

2026 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: Middle Missouri River Radio Telemetry Study

Date: November 10, 2025

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.

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

This radio telemetry project monitors fish movements in the Missouri River (Priority 1) and tributaries such as the Marias River, Teton River, and Judith River (Priority 2).

Project Sponsor (submitted by): Luke Holmquist, Biologist, MTFWP

Location of Proposed Project:

Narrative; Missouri River from Morony Dam to Fort Peck Reservoir; Lower Marias River (Below Tiber Dam); Lower Teton River

Geocode (in decimal degrees ex 46.89743)

Site: Morony Dam	Lat: 47.58159	Lon: -111.05972
Site: Tiber Dam	Lat: 47.58159	Lon: -111.09705
Site: Fort Peck Headwaters	Lat: 47.55384	Lon: -107.92449

Total Project Cost: \$157,478

Other associated funding: \$92,499 for 2026

- Breakdown of contribution sources shown below in Section VI.

TAC Funds Requested for Project: **\$64,979**

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

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, temperature, and sediment regimes, on federally endangered species and species of concern.

In 2026, 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 6 wild pallid sturgeon, 111 HOPS (83 1997 year-class, 12 2005 year-class, 11 2006 year-class, 1 2008 year-class, and 4 individuals awaiting genetic results to assign origin and year class), 3 shovelnose sturgeon, 3 bigmouth buffalo, 10 shorthead redhorse, 10 goldeye, and 10 river carpsucker. In addition to tracking and tagging new fish in 2025, we also emphasized replacing radio tags that were implanted into pallid sturgeon prior to 2019. Tags are advertised to have an 8-year battery life, however are only guaranteed to last ~6.5 years. Beginning in 2019, many of the transmitters implanted in 2013 and 2014 were not relocated, and it is suspected that battery life expired over winter, making it impossible to target those individuals for tag replacement. During the 2025 field season transmitters were replaced in eighteen 1997 year-class pallid sturgeon. Many of the pallid sturgeon containing expiring tags have been serially sampled in successive years for over a decade. Serially sampling the same individuals generates important information about spawning periodicity and age/size at first maturity. Keeping active transmitters in fish is vital to improving and increasing knowledge regarding fish sexual maturity and spawning ecology for this endangered species. In 2025, new transmitters were also implanted in fourteen previously untagged individuals including one 2005 year-class pallid sturgeon and four 2006 year-class pallid sturgeon, four 1997 year-class pallid sturgeon, four unknown year class pallid sturgeon, and one wild origin pallid sturgeon originally tagged with a cinch tag in the early 1990s. In recent years, these younger year classes of HOPS have started to reach sexual maturity and are important for the future of this research effort.

The number of non pallid sturgeon individuals in the active tag portfolio has dwindled in recent years as the batteries have expired in transmitters implanted into bigmouth buffalo, smallmouth buffalo, freshwater drum, and shovelnose sturgeon the past 8 years. Much has been learned regarding movements of these species that was unknown prior to inclusion in the radio telemetry program, including extensive annual migrations back and forth from Fort Peck Reservoir for some bigmouth buffalo, smallmouth buffalo, and freshwater drum. We conducted a pilot telemetry effort in 2025 which included several other lesser studied species which have never been monitored with radio telemetry in this section of river. Pilot tagging and tracking efforts of shorthead redhorse, river carpsucker, and/or goldeye (10 of each species) was funded in 2024 and the work was initiated in 2025. Future tracking and data summaries as part of this proposal for 2026 is needed to collect additional movement and habitat use data from those individuals.

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 2025, we maintained and downloaded fifteen land-based stations between Carter Ferry and Fort Peck Reservoir, including four stations on the Marias River and one on the Teton River. The ten land-based stations on the Missouri River include: Carter Ferry, Fort Benton, Loma area, Coal Banks, Judith Landing, Stafford Ferry, Bird Rapids, Power Plant Ferry, King Island, and Roads End. Four additional stations were maintained as part of a Paddlefish research project, also funded by NWE under a different project. Many of the stations have been maintained for over a decade. Keeping this array functioning allows for many more telemetry contacts at a much lower cost than if we relied on boat relocations alone. In 2022 we secured State Wildlife Grant funds (\$47,000) to completely upgrade our aging network by phasing out the SRX400 receivers in favor of the more feature rich SRX1200 units. The SRX1200 units were necessary to maintain continuous operation of the network while facilitating a transition between an older codeset (Lotek3) that is going to be phased out in the near future, and a new codeset (Lotek5) of transmitter. 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.

As the number of reproductively-active pallid sturgeon has increased, field crews have become increasingly strained in our ability to keep track of movements and collect larval samples below aggregations during the spawning window. Knowing where spawning aggregations and spawning females are located or the trajectory of movements in response to environmental conditions is important for deploying tracking crews, deploying larval sampling crews, deploying recapture crews, and communicating with water management agencies in as close to real-time as possible. The only way to get daily data from these remote units was to develop a means of using satellite modems to download the stations and get daily data from a number of high priority stations. This technology did not exist but Ritter Designs (Seattle, WA) had developed similar technology for working with OregonRFID units and for an economic cost of \$1,875 per unit was willing to develop the technology for Lotek SRX800 and SRX1200 Telemetry receivers. MoTAC purchased four of these units in 2020 and another two in 2021. Development of these units has been a slow work in progress but as of 2025 we had 4 operational units deployed the entirety of the summer, providing daily data to crews via email. Unfortunately, the daily data from the satellite units is not supplied in a format that is easily queried and requires a technician to spend time looking through hundreds of emails for individual fish. While still faster than going into the field and relocating fish manually, this does take time given the increasing number of high priority fish in need of tracking. The next step in this process is to create an automated process for synthesizing the satellite downloads into a google drive or onedrive spreadsheet that gets automatically updated daily and is available for collaborators to view or download.

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

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 network 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. 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. Assess known reproductively active female pallid sturgeon pre- and post- spawn
 - b. Transfer samples to Bozeman Fish Technology Center 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; when the Project work will begin and end.

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

Fish Tech IV; 0.45 FTE filled by incumbent Maggie Wallace (\$35.21/hr loaded labor cost)

-Additional Staff;

Luke Holmquist – Project Lead; Biologist funded by FWP and NWE
 Mike Schilz- Conservation Technician funded by FWP and NWE
 Eli Vradenburg – Science Technician funded by NWE and USBor

VI. Project budget must include amounts for the following:

Materials

-Supplies & Materials	\$4,000
-Boat Gas (400 miles/trip; 4 mpg; \$4.75/gallon, 8 months).....	\$3,800
-Iridium Satellite network data credits (45,000 credits).....	\$3,000
-Iridium Satellite line rentals (\$17 per month; 5 units).....	\$1,020
-MATERIALS TOTAL.....	\$11,820

Direct Labor

-NWE funded Wages/Benefits for Tech II (0.45 FTE, 940 hrs)	\$33,097
-Science Technician (Band 4) \$35.21/hr loaded labor cost	
-Position Currently held by Maggie Wallace	
-DIRECT LABOR TOTAL.....	\$33,097

Travel and Living

-Trailer Pad(s) at Loma (8 months at \$250/month).....	\$2,000
-Kipp Electric Bill (6 month and \$75 per month)	\$ 450
-Entire Day Per Diem (\$44.10/day; 10 days/month; 8 months).....	\$3,528
-Partial Day Per Diem (\$32.90/day; 6 days/month; 8 months).....	\$1,579
- Vehicle Mileage	
-Single Tracking Run Month (900 mi; \$0.48/mile; \$399.00 fee; 5 months.....	\$5,295
-Double Tracking Run Months (1800 mi; \$0.48/mile; \$399.00 fee; 2 months...	\$3,162
-TRAVEL AND LIVING TOTAL.....	\$ 16,014

Project funds to FWP.....	\$60,931
Direct Overhead on Labor Only (12.23%):.....	\$ 4,048
TOTAL NWE FUNDING REQUESTED.....	\$64,979

All contribution sources—

Materials

-USBOR funded Boat Gas	\$ 1,575
-WAPA funded steroid analysis materials to BFTC (approximate).....	\$ 1,000
-WAPA or SWG funded radio tags to FWP.....	\$ 8,000
-USBOR Field Gear.....	\$ 5,000
-USBOR Iridium credits.....	\$ 1,000
-MATERIALS TOTAL.....	\$16,575

Direct Labor

-WAPA funded blood steroid analysis at BFTC.....	\$ 3,000
-USBOR funds to FWP for personnel services	
- Science Tech (Band 4); 0.45 FTE	\$31,824
- Science Tech (Band 4); 0.31 FTE.....	\$21,923
-DIRECT LABOR TOTAL.....	\$56,747

Travel and Living

-USBOR Funded Mileage.....	\$ 2,941
-USBOR Funded Travel	\$ 2,504
-TRAVEL AND LIVING TOTAL.....	\$ 5,445

Overhead

-USBOR Annual Overhead.....	\$13,732
-CONTRIBUTION OVERHEAD TOTAL.....	\$13,732

TOTAL FUNDS (Overhead included) = \$92,499

VII. Deliverables: Annual Presentation at MoTAC Meeting and Annual Report

How will “success” for this project be monitored or demonstrated?

—Annual Report submitted September 2027

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 disturbance is 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 wetland development associated with this project.

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.