Missouri River reservoirs (Holter and Hauser). The current motor is a 1995 Minn Kota 65 Mx (12 volt, 28 lbs of thrust) and has become less reliable in recent years as a portable back-up propulsion source. A portable trolling motor has provided a reliable, cost-effective back-up means of propulsion for multiple boats when a primary motor has issues. Due to remote working locations in areas throughout Holter and Hauser Reservoirs, a reliable secondary propulsion source has been and remains an invaluable tool. We are proposing to replace the motor above with a Minn Kota Endura Max (12 volt, 55 lbs of thrust), providing the additional benefit of added thrust when facing a situation involving inclement weather and a back-up propulsion source.

**II. Objectives.** Purchase new portable/detachable trolling motor to replace old portable/detachable trolling motor

**III. Methods.** Purchase new portable/detachable trolling motor to replace old trolling motor. Cost estimate is from Minn Kota, and includes electric trolling motor and shipping.

**IV. Schedule.** Will purchase as soon as funds are available in 2019

**V. Personnel.** Adam Strainer – MTFWP Fisheries Biologist – Project Leader

**VI. Project budget:**

| | |
|---|---|
| Minn Kota Endura Max (12 volt, 42" shaft, 55 lbs. thrust): | $299.99 |
| Shipping: | $29.99 |
| **Total:** | **$329.98** |

**VII. Deliverables**. The deliverable would be a properly functioning new electric trolling motor that will enable FWP to continue monitoring two Missouri River reservoirs (Holter and Hauser) safely and effectively into the future

**VIII. Cultural Resources.** No ground-breaking activity. Not applicable.

**IX. Water Rights.** No water rights. Not applicable.

# 2018 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1**: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**Priority 2:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

**Priority 3:** 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

**All TAC project proposals must include the following information:**

**Project Title:** Boat Motor for Missouri River jet boat

**Date:** 10/23/18

**Explain how this Project addresses a specific Project 2188 License Article(s):**
**Provide justification for Priority 1, 2 or 3 (above) that you selected:**

*Article 417 3). Propose additional measures to minimize fish loss and to mitigate for avoidable and unavoidable impacts.*
*Priority 1.* - This proposal is to purchase a new jet motor for a jet boat used to sample the Missouri River below Holter. Given the boat is used on the Missouri River as a primary vessel for sampling, this proposal would be considered priority 1.

**Project Sponsor (submitted by):** Montana Fish, Wildlife and Parks

**Location of Proposed Project:** Boat motor to be used primarily on the Missouri River below Holter

**Total Project Cost:** $17,826

**TAC Funds (Cost-Share) Requested for Project:** $17,826

**I. Introduction; brief statement of project to be completed with pertinent background information.**

This proposal is to buy a new jet boat motor for one of the two main jet boats used on the Missouri River. The current motor is a 2000 Yamaha and has had numerous problems over the last three years. We are proposing to replace this motor with a Yamaha 150 horsepower motor. The total cost above included the motor, labor, $1,569.98 for power steering, and an extra 4 blade stainless steel impeller. The new 4-stroke motor would replace an old 2-stroke, providing the additional benefit of cleaner operation.

**II. Objectives; explicit statement(s) of what is intended to be accomplished.**

Purchase new jet boat motor to replace old motor.

**III. Methods; description of how Project objectives will be accomplished.**

Purchase new jet boat motor to replace old motor. Cost estimate is from Wallace Marine, and includes motor, labor, power steering, and additional 4-blade stainless steel impeller.

**IV. Schedule; when the Project work will begin and end.**

Will be purchased as soon as funds are available in 2018/2019.

**V. Personnel; who will do the work ? Identify Project leader or principal investigator.**

Matt Pumfery – MTFWP Fisheries Technician – Project Leader

**VI. Project budget must include amounts for the following:**

Direct Labor
Travel and Living
Materials
Other Direct Expenses
Direct Overhead
All cost-share sources and amounts, including estimation of "in-kind" contributions

Yamaha 150 HP JB - $14,448 (Includes 4-blade stainless steel impellar)
New controls and cables - $480
Eight hours of labor@ $105 per hour - $840
Power Steering - $1,569.98
Extra Stainless Steel Impeller - $434.18
Spare impeller line - $54.00
**Total - $17,826.16**

**VII. Deliverables.** Describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

The deliverables would be a properly functioning new motor that will enable FWP to continue monitoring the Missouri River effectively into the future.

**VIII. Cultural Resources.** Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

No ground breaking activity. Not applicable.

**IX. Water Rights.** For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

No water rights. Not applicable.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Grant.Grisak@northwestern.com
- brent.mabbott@northwestern.com
- andrew.welch@northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Jon Jourdonnais, Leader Hydro Licensing and Compliance, NorthWestern Energy, 1801 South Russell Street, Missoula, Montana 59806; 406-490-1802 (cell); jon.jourdonnais@northwestern.com.

Project Title: **Prickly Pear Creek Re-watering Project, 2019-2020**

Date: 10/25/2018

Explain how this Project addresses a specific Project 2188 License Article(s): Article 414-9-5. Evaluate the potential to enhance tributary spawning to increase the contribution to natural reproduction to the Hauser Reservoir fishery. Tributary enhancements will include, but will not be limited to…..5. Leasing or purchasing water rights or contracting water for streamflow enhancement.

Provide justification for Priority 1, 2 or 3 (above) that you selected: Priority 2. Prickly Pear Creek flows directly into Hauser Lake (Lake Helena). FWP monitoring shows use of Prickly Pear Creek by migratory rainbow trout and brown trout from Lake Helena. Prickly Pear Creek also maintains resident populations of rainbow trout and brown trout.

Project Sponsor (submitted by): Adam Strainer, Helena Area Fish Biologist

Location of Proposed Project: Prickly Pear Creek T10N R3W Sec 23 Lewis & Clark County

Total Project Cost: **$31,440**

TAC Funds (Cost-Share) Requested for Project: **$10,000 ($5,000 2019 and $5,000 2020)**

## I. **Introduction**

The Prickly Pear Re-watering project began in 2009 and involves the coordination and cooperation of several organizations and individuals to maintain in-stream flows in Prickly Pear Creek. Water for this transaction is bought from Bureau of Reclamation (BOR) to use water from the Helena Valley Irrigation District (HVID) to provide water to the Prickly Pear Creek Water Users Association (PPWU). In exchange the PPWU allows use of their Prickly Pear Creek water rights in-stream. This exchange provides a reliable source of irrigation water for PPWU while preserving summer flows in Prickly Pear Creek. The Prickly Pear Creek fishery has positively responded to this project, with brown trout abundance increasing 107% from 2010 to 2016 (Figure 1). MoTAC contributed $7,500 toward this project in 2013, $3,220 in 2016, $5,000 in 2017, and $5,000 in 2018. This proposal is for two years of funding.

## II. **Objectives**

Fund the Prickly Pear re-watering project for two years to maintain flows in Prickly Pear Creek by providing alternative water to PPWU with Canyon Ferry water delivered by HVID.

## III. **Methods**

Funding will secure up to 2,000 acre-feet (AF) of HVID water annually in exchange for use of PPWU water rights in-stream. HVID delivers irrigation water throughout the term of the project through communications with the Prickly Pear Creek Water Commissioner and the Re-watering project coordinator. Stream flows in Prickly Pear Creek are monitored in June and July, and when a flow trigger of 40 cfs at Wiley Drive or 20 cfs is reached at Canyon Ferry Road the PPWU diversion is closed and delivery of HVID water from Canyon Ferry is scheduled.

## IV. **Schedule**

Project begins in June or July, depending on flow conditions and continues throughout the irrigation season (September 30).

## V. **Personnel**

Administration and monitoring is performed by Jennifer McBroom and Pete Schade with the Lewis & Clark County Water Quality Protection District.

VI. **Project budget**:

| Budget Summary for Prickly Pear Creek Re-watering Project | |
|---|---|
| **Budget Items & Tasks** | **Costs:** |
| US Bureau of Reclamation Water Purchase Contract | $1,720 |
| Helena Valley Irrigation District (HVID) Water Service Contract | $12,000 |
| Prickly Pear Creek Water Commissioner | $1,500 |
| Stream monitoring , grant administration, funding solicitation, reporting & staff time | In-kind |
| **Total** | **$15,220** |

Annual budget for the re-watering project. Total expected costs for the two year duration of this proposal is **$30,440**. Other potential and/or pending funders include the City of Helena, Bonneville Environmental Foundation, Montana Trout Unlimited, Pat Barnes Chapter Trout Unlimited, and Coca Cola.

VII. **Deliverables**

Water will flow in Prickly Pear Creek through the dry summer months. Since implementation, this project has maintained stream flows throughout the summer resulting in improved fish abundance in Prickly Pear Creek. A report summarizing monitoring results from 2019 and 2020 will be submitted to NWE. Biennial fisheries monitoring by FWP will continue to monitor influence of the project to the fishery.

VIII. **Cultural Resources**.

No land disturbing activity will take place.

IX. **Water Rights**. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the intent of Montana water rights laws and policies and with NWE's water rights guidelines for wetland projects.

Summarize here how you will comply with Montana and NWE water rights laws, policies and guidelines: N/A

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- grant.grisak@northwestern.com
- brent.mabbott@northwestern.com
- andrew.welch@northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Jon Jourdonnais, Leader Hydro Licensing and Compliance, NorthWestern Energy, 1801 South Russell Street, Missoula, Montana 59806; 406-490-1802 (cell); Andrew.welch@northwestern.com.

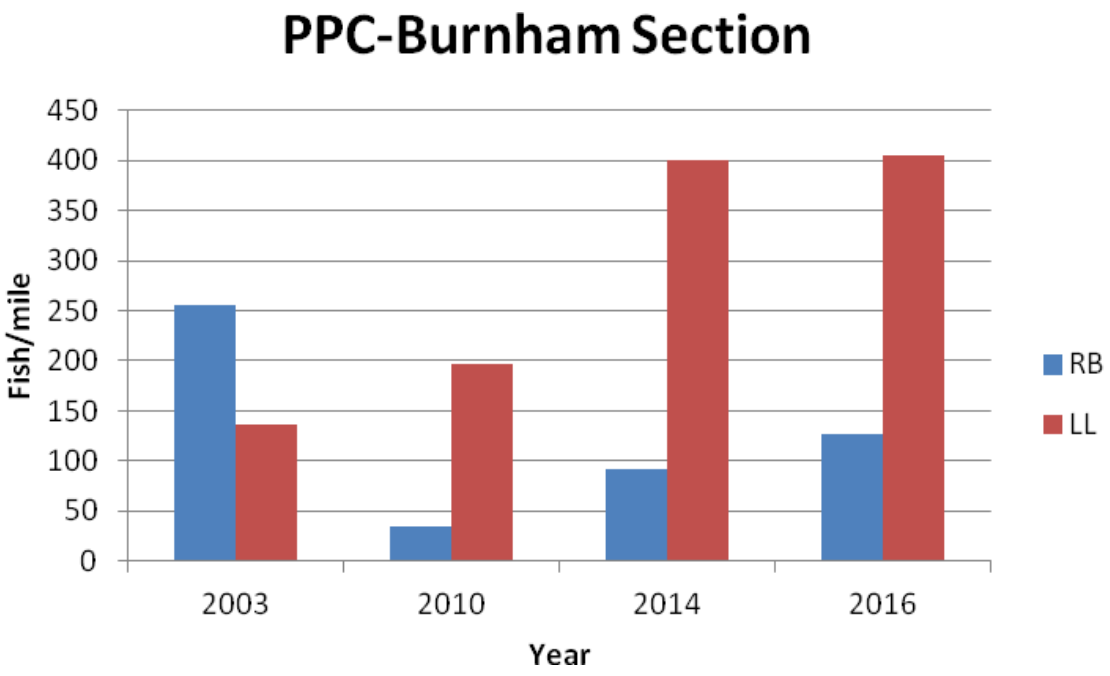


Figure 1: Rainbow trout (RB) and brown trout (LL) relative abundance (fish/mile) for the Burnham section on Prickly Pear Creek. This monitoring section begins where Prickly Pear Creek was historically dewatered, but has maintained a wetted width since the re-watering project began in 2009. No survey was done in 2018 due to high flows.

# 2016 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1**: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**Priority 2:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

**Priority 3:** 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

**All TAC project proposals must include the following information:**

Project Title: Two Teton River water leases.

Date: October 2018

Explain how this Project addresses a specific Project 2188 License Article(s):

This is a priority 1 project. Article 417 item 4 of the 5 year plan states "…Protect and provide for the recovery of threatened and endangered fish species and other aquatic species of special concern in the Great Falls reservoirs and below Morony Dam…One federally listed endangered species (pallid sturgeon) and several aquatic species of special concern are found in the Missouri River below Morony Dam. The sicklefin chub, sturgeon chub, blue sucker, paddlefish, and sauger are listed as fish species of special concern by the State of Montana. Sauger have been introduced into Cochrane, Ryan and Morony reservoirs. Spiny softshell turtles (*Apalone spinifera*) are also listed as a Montana species of special concern and are commonly found in the river between Morony Dam and Fort Peck Reservoir. Measures to protect and provide for the recovery of these species will be evaluated on a case-by-case basis…"

Provide justification for Priority 1, 2 or 3 (above) that you selected:

The Teton River provides habitat for many of these species. Reversing the chronic dewatering of the Teton River through instream flow water leases would provide interconnected habitat with Missouri River and aid in the maintenance of these species.

Project Sponsor (submitted by): Luke Holmquist

Location of Proposed Project: Teton River from RM 58 to RM 7 and then from RM 7 to the mouth.

Total Project Cost: $10,698 per year up to 10 years.

TAC Funds (Cost-Share) Requested for Project: $ 6,198 ($5,490 plus 12.9% ($708) overhead) per year up to 10 years.

I. Introduction; brief statement of project to be completed with pertinent background information.

In 2018, the MoTAC approved the leasing of water in the Teton river for instream flow (2018-25). The lower Teton River has a history of complete dewatering over the past 25 years. In March 2017 Judge Robert Olson upheld his July 2016 ruling from the 9th Judicial District Court that water users in the lower Teton River drainage held water rights senior to several rights in the upper basin. For many years junior water users were diverting water from the upper basin effectively denying legal access to senior right holders in the lower basin. Judge Olson's decision established the need to appoint water commissioners to evaluate the effectiveness of delivering water to the lower river to fulfill legal rights. Given the lack of irrigation infrastructure in the lower basin due to no available water, two right holders (T&K Farms and Andy Taylor) in the lower basin have expressed interest in leasing water for instream flow. These two rights would be used in concert between RM 58 and RM 7 to maintain a base instream flow at the mouth of about 2.5 cfs during July and August. T&K Farms rights are between 2-5.9 cfs and Andy Taylor's rights are between 2.5 and 4.47 cfs.

The benefit is an improvement in flow in the lower Teton that preserves connectivity during critical times of the year. It is also important that the leases help the water commissioners justify maintaining flow in the Teton through the entire river. Due to flooding from ice jams, rain and snow pack creating exceptionally high water in 2018, there was no need for leasing.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

Lease two water rights to maintain instream flow in the Teton River to the mouth during periods of normal (past 25 years) dewatering.

III. Methods; description of how Project objectives will be accomplished.

The rights would be used in a pattern approximating historic irrigation based the number of irrigations, crop irrigation demand and estimated system efficiency. Like many irrigation systems, they were not likely operated continuously. The use of the leased water rights would be staggered to provide about 90 days of protected flow.

Taylor

236 acres of irrigation
1897 and 1901 priority dates – senior to water users in lower 8 miles of Teton
4.23-4.47 cfs protected down to diversion (~rm 8)
~2.5 cfs protect to mouth of Teton
Flow protected for 5 10-day blocks (50 days total)
~430 ac-ft maximum volume at diversion ($2580 at $6 per ac-ft)

T&K

206 acres of irrigation
1890 and 1901 priority dates
5.9 cfs protected down to diversion (~rm 107)
~3 cfs protected below diversion
~2 cfs protect to mouth of Teton with 1/3 loss based on review of Dutton and Loma USGS gages.
Flow protected for 5 8-day blocks (41 days total)
~485 ac-ft maximum volume at diversion ($2910 at $6 per ac-ft)

Because the water commissioners would know in advance we plan to demand water at Taylor's near the mouth, they would need to keep the river watered for the full length at all times in order to be able to deliver the water requested. FWP discussions with the water commissioner indicate he recognizes that they will need to keep the river from being dewatered in order to effectively manage the river and meet requests for water. So even though water will not be requested at all times, the water leases will help keep the river from being dewatered even when they are not technically requesting water.

Data from 2017 with the water commissioners operating should help refine information with respect to the losses between T&K Farms (RM 58) and the mouth.

The priority date of the water rights is considered somewhat "middle of the pack" for the Teton and they are junior the most senior rights above Choteau. They are relatively senior in the Teton below Choteau. Even being junior to rights above Choteau, these rights will likely be able to draw water down Muddy Creek and Spring Coulee that collected return flow from the Burton Bench. There are several large junior water rights in these areas including the Brady Irrigation District. The water commissioner has concurred with FWP that this would probably be the situation. Also, the current commissioner operations that are maintaining flow through the Springhill reach maintains flow below Choteau. This will further assist with water moving into the river below Choteau where it can be leased and protected.

IV. Schedule; when the Project work will begin and end.

The Montana Fish & Wildlife Commission gave approval in April and June 2017 for FWP to negotiate the leases. FWP presented the lease agreements and valuation to DNRC in June/July 2017 to determine if the proposed plan is truly a beneficial use of the two water rights. The leases would commence as soon as DNRC makes a final determination and the need for leasing arises.

V. Personnel; who will do the work ? Identify Project leader or principal investigator.

Montana FWP has;
1. negotiated the lease concepts with T&K Farms and Taylor.
2. Prepared calculations, analyses, valuation and strategies for maintaining instream flows with the right holders and the water commissioner.
3. Gained permission from the Montana Fish & Wildlife Commission to pursue the leases.
4. filed for a change in right with DNRC.

Montana FWP will;
1. negotiate with DNRC the aforementioned strategies, valuation and benefits to secure DNRC approval.
2. file change documents with DNRC to record the proposed action as beneficial use of the respective water rights.
3. Follow the progression of the water lease/use to ensure the project is meeting desired benchmarks for instream flow.
4. Monitor the fish species (and turtle) composition in the Teton River, PIT tag fish in the Teton River, monitor tagged fish at the Marias PIT station at Loma.

Andy Brummond and three FWP fisheries workers.

VI. Project budget must include amounts for the following:

$6,198 ($5,490 plus 708 overhead) – $5,490 estimated value of the two water rights per year up to 10 years.

FWP would make payment directly to Taylor each year for $2,580 for value of leased water. $400 per year of this will be paid to the water commissioner for monitoring.

FWP would make payment directly to T&K Farms each year for $2,910 for value of leased water. $500 per year of this will be paid to the water commissioner for monitor.

Cost Share from Montana FWP is estimated to be approximately $2,500 for salaries from Andy Brummond for negotiations, calculation, filings and monitoring. The approximate annual contribution by FWP-Brummond would be similar. There is an estimated $2,000 annual cost of salaries, materials and equipment for fish population monitoring by FWP Region 4 fisheries staff.

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

Deliverables will be to maintain instream flow of 2.5 cfs at the Teton Loma gage during the critical times of the year. This will be confirmed by water commissioner reports and stream gage data collected at the USGS Teton- Loma gage site. Additional deliverables will be evidence of interchange of fish between the Missouri River and Teton River as determined by surveys and tag returns at the Marias PIT station.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management: No ground-breaking activities.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:

All water use and value will be approved by DNRC. A court-appointed water commissioner through the 9th Judicial District Court will monitor, make calls for water and enforce the court ruling. These water leases will be part of the entitled water granted to the downstream users by the court ruling. The water rights would be put to beneficial use through instream flow leases approved by DNRC.

# 2017 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1**: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**Priority 2:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

**Priority 3:** 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

**All TAC project proposals must include the following information:**

**Project Title:** Little Belt Creek Water Lease

**Date:** October 2018

**Explain how this Project addresses a specific Project 2188 License Article(s):**
**Provide justification for Priority 1, 2 or 3 (above) that you selected:**

*Article 417 3). Propose additional measures to minimize fish loss and to mitigate for avoidable and unavoidable impacts.*
*Priority 3.* - This project would preserve and enhance fish populations in Little Belt Creek, a tributary to Belt Creek, near Belt, MT. This is a priority 3 project as this project would provide a benefit to the Little Belt Creek fishery, which is tributary to a primary tributary to the Missouri River.

**Project Sponsor (submitted by):** Montana Fish, Wildlife and Parks

**Location of Proposed Project:** Little Belt Creek - Township 19N, Range 7E, Section 24. See map below.

**Total Project Cost:** $5,725

**TAC Funds (Cost-Share) Requested for Project:** $5,725

$5,000 – Cost of water lease
$725 - (14.5% overhead)
$5,725 – Total Cost with overhead

**I. Introduction; brief statement of project to be completed with pertinent background information.**

The project was funded by MoTAC in 2018 (2018-17). This project aims to preserve and enhance the fishery of Little Belt Creek. Little Belt Creek flowing from the Highwood Mountains near Belt supports a brown and rainbow trout fishery in the area of interest. In fall 2017, following a period of years with no diversion, but representative of conditions following a dry summer, brown trout ranging from 6.9 to 16.1 inches were collected on the state section, indicating the ability of the stream to support a viable fishery. This reach of stream also supports native sculpin, longnose dace, white sucker, longnose sucker, and mountain sucker. In the past, dewatering due to irrigation diversion of water has limited the extent of the fishery with dewatering occurring above and through legally accessible state-owned land. Restoration and protection of instream flow through this reach would benefit the fishery by providing enhanced stream flow.

The owner of the most senior irrigation water rights (two claims totaling 25 cfs) on Little Belt Creek has expressed interest in leasing waters to FWP to benefit the fishery. Historically during summer low-flow periods the diversion under these water rights has resulted in dewatering of Little Belt Creek including the reach through publicly accessible land. Restoring and protecting streamflow through this historically dewatered reach would likely benefit the fishery as well as increase angling opportunities on a readily accessible stream reach. Furthermore, the landowner allows access for fishing when access is requested.

**II. Objectives; explicit statement(s) of what is intended to be accomplished.**

Enter into water lease with the landowner. The water lease would read as the following:
The full amount of the water rights (25 cfs) is leased to FWP except Wilkins retain the right to use up to 1.0 cubic feet per second (cfs) for irrigation. However, at times when stream flow in Little Belt Creek below the Wilkins's most downstream point of diversion in use at the time drops below 2.1 cfs the Wilkins's agrees to reduce diversion of the retained 1.0 cfs to maintain at least 2.1 cfs instream in Little Belt Creek.
.

**III. Methods; description of how Project objectives will be accomplished.**

Water lease would be established between MFWP and the landowner.

**IV. Schedule; when the Project work will begin and end.**

In consideration of the lease of the portion of the water rights pursuant to this Agreement, FWP shall pay a sum of $500 annually to Wilkins. The first payment shall be made within 60 days of approval of the temporary authorization to change the water rights to instream flow by the Department of Natural Resources and Conservation (DNRC) if the approval occurs prior to July 1st. If the approval occurs on or after July 1st, the payment shall be made by May 1st of the next year. All subsequent payments shall be made by May 1st of every year the Agreement is in effect. The Agreement is for 10 years.

**V. Personnel; who will do the work ? Identify Project leader or principal investigator.**

***Responsibilities:***
Jason Mullen – MTFWP Fisheries Biologist – Responsible for initial coordinating of landowner and MTFWP, and applying for funding,.
Andy Brummond – MTFWP Water Rights Specialist – Responsible for negotiating water right with landowner and securing water right.

**VI. Project budget must include amounts for the following:**

Direct Labor
Travel and Living
Materials
Other Direct Expenses
Direct Overhead
All cost-share sources and amounts, including estimation of "in-kind" contributions

$5,000 – Cost of water lease
$725 - (14.5% overhead)
$5,725 – Total Cost with overhead

**VII. Deliverables.** Describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

The deliverables would be a stream that maintains flows capable of providing a viable fishery for the public. Periodic monitoring of the fishery and water flow may be conducted by MTFWP. MTFWP will provide a monitoring report at the end of the 10-year agreement that may include some of the following; general observations, flow measurements, landowner observations/records, and fisheries monitoring results.

**VIII. Cultural Resources.** Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

There would be no ground breaking activity. Cultural resources management consultation is thus not needed.

**IX. Water Rights.** For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

The project will affect existing water rights in that the project involves water leasing. The project will be approved by DNRC to comply with all water rights issues.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- steve.leathe@northwestern.com
- brent.mabbott@northwestern.com
- andrew.welch@northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Jon Jourdonnais, Leader Hydro Licensing and Compliance, NorthWestern Energy, 1801 South Russell Street, Missoula, Montana 59806; 406-490-1802 (cell); jon.jourdonnais@northwestern.com.

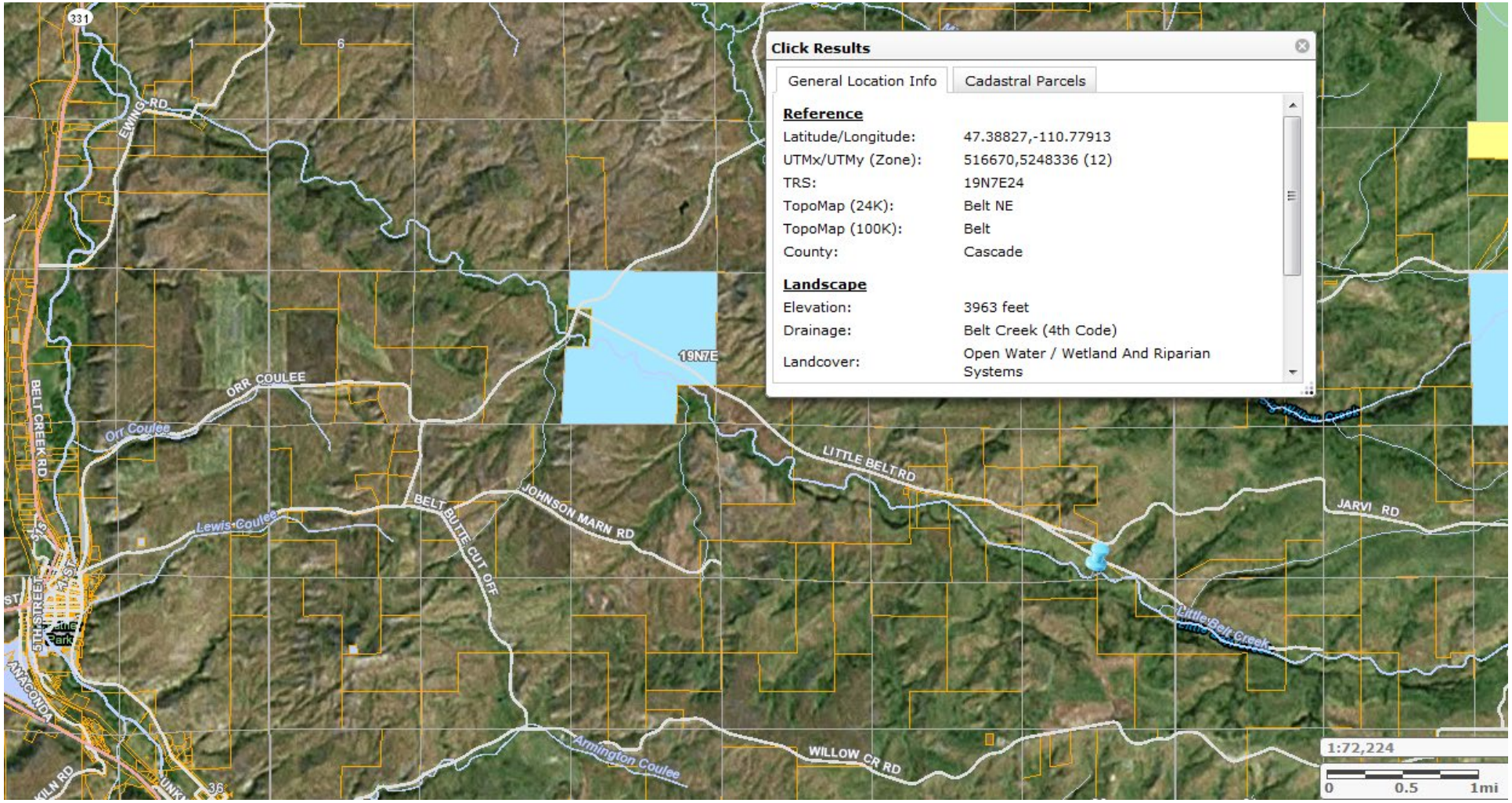

Figure 1. Map of project site. Approximate location of water lease is shown by the blue pin marker. Benefits of water lease would extend downstream through the blue state section.

# 2016 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1**: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**Priority 2:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

**Priority 3:** 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

**All TAC project proposals must include the following information:**

**Project Title:** Wegner Creek Westslope Cutthroat Trout Restoration

**Date:** October 22, 2018

**Explain how this Project addresses a specific Project 2188 License Article(s):**
This is a priority 2 project. It provides enhancement of fisheries populations in a tributary of the Missouri River. Article 417 (4) of the 2014-2018 year PM&E plan states *"…Opportunities to restore westslope cutthroat in the mainstem Missouri River are not feasible due to habitat changes, the presence of high numbers of non-native trout and other competing or predatory species. Hence, westslope cutthroat restoration projects will most likely occur in small headwater tributaries. Projects in other tributary drainages such as the Sun, Teton, Marias, and Judith rivers will be considered on a case-by-case basis…"*

**Provide justification for Priority 1, 2 or 3 (above) that you selected:** This project would establish a westslope cutthroat trout population in a tributary to the Missouri River.

**Project Sponsor (submitted by):** Jason Mullen

**Location of Proposed Project:** Wegner Creek – tributary to the Missouri River near Craig

**Total Project Cost:** $26,776

**Fund already spent or secured:**

| | |
|---|---|
| Northwestern Energy 2018 - | $4,924 ($2,863 remaining as of 9/30) |
| Northwestern Energy 2017 - | $6,800 |
| Montana TU - | $4,000 |
| Missouri River Flyfishers - | $4,000 |
| Pat Barnes TU - | $700 |
| MFWP - | $1,200 |
| Total | $21,624 |

**TAC Funds (Cost-Share) Requested for Project:** $5,152 ($4,500 + $652 (14.5% overhead))
*To be spent from 2019 through 2022.*

I. **Introduction; brief statement of project to be completed with pertinent background information.**

In 2017 Montana Fish, Wildlife and Parks (MFWP) secured $16,700 to develop a fish passage barrier on Wegner Creek. The barrier was constructed in October 2017. In 2018 MFWP secured an additional $4,924 to implement a rotenone project and transfer wild westslope cutthroat trout (WCT) from a donor stream to Wegner Creek. The rotenone project was completed in July 2018. The transfer of wild fish has not been completed. A balance of $2,863 remains from the Northwestern Energy 2018 TAC funds.

Surveys in October 2018 did not find any remaining trout in Wegner Creek above the constructed barrier. Additional assessment of the barrier in 2018 determined that an addition of concrete to the constructed barrier would provide greater assurance that the barrier will prevent upstream passage by non-native salmonids over the long-term. Plans were made to add concrete to the barrier in fall 2018; however, weather prevented access to the site during the available time period for access.

MFWP proposes to use the remaining 2018 TAC funds to construct the addition to the barrier. An additional $4,500 is requested to help cover the transfer of fish from the donor stream. These funds will help fund one helicopter flight per year, for three years to transfer fish. Approximately 50 wild WCT will be transferred from Carpenter Creek to Wegner Creek per year for three years. The transfer will occur after the addition to the barrier is completed and subsequent sampling determines that trout are absent from the stream.

**II. Objectives; explicit statement(s) of what is intended to be accomplished.**

Complete WCT and sculpin conservation project. Provide a refuge and establish a WCT population in Wegner Creek.

**III. Methods; description of how Project objectives will be accomplished.**

Complete addition to existing barrier.
Complete extensive sampling of Wegner Creek to determine the presence or absence of fish.
Complete wild fish transfer approval, AIS inspection, and genetic testing.
Pending outcome of above, transfer wild WCT from a donor stream to Wegner Creek. Transfer plan consists of transferring 50 WCT from Carpenter Creek to Wegner Creek per year for three years. Transfer plan is based on extensive sampling of Carpenter Creek and discussions with UM geneticists.

**IV. Schedule; when the Project work will begin and end.**

Barrier: The addition to the barrier will be completed in spring 2019 as soon as the site is accessible.
Transfer: 2019-2021 or 2020-2022

The transfer of WCT will be completed over a period of 3 years with approximately 50 fish transferred per year. The transfer will be completed following the addition to the barrier and after extensive electrofishing surveys to determine the absence of salmonids. The transfer will begin as early as 2019 if the above conditions are met.

**V. Personnel; who will do the work? Identify Project leader or principal investigator.**

A contractor will complete the addition to the barrier. FWP personnel will conduct the fish transfer. Jason Mullen (Great Falls area fish biologist) is the project leader.

**VI. Project budget must include amounts for the following:**

Direct Labor
Travel and Living
Materials
Other Direct Expenses - $4500 Helicopter flights ($500 per hour, 3 hours per flight, 3 flights)
Direct Overhead - $652 (14.5%)
All cost-share sources and amounts, including estimate of "in-kind" contributions.

Approximately $1,000 in in-kind operations in the form of travel and living expenses.

**VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?**

The deliverables will be a stream absent of brook trout and restocked with a viable population of genetically pure WCT and rocky mountain sculpin. Monitoring will include electrofishing surveys to determine the success of the brook trout removal following the treatment and prior to translocation. Follow-up electrofishing surveys will determine the success of the WCT translocation, natural reproduction, and success of sculpin transfer.

**VIII. Cultural Resources.** Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed.

Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

There will be no new ground breaking activities associated with this project, thus no cultural resource surveys are needed.

**IX. Water Rights.** For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

The landowner has a water right to water livestock from the river. Water gaps would be installed at designated sites to allow water right to be exercised.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:

NA - no water rights would be affected by this project.

- Grant.Grisak@northwestern.com
- andrew.welch@northwestern.com
- brent.mabbott@northwestern.com

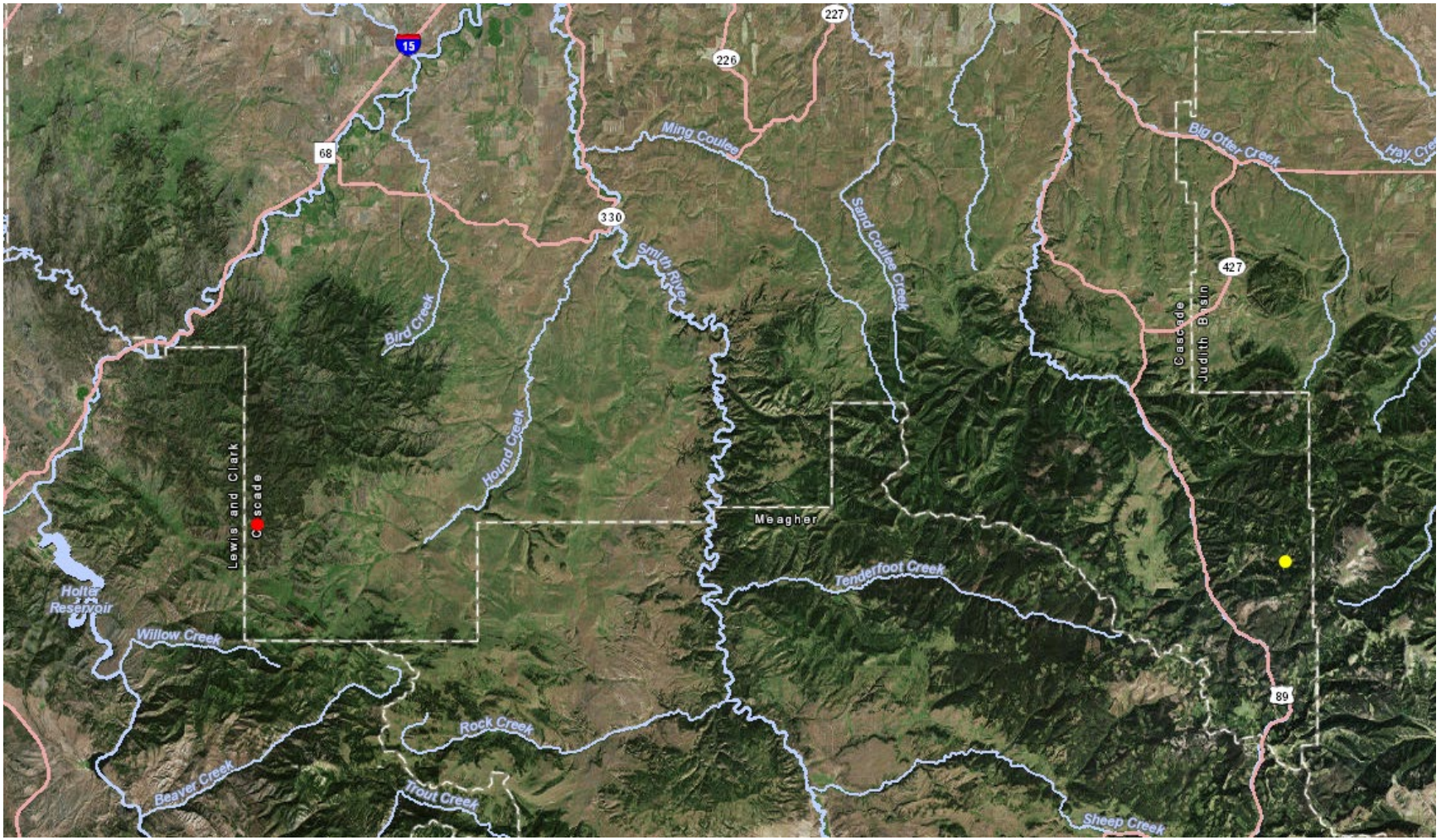

Figure 1. Red Dot – Wegner Creek – Flows to the Missouri near Craig, Yellow Dot – Carpenter Creek – Flows to Belt Creek near Neihart. Dots represent approximate transfer locations.

# 2016 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1**: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**Priority 2:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

**Priority 3:** 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

**All TAC project proposals must include the following information:**

**Project Title:** Little Prickly Pear Stream Restoration

**Date:** October 22, 2018

**Explain how this Project addresses a specific Project 2188 License Article(s):**
This is a priority 2 project. It provides enhancement of fish habitat in a primary spawning tributary of the Missouri River.

**Provide justification for Priority 1, 2 or 3 (above) that you selected:**
The project would restore habitat in a major spawning tributary of the Missouri River, which is a priority 2 project.

**Project Sponsor (submitted by):** Jason Mullen

**Location of Proposed Project:** Little Prickly Pear Creek - Sieben

**Total Project Cost:**

**2019 Little Prickly Pear – Sieben Restoration**
Northwestern Energy (pending) - $38,375
Sieben Ranch In-Kind (Pending) - 6,000
Total $41,875

2014 Little Prickly Pear -Sieben Restoration
Northwestern Energy- $155,200
Sieben Ranch - $4,700
Montana DOT - $4,400
MFWP - $1,750
Missouri River Flyfishers- $2,000
Pat Barnes Trout Unlimited – $2,000
Total - $170,050

**TAC Funds (Cost-Share) Requested for Project:** $38,375

I. **Introduction; brief statement of project to be completed with pertinent background information.**

In 2011, peak stream flow in Little Prickly Pear Creek reached 2,460 cfs which was the highest flow since 1975. Little Prickly Pear Creek overfilled its banks and caused considerable erosion to the BNSF railroad grade resulting in the stream flowing down the railroad grade. A restoration project was completed in 2014 to remove the channel from the railroad grade and restore proper stream function. The ultimate goal was to safeguard valuable trout habitat.

Large-scale flooding occurred throughout the region in spring 2018, including in Little Prickly Pear Creek. While the USGS Little Prickly Pear Creek gauge had been temporarily discontinued, it was estimated based on a nearby gauge to be approximately 1,000 cfs, which would have been the highest flow since 2011. The flooding caused significant damage to the constructed stream channel including leaving an active headcut and a large amount of sediment deposition in the downstream end of the project area near the frontage road and an active headcut further upstream.

Based on an assessment by the designer of the constructed stream channel, the unravelling of the constructed stream channel on the Sieben Ranch during the 2018 spring run-off appears to be a chain of events that possibly started downstream of the constructed channel. A recent survey of the impacted stream reach shows the existing steam channel bottom downstream of the constructed reach almost a foot lower than when construction ended in 2014. This elevation change indicates a headcut may have started downstream and advanced through the project area. The third (most downstream) former rock cross-vane apparently failed on the right bank of the channel, which added over a foot of gradient differential to any advancing headcut. This differential caused a cascade effect upstream, taking out the second rock cross-vane, which caused a huge amount of eroded sediment to plug the stream channel down valley creating the alluvial fan at the bottom of the constructed reach.

This stream channel plug (see attached stream profile) needs to be removed to stabilize the existing channel. Otherwise, a meander cut-off will occur which has the potential to send another headcut over two feet high upstream. Rock grade control (see attached design) also needs to installed in the area of the former second rock cross-vane, where an active headcut is still apparent, to prevent further channel down cutting. To prevent any future downstream instability from working into the repaired stream reach, another one or two rock grade control structures can be installed at the tail-outs of the re-constructed lateral scour pools. Rock grade control structures will be constructed with 2 ft minus rock and built to the stream grade to prevent a similar occurrence from happening.

The project proposes to complete a minimal amount of work in the highly degraded areas to restore the stream to the previously constructed channel with additional grade control structures to restore the stream function and prevent the headcuts from continuing up the channel. This project will also provide greater assurance that the stream does not erode into the frontage road during the next high flow event, compared to the existing state where the stream is not within a defined channel.

Little Prickly Pear Creek is an important spawning tributary for the Missouri River trout fishery. Past studies of trout spawning show that near half of the rainbow trout and brown trout from the Missouri River use Little Prickly Pear Creek for spawning. Leathe and Hill (1988) reported that 15,000 rainbow trout use Little Prickly Pear Creek for spawning. This spawning tributary is of vital importance to the Missouri River trout fishery. Angler use statistics show the Missouri River –section 9 (Holter Dam to Cascade) typically ranks as within the top five of the state in terms of the most angler days. This section of the Missouri River ranked first in 2013 and 2015, with 170,850 and 183,479 angler days, respectively. Economic statistics for this fishery for 2013 and 2015 indicate an annual revenue generated by this 30 mile reach of river of 54.2 and 66.6 million dollars, respectively.

**II. Objectives; explicit statement(s) of what is intended to be accomplished.**

The objectives of this project are to restore the stream to its pre-2018 channel and restore proper stream function, maintain valuable spawning and rearing habitat for rainbow trout, brown trout, mountain whitefish and white suckers. Implementing this project would safeguard the stream from a major erosion problem.

**III. Methods; description of how Project objectives will be accomplished.**

Allen McNeal (Stream restoration specialist) has surveyed the impacted stream reach and completed a design for reconstructing the channel to the previous channel prior to the spring 2018 flooding. A contractor will be hired and Allen McNeal will oversee construction to ensure the channel is built to the design.

**IV. Schedule; when the Project work will begin and end.**

Permits will be acquired as soon as funding is secured. Based on conversations with the ACOE, it is anticipated that the project will be permitted by the ACOE with a Nationwide 3 Maintenance permit, given the stream channel is being rebuilt to the originally constructed channel in 2014. A 124 and 318 authorization will also be secured. Work will begin in either winter/early spring 2019 or fall 2019, and be completed within that construction season (Approximately 3 week period).

**V. Personnel; who will do the work ? Identify Project leader or principal investigator.**

Jason Mullen – Project Leader – oversee funding, permitting, coordination with contractors, etc.
Allen McNeal – Project Designer – will complete the design and oversee construction and selection of a contractor.

**VI. Project budget must include amounts for the following:**

Direct Labor – Equipment - $33,875
Travel and Living - Mobilization - $2,000
Materials – Rock - $6,000 (In-Kind)
Other Direct Expenses - $2,500 Pollution Insurance for Contractor
Direct Overhead
All cost-share sources and amounts, including estimate of "in-kind" contributions.

**VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?**

Deliverables will be a properly functioning stream. Success will be measured by a stream channel that transports water and bed load properly, and a stream that provides habitat for spawning fish and provides access to and from the Missouri River through this point. A report will be submitted that documents that stream channel restoration, including pre, during, and post construction photos.

**VIII. Cultural Resources.** Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

A cultural resource survey was completed prior to the stream reconstruction in 2014. The proposed work places the stream back in the channel constructed in 2014. No lands will be disturbed that weren't disturbed in 2014, thus its believed that a cultural resource survey is not needed.

**IX. Water Rights.** For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:

NA - no water rights would be affected by this project.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Grant.Grisak@northwestern.com
- andrew.welch@northwestern.com

Figure 1. Map of Little Prickly Pear Creek project area. Yellow circles depict the approximate locations of the proposed work.

Photo 1. Little Prickly Pear Creek during flooding, Area 1, May 2018.

Photo 2. Little Prickly Pear Creek after flooding, Area 1, June 2018. Photo show large amount of sediment deposition, active headcut and lack of defined channel.

Photo 3. Little Prickly Pear Creek, Area 2, July 2018. Photo shows the active headcut with high gradient and lack of grade control.

## Grisak, Grant

**From:** Nate Kopp <nate@pricklypearlt.org>
**Sent:** Tuesday, December 4, 2018 10:36 AM
**To:** Grisak, Grant
**Subject:** Re: MoTAC funding approval
**Attachments:** image001.jpg

NOTICE: This message has been sent by an EXTERNAL sender outside of NorthWestern Energy. Please use caution when clicking on links, opening attachments, or replying to this email.

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That's great news, thanks for the update.

On Tue, Dec 4, 2018 at 10:26 AM Grisak, Grant <Grant.Grisak@northwestern.com> wrote:

> Nate,
>
> The TAC did approve the application with conditions. Your previous email confirmed those conditions could be met. We do not get the funding until early-mid January. I will begin to set up contracts starting next week and hopefully those can be in place by mid Jan when the funding is available.
>
> Grant
>
> **From:** Nate Kopp <nate@pricklypearlt.org>
> **Sent:** Tuesday, December 4, 2018 10:21 AM
> **To:** Grisak, Grant <Grant.Grisak@northwestern.com>
> **Subject:** Re: MoTAC funding approval
>
> NOTICE: This message has been sent by an EXTERNAL sender outside of NorthWestern Energy. Please use caution when clicking on links, opening attachments, or replying to this email.
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> ---
>
> Good morning, Grant. I wanted to follow up with you on the status of the MoTAC request as Adam made it sound like it was likely approved with a couple conditions. I'd like to tell Confluence to start moving ahead on the design so we are on pace with our permitting/design timeline for construction in early 2020. Do you need anything more from myself or Mary? Let me know.
>
> Nate
>
> On Mon, Nov 26, 2018 at 3:09 PM Nate Kopp <nate@pricklypearlt.org> wrote:

Grant,

I am thrilled that MoTAC has approved funding for this part of the project. Both contingencies are more than fair and we can agree to both of them. We employed a bid process for the design and construction of reach 3 and would open it up in a similar way for reach 4 construction and implementation. If there are specific expectations of the MoTAC for the open bid process beyond what is typical or if there are contractors that NWE would recommend we reach out to please let me know.

As far as the cost savings on the permitting and design piece there were two areas in particular where we may see some savings. The first is the cultural resource inventory as that amount was based on what it cost to do reach 3 but since the specialists have already been out to the property I believe we may see some savings. The second potential reduction is with the CLOMR portion of the permitting. Confluence indicated that they constructed a conservative bid here due to the highly variable FEMA permitting process and not knowing how they would view this project. If FEMA waives certain requirements or needs less information for the permit we could see costs lessened here as well. I will keep you updated as I learn more.

Thanks again for considering this project.

Regards,

Nate Kopp

On Mon, Nov 26, 2018 at 11:20 AM Strainer, Adam <astrainer@mt.gov> wrote:

> Nate,
>
> Below is an overview of what we discussed on the phone this morning.
>
> PPLT's MoTAC funding proposal for $39,000 for the Sevenmile Creek project was approved contingent upon the following deliverables:
>
> 1. A fully permitted project.
> 2. Conduct an open bidding process for project construction and implementation.

Please send Grant Grisak an e-mail confirming that PPLT agrees to the contingencies above. A simple "Yes, we agree" e-mail will work for Grant to update the MoTAC meeting notes and initiate funding approval for this phase of the project.

In addition, please provide Grant with details about potential cost saving portions of the budget regarding this phase of the project (e.g., cultural resources survey, etc…).

Thanks and let me know if you have any further questions.

**Adam Strainer**

*Helena Area Fisheries Biologist*

Fisheries Division

Montana Fish, Wildlife & Parks

930 Custer Avenue West

Helena, MT 59620

Ph: (406) 495-3263

Montana FWP | Montana Outdoors Magazine

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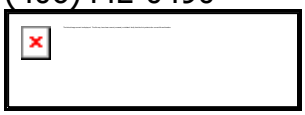
Nate Kopp

Project Manager
(406)442-0490



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Nate Kopp

Project Manager
(406)442-0490



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Nate Kopp
Project Manager
(406)442-0490

**Project Title:** Sevenmile Creek Habitat Restoration – Final Stream Reach, Phase I

**Date:** 10/31/18

**Explain how this Project addresses a specific Project 2188 License Article(s):** Article 414-9-2, 3, 4, 6. Evaluate the potential to enhance tributary spawning to increase the contribution to natural reproduction to the Hauser Reservoir fishery. Tributary enhancements will include, but will not be limited to…..2. Channel restoration, including re-meandering; 3. Removal of fish barriers; 4. Improvement of fish passage; 6. Improved livestock grazing management in riparian areas

**Provide justification for Priority 1, 2 or 3 (above) that you selected:** Priority 2. Sevenmile Creek is a tributary to Tenmile Creek, which is a known corridor for migratory fish from Lake Helena. Sevenmile Creek also maintains resident populations of Eastern brook trout and brown trout.

**Project Sponsor (submitted by):** Adam Strainer, Helena Area Fish Biologist

**Location of Proposed Project:** Sevenmile Creek, T10N R4W Sec 10

**Total Project Cost: $65,000**

**TAC Funds (Cost-Share) Requested for Project: $39,000**

**I. Introduction; brief statement of project to be completed with pertinent background information.**

As the MoTAC may recall, the Sevenmile project is on a 350- acre parcel acquired by Prickly Pear Land Trust (PPLT), to preserve open space, conduct habitat restoration, and provide recreational opportunities in the Helena Valley. Approximately 2.2 miles of Sevenmile Creek flows across the property (Figure 1). The stream has been heavily impacted by riparian clearing, intensive grazing, flow diversion, and channelization.

An assessment of Sevenmile Creek (partially funded by MoTAC) was completed in 2016, and delineated the stream into four geomorphologically unique sub-reaches (SMs) (Figure 2). In 2017, restoration of SM1 and SM2 were completed with funding by Montana Aquatic Resources Services, Inc. (MARS), while SM3 restoration was completed later in 2017, with MoTAC as the primary funder, alongside other partners. Project components completed to date include: construction and revegetation of inset floodplain benches, stabilization of eroding banks and terraces, temporary establishment of a fish passage and reconnection of two stream segments separated by a former (removed) irrigation diversion, re-establishment of historic wetlands, and relocating SM3 out of an eroding gully to its former floodplain. Each of these project components will improve the ecological function of the stream channel, floodplain, and wetlands within the project area, all of which will benefit the public.

PPLT now proposes a two-phased approach to completing restoration of SM4, the final stream reach. This proposal requests funding for design and permitting in 2018-2019, with a proposed second-phase request for construction and completion anticipated in November 2019. PPLT raised funding and contracted with Confluence, Inc. to complete a preliminary design in 2018. This request to the MoTAC would help pay for wetland delineation, final channel relocation design, the CLOMR and Joint permit applications, a cultural resources inventory, and PPLT staff time. To date, $8,000 has been secured and expended for the preliminary design, $18,000 has been requested from Trout Unlimited and the Cross Foundation (combined), and $39,000 is requested from the MoTAC, for a total Phase 1 cost of $65,000.

SM4 is the straightest and most degraded stream reach in the project area, and has not regained sufficient length to support any sort of complex bed morphology or associated fish habitat. The riparian corridor is either completely

lacking or is limited to a very thin band of woody shrubs growing near the bottom of the incised streambed (Figure 3). Downcutting has resulted in the exposure of high fine-grained banks that are actively contributing large quantities of fine sediment to the system. The overall condition of SM4 with respect to floodplain function, riparian vegetation, sediment loading, fish habitat, and geomorphic stability is exceedingly poor (Figure 3). With an investment by the MoTAC in SM4 restoration, an opportunity exists to accelerate Sevenmile's recovery process by restoring the creek's alignment, dimension, and floodplain to a more historic configuration. Restoration of the creek throughout the reach will provide immediate benefits to water quality, aquatic habitat, floodplain function, and wildlife along the creek corridor, all of which will benefit the public.

The proposed restoration approach involves constructing a new channel alignment along a re-sloped floodplain that would allow it to be constructed at a consistent gradient. Selecting an alignment during the preliminary design process for a restored channel through SM4 involved analyzing historic imagery to help determine the most likely route of the historic channel. Based on these images and existing topography, the historic channel likely flowed north of the existing channel throughout the majority this reach. Channelization of the creek subsequently pushed the channel to the southern edge of the historic floodplain, where it currently remains.

Relocating the channel across its historic floodplain as depicted in Figure 4 requires the channel be stepped down to meet the existing channel's bed elevation. A step-down feature would be constructed similar to the one recently constructed at the downstream end of SM3 to provide permanent fish passage during a range of flows and stream segment reconnection. It would include a series of rock weirs capable of dropping the channel approximately seven feet over a relatively short distance. The deactivated channel will be plugged with material generated by the new channel alignment, and stockpiled excavation materials associated with wetland re-establishment from SM2.

The proposed permanent step-pool feature to connect the restored channel with the existing channel lies approximately 300 feet upstream of the PPLT parcel boundary. This 300-foot segment of the channel will be improved by constructing a vegetated, inset floodplain that extends 20 feet on either side of the channel. The inset floodplain will extend downstream approximately 200 feet, and then taper before the channel departs the PPLT property. The newly excavated floodplain will be vegetated with wetland seed and shrubs to establish a riparian corridor. The new floodway will be graded with 2:1 slopes to tie into the existing ground surface.

Re-aligning Sevenmile Creek through SM4 will require more extensive (and more costly) permitting than previous reaches because it lies in a FEMA-mapped floodplain. This will require PPLT to obtain 310, 404, and 401 permits, as well as a Floodplain Development and Floodplain Map Revision permit. Since this project will likely result in a rise to the base flood elevation by more than 0.5 feet, it would require a floodplain map revision process with FEMA (a Conditional Letter of Map Revision (CLOMR) prior to constructing the project, and a LOMR (Letter of Map Revision) post construction.

Proposed restoration actions for SM4 are outlined more fully under II. Methods, and III. Objectives, below. Proposed restoration is expected to: permanently improve fish passage, improve water quality by reducing bank erosion and re-establishing vegetative cover, improve bird and other wildlife habitat, and provide a recreational resource for the Helena area. Further, one of the Lake Helena Watershed Restoration Plan —2016-2023 (December 2015) top three restoration priorities is for "Sediment reduction activities throughout the watershed." The Plan notes that removal of woody vegetation has largely reduced the natural protections from stream bank erosion in all parts of the watershed. Sevenmile Creek is one of twelve streams identified as not meeting its full potential to support fish and aquatic life due to excessive levels of sediment. Excessive sedimentation impacts fish spawning and aquatic insect habitat, fills pools, and alters channel morphology. Sevenmile Creek contributes the fifth largest sediment load in the watershed; the sediment load reduction target is 1,475 tons less per year than its current 1,855 tons per year. This project is expected to contribute to sediment-load reduction in Sevenmile.

**II. Objectives; explicit statement(s) of what is intended to be accomplished.**

Prepare a wetland delineation, and vegetation and cross-section surveys. Prepare a channel relocation design and excavate test pits along the proposed alignment. Prepare the CLOMR and Joint Permit applications, and conduct a cultural resources inventory.

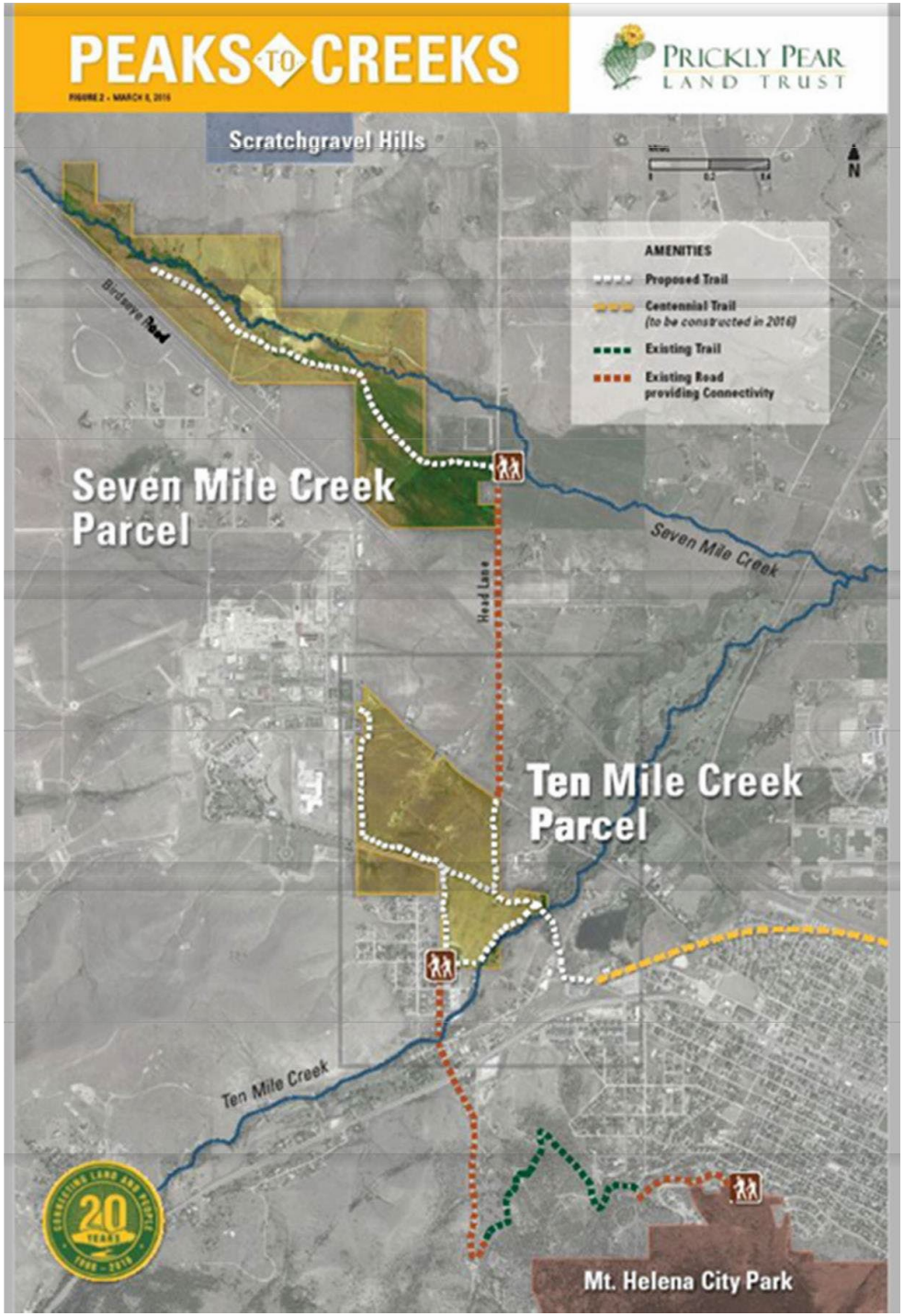



*Figure 1: Area Map showing Sevenmile Creek parcel proximity to Helena*


*Figure 2: Sevenmile Creek sub-reaches*

*Figure 3: Photo of reach 4 showing its disconnection from the floodplain and lack of vegetation.*

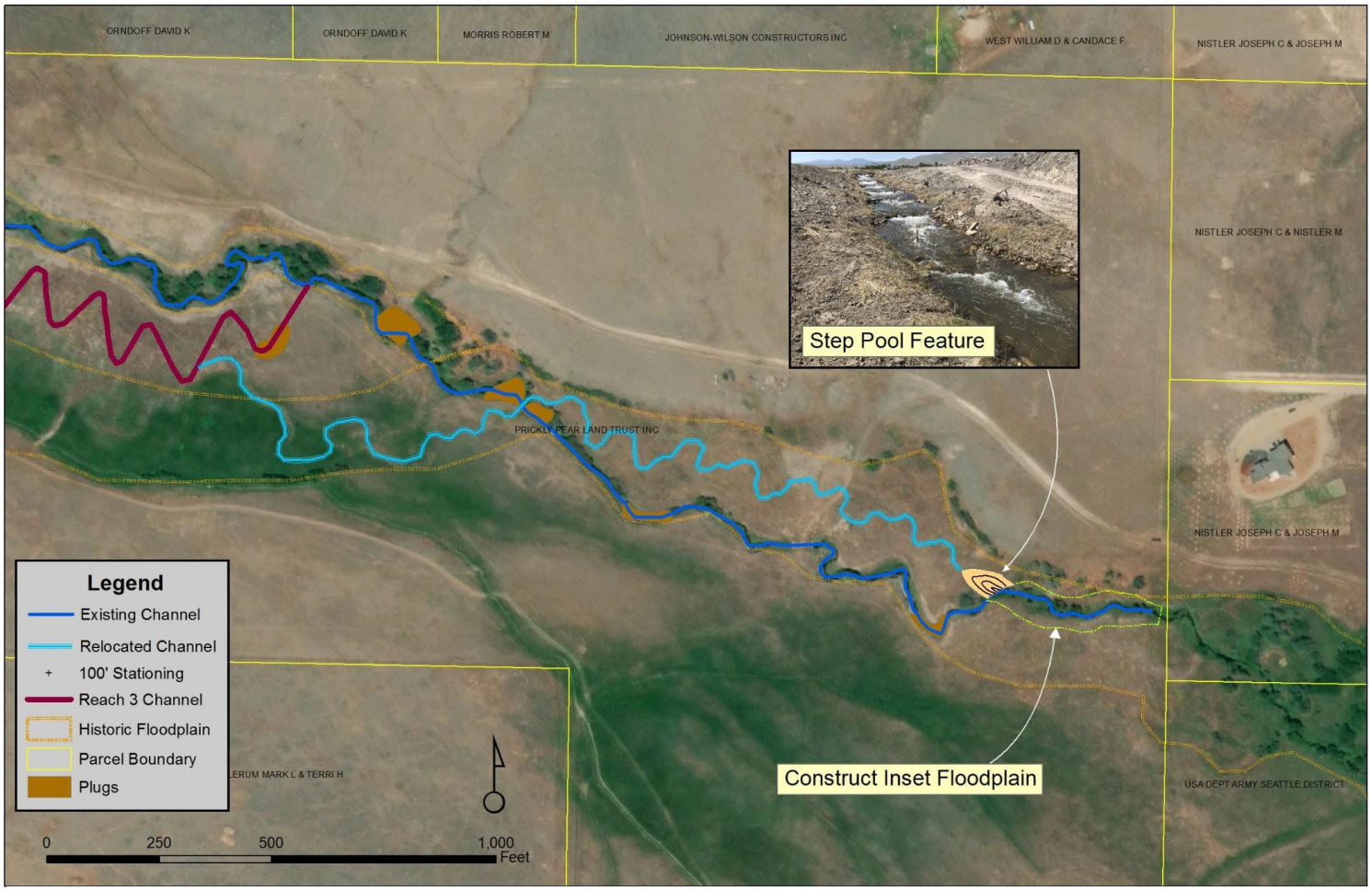



*Figure 4: Proposed Plainview of SM4 Conceptual Restoration Plan*

**III. Methods; description of how Project objectives will be accomplished.**

PPLT will contract with Confluence, Inc. to accomplish the objectives outlined above, during Phase 1. Phase 2 objectives are outlined below, but could be slightly modified by final design.

*Vertical Stability*

- The channel bed along the new alignment will be constructed with gravel and cobble materials mined from a nearby borrow source south of the irrigation ditch
- Gravel and cobble will be placed across the width of the bed and extend an additional 4 feet on both sides to allow the channel to migrate without risking incision.
- Step pools on the downstream end of the new alignment will be constructed to resist erosion up to a 25-year discharge, or a discharge specified by PPLT.

*Lateral Stability*

- Sod mats will be salvaged wherever possible along the deactivated channel and transplanted along the new channel alignment.
- The outside bank of all pools, which are subject to the highest erosive forces, will be protected using a combination of gravel/cobble bed materials, root wads, conifer fascines, coir wrapped soil lifts, and sod mats to resist erosion until woody vegetation establishes.
- Mature shrubs will be salvaged from the deactivated channel and transplanted adjacent to the new channel.
- Willow sprigs will be harvested and installed along the new channel alignment to establish a woody riparian corridor

*Floodplain Stability*

- The existing channel will be plugged using material generated by excavating the new channel and stockpiled material generated by the wetland restoration project in Reach 2.
- The new floodplain will be revegetated using a combination of upland and wetland seed mixes and woody plantings.

*Wetland Creation*

- New wetlands will be created behind the wetland plugs, similar to those in the previous reach.

Willow sprigs and woody plantings will be cut and planted by contractors and volunteers. Noxious weed treatments will be completed by a licensed applicator. Livestock have been removed from the property since February 2016, and fencing will be installed to create one livestock enclosure away from the stream, with funding secured from COE through MARS, not reflected in the project budget.

**IV. Schedule; when the Project work will begin and end.**

Project design and permitting work began in October 2018. Project completion of Phase 1 is expected by summer 2019, with completion of Phase 2 in spring 2020. A LOMR (if required) would be prepared in winter/spring 2020 after construction.

**V. Personnel; who will do the work? Identify Project leader or principal investigator.**

Nate Kopp, PPLT Project Manager, is the primary project administrator. Design and construction work will be completed by a firm with previous stream restoration experience, under contract to PPLT.

**VI. Project budget must include amounts for the following:**

| **Phase 1 Estimated Costs for Restoration of Sevenmile Creek** | |
|---|---|
| *Preliminary Design - completed* | $ 8,000.00 |
| Subtotal: | $ 8,000.00 |
| *Surveys and Data Collection* | |
| Wetland delineation and vegetation inventory | $ 2,650.00 |
| Floodplain cross section survey | $ 2,045.00 |
| Subtotal: | $ 4,695.00 |
| *Channel Relocation Design* | |
| Survey data processing | $ 520.00 |
| Planform design | $ 1,900.00 |
| Bank treatment design | $ 1,190.00 |

| | | |
|---|---|---|
| Step pool design | | $ 1,850.00 |
| Floodplain revegetation design | | $ 1,210.00 |
| Inset floodplain design | | $ 1,150.00 |
| Plug design | | $ 840.00 |
| Riffle design | | $ 1,050.00 |
| Drafting | | $ 2,540.00 |
| Excavate test pits along proposed alignment | | $ 5,750.00 |
| | Subtotal: | $ 18,000.00 |
| *CLOMR Permit Application* | | |
| Existing conditions model review and modifications | | $ 5,125.00 |
| Proposed conditions model development | | $ 6,925.00 |
| Prepare and submit CLOMR Application | | $ 9,600.00 |
| Respond to Regulatory Comments | | $ 4,125.00 |
| | Subtotal: | $ 25,775.00 |
| *Joint Permit Application* | | |
| Process wetland delineation data | | $ 170.00 |
| Prepare wetland report of findings | | $ 1,360.00 |
| Prepare joint permit application | | $ 2,050.00 |
| Prepare NW 27 Checklist | | $ 750.00 |
| | Subtotal: | $ 4,330.00 |
| *Cultural Resources Management* | | |
| Cultural Resources Inventory | | $ 2,500.00 |
| | Subtotal: | $ 2,500.00 |
| *PPLT Staff* | | |
| Nate Kopp, Project Manager - Project coordination (80 hours) | | $ 1,700.00 |
| | Subtotal: | $ 1,700.00 |
| | **Total:** | **$ 65,000.00** |

| Funding Partners | | | |
|---|---|---|---|
| **Source** | **Amount** | **Status** | **Notes** |
| | | | |
| Patagonia | $3,000 | Secured | Preliminary Design |
| Cinnabar Foundation | $3,000 | Secured | Preliminary Design |
| City of Helena | $2,000 | Secured | Preliminary Design |
| Cross Foundation | $10,000 | Applied | Final Design |
| Trout Unlimited (Pat Barnes Chapter) | $8,000 | Applied | Final Design |
| NWE MoTAC | $39,000 | Applied | CLOMR & Joint Permit Applications, Cultural Resource Inventory, PPLT Staff Time |
| **Total:** | **$65,000** | | |

**VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?**

At the end of Phase 2, trout at multiple life stages will be able to pass up and downstream of the step-pool structure, which should reduce population fragmentation and allow passage to preferred spawning habitats above and below the proposed realignment in SM4. Sediment inputs from highly eroding stream banks will be greatly reduced, resulting in clearer and cooler water temperatures.

Improved stream bank vegetation will provide additional stream shading and fish cover. Improved floodplain connectivity will substantially reduce erosion impacts during high flow events. Bird habitat will be substantively improved by increased vegetative cover and reduced noxious weeds, providing a secondary benefit to bird-watching enthusiasts. Public access to the parcel will provide ample fishing opportunity for the Helena angling community where few fishing opportunities currently exist close to town. Fisheries resources were monitored before and after recent SM3 realignment efforts to establish fish species abundance and occupied habitat distribution changes as realignment progresses throughout the entire PPLT parcel. Fisheries monitoring will occur throughout past and proposed realignment reaches to ensue fish habitat and passage requirements, especially during spawning timeframes, are being met and how past and proposed realignment efforts beneficially affect fisheries resources in Sevenmile Creek moving forward.

**VIII. Cultural Resources.** Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

**Summarize here how you will complete requirements for Cultural Resource Management:**

A cultural resource survey for SM3 was completed and approved by the SHPO in 2017. It found no significant cultural resources within the project area. This document was provided to Steve Leathe upon completion. A contractor will be hired to complete a similar inventory for SM4.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

**Summarize here how you will comply with Montana water rights laws, policies and guidelines:**

All aspects of this proposed project meet "Stream Restoration Projects" criteria as outlined in "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities," therefore no impacts or modifications to water rights are

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@Northwestern.com
- Grant.Grisak@Northwestern.com
- Brent.Mabbott@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 1315 N Last Chance Gulch, Helena, MT 59601; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.

# 2016 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1**: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**Priority 2:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

**Priority 3:** 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

**All TAC project proposals must include the following information:**

Project Title: Northcentral Montana Westslope Cutthroat Trout Restoration

Date: 11/1/2018

Explain how this Project addresses a specific Project 2188 License Article(s): This project addresses Article 417, #4. Protect and provide for the recovery of threatened and endangered fish species and other aquatic species of special concern in the Great Falls reservoirs and below Morony Dam.

Westslope cutthroat trout were once abundant in the river downstream from Morony but are now restricted to isolated headwater tributaries in the area. This proposal includes measures to protect and preclude listing of westslope cutthroat trout by maintaining existing populations. Westslope cutthroat trout were originally the only native trout species in the Great Falls area of the Missouri River. This species has been extirpated from approximately 95% of its original range in northcentral Montana due to the introduction of competing non-native trout species (rainbow, brook and brown trout) and habitat degradation. A number of remnant genetically-pure native westslope cutthroat trout populations have been discovered in isolated headwater areas of tributaries to Belt and Highwood creeks, which flow into the Missouri River shortly downstream from Morony Dam. MoTAC will continue to seek opportunities to protect and restore populations of this rare native fish. Opportunities to restore westslope cutthroat in the mainstem Missouri River are not feasible due to the presence of high numbers of non-native trout and other competing or predatory fish species. Hence, westslope cutthroat restoration projects will most likely occur in small headwater tributaries. Projects in other tributary drainages such as the Dearborn, Smith, Sun, Teton, Marias, and Judith rivers will be considered on a case-by-case basis.

Provide justification for Priority 1, 2 or 3 (above) that you selected: Priority 3. The work would occur in the greater Missouri River drainage upstream from Fort Peck Reservoir primarily in headwater tributaries. Most work is anticipated in the Highwood and Belt creek drainages with less emphasis on other work in other headwater streams from Canyon Ferry Reservoir to the Judith.

Project Sponsor (submitted by): George Liknes, US Forest Service.

Location of Proposed Project: Primary work area would be in the headwater streams of Highwood and Belt creeks. Other work may include headwater reaches and streams of Arrow Creek, Big Spring Creek, Box Elder Creek, Ford Creek, the Judith River, Smith River, Sun River, Two Medicine River (headwaters of Marias River), and Upper Missouri River and Upper Missouri – Dearborn HUCs; some of the waters in these HUCs are direct tributaries of reservoirs or the Missouri River.

Total Project Cost: $31,700.00

TAC Funds (Cost-Share) Requested for Project: $21,200.00

I. Introduction; brief statement of project to be completed with pertinent background information.
The primary work to be accomplished would include electrofishing for suppression of non-native fish expanding into secured and unsecured pure westslope populations, monitoring to ensure that non-native fish have not ascended installed barriers, and ground work planning required to carry out non-native fish removal/westslope cutthroat trout restoration work above barriers such as on the Dry Fork Belt Creek.

II. Objectives; explicit statement(s) of what is intended to be accomplished.
The objective of this proposal is to perform field work that will maintain, secure, and/or enhance all westslope cutthroat trout populations identified as conservation populations, especially genetically pure (core) populations, in the Upper Missouri River drainage with special emphasis on the Belt Creek and Highwood Creek drainages. Funds would be used to rehire an experienced FWP Fisheries Tech through the long standing Challenge Cost Share Agreement between Montana Fish, Wildlife and Parks and the Helena – Lewis and Clark National Forest.

III. Methods; description of how Project objectives will be accomplished.
Project objectives would be accomplished by electrofishing, determining flow rates and assessment of water chemistry.

IV. Schedule; when the Project work will begin and end. Work would be scheduled to begin during the field season in 2019 and be completed by December 31, 2020.

V. Personnel; who will do the work? The funding request would provide a part of the salary for an experienced FWP fisheries technician that the U.S. Forest Service has supported for many years though a Challenge Cost Share (CCS) Agreement. This tech would do the work along with Forest Service Biologists and FWP staff. Other staff costs were not included in the project budget.

Identify Project leader or principal investigator. Alli Russell and Eric Archer would be project leaders for the US Forest Service. George Liknes would be considered the principal investigator on the US Forest Service side of the CCS and Montana FWP staff would also provide mentoring. The MOTAC contract would be between NWE and the US Forest Service (1% overhead), which would then be obligated to FWP (5% overhead) through the Westslope Cutthroat Trout Restoration Activities Challenge Cost Share Agreement 17-CS-11011500-045.

VI. Project budget must include amounts for the following:

Direct Labor:
Salary MOTAC - $19,748.00
Salary USFS - $3,600.00
Travel and Living -
Operations From FWP SWIG – (Not secured) - $5,000.00
Materials – New Computer - $1,000.00
Other Direct Expenses – Office Space - $900.00
Direct Overhead:
NWE to USFS (1% of $21,200) - $212.00
USFS to FWP (5% of $24,800) - $1,240.00
**Total = $31,700.00**
All cost-share sources and amounts, including estimation of "in-kind" contributions

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?
All work associated with this funding would be described in an annual westslope cutthroat trout restoration project report supplied to NWE in the fall of the year by mid-November, 2019.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management: No ground disturbing activities will take place as part of this project.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines: This project will not involve development, restoration, or enhancement of wetlands and will not affect Water rights, water right law, policy or guidelines.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- jon.jourdonnais@northwestern.com
- steve.leathe@northwestern.com
- brent.mabbott@northwestern.com
- andrew.welch@northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Jon Jourdonnais, Leader Hydro Licensing and Compliance, NorthWestern Energy, 1801 South Russell Street, Missoula, Montana 59806; 406-490-1802 (cell); jon.jourdonnais@northwestern.com.

# 2016 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1**: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**Priority 2:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

**Priority 3:** 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

**All TAC project proposals must include the following information:**

**Project Title:** Smith River bank restoration

**Date:** October 22, 2018

**Explain how this Project addresses a specific Project 2188 License Article(s):**
This is a priority 2 project. It provides enhancement of fish habitat in a primary spawning tributary of the Missouri River.

**Provide justification for Priority 1, 2 or 3 (above) that you selected:**

**Project Sponsor (submitted by):** Jason Mullen

**Location of Proposed Project:** Smith River – DNRC property/adjacent to Johnston canal

**Total Project Cost:** $27,360

**TAC Funds (Cost-Share) Requested for Project:** $11,930

Northwestern Energy MoTAC - $11,930
Smith River Corridor Habitat Enhancement Account - $11,930 (Pending)
Missouri River Flyfishers – $500 (Preliminary Approval)
Pat Barnes Trout Unlimited - $1,000 (Approved)
Total – $25,360
Rick Johnston (In-Kind) – Trees - $2,000
Grand Total – $27,360

I. **Introduction; brief statement of project to be completed with pertinent background information.**

MFWP learned of concerns of an eroding bank on the Smith River from a graduate student working on the Smith River, based on his conversations with a local landowner. The bank in question is located on a state section of land between Fort Logan and Camp Baker, near Beaver Creek. Subsequent site visits with the lessee (Rick Johnston) showed and actively eroding bank that is immediately adjacent to a canal that flows through the state land and downstream to Johnston's private land. While vegetation is present on the bank, the bank is vertical and actively eroding, moving closer to capturing the canal. The eroding bank of the Smith River is currently within approximately 45 ft of the canal. Based on an initial site visit by a stream restoration specialist (Allen McNeal) part of the problem is the radius of curvature at the upstream bend, which has moved down valley and is currently sending water up valley.

This project proposes to use relatively "soft" restoration techniques to reconstruct and stabilize the banks, while maintaining natural function and providing habitat for fish. The project would move the first (upstream) corner back upstream to a proper radius of curvature (approximately 30ft) with fill and plant materials from the adjacent point bar. A stable bank line on the outside bend would be constructed (approximately 135 ft) with root wad and tree revetment structures, and a floodplain bench would be constructed into

the existing vertical streambank. The second (downstream adjacent to irrigation canal) bend (approximately 350 ft) would be stabilized with tree revetment bank toe by laying tree revetment on the proper radius of curvature far enough away from the existing vertical streambank to create at least a 3 to 1 (3H:1V) bank slope. Fill and plant material from the adjacent point bar will be used to build the streambank.

The alternative to completing this project would be to allow the lessee to deal with the actively eroding bank. This would include either allowing the eroding bank to continue and capture the canal or rip-rap. The lessee has rip-rapped banks in the past and would likely pursue this method to stabilize the bank. This method would likely only treat the symptom of the problem not the cause, would be subject to possibly failing on the upstream end if not conducted properly, would not provide proper stream function (e.g., riparian habitat, riparian inputs, slowing down water, deposition of fines, etc.), would provide limited habitat for fish compared to a woody bank, and may cause more erosion problems downstream. The lessee does support the proposed project and has expressed interest in this alternative to the standard rip-rap commonly used in the valley. DNRC has been contacted and expressed initial support of the project, especially because the concern was initiated by the lessee.

**II. Objectives; explicit statement(s) of what is intended to be accomplished.**

The objective is to stabilize the streambank to prevent it from capturing the canal, which could result in large-scale destruction, channel migration, and erosion, while still providing the benefits of a naturally functioning bank and providing fish habitat.

**III. Methods; description of how Project objectives will be accomplished.**

The stream reach will be surveyed by Allen McNeal to provide additional design information. A contractor experience in stream restoration will be hired to complete the bank construction and construction will be supervised by Allen McNeal. The banks will be constructed as described above and specified by Allen McNeal's design criteria. If cattle are grazed in this section, fencing will be constructed to protect the rebuilt streambanks while vegetation becomes established.

**IV. Schedule; when the Project work will begin and end.**

Survey will be completed fall 2018/spring 2019.
Permits, Environmental Assessment, and permission from DNRC will be completed from fall 2018-summer 2019.
Streambank construction will be completed during fall 2019. Work will be completed over an approximate two-week period.

**V. Personnel; who will do the work ? Identify Project leader or principal investigator.**

Jason Mullen – MFWP – Project Leader - Coordinate project. Secure permits and permission. Assist in survey and construction as needed and available.
Allen McNeal – Stream Restoration Specialist – Design project. Select contractor. Oversee construction.

**VI. Project budget must include amounts for the following:**

Direct Labor – Equipment -$17,640, Willow sprigging - $720
Travel and Living
Materials – Trees - $2,000 (In-kind), Rock - $3,000
Other Direct Expenses – Mobilization - $3,000
Direct Overhead
Cultural Resources Survey - $1,000
All cost-share sources and amounts, including estimate of "in-kind" contributions.

**VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?**

Deliverables will be a stable streambank that provides some natural function and provides protection against the river capturing the canal, which would result in extensive damage to the river channel. A report will be submitted that documents that streambank restoration, including pre, during, and post construction photos.

**VIII. Cultural Resources.** Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private

parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

A cultural resource survey will need to be completed as ground breaking activities will take place. A cultural resource survey has been budgeted and will be coordinated with Northwestern Energy representatives.

**IX. Water Rights.** For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

The landowner has a water right to water livestock from the river. Water gaps would be installed at designated sites to allow water right to be exercised.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:

NA - no water rights would be affected by this project. The project ensures that existing water rights will be able to be used into the future.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Grant.Grisak@northwestern.com
- andrew.welch@northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Jon Jourdonnais, Leader Hydro Licensing and Compliance, NorthWestern Energy, 1801 South Russell Street, Missoula, Montana 59806; 406-490-1802 (cell); jon.jourdonnais@northwestern.com.

Figure 1. Aerial photo of the project area on the Smith River, downstream of Fort Logan and upstream of Camp Baker. Smith River has slowly moved closer to the Johnston Canal is now within approximately 45 ft.

Photo 1. Photo depicts the Smith River with the Johnston Canal just out of sight in the foreground. Photo shows the progression of river left bank with multiple age stands of willows.

Photo 2. Photo looking upstream at the unstable river right bank (left side of photo) of the Smith River.

Project Title: **Prickly Pear Creek Tryan Diversion Fish Passage**

Date: 1/7/2019

Explain how this Project addresses a specific Project 2188 License Article(s): *Article 414 3) Propose additional measures to mitigate for avoidable and unavoidable impacts; 9) Evaluate the potential to enhance tributary spawning to increase the contribution to natural reproduction to the Hauser Reservoir fishery.*

Provide justification for Priority 1, 2 or 3 (above) that you selected: Priority 2. Prickly Pear Creek is a primary tributary to Lake Helena (Hauser Lake).

Project Sponsor (submitted by): Eric Roberts and Adam Strainer, FWP

Location of Proposed Project: Prickly Pear Creek, T10N R3W Sec 9

Total Project Cost: **$17,674**

TAC Funds (Cost-Share) Requested for Project: **$17,674**

I. Introduction; brief statement of project to be completed with pertinent background information.

In late-fall 2018 a fish bypass channel was constructed around an irrigation structure on the Rick Tryan property on Prickly Pear Creek in the Helena valley. The project constructed instream grade control structures to facilitate fish passage when the boards in the irrigation dam were removed and a bypass channel around the structure was constructed to facilitate passage during the irrigation season when the boards were in place. While mobilized additional stream bank erosion control structures were constructed to address excess bank erosion above and below the dam. This work was completed late November 2018.

Erosion mitigation on the first downstream bend below the irrigation structure required building out a vegetated toe with a bankfull bench, but due to an existing irrigation ditch adjacent to the eroding bank the bank could not be sloped back, which required encroaching into the stream with the vegetated toe and bankfull bench. This encroachment narrowed the channel width and increased the erosion risk of the newly constructed bank and the downstream banks. This proposal is to re-slope the inside bend to increase bankfull capacity and promote point bar development and address a high eroding bank directly below the new fish bypass channel. The proposal also includes fence construction to replace fencing disturbed by construction activities.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

This proposal is to:

- Amend permits necessary for work in Montana streams (including floodplain permitting);
- Modify a cut bank with high erosion risk directly downstream of the new fish bypass channel;
- Increase bankfull capacity downstream of the structure by re-sloping the bank and constructing structures to promote streambank vegetation;
- Construct wildlife friendly livestock exclusion fence that was disturbed by construction.

III. Methods; description of how Project objectives will be accomplished.

River Design Group will be contracted to obtain permits and oversee project construction. Stream Works is currently mobilized for other work on Prickly Pear Creek and will likely be contracted for this project. Specific construction methods are outlined in the attached plans.

IV. Schedule; when the Project work will begin and end.

Work is scheduled to occur winter 2019, prior to spring runoff.

V. Personnel; who will do the work? Identify Project leader or principal investigator.

River Design Group will provide construction oversight.

VI. Project budget:

Prickly Pear Creek Bank Stabilization Project Addendum
NorthWestern Energy and Montana Fish, Wildlife & Parks
Finish additional work on right bank d/s of Tryan Diversion structure.
13-Dec-18

RDG RIVER DESIGN GROUP

Table1. Cost estimate for bank restoration downstream of Tryan Diversion, Prickly Pear Creek.

| Item | Quantity | Unit Cost | Cost |
|---|---|---|---|
| **1. Project Management** | | | |
| Administrative Assistant | 1 hrs | $80 | $ 80 |
| Project Manager | 2 hrs | $125 | $ 250 |
| | | | $ 330 |
| **2. Regulatory Permitting and Construction Management** | | | |
| 2-Person Survey Crew | 0 hrs | $180 | $ - |
| Principal Hydrologist | 6 hrs | $125 | $ 750 |
| Staff Engineer | 6 hrs | $115 | $ 690 |
| Hydrologist | 26 hrs | $115 | $ 2,990 |
| Lodging and Per diem | 1 days | $150 | $ 150 |
| Survey Grade GPS | 0 days | $300 | $ - |
| Mileage | 450 miles | $.55 /mi | $ 248 |
| | | | $ 4,828 |
| **3. Construction Cost Estimate** | | | |
| **MOBILIZATION AND DEMOBILIZATION** | LS | $300 | $ 300.00 |
| **SITE PREP / CLEANUP** | | | $ 620 |
| - 200 Class Excavator with thumb and bucket | 4 hrs | $155 /hr | $ 620 |
| - Dump Truck | 0 hrs | $100 /hr | $ - |
| **PREP ACCESS ROADS AND CLEARWATER DIVERSIONS** | 0 ls | $1000 | $ - |
| **CHANNEL AND FLOODPLAIN EARTHWORK** | | | $ 2,400 |
| Excavate, Load, Haul and Place | 400 cy | $6 /cy | $ 2,400 |
| **CHANNEL AND STREAMBANK STRUCTURES** | | | $ 2,250 |
| Large Wood Structure | 0 structures | $1000 /structure | $ - |
| Constructed Riffle | 0 lf | $ /lf | $ - |
| Vegetated Wood and Brush Fascine Type 1 | 150 lf | $10 /lf | $ 1,500 |
| Vegetated Wood and Brush Fascine Type 2 | 50 lf | $15 /lf | $ 750 |
| **MATERIALS** | 1 ls | $4,200 | $ 4,200 |
| **Project and Construction Management Total** | | | $ 5,158 |
| **Construction Equipment and Labor Total** | | | $ 5,570 |
| **Construction Materials Total** | | | $ 4,200 |
| | | Construction Total: | $ 14,928 |
| | | 5% Contingency | $ 746 |
| | | Total Cost with Contingency | $ 15,674 |
| | | Treated Channel Length | 200 ft |
| | | Project Construction Cost per Foot | $ 75 |

**Budget for fencing: 500' 4-wire fence x $4.00/ft = $2,000**

# Total Budget:

| | |
|---|---|
| **Stream Bank construction** | **$15,674** |
| **Fencing** | **$2,000** |
| **Total** | **$17,674** |

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

Erosion risk on stream banks downstream of the irrigation structure and fish bypass channel will be diminished. Livestock fencing around the project will be replaced.

VIII. Cultural Resources.

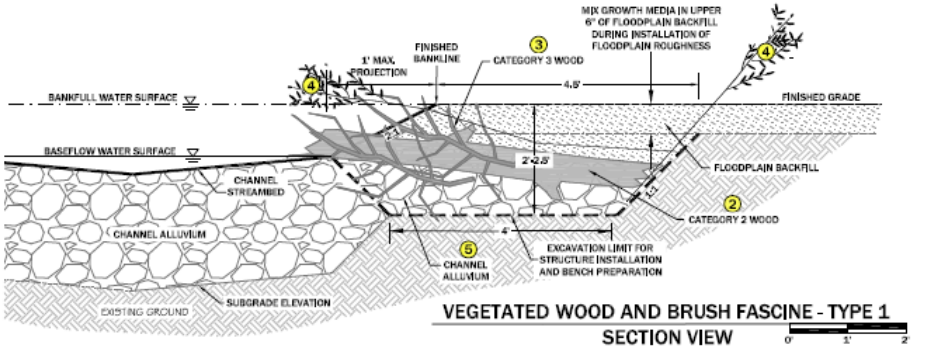
An archeological survey of the site has been completed and SHPO clearance has been granted.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

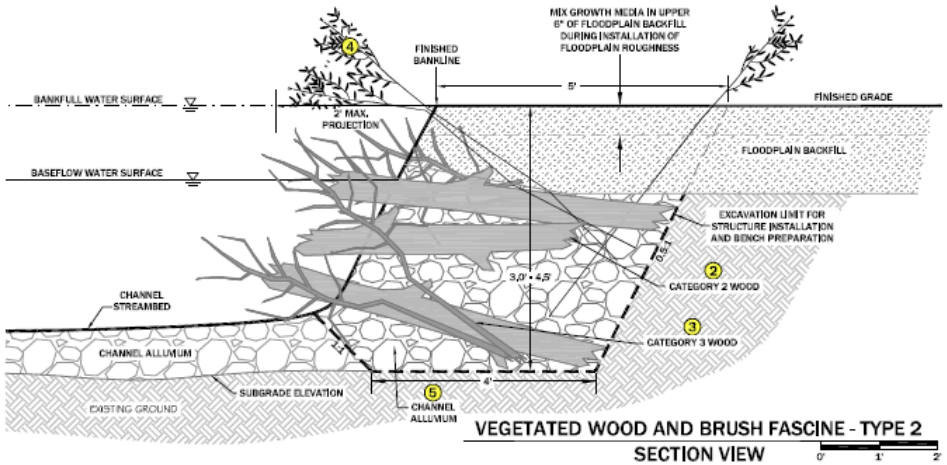
Summarize here how you will comply with Montana water rights laws, policies and guidelines:

The proposed project is not expected to impact water rights associated with the irrigation structure.


Excavate bank back to create bench, build 160 feet of Type 1 VWBF. Transplant shrubs into bench
Build 50 feet Type 2 VWBF. Backfill to create bench
Prickly Pear Diversion
© 2018 Google
Google Earth




VEGETATED WOOD AND BRUSH FASCINE - TYPE 1
SECTION VIEW
0' 1' 2'




VEGETATED WOOD AND BRUSH FASCINE - TYPE 2
SECTION VIEW
0' 1' 2'

EXAMPLE OF A CONSTRUCTED VEGETATED WOOD AND BRUSH FASCINE

EXAMPLE OF A CONSTRUCTED VEGETATED WOOD AND BRUSH FASCINE

## GENERAL NOTES

1. CONSTRUCTION OF THE VEGETATED WOOD AND BRUSH FASCINE TYPE 1 (BID ITEM 4,8,B), AND VEGETATED WOOD AND BRUSH FASCINE TYPE 2 (BID ITEM 4,8,C) WILL OCCUR AFTER THE FLOODPLAIN BACKFILL IS PLACED (BID ITEM 4.2) AND CHANNEL STREAMBED TYPE 1 AND CHANNEL STREAMBED TYPE 2 AS APPLICABLE. INSTALLATION OF FLOODPLAIN ROUGHNESS (BID ITEM 4.10) WILL BE COMPLETED AFTER THE VEGETATED WOOD AND BRUSH FASCINE STRUCTURES ARE INSTALLED.
2. IT IS CONTRACTOR'S RESPONSIBILITY TO CUT WOOD INTO APPROPRIATE SIZE LENGTHS TO FIT STRUCTURE DIMENSIONS.
3. ANY CHANGES TO THE CONSTRUCTION SEQUENCE MUST BE APPROVED BY ENGINEER.
4. CONTRACTOR SHALL MARK AND ENGINEER SHALL APPROVE THE GENERAL CONSTRUCTION LOCATION FOR EACH VEGETATED WOOD AND BRUSH FASCINE STRUCTURE PRIOR TO CONSTRUCTION.

## NOTES ON VEGETATED WOOD AND BRUSH FASCINE INSTALLATION

1. EXCAVATE TO THE EXCAVATION LIMITS AS SHOWN. EXCAVATED MATERIAL SHALL BE STOCKPILED ON THE FLOODPLAIN OUTSIDE OF THE IMMEDIATE WORK AREA.
2. PREPARE THE BENCH OF THE STRUCTURE BY PLACING CHANNEL ALLUVIUM FROM THE BASE OF THE EXCAVATION DEPTH/BOTTOM OF EXCAVATION TO WITHIN 1.0FT. OF FINISHED GRADE.
3. CATEGORY 2 AND CATEGORY 3 WOOD, CHANNEL ALLUVIUM, AND (8) TO EIGHT (8) FT. DORMANT WILLOW CUTTINGS AT A DENSITY OF 7 PER LINEAR FT, SHALL BE PLACED IN ALTERNATING LAYERS AND BUCKET COMPACTED AS IT IS CONSTRUCTED. WILLOW CUTTINGS SHALL SLOPE AT AN APPROXIMATE 2:1 SLOPE AS SHOWN IN SECTION VIEW. STEMS MAY OVERLAP. THE CUT ENDS SHALL BE PLACED AT THE BASE OF THE SLOPES WITH THE UN-CUT ENDS EXTENDING BEYOND THE EDGE OF THE SOIL LIFT OR TRENCH SO THAT APPROXIMATELY ONE-THIRD OF THE TOTAL CUTTING LENGTH IS EXPOSED BEYOND THE FRONT EDGE OF THE BASE.
4. THE UPSTREAM AND DOWNSTREAM ENDS OF THE STRUCTURE SHALL TRANSITION SMOOTHLY INTO ADJACENT STREAMBANK STRUCTURES TO MINIMIZE EROSION, FLANKING, AND BANK FAILURE. STRUCTURE ENDS MAY BE STABILIZED WITH ADDITIONAL CATEGORY 2 ROCK AS APPROVED BY ENGINEER.
5. AFTER INSTALLATION OF THE VEGETATED WOOD AND BRUSH FASCINE, BACKFILL THE STRUCTURE WITH STOCKPILED MATERIAL TO FINISHED GRADE AND BUCKET COMPACT. NO AREAS BEHIND THE FINISHED BANKLINE ARE TO BE LEFT BELOW FINISHED GRADE.

## CHANNEL ALLUVIUM GRADATION 1
### REACH 1 & 2

| SIZE (INCHES) | PERCENT PASSING | REPRESENTATIVE SIZE CLASS |
|---|---|---|
| 20 | 95 | D100 |
| 16 | 80 - 90 | D84 |
| 8 | 45 - 55 | D50 |
| 4 | 30 - 40 | D35 |
| 2 | 20 - 30 | D15 |
| 0.08 | 20 | |

*PROVIDE MINIMUM 20% RETAINED IN 0.08" SIZE CLASS*

## CHANNEL ALLUVIUM GRADATION 2
### REACH 3, 4A, ANACONDA CREEK

| SIZE (INCHES) | PERCENT PASSING | REPRESENTATIVE SIZE CLASS |
|---|---|---|
| 10 | 95 | D100 |
| 8 | 80 - 90 | D84 |
| 4 | 45 - 55 | D50 |
| 2 | 30 - 40 | D35 |
| 1 | 20 - 30 | D15 |
| 0.08 | 20 | |

*PROVIDE MINIMUM 20% RETAINED IN 0.08" SIZE CLASS*

## MATERIAL SCHEDULE (PER LINEAR FOOT)

| | ITEM | REACH 1 QUANTITY TYPE 1 | REACH 2 QUANTITY TYPE 1 | REACH 2 QUANTITY TYPE 2 | REACH 3-4A QUANTITY TYPE 1 | REACH 3-4A QUANTITY TYPE 2 |
|---|---|---|---|---|---|---|
| 2 | CATEGORY 2 WOOD | 1 | 1 | 2 | 1 | 2 |
| 3 | CATEGORY 3 WOOD | 1 | 1 | 2 | 1 | 2 |
| 4 | RIPARIAN CUTTINGS | 5 | 7 | 7 | 7 | 7 |
| 5 | CHANNEL ALLUVIUM | 0.11 CY | 0.13 CY | 0.2 CY | 0.11 CY | 0.2 CY |

RDG RIVER DESIGN GROUP
239 Wisconsin Avenue Whitefish, MT 59937 (406.862.2627)
311 SW Jefferson Avenue Corvallis, OR 97333 (541.738.2930)
(406.862.2627) (541.738.2930)

# VEGETATED WOOD AND BRUSH FASCINE DETAIL

| NO. | DATE | BY | DESCRIPTION | CHK |
|---|---|---|---|---|
| 1 | 04-20-18 | KW | DRAFT BID PACKAGE | MJ/MM |

PROJECT NUMBER
RDG-18-017

SHEET NUMBER
4.32

Newly constructed downstream bank. This proposal is to re-grade the inside bend (right side of photo) to increase bankfull capacity and promote point bar development.

View looking upstream toward the irrigation dam. This proposal is to install Type 2 VWBF on the cut bank on the left side of the photo to reduce streambank erosion.

# 2017 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1**: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**All TAC project proposals must include the following information:**

Project Title: Sauger Movements in Missouri River and Tributary System

Date: 11/16/2018

Explain how this Project addresses a specific Project 2188 License Article(s): Article 417: 1) Protect and provide for the recovery of Threatened and Endangered species and other species of special concern in the Missouri River downstream of Morony Dam. 2) Monitor the relative abundance of the most common fish species in the Missouri River downstream of Morony Dam. Priority 1 and 2.

Provide justification for Priority 1, 2 or 3 (above) that you selected:

This project is Priority 1 and 2, as it will track radio tagged Sauger in the mainstem Missouri River and a major tributary (Judith River drainage).

Project Sponsor (submitted by): Clint Smith

Location of Proposed Project: Middle Missouri River, Judith River, Warm Springs Creek

Total Project Cost: $2,061
TAC Funds (Cost-Share) Requested for Project: $2,061

I. Introduction; brief statement of project to be completed with pertinent background information.

FWP has been investigating migratory movements of sauger in the Judith River drainage via radio telemetry since 2016. In January of 2016, we radio tagged 2 sauger in Warm Spring Creek just north of Lewistown. Telemetry monitoring of those fish documented spawning movements to main-stem Missouri River down to the King Island area, which is a known sauger spawning aggregation site. Those fish then returned to Warm Spring. These findings peaked our interest and led to a MoTAC request in the fall of 2016 for additional funds to purchase 10 radios to further evaluate sauger movement in the Judith drainage. The goals of the study are to monitor movements and use of the Missouri River tributary network by important native species. Our hope is to shed light on the tributary life history and its use of the main-stem Missouri, highlighting the importance of the Judith/Warm Spring/possibly Big Spring on maintaining diverse life histories of native fish in the Missouri drainage.

To date, 8 of the 2016 radio telemetry tags have been placed in Judith River sauger, with findings similar to those first documented in the 2016 movements. See 2017 telemetry report prepared for NorthWestern Energy.

The current request is to fund telemetry flights so as to further monitor the radio tagged sauger. Ground telemetry stations are in place throughout the main-stem Missouri River as part of the pallid sturgeon telemetry work and we have an additional ground station location in the Judith River, roughly 45 river miles above the Missouri confluence. A lack of road access and the difficult floating conditions on Warm Spring and the Judith restrict manual tracking via truck or boat. Thus, we have found aerial telemetry to be effective at monitoring small scale movements within the Judith drainage. This allows us to locate fish within the drainage, fish that don't pass ground stations (Judith/Warm Spring residents), and fish that may have passed ground stations without being recorded.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

Monitor movements and use of the Missouri River tributary network by important native species. Evaluate tributary life history and its use of the main-stem Missouri, highlighting the importance of the Judith/Warm Spring/possibly Big Spring on maintaining diverse life histories of native fish in the Missouri drainage

III. Methods; description of how Project objectives will be accomplished.

Continued radio tracking of tagged native species. Funding will allow for three telemetry flights.

IV. Schedule; when the Project work will begin and end.

One flight would occur in the early spring 2019, prior to the documented outmigration period. We would perform another flight in the summer, as the fish return from their post-spawn migration. The last flight would be performed in the fall to evaluate within drainage movements.

V. Personnel; who will do the work ? Identify Project leader or principal investigator.

Clint Smith (Principal Investigator) and Lewistown Region Fish Technician

VI. Project budget must include amounts for the following:

Direct Labor
Travel and Living
Materials
Other Direct Expenses – Flights $1,800
Direct Overhead - $261
All cost-share sources and amounts, including estimation of "in-kind" contributions

*Cost Estimate – Judith Drainage Sauger Radio Telemetry Study*

| Item | Cost per Item | # of Items | Total Cost |
|---|---|---|---|
| Skyline Aviation (Telemetry flight) | $600.00 | 3 | $1,800.00 |
| FWP Overhead | 14.5% | - | $261.00 |
| **TOTAL COST** | | | **$2061.00** |

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

Success will be demonstrated by a better understanding of movements by native species in a tributary and Missouri River system. A monitoring report will be provided to NWE, documenting the results of radio telemetry study.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

NA – No ground breaking activities.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

NA – No water rights affected.

# 2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project Title: Middle Missouri River Fisheries Larval Sampling Nets- 2019

Date: March 28, 2019

Explain how this Project addresses a specific Project 2188 License Article(s):

Article 417: Task 1) Monitor the relative abundance of the most common fish species in the Missouri River downstream of Morony Dam. Task 4) Protect and provide for the recovery of Threatened and Endangered species and other species of special concern in the Missouri River downstream of Morony Dam. Task 5) Provide assistance to the FWS and DFWP for ongoing evaluation of pallid sturgeon in the Missouri River downstream of Morony Dam. This is Priority 1 (Missouri River) and Priority 2 (Marias River).

Project Sponsor (submitted by): Luke Holmquist

Provide justification for Priority 1, 2 or 3 (above) that you selected: These larval sampling nets will allow FWP to more efficiently sample for drifting acipenseriform free embryos in the Missouri and Marias Rivers. More efficient sampling means better monitoring of shovelnose sturgeon, pallid sturgeon, and paddlefish reproduction as it relates to environmental conditions.

Location of Proposed Project: These nets will be used on the Missouri River from Carter Ferry to Fort Peck reservoir (Priority 1) and in the lower Marias River (Priority 2).

Total Project Cost: $1945
TAC Funds (Cost-Share) Requested for Project: $1335

I. Introduction;

Larval sampling has proven to be an invaluable tool for documenting entry of acipenseriform larvae into the larval drift stage of the species life cycle and for verifying successful spawning events by endangered pallid sturgeon. The drift stage of the pallid sturgeon life cycle is the stage where complete recruitment failure is occurring. The leading hypothesis is that pallid sturgeon do not spawn far enough upstream from Fort Peck Reservoir to create sufficient drift distance for drifting free embryos. When pallid sturgeon embryos hatch they need to drift downstream for an estimated 245 to 530 km (depending on water temperature, velocity, and channel morphology; Braaten et al. 2008) before settling and begin to exogenously feed among the benthos. The hypothesis states that the drifting embryos encounter an anoxic zone near the stream bed in the transition zone between the river and impoundment (Guy et al. 2015). Another study suggests that low velocities areas will allow drifting larvae to “stall” and that drift distance is not the mechanism for recruitment failure (Marotz and Lorang 2017). Combining effective larval sampling with telemetry data for known reproductive adults (most are in the genetic database) will allows us to determine where pallid sturgeon free embryos are hatching and how that relates to the larval drift hypothesis and the drift dispersion hypothesis.

Telemetry efforts have shown that spawning aggregations form near Fred Robinson Bridge and Woodhawk Campgound where drift distance is likely insufficient for successful recruitment if spawning occurred. In 2018, a MSU graduate study documented that three female 1997 year-class (1997-YC) pallid sturgeon spawned in the Missouri River upstream of Fort Peck between Fred Robinson Bridge and Cow Island near one of those previously described aggregation sites (Tanner Cox personal comm.). This is the first documented spawning event for pallid sturgeon upstream of Fort Peck Reservoir (RPMA1). One of those fish (and two other ripe 1997-YC) had migrated into the Marias River (confluence is approximately 275 km above the anoxic zone) earlier in the spring prior to spawning, where if spawning occurred drift distance may be sufficient for some recruitment to occur. However, no larval sampling was conducted to document if successful fertilization, development, and hatch had occurred. Hatch verification is an important step in validating the leading hypothesis for pallid sturgeon recruitment failure. Male aggregation sites were only recently identified in RPMA1 (Holmquist 2017) creating an opportunity to attempt larval sampling immediately downstream where chances of capturing a larval pallid sturgeon following a spawning event are greatly improved compared to past efforts.

The larval sampling drift nets we are looking to purchase have been proven to be effective at sampling larval pallid sturgeon in the Yellowstone River and Missouri River between Fort Peck and Lake Sakakawea (RPMA2). Acipenseriform free embryos typically drift in the lower 0.5 meter of the water column, making these 50 cm tall and 75 cm wide rectangular framed nets a more efficient and proven design that our current 50 cm diameter round framed nets (covering roughly 2 times the cross-sectional area). Using the same exact sampling gear in RPMA1 as is currently used in RPMA2 allows for standardized comparisons of catch rates to be made between management areas. Effective sampling for free embryos is important for improving our understanding about how regulated river management on the Marias and Missouri Rivers influences spawning location and larval drift and dispersal for pallid sturgeon, shovelnose sturgeon, and paddlefish. Captured free embryos will be measured and identified to genus in the lab (*Polyodon* or *Scaphirhynchus*) before being sent in for genetic identification of species. Any collected pallid sturgeon larvae would be the first documented successful spawning event in the Missouri River upstream of Fort Peck Reservoir, and collection of pallid sturgeon free embryos in the Marias River would represent a major step towards recovery in this reach.

II. Objectives;

These nets will be used to collect drifting acipenseriform free embryos and eggs below male pallid sturgeon aggregations (identified with radio telemetry) where spawning is suspected to occur in the Missouri and Marias Rivers during the month of June and in early July.

III. Methods; description of how Project objectives will be accomplished. NA

IV. Schedule; Purchase two drift nets, two drift frames (FWP will purchase these), and two collection cup assemblies before June 2019.

V. Personnel; who will do the work? Identify Project leader or principal investigator. NA

VI. Project budget must include amounts for the following:

Materials Only:

| ITEM | | QTY | UNIT PRICE | AMOUNT | PURCHASER |
|---|---|---|---|---|---|
| DRIFT NET 50 CM (W) X 75CM (T) X 300 CM (L) X 1000 MICRONS | 2 | $471 | $942 | | NorthWestern |
| COD END ASSEMBLY 2-PC PVC X 11 CM diameter | 2 | $139 | $278 | | NorthWestern |
| SHIPPING COST | - | $115 | $115 | | NorthWestern |
| DRIFT NET FRAME, 50 CM X 75 CM X SS SQUARE TUBING | 2 | $305 | $610 | | FWP |

| | |
|---|---|
| NWE Cost | $1335 |
| FWP Cost | $ 610 |
| TOTAL | $1945 |

Direct Labor: NA; Travel and Living: NA; Other Direct Expenses: NA; Direct Overhead: NA – Purchase by NWE

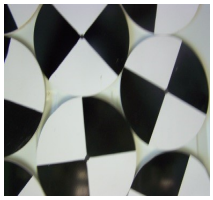
VII. Deliverables; NA

VIII. Cultural Resources. No ground disturbance associated with this project.

IX. Water Rights. No water rights associated with this project.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Grant.Grisak@northwestern.com
- brent.mabbott@northwestern.com
- andrew.welch@northwestern.com



P.O. BOX 98
531 Wellington Place
Hope, ID 83836-0098 USA
PH 208.290.3820 FAX 208.264.5263

**DATE: 3/27/2019**

**INVOICE #** **4135**

Purchase Order #

AQUATIC RESEARCH INSTRUMENTS
Montana Fish, Wildlife and Parks

**INVOICE**
**2582**

FISH, WILDLIFE AND PARKS

**CUSTOMER ID**

**SHIP TO:**

Luke Holmquist

Luke Holmquist
Fisheries Biologist – Missouri River
Montana Fish, Wildlife and Parks
205 W. Aztec Drive
Lewistown, MT 59457

406/538-2445 ext.

lholmquist@mt.gov

**BILL TO:**

Luke Holmquist

Luke Holmquist
Fisheries Biologist – Missouri River
Montana Fish, Wildlife and Parks
205 W. Aztec Drive
Lewistown, MT 59457

| ITEM | QTY | CFI UNIT | AMOUNT |
|---|---|---|---|
| DRIFT NET 50 CM (W) X 75CM (T) X 300 CM (L) X 1000 MICRONS X 11 CM COD END APERTURE, TRIPPLE STICHED, GROMMETS | 2 | 471 | $942.00 |
| DRIFT NET FRAME, 50 CM X 75 CM X SS SQUARE TUBING CONSTRUCTION FOUR POINT BRIDLE, LIFTING EYES | 2 | 305 | $610.00 |
| CEA - COD END ASSEMBLY 2-PC PVC X 11 CM diameter w/ detachable lower section with lateral apertures and lined x 1000 micron mesh, threaded coupler w/ bandclamp | 2 | 139 | $278.00 |
| Shipping and Handling | 1 | 115 | $115.00 |

| | |
|---|---|
| **SUBTOTAL** | **$1,945.00** |
| **TAX RATE** | $0.00 |
| TOTAL | **$1,945.00** |

# 2018 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1**: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**Priority 2:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

**Priority 3:** 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

**All TAC project proposals must include the following information:**

Project Title: **Beaver Creek Restoration Final Design for Phase 1 Interim Request**

Date: **10/28/2019**

Explain how this Project addresses a specific Project 2188 License Article(s): **This proposal addresses Article 416 of the Project 2188 License-7 Evaluate the potential to enhance tributary spawning to increase the contribution of natural reproduction to the Holter Reservoir fishery.**

Provide justification for Priority 1, 2 or 3 (above) that you selected: **This proposal would address fisheries and floodplain habitat in a primary tributary that enters the Missouri River between Hauser Dam and Upper Holter Lake, which would be assigned a Priority 2 measure.**

Project Sponsor (submitted by): **USFS Helena-Lewis and Clark National Forest-Fisheries Resource Group (George Liknes and Alli Russell)**

Location of Proposed Project: **Beaver Creek below Hauser Dam 1.1-1.6 mile upstream from the mouth**
Narrative

Geocode = **05-2112-20-1-01-01-0000** (in decimal degrees ex 46.89743) Lat; **46.797** Lon: **-111.877**

Total Project Cost: **$8,813.13**

TAC Funds (Cost-Share) Requested for Project: **$6,000.00**

I. Introduction; brief statement of project to be completed with pertinent background information.
**River Design Group was contracted to develop a design for the Beaver Creek Restoration Project as Projects # 2016-10 and 2015-5. The preliminary restoration design, drawings, and engineer's estimate covered the entire project area. Due to the total cost of the project, the decision was made to break the proposed project into two phases. In order to complete the final plans for Phase One, discussion and a walk through of the project area required changes to the be reflected in the plan including the repository location, borrow sources, staging areas, as well as modifications of the open water and emergent wetland complexes locations.**

II. Objectives; explicit statement(s) of what is intended to be accomplished.
**The objective for this interim request would be to continue the process of finalizing the design plans to allow construction of Phase One in 2020. The MOTAC funding requested would cover contracted costs for RDG staff.**

III. Methods; description of how Project objectives will be accomplished.
**Continue contract with River Design Group to finalize the final plans for Phase One.**

IV. Schedule; when the Project work will begin and end.
**Work would continue through January when an implementation contract would ideally be in place.**

V. Personnel; who will do the work ? Identify Project leader or principal investigator.
**River Design Group (RDG) would be continue work on the Phase One final design. RDG staff would continue to work most closely with Alli Russell, Helena-Lewis and Clark Fisheries Biologist, and George Liknes, the Helena-Lewis and Clark NF Aquatics Program Manager. Alli Russell and George Liknes would be considered the project leaders.**

VI. Project budget must include amounts for the following:

Direct Labor **- $6,000.00**
Travel and Living
Materials
Other Direct Expenses
Direct Overhead
All cost-share sources and amounts, including estimation of "in-kind" contributions – **USFS staff time cost = $2,813.13**

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?
**Work product will include a final design plan set and engineering estimate of costs for the Beaver Creek Restoration Project estimate.**

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.
Summarize here how you will complete requirements for Cultural Resource Management:
**No ground disturbing activities that would affect cultural resources or require NHPA or SHPO consultation and concurrence to occur. If the proposed project is funded, any implementation element that would have the potential to impact cultural or heritage resources would be submitted to NWE.**

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:
**No aspect of this proposal will have an impact on water rights laws, policies, or guidelines.**

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@Northwestern.com
- Jon.Hanson@Northwestern.com
- Grant.Grisak@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 1315 N Last Chance Gulch, Helena, MT 59601; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.