



Lessard-Sams Outdoor Heritage Council

Knife River Habitat Rehabilitation Project-PH VIII

ML 2027 Request for Funding

General Information

Date: 06/24/2026

Proposal Title: Knife River Habitat Rehabilitation Project-PH VIII

Funds Requested: \$2,661,000

Confirmed Leverage Funds: \$130,000

Is this proposal Scalable?: No

Manager Information

Manager's Name: Blake Francis (RWF); Kevin J. Bovee (LSSA)

Title: Fiscal Manager (RWF); Project Manager (LSSA)

Organization: Lake Superior Steelhead Association (LSSA) w/Rajala Woods Foundation (RWF)

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Location Information

County Location(s): Lake and St. Louis.

Eco regions in which work will take place:

Northern Forest

Activity types:

Enhance

Priority resources addressed by activity:

Forest

Narrative

Abstract

Historic flooding in 2012 and 2022 led to severe habitat degradation in the Knife River watershed. Degradation includes miles of eroding streambanks, tons of sediment discharge, turbidity measurements exceeding the TMDL and loss of instream trout habitat. This is LSSA's eighth grant phase. Previous grant phases have led to well over two miles of restored stream channel, 13,000+ feet of stabilized streambanks and annual reduction of sediment discharge by over 1,000 tons. This project will stabilize over 6,500 feet of river with many slumping streambanks and enhance trout habitat in the best remaining cool water zone.

Design and Scope of Work

The LSSA's stream restoration process utilizes a Watershed Restoration/Rehabili Approach to determine the restoration project's design scope of work. This Watershed Approach assesses and surveys how landscape parameters affect the river's stability and identifies what the underlying cause(s) are that result in stream impacts. By focusing on the Watershed as a whole and working to fix the root cause of the impacts, the LSSA has successfully stabilized well over 2 miles of stream channel, restored 13,000+ feet of streambank, reduced annual sediment discharge by 1,000 tons annually and replanted thousands of long-lived tree species and include multiple native pollinator plant species in our projects. Our stream restoration process is performing as designed/constructed because our six previous restoration projects survived an 8,000 cfs flood event in 2022.

The rehabilitation of the Knife River has not just had a positive effect on the watershed and fishery but also the landscape itself. This restored landscape habitat has increased the density and diversity of herbaceous plants, pollinator shrubs/flowers and long lived tree species. The LSSA has also observed several species of interest using our restored riparian habitats. These include: honeybees, monarch butterflies, frogs, toads, king fishers, ruff grouse, Canada geese, bald eagles, wild turkeys, mergansers, whitetail deer, timberwolves, black bear, rare mussels and endangered turtles.

Another feature we utilize on every rehabilitation project, is a prioritization system to identify specific restoration reaches. Our policy is to work from an upstream to downstream manner to avoid impacting restored reaches. This top-down restoration approach eliminates re-impacting previously restored stream sections. This top down approach also reduces downstream flooding and sedimentation because flood water and eroded sediments are deposited on land in newly constructed upstream floodplains, wetlands and off channel ponds. Our reach prioritization also utilizes existing agency studies, such as the MPCA's TMDL to identify erosion areas. These erosion areas are combined with our cool water temperature assessments and annual trout spawning survey to ensure we restore the most critical stream reaches.

Finally, we engage Stakeholders in the final reach selection process. The LSSA has collaborated with the DNR for over the past decade to identify key trout habitat sites within the Knife River Watershed and discuss proposed restoration projects. By utilizing this prioritization approach, we ultimately invest grant funds in the most efficient manner possible.

The Scope of Work for the Reaches Lower 14/Upper 15 and Lower 15 project will include:

- Obtain baseline and as-built assessment and survey data.
- Restore the stream channel's shape, dimension and profile.
- Enhance the riparian zone and instream trout habitat.
- Create new floodplain wetlands.
- Reconnect the river channel to the floodplain.

- Raise the groundwater table.
- Stabilize streambanks.
- Rehabilitate the riparian tree canopy utilizing multiple native tree species, including white pines.
- Collect as-built survey elevations.

Design specifications/data collection utilize the Natural Channel Design parameters as required by the MN DNR.

Explain how the proposal addresses habitat protection, restoration, and/or enhancement for fish, game & wildlife, including threatened or endangered species conservation

The Knife River is more unique than most other trout streams in NE Minnesota because this watershed has both anadromous (migratory) and resident trout and does not have a barrier falls. The Knife River is the only watershed in Minnesota that has these two combined features. So, of the 60 + tributaries that connect to Lake Superior, only the Knife River, has these two features. Finally, the Knife River Watershed consists of over 65 miles of anadromous trout habitat, which represents over 50% of all the total anadromous trout habitat in Minnesota.

The Knife River also has the only operating fish weir on the North Shore. This weir enables the MN DNR to monitor the population trends for all anadromous (migratory) trout species in the watershed. These species include the coaster brook trout (a MN DNR priority), steelhead (migratory rainbows) and brown trout.

This project’s main goal has always been to focus on increasing the trout populations. In reality, this project’s outcome is really much more than just trout production. It is an enhancement, restoration and rehabilitation of the entire Knife River Watershed. Now that we are almost 15 years into this restoration work, we are truly seeing the benefits and affects these projects are having on the overall Knife River ecosystem. Because our project places a priority on landscape restoration (streambanks, riparian vegetation, floodplains and wetlands), we are seeing a significant habitat benefit to invertebrate, amphibians, reptiles, birds and mammals. This project is also restoring the plant community including pollinator plants and shrubs and the reestablishment of diverse, long lived tree species. Trees planted in the first phase of our projects are now close to 40 feet tall and provide a riparian shade canopy across an important spawning reach on the Main West Branch of the Knife River we refer to as Gordy’s Forest.

What are the elements of this proposal that are critical from a timing perspective?

This grant project is combining two reaches into one grant. Reach Lower 14/15 is the current reach we are working on, which we have received partial funding to restore. This reach is in public ownership, enabling grant funds to rehabilitate the remainder of this section. The downstream reach also proposed in this grant is Reach Lower 15 which is in an easement enabling grant funds to be utilized

Reach Lower 15 is downstream and has promising habitat features that the 2012 flood left damaged. One noteworthy habitat feature is an oxbow channel that can be brought back online to store flood waters, provide spawning habitat, high water refugia and create juvenile trout rearing habitat. Lower 15 also has streambank erosion due to dying spruce and balsam fir. Similar dead trees were a large factor in the May, 2025 MN wild fires. Funding will restore/repair instream and riparian habitats.

Describe how the proposal expands habitat corridors or complexes and/or addresses habitat fragmentation:

The LSSA uses an upstream to downstream restoration approach. This approach is used to ensure upstream impacts do not affect restored downstream habitat. However, this top-down approach also ensures we do not skip

upstream sections where habitat needs to be restored prior to moving downstream. By sequentially restoring each upstream habitat first before moving downstream, we are stabilizing streambank erosion, restoring the stream channel's shape, dimension and profile, minimizing downstream flooding by holding floodwaters on upstream landscapes, allowing the stream better access to the entire floodplain and replanting/rehabilitating the riparian zone. This approach provides a continuous restored habitat corridor and does not leave fragmented upstream habitats to impact downstream projects.

Also, by reconnecting the stream to the floodplain and reestablishing a continuous corridor of riparian tress, we can hold floodwaters within our newly accessible floodplain and riparian wetlands, recharge the ground water table and maintain cool, instream water temperatures. The replanted tree canopy shades the stream through riparian plantings. This shade creates and enhances better juvenile trout rearing habitat because we maintain a cooler water temperature during periods of summer drought. The beneficial cooler water zone is then advanced downstream. Thoughtful planting is specifically focused on the west side of the stream, since this bank is where the afternoon sun provides the most solar warming. Maintaining cooler instream water temperatures is critical in this stream section because it resides in the more fertile upper Knife River and is less flashing than lower river reaches. Also, by stabilizing these reaches we reduce sediment discharge to the lower river and Lake Superior.

Which top 2 Conservation Plans referenced in MS97A.056, subd. 3a are most applicable to this project?

Long Range Plan for Fisheries Management

Other : Knife River Implementation Plan for Turbidity-Total Maximum Daily Load (TMDL). Plan implemented by MPCA.

Which LSOHC section priorities are addressed in this proposal?

Northern Forest

Protect shoreland and restore or enhance critical habitat on wild rice lakes, shallow lakes, cold water lakes, streams and rivers, and spawning areas

Describe how this project/program will produce and demonstrate a significant and permanent conservation legacy and/or outcomes for fish, game, and wildlife:

The LSSA uses Natural Channel Design (NCD) for our stream restoration projects, as required by the MN DNR. This process assesses and surveys the stream channel, banks and surrounding landscape to determine the underlying root cause(s) for the stream reach's impairment. By determining the root cause of the impairment, we are able to restore the geomorphic parameters that are causing channel instability, bank erosion, streambed siltation and/or channel downcutting (incising). By restoring these geomorphological features, we end up with a more narrow stream channel that has deeper pools, undercut banks and faster current, very advantageous to all trout.

Once the stream impairments are identified, a Rosgen Level IV stream restoration specialist can design the placement of boulders and log habitat features to rehabilitate the channel and stabilize streambanks. This is different from traditional stream restoration techniques that armor streambanks without addressing the underlying deficiencies within the watershed. The armoring of streambanks tends to make the erosion impacts greater and/or deflect the problem downstream effecting a new area and seldom remedying the initial problem.

Another benefit of NCD projects is the use of large woody debris. Prior to the turn of the century, large trees fell into the channel providing instream habitat and overhead cover. This instream deposition of wood substrate

created deep scour pools and accumulated spawning gravel along current breaks, which provides important lifecycle habitat features for trout. With clear cut logging at the turn of the 19th century, the watershed lost this large wood substrate and the stream channel is lacking scour pools and spawning gravel deposited. The LSSA is restoring this lost woody habitat by importing logs from local loggers, which benefits the stream and provides additional income to northern Minnesota loggers.

If this project/program does not have permanent outcomes, describe why it is important to undertake at this time:

This project, along with the the first seven phases, provide excellent long term and permanent outcomes for the entire watershed. This is evident from our Reach 13 work in Phase VI performed prior to the 2022 flood. This newly completed restoration project survived an 8,000 cfs flood event with little damage. Other downstream reaches that had not been stabilized, experienced significant damage in the form of erosion, loss of riparian tress, filled in stream channels and premature downstream emigration of brook trout and young steelhead.

Outcomes

Programs in the northern forest region:

Healthy populations of endangered, threatened, and special concern species as well as more common species ~ *By funding this project, anadromous trout (steelhead, coaster brook trout and brown trout) and resident stream trout (brook trout) populations should increase. Population increases will be seen by MNDNR during the weir operation and upstream population assessment work. This project will also provide habitat to invertebrates, amphibians, reptiles, birds and mammals. This project also will replant the riparian zone of the river with native, old growth tree species and various native shrubs and native pollinator flower species. These multiple specie plantings will establish a varied and lush riparian zone benefitting the entire watershed and neighboring areas for decades to come.*

Per MS 97A.056, Subd. 24, Please explain whether the request is supplanting or is a substitution for any previous funding that was not from a legacy fund and was used for the same purpose.

We will not be supplanting or substituting previous funding. This grant will allow us to complete the rehabilitation and enhancement of the prime trout habitat in the main stem of the Knife River. Both instream habitat, wetlands and the riparian borders. Without this funding, this work probably wouldn't be done.

How will you sustain and/or maintain this work after the Outdoor Heritage Funds are expended?

An advantage of NCD projects, is they are designed and constructed to be self-sustaining by using the natural forces of the stream's current to maintain deep pools and deposit spawning gravels. The manipulation of the stream's current is achieved by strategically placing log/rock structures to scour the center of pools and burying logs in the stream-bed to create current breaks that accumulate gravel. These pools support juvenile rearing and the accumulated gravels support adult spawning. This results in a sustained project because the current is performing the long term maintenance.

Another aspect of annual maintenance is site reconnaissance, to ensure beavers do not colonize our restoration area. This is a critical component of the project. To ensure that LSOHC projects remain beaver free, annual helicopter flights are conducted by MNDNR on the Knife River. These beaver flights are conducted in late autumn to determine if dams/food caches are present. If dams or beaver activity is noted in the flight, the DNR contracts with Federal trappers to remove the beavers and notch their dams. The estimated cost of the flight, beaver removal is approximately \$ 15,000. If MNDNR loses this funding, the TMDL plan has budgeted funds.

Actions to Maintain Project Outcomes

| Year | Source of Funds | Step 1 | Step 2 | Step 3 |
|--------------------|-----------------|---|--|---------------|
| 2027-Start July 1. | LSSA/Grant | Secure grant. Design/award RFP for the construction phase. Begin staging materials-weather depending. | - | - |
| 2027-Fall | MN DNR | Beaver Flights | Beaver Trapping/Dam Removal; APHIS to trap beaver following spring. | N/A |
| 2028 | LSSA/Grant | Spring Dispersal Beaver Trapping | Habitat/Stream Assessment, Spring Redd Walk, Tree Survival Walk and Construction | Tree Planting |
| 2028-Fall | MN DNR | Beaver Flights | Beaver Trapping/Dam Removal; APPHIS to trap beaver following spring. | N/A |
| 2029 | LSSA/Grant | Spring Dispersal Beaver Trapping | Habitat/Stream Assessment, Spring Redd Walk, Tree Survival Walk and Construction | Tree Planting |
| 2029-Fall | MN DNR | Beaver Flights | Beaver Trapping/Dam Removal; APHIS to trap beaver following spring. | N/A |
| 2030 | LSSA/Grant | Beaver Trapping | Habitat/Stream Assessment, Spring Redd Walk, Tree Survival Walk and Construction | Tree Planting |
| 2030-Fall | MN DNR | Beaver Flights | Beaver Trapping/Dam Removal; APHIS to trap beaver following spring. | N/A |
| 2031 | LSSA/Grant | Spring Dispersal Beaver Trapping | Habitat/Stream Assessment, Spring Redd Walk, Riparian Zone Inspection and "As Built" Designs | Tree Planting |
| 2031-Fall | DNR | Beaver Flights | Beaver Trapping/Dam Removal; APHIS to trap beaver following spring. | N/A |

Provide an assessment of how your program may celebrate cultural diversity or reach diverse communities in Minnesota, including reaching low- and moderate-income households:

Fishing on the Knife River is open to all people no matter their race, religion or sex. The beauty of this specialized type of fishing activity, is there is little gear or cost required to participate. Stream trout and Knife River steelhead fishing is conducted exclusively from shore. The only gear a person needs is a rod/reel, sinker, hook and yarn or bait. There are no expensive boats, electronics or lures to buy. One can usually fish from shore in rubber boots without the need of expensive waders. In the summer you can fish wearing just sneakers in the low water if

desired. The LSSA started a youth mentoring fishing class just for this reason. The class is open for kids up to age 16, along with their parents. This class provides all the gear for the youngsters and teaches the participants to fish during two classroom sessions and a session on the river. Over the 10+ years the LSSA has provided this class, we have had youth and parent participants that have included women, minorities and LGBT individuals. In 2025 we increased the class size to 20 youth. We also had five parents participate in the class which included three young girls. LSSA volunteer mentors donate their time for this very rewarding program. Youth/parent participation is growing every year. This class is open to all youth regardless of family income. The LSSA has a MN Conservation Officer address the class during the last classroom session. This not only gives all participants a chance to learn the rules and regulations pertaining to stream fishing but also lets the participants know the CO's are their friends and are an integral part of the fishery.

Activity Details

Requirements

Will restoration and enhancement work follow best management practices including MS 84.973 Pollinator Habitat Program?

Yes

Is the restoration and enhancement activity on permanently protected land per 97A.056, Subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15 or on lands to be acquired in this program?

Yes

Where does the activity take place?

Permanently Protected Conservation Easements

Public Waters

Land Use

Will there be planting of any crop on OHF land purchased or restored in this program, either by the proposer or the end owner of the property, outside of the initial restoration of the land?

No

Will insecticides or fungicides (including neonicotinoid and fungicide treated seed) be used within any activities of this proposal either in the process of restoration or use as food plots?

No

Previous OHF Appropriations

Have you received OHF dollars through LSOHC for this program or project in the past?

Yes

Are there any of these past appropriations still OPEN?

Yes

If needed, please include any explanation of unspent funds.

ML 2021; PH VI. This grant will be closed out on time by June 30, 2026.

ML 2024; PH VII. We have had ongoing conversations with MN DNR and have agreed on new reference reaches to use in the design of this project. We will get the necessary data using NCD criteria and present

the new plans for permitting of the entire Lower 14/15 and Lower 15 reaches. Our plan is to get designs permitted in 2026 so that we can begin the first 800 feet of construction in Lower 14/15 to keep the project progressing. Once plans are approved and permitted, it is our goal to work straight through the construction of Lower 14/15 and go straight into Reach Lower 15. We will not have to stop for permitting/design if we are successful in securing funding for the PH VIII grant. PH VIII will be our last grant application since we feel that the various grants have accomplished everything that we set out to do: rehabilitate the majority of the best trout (both migratory and resident fish) habitats (spawning/rearing/holding) in the entire Knife River watershed. We expect PH VII to be closed out in a timely manner and if successful in obtaining funding for PH VIII, that should be closed out even earlier than permitted.

Funding PH VIII would be a great achievement for LSOHC because the various grants obtained through the Knife River Habitat Rehabilitation projects will have rehabilitated and enhanced the very best trout producing habitats (spawning/rearing/holding habitats) on the entire main stem of the Knife River. This habitat rehabilitation will benefit the taxpayers of Minnesota for decades to come.

Open OHF Appropriations - Data from Most Recent Status Update

| Project | Funding Amount Received | Amount Spent to Date | Funding Remaining | % Spent to Date |
|---|-------------------------|----------------------|--------------------|-----------------|
| ML 2024 - Knife River Habitat Rehabilitation-PH VII | \$1,572,000 | \$348,200 | \$1,223,800 | 22.15% |
| ML 2021 - Knife River Habitat Rehabilitation-Phase VI | \$467,000 | \$444,200 | \$22,800 | 95.12% |
| Totals | \$2,039,000 | \$792,400 | \$1,246,600 | 38.86% |

Timeline

| Activity Name | Estimated Completion Date |
|---|-----------------------------------|
| Create RFP: Bid/Award. Begin staging materials. Knife River Grant Restoration Reaches Lower 14/15 and Lower 15. | July 1, 2027- July 1, 2028 |
| Construction Activities-Reach Lower 14/15 and Lower 15. | July 1, 2027 - September 15, 2030 |
| Tree/Shrub/Pollinator Planting | July 1, 2027 - June 30, 2031 |
| Post Construction Survey as Required by MN DNR Permit: "As Builts". File Final Report with LSOHC. | June 30, 2031 |

Budget

Totals

| Item | Funding Request | Total Leverage | Leverage Source | Total |
|----------------------------|--------------------|------------------|--------------------------------|--------------------|
| Personnel | \$340,000 | - | - | \$340,000 |
| Contracts | \$2,100,000 | \$50,000 | Private Source: LSSA and Other | \$2,150,000 |
| Fee Acquisition w/ PILT | - | - | - | - |
| Fee Acquisition w/o PILT | - | - | - | - |
| Easement Acquisition | - | - | - | - |
| Easement Stewardship | - | - | - | - |
| Travel | - | \$10,000 | Private Source: LSSA and Other | \$10,000 |
| Professional Services | - | \$5,000 | Private Source: LSSA and Other | \$5,000 |
| Direct Support Services | - | - | - | - |
| DNR Land Acquisition Costs | - | - | - | - |
| Capital Equipment | - | - | - | - |
| Other Equipment/Tools | \$1,000 | \$1,500 | Private Source: LSSA and Other | \$2,500 |
| Supplies/Materials | \$220,000 | - | - | \$220,000 |
| DNR IDP | - | \$130,000 | MN DNR | \$130,000 |
| Grand Total | \$2,661,000 | \$196,500 | - | \$2,857,500 |

Personnel

| Position | Annual FTE | Years Working | Funding Request | Total Leverage | Leverage Source | Total |
|--------------------|------------|---------------|-----------------|----------------|-----------------|-----------|
| Fiscal Management | 0.4 | 4.0 | \$155,000 | - | - | \$155,000 |
| Project Management | 0.6 | 4.0 | \$185,000 | - | - | \$185,000 |

Amount of Request: \$2,661,000

Amount of Leverage: \$196,500

Leverage as a percent of the Request: 7.38%

DSS + Personnel: \$340,000

As a % of the total request: 12.78%

Easement Stewardship: -

As a % of the Easement Acquisition: -

Leverage Funding Table

| | Leverage Amount Committed | Leverage Amount Confirmed (of Committed Funds) | Leverage Amount Anticipated | Total Leverage |
|----------------------|---------------------------|--|-----------------------------|----------------|
| Amount: | \$130,000 | \$130,000 | \$66,500 | \$196,500 |
| % of Total Leverage: | 66.16% | 66.16% | 33.84% | |

N/A

Detail leverage sources and confirmation of funds:

DNR IDP is for annual fall beaver flights, beaver trapping/dam removal, Knife River weir operation, and the annual Knife River stream assessment work. The LSSA will continue to donate funds and volunteer services. Fiscal team and contractor also donate leverage sources with travel/mileage charges and use of UHV.

Does this proposal have the ability to be scalable?

No

Please explain why this project can NOT be scaled:

These reaches are a perfect termination point for Knife River rehabilitation work. All upstream, cool, productive trout waters in the system will have been rehabilitated. Downstream from this ending point the river widens, slows/warms considerably with huge slumping banks. Most water below #9 is too warm to support trout.

What other dedicated funds may collaborate with or contribute to this proposal?

Personnel

Has funding for these positions been requested in the past?

Yes

Please explain the overlap of past and future staffing and position levels previously received and how that is coordinated over multiple years?

We have "Personnel" allocations in all of our grant applications. The category is split into Fiscal Management and Project Management. Personnel costs are broken out per each specific grant. I.E.-time put into PH V work is billed ONLY for PH V etc, no other grant. There is no overlapping in these categories from one grant to another. All expenses, including Personnel, are tracked per grant and to specific categories to eliminate any overlapping of funding.

Contracts

What is included in the contracts line?

Contracts line includes cost of contractor to complete the project as outlined in the Project RFP. Also included would be use of Conservation Corps Minnesota, NRRI or other professional groups whose skills may be needed to do the best job possible for the taxpayers of the state of Minnesota.

Other Equipment/Tools

Give examples of the types of Equipment and Tools that will be purchased?

Possible replacement parts for auger, shovels, etc.

Federal Funds

Do you anticipate federal funds as a match for this program?

No

Output Tables

Acres by Resource Type (Table 1)

| Type | Wetland | Prairie | Forest | Habitat | Total Acres |
|--|----------|----------|------------|----------|-------------|
| Restore | 0 | 0 | 0 | 0 | 0 |
| Protect in Fee with State PILT Liability | 0 | 0 | 0 | 0 | 0 |
| Protect in Fee w/o State PILT Liability | 0 | 0 | 0 | 0 | 0 |
| Protect in Easement | 0 | 0 | 0 | 0 | 0 |
| Enhance | 0 | 0 | 300 | 0 | 300 |
| Total | 0 | 0 | 300 | 0 | 300 |

Restoration/Enhancement Acres Breakdown of Existing Protected Lands (Table 1a.2)

| | RESTORE: Lands acquired with OHF | RESTORE: Lands NOT acquired with OHF | ENHANCE: Lands acquired with OHF | ENHANCE: Lands NOT acquired with OHF |
|--|----------------------------------|--------------------------------------|----------------------------------|--------------------------------------|
| DNR Lands (WMA, State Forests, etc.) | - | - | - | - |
| Non-DNR Lands (city, state, federal, etc.) | - | - | - | 300 |
| Easements | - | - | - | - |
| Total | - | - | - | 300 |

Total Requested Funding by Resource Type (Table 2)

| Type | Wetland | Prairie | Forest | Habitat | Total Funding |
|--|----------|----------|--------------------|----------|--------------------|
| Restore | - | - | - | - | - |
| Protect in Fee with State PILT Liability | - | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - |
| Enhance | - | - | \$2,661,000 | - | \$2,661,000 |
| Total | - | - | \$2,661,000 | - | \$2,661,000 |

Acres within each Ecological Section (Table 3)

| Type | Metro/Urban | Forest/Prairie | SE Forest | Prairie | N. Forest | Total Acres |
|--|-------------|----------------|-----------|----------|------------|-------------|
| Restore | 0 | 0 | 0 | 0 | 0 | 0 |
| Protect in Fee with State PILT Liability | 0 | 0 | 0 | 0 | 0 | 0 |
| Protect in Fee w/o State PILT Liability | 0 | 0 | 0 | 0 | 0 | 0 |
| Protect in Easement | 0 | 0 | 0 | 0 | 0 | 0 |
| Enhance | 0 | 0 | 0 | 0 | 300 | 300 |
| Total | 0 | 0 | 0 | 0 | 300 | 300 |

Total Requested Funding within each Ecological Section (Table 4)

| Type | Metro/Urban | Forest/Prairie | SE Forest | Prairie | N. Forest | Total Funding |
|--|-------------|----------------|-----------|----------|--------------------|--------------------|
| Restore | - | - | - | - | - | - |
| Protect in Fee with State PILT Liability | - | - | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - | - |
| Enhance | - | - | - | - | \$2,661,000 | \$2,661,000 |
| Total | - | - | - | - | \$2,661,000 | \$2,661,000 |

Average Cost per Acre by Resource Type (Table 5)

| Type | Wetland | Prairie | Forest | Habitat |
|--|---------|---------|---------|---------|
| Restore | - | - | - | - |
| Protect in Fee with State PILT Liability | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - |
| Protect in Easement | - | - | - | - |
| Enhance | - | - | \$8,870 | - |

Average Cost per Acre by Ecological Section (Table 6)

| Type | Metro/Urban | Forest/Prairie | SE Forest | Prairie | N. Forest |
|--|-------------|----------------|-----------|---------|-----------|
| Restore | - | - | - | - | - |
| Protect in Fee with State PILT Liability | - | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - |
| Enhance | - | - | - | - | \$8,870 |

Target Lake/Stream/River Feet or Miles

14

Parcels

Sign-up Criteria?

No

Explain the process used to identify, prioritize, and select the parcels on your list:

Eroding clay banks were determined to be the main cause of the excess sedimentation/turbidity within the Knife River watershed, which listed the Knife River on the impaired waters list for Minnesota. The MPCA identified erosion areas within the Knife River watershed TMDL study. The LSSA assessed these MPCA identified erosion areas, along with other stream reaches in the system for the presence of cool (trout supporting) water, availability for access by trout, existing trout habitat and the potential to restore negative stream impacts. This in-depth analysis has allowed the LSSA to prioritize areas for restoration that provide the best benefit to all aspects of aquatic life and improved water quality.

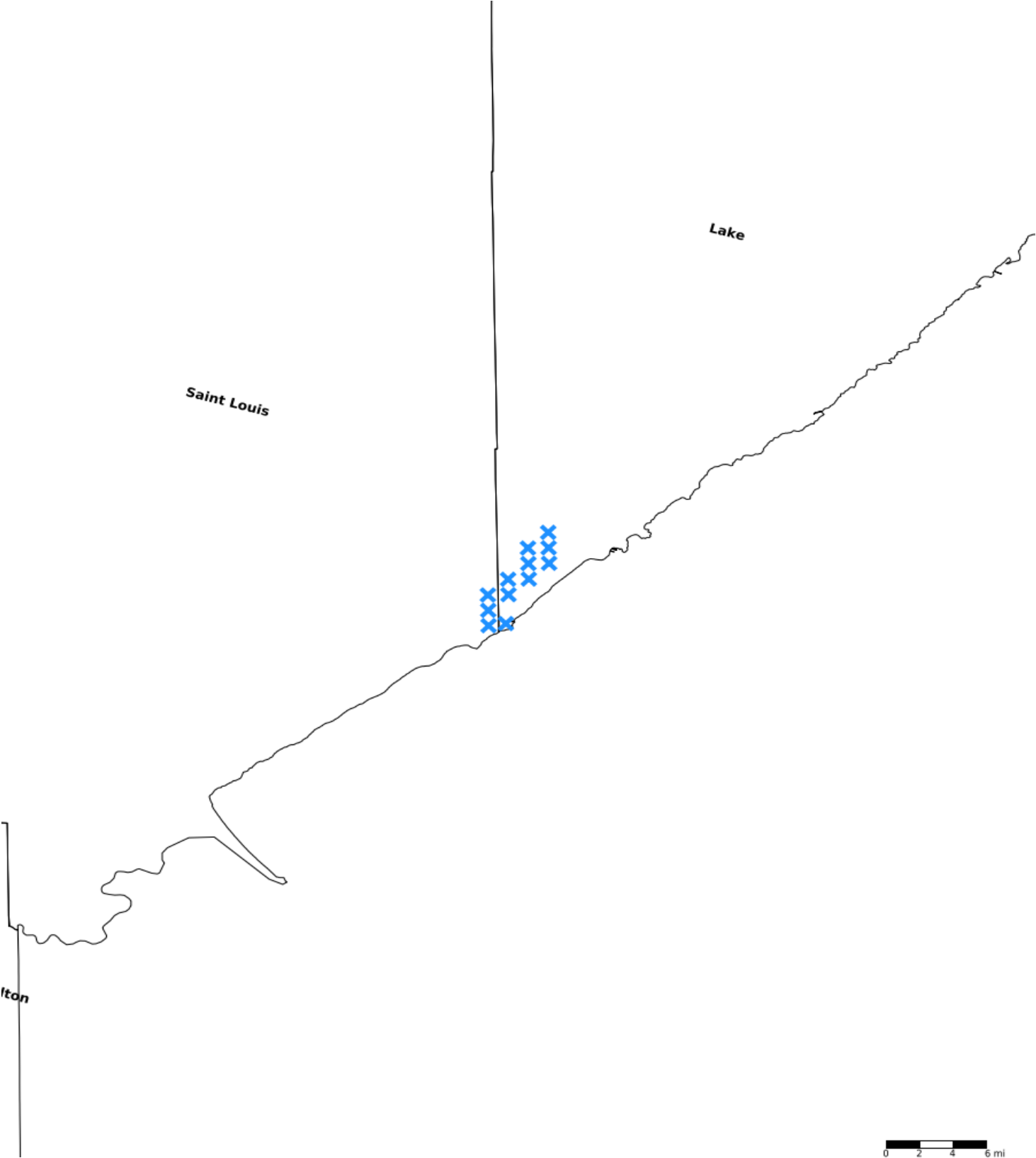
The LSSA also has a policy to work from the top of a reach downstream. Our top-down restoration approach eliminates re-impacting restored reaches downstream and reduces future downstream flooding and sedimentation. As mentioned in the "Design and Scope of Work", the LSSA incorporates a Watershed Restoration Approach in our projects.

For Reach 15 we utilized a BEHI (Bank Erosion Hazard Index) analysis. The BEHI assesses stream-bank erosion condition and potential. Because of a severe outbreak of Spruce Bud Worm, balsam and spruce are dying throughout the watershed. Since balsam is the most predominant tree species in this section, the riparian canopy is expected to be a total loss shortly. This lost tree canopy will greatly accelerate erosion because there will be no stabilizing vegetation remaining on the streambank. This die-off created great fire danger in both 2025 and 2026.

Restore / Enhance Parcels

| Name | County | TRDS | Acres | Est Cost | Existing Protection | Description |
|-------------|-----------|----------|-------|----------|---------------------|-------------|
| Knife River | Lake | 05211218 | - | - | Yes | - |
| Knife River | Lake | 05311233 | - | - | Yes | - |
| Knife River | Lake | 05211204 | - | - | Yes | - |
| Knife River | Lake | 05211209 | - | - | Yes | - |
| Knife River | Lake | 05211219 | - | - | Yes | - |
| Knife River | Lake | 05211205 | - | - | Yes | - |
| Knife River | Lake | 05211231 | - | - | Yes | - |
| Knife River | Lake | 05211217 | - | - | Yes | - |
| Knife River | Lake | 05211208 | - | - | Yes | - |
| Knife River | St. Louis | 05212225 | - | - | Yes | - |
| Knife River | St. Louis | 05212236 | - | - | Yes | - |
| Knife River | St. Louis | 05212224 | - | - | Yes | - |

Parcel Map



- Protect in Easement
- ▲ Protect in Fee with PILT
- Protect in Fee W/O PILT
- ★ Restore
- ✕ Enhance
- ⊕ Other

Reach 15 Photos



Large-scale streambank erosion. This bank will continue to collapse because the balsam fir on the slope have died due to Spruce Bud Worm. All the trees on the bank will be lost in two years. These dead trees will erode and deposit in the river channel taking hundreds of tons of clay with them. This clay will impact downstream habitats and affect the TMDL.



Another collapsing bank. Balsam Fir on the slope are also infected with Spruce Bud Worm. This bank will most likely be a total loss within the next two years. As these eroded trees move downstream during the next flood event, they will deposit on downstream bends and cause a new eroding streambanks and the process will start all over again



Floodwaters have undercut this stream bank. The granular material at the base of the bank eroded leaving it unstable. This bank will shear and slump during the next large storm and deposit hundreds of tons clay into the channel. This slump will also discharge trees into the channel causing future downstream impacts.



Panaramic photo of a large eroding stream bend. This erosion has displaced healthy trees, which are being deposited into the river. This bank is several hundred feet long and is a major source of the turbidity TMDL exceedance.



Another panaramic photo of a large eroding stream bend. This bank is different because the soil type is a mixture of clay, cobbles and boulders. Much of the cobbles and boulders in this stream channel, originated from this eroded bank. This deposited rubble filled the channel and now is altering the streamflow. At flood stages this altered flow appears to deflect the stream current to the west, causing erosion on the opposite side of the river. This photo was taken at the end of the erosion, the full extent of the erosion is upstream several hundred feet around the corner of the bend.