Lessard-Sams Outdoor Heritage Council

Knife River Habitat Rehabilitation Project-Phase VII

ML 2023 Request for Funding

General Information

Date: 06/15/2022

Proposal Title: Knife River Habitat Rehabilitation Project-Phase VII

Funds Requested: $2,941,000

Manager Information

Manager's Name: Kevin J. Bovee
Title: Project Manager
Organization: Lake Superior Steelhead Association (LSSA)
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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
- Habitat
- Wetlands

Narrative

Abstract

This grant will immediately rehabilitate over 3000 feet of severely degraded stream habitat, not to mention all the benefits derived downstream. Historic Knife River flooding has led to streambank and channel degradation. This degradation has resulted in slumping streambanks, sediment discharge exceeding the total maximum daily load (TMDL) and the loss of instream trout habitat. Since the LSSA began grant work, MNDNR has seen over a 200% increase in the returning adult steelhead population. Our LSOHC projects have also rehabilitated ~2 miles of stream channel, restored ~15,000 feet of streambanks and reduced annual sediment discharge by hundreds of tons.

Design and Scope of Work

The LSSA uses a Watershed Restoration Approach to determine the rehabilitation, enhancement and restoration scope of work. This Approach looks at how landscape parameters affect the river's stability and identifies what the underlying issues are that cause the watershed impacts during a flood event. By focusing on the Watershed as a whole and working to fix the root cause, the LSSA has successfully stabilized stream channels, restored streambanks, reduced annual sediment discharge and planted thousands of trees, shrubs and pollinator species in the riparian zone.

Our Knife River rehabilitation success has not just restored the watershed parameters but has also translated to an increase in the adult steelhead. From 2012 (the inception of our first grant) to 2021 the population of wild steelhead has increased in the Knife River by 200%. This 200% increase has occurred at a time when other Lake Superior tributaries have seen steelhead populations decrease or crash. Two of the most prominent Lake Superior tributaries are the Bois Brule River and Portage Creek, which both saw their adult steelhead returns noticeably decrease. The Bois Brule River steelhead population decreased 4.5% from its 30 year average and Portage Creek steelhead population decreased 201% from its 20 year average.

Another unique design feature we utilize on every rehabilitation project, is a prioritization policy to identify a specific work area. Our policy is to work from an upstream to downstream manner. This top-down restoration approach eliminates re-impacting previously restored reaches and reduces downstream flooding and sedimentation because water and sediments are deposited and held on the newly constructed floodplains. 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 are restoring the most critical stream reaches.

Finally, we engage regulatory stakeholders in the final reach selection process. The LSSA has collaborated with the DNR for eleven years to identify key trout habitat sites within the Knife River watershed and discussed key sites proposed for restoration. By utilizing this design and complex prioritization approach, we ultimately are utilizing grant fund dollars in the most efficient manner possible.

The Scope of Work for the Reach 15 project will include:

- Assess, survey and design the stream reach(s) to obtain permits.
- Obtain baseline and as-built assessment and survey data.
- Restore the stream channel's shape, dimension and profile.
- Enhance riparian and in-stream trout habitat.
- Create new floodplain wetlands.
- Reconnect the river channel to the floodplain.

- Raise the groundwater table.
- Stabilize streambanks.
- Rehabilitate the riparian tree canopy.
- Monitor water temperature.

In the past we have partnered with Zeitgeist Center for Arts and Community as our Fiscal Agent. Zeitgeist is no longer in the position to work with us (See Attached Letter of Support from Tony Cuneo). We are actively searching for another entity for this position. We have one interested party already.

How does the proposal address habitats that have significant value for wildlife species of greatest conservation need, and/or threatened or endangered species, and list targeted species?

The Knife River is more unique than other trout streams in Minnesota because this watershed has anadromous (migratory 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 NE Minnesota.

The Knife River also has another unique feature; according to DNR genetics researcher Charles Kruger, the Knife River has genetically distinct strains of steelhead. Not only are these trout genetically distinct from other North Shore streams, but Knife River steelhead are genetically distinct within its own watershed. This means that trout produced in the Main Knife River are genetically different and distinct from trout produced within its tributaries of: Stanley Creek, McCarthy Creek, Main West Branch, Little West Branch, Captain Jacobson and Little Knife River.

This project's main goal has always focused on increasing trout populations. In reality, this project's focus is really the enhancement, restoration and rehabilitation of the Knife River Watershed. Now that we are ten years into this restoration work, we are truly seeing the benefits and affects this project is having on the overall Knife River ecosystem. Because our project places a priority on the landscape (stream-banks, riparian vegetation, floodplains and wetlands), we are seeing a significant habitat benefit to invertebrate, amphibians, reptiles, birds and mammals. This project is also restoring long lived tree species, native shrubs and pollinator species in the riparian canopy.

What is the degree of timing/opportunistic urgency and why it is necessary to spend public money for this work as soon as possible?

This grant project is combining two reaches (Reach 15 and Reach 8). Reach 15 is the proposed grant reach for Phase VII. This reach resides in publicly ownership, so grant funds can be used to rehabilitate this stream section. Reach 8 under private ownership and is ineligible for LSOHC grant funding. This reach is being proposed to be restored using private funds. The proposed private funding will be used as a private grant match to the Reach 15 grant project. The Reach 8 private section is upstream from Reach 15, so to maintain our top/down approach we are looking to restore this section of stream to avoid any habitat fragmentation. This is because the upstream impacts from the eroding Reach 8 streambanks could compromise downstream restoration. There is some urgency to obtaining this grant because the private funding is not guaranteed to be available in the future.

Describe how the proposal uses science-based targeting that leverages or expands corridors and complexes, reduces fragmentation or protects areas identified in the MN County Biological Survey:

The LSSA uses an upstream to downstream restoration approach. This approach is used to ensure upstream impacts do not affect a restored downstream habitat. However, this top-down approach also ensures we do not skip upstream sections where habitat needs to be restored. By sequentially restoring each upstream habitat first

before moving downstream, we are stabilizing stream-bank erosion, restoring the stream channel's shape, dimension and profile and replanting the riparian zone, so we have a continuous habitat corridor and not leaving fragmented upstream habitats to impact downstream projects.

Also, by using this continuous top/down approach we hold floodwaters upstream on newly created floodplain and in floodplain wetlands, we cool upstream water temperatures by reestablishing shade and constructing undercut banks, we building trout spawning habitat so young fish can rear in the more fertile upper Knife River, we minimize sediment discharge to the lower river and we provide better fish passage throughout the watershed.

The only exception to the LSSA's top/down approach involves fish migration impairments. Fish migration is the most critical restoration priority in the Knife River because anadromous trout migrate many miles upstream to access their spawning grounds. The most fertile areas of the Knife River are up in our work areas. If these fish are confined to the Lower river, they will spawn in poor habitat and their offspring will prematurely leave the watershed and be heavily preyed upon in Lake Superior.

Which two sections of the Minnesota Statewide Conservation and Preservation Plan are most applicable to this project?

- H5 Restore land, wetlands and wetland-associated watersheds
- H6 Protect and restore critical in-water habitat of lakes and streams

Which two other plans are addressed in this proposal?

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

Describe how your program will advance the indicators identified in the plans selected:

The MNDNR's LSMP outlines how Rainbow Trout will be managed in Lake Superior tributaries. This plan provides data and recommendations for restoring Knife River steelhead. Below are some DNR data/management strategies.

- Juvenile steelhead appear to be prematurely emigrating from the Knife River due to poor rearing habitat.
- Early emigrating juveniles (age 1) are preyed upon at a high rate in Lake Superior and is a major limiting factor to the steelhead population in the Knife River.
- Restoring the Knife River's in-stream habitat should equate to greater 2-year old juvenile steelhead retention.
- This greater retention should significantly increase the adult steelhead population in the Knife River.
- The LSSA's past Knife River habitat project work has occurred from 2012-2021.
- The DNR's 2012-2021 Knife River trap data, concludes the steelhead population has increased approximately 200%.
- Continued restoration of the Knife River should result in continued steelhead population increases.

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 your program will produce and demonstrate a significant and permanent conservation legacy and/or outcomes for fish, game, and wildlife as indicated in the LSOHC priorities:

LSSA uses Natural Channel Design (NCD) for stream restoration projects. This process restores the stream's geomorphic parameters by placing natural materials in the streambed to rehabilitate the channel and stabilize streambanks. This is different from traditional restoration techniques that armor streambanks without addressing the underlying deficiencies within the watershed.

Another benefit of NCD projects, is the use of large woody debris. Before the turn of the century, large trees fell into the channel providing instream habitat and overhead cover. This instream deposition of wood created deep scour pools and accumulated gravel along current breaks that provide important lifecycle habitat. With the loss of large woody debris in the stream channel these habitat features are largely missing. The LSSA is restoring this lost woody habitat by importing logs from local loggers, which benefits the stream and provides additional income to loggers.

Another advantage of NCD projects, is they are designed and constructed to be self-maintaining by using the natural forces of the stream's current to maintain deep pools and deposit gravel. 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 streambed to create current breaks that accumulate gravel. These scour pools support juvenile rearing and the accumulated gravels support adult spawning. This results in greater juvenile retention by enhancing and enlarging the prime steelhead spawning zone from 1 mile to 4 miles, which ultimately reduces juvenile competition for the best rearing habitat.

What other fund may contribute to this proposal?

- N/A

Does this proposal include leveraged funding?

Yes

Explain the leverage:

Grant 7 is proposing to use a private match to restore an upstream reach (Reach 8). This private reach is being proposed, so we do not have any gap or habitat fragmentation as we continue our upstream to downstream restoration approach. Reach 8 will before restored using approximately $200,000 in private funds.

The LSSA has used its charitable gaming funds to perform over $500,000 for Knife River restoration work prior to the Legacy Amendment being passed. This funding donated money to the DNR for the Knife River fish traps, population assessments and creel census on the Knife River, stream access stairs and walking platforms to reduce bank erosion, signs to highlight regulation changes, in stream restoration, trees, tree planting materials and labor and stocking of fish.

LSSA continues to use our gaming funds and in-kind volunteer work to supplement each of our first five phases of this LSOHC grant. The LSSA and Zeitgeist have provided approximately $150,000 for money or in-kind donations to fund the first six grant phases.
The LSSA is anticipating contributing approximately $25,000 of money and in-kind donations as previously done. The DNR spends approximately $15,000 each year to fly the watershed to locate beaver and trap them from critical steelhead habitats. The DNR also spends ~ $100,000 annually to monitor and man the adult and smolt traps in the

spring and fall and to electro-fishes the upper Knife River to track anadromous fish spawning and juvenile trout populations each year.

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.

There will be no direct appropriation request from the OHF.

Non-OHF Appropriations

Year	Source	Amount
FY 2012	Great Lakes Commission (GLRI funded) - Hawk Hill Road Project	$ 293,000
FY 2012	Clean Water Fund - Copperhead Road Project	$ 212,000
FY 2015	LCMR - Buckthorn Removal	$ 54,000
FY 2016	MNDNR-Buckthorn Removal	$ 12,800
FY 2017	Clean Water Fund-Buckthorn Removal	$ 144,000
FY 2018	Fed. Coastal Grant-Lake Superior Steelhead Association	$ 50,000

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
Jul 1, 2023 - June 30, 2024	MN DNR	Beaver Flights	Beaver Trapping	N/A
July 1, 2023 - June 30, 2024	LSSA	Spring Dispersal Beaver Trapping	Habitat/Stream Assessment, Spring Redd Walk and Tree Survival Walk	Tree Planting
July 1, 2024 - June 30, 2025	MN DNR	Beaver Flights	Beaver Trapping	N/A
July 1, 2024 - June 30, 2025	LSSA	Spring Dispersal Beaver Trapping	Habitat/Stream Assessment, Permitting, Spring Redd Walk, Tree Survival Walk and Construction	Tree Planting
July 1, 2025 - June 30, 2026	MN DNR	Beaver Flights	Beaver Trapping	N/A

July 1, 2025 - June 30, 2026	LSSA	Beaver Trapping	Habitat/Stream Assessment, Spring Redd Walk, Tree Survival Walk and Construction	Tree Planting
July 1, 2026 - June 30, 2027	MN DNR	Beaver Flights	Beaver Trapping	N/A
July 1, 2026 - June 30, 2027	LSSA	Spring Dispersal Beaver Trapping	Habitat/Stream Assessment, Spring Redd Walk, Tree Survival Walk and Construction	Tree Planting
July 1, 2027 - June 30, 2028	MN DNR	Beaver Flights	Beaver Trapping	N/A
July 1, 2027 - June 30, 2028	LSSA	Spring Dispersal Beaver Trapping	Habitat/Stream Assessment, Spring Redd Walk, Tree Survival Walk, "As Built" Designs	Tree Planting

Identify indicator species and associated quantities this habitat will typically support:

Steelhead Trout are an indicator species in the Knife River. The current habitat provides rearing capacity for only about 20% of the juvenile steelhead. This equates to about 2,000 age one juvenile steelhead. Below is what the DNR has observed by operating a fish trap on the Knife River. As you will see below, increasing the retention of age 1 juvenile steelhead will ultimately increase the number of adults.

- According to the DNR, 1 adult steelhead will return from Lake Superior to spawn in the Knife River out of every 350 early emigrating juveniles. This is a 1:350 ratio.
- By contrast, 1 adult steelhead will return from Lake Superior to spawn in the Knife River out of every 10 (age 2) emigrating juveniles. This DNR study concludes that juvenile steelhead that remain in the Knife River until age 2 return at a 1:10 ratio or 350% greater rate.
- The average annual number of juvenile steelhead that emigrate the Knife River is ~13,000.
- By increasing the number of 2-year old steelhead from ~ 20% to ~ 50%, we would expect the population of adult steelhead to increase two-fold or 200%. This would equate to a run of ~1,300 adults.
- This adult steelhead population increase is possible within the next 12 years. This statement is based upon the fact that the LSSA has worked ~10 years (2012-2021) to improve habitat and has observed a 200% adult steelhead population increase during that time.

How will the program directly involve, engage, and benefit BIPOC (Black, Indigenous, People of Color) and diverse communities:

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 required to participate. Stream trout and Knife River steelhead fishing is conducted exclusively from shore. The only gear a person needs is a rod, 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.

The LSSA started a mentoring fishing class just for this reason. The class is 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 in 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. LSSA volunteer mentors donate their time for this very rewarding program. Youth/parent participation is growing every year.

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

If funded, this proposal will meet all applicable criteria set forth in MS 97A.056?
Yes

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?
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?
No

Other OHF Appropriation Awards

Have you received OHF dollars in the past through LSOHC?
Yes

Approp Year	Approp Amount Received	Amount Spent to Date	Leverage Reported in AP	Leverage Realized to Date	Acres Affected in AP	Acres Affected to Date	Complete/Final Report Approved?
2021	$467,000	-	$81,000	-	300	0	No
2020	$700,000	$532,675	$65,000	$55,000	300	250	No
2019	$891,000	$746,250	$96,600	$90,000	300	275	No
2017	$927,000	$874,925	$142,900	$142,900	612	612	No
2014	$1,410,000	$1,404,400	$147,200	$147,200	612	612	Yes
2012	$380,000	$380,000	$19,200	$19,200	255	255	Yes

Timeline

Activity Name	Estimated Completion Date
Assess, design and permit Knife River Grant Restoration Reach	July 1, 2023- July 1, 2024
Construction Activities-Reach 15	July 1, 2024 - September 15, 2026
Tree/Shrub/Pollinator Planting	September 1, 2024 - June 30, 2027
Construction Activities downstream of Reach 15 (Grant Match Work AreaReach 16)	July 1, 2025 - June 30, 2027
Post Construction Survey as Required by MN DNR Permit	July 1, 2027

Budget

Totals

Item	Funding Request	Antic. Leverage	Leverage Source	Total
Personnel	$340,000	-	-	$340,000
Contracts	$2,500,000	$200,000	Private Source: Other	$2,700,000
Fee Acquisition w/ PILT	-	-	-	-
Fee Acquisition w/o PILT	-	-	-	-
Easement Acquisition	-	-	-	-
Easement Stewardship	-	-	-	-
Travel	-	$15,000	Private Source: LSSA and Other	$15,000
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	$100,000	-	-	$100,000
DNR IDP	-	$115,000	MN DNR	$115,000
Grand Total	**$2,941,000**	**$336,500**	**-**	**$3,277,500**

Personnel

Position	Annual FTE	Years Working	Funding Request	Antic. Leverage	Leverage Source	Total
Fiscal Management	0.4	4.0	$140,000	-	-	$140,000
Project Management	0.6	4.0	$200,000	-	-	$200,000

Amount of Request: $2,941,000
Amount of Leverage: $336,500
Leverage as a percent of the Request: 11.44%
DSS + Personnel: $340,000
As a % of the total request: 11.56%
Easement Stewardship: -
As a % of the Easement Acquisition: -

Describe and explain leverage source and confirmation of funds:
The primary leverage will be a private match on Reach 8. Reach 8 is approximately 500 linear feet of stream channel located within private property. This property is without a conservation easement. LSOHC grant funds cannot be used to restore this stream section.

The LSSA will continue to donate funds.

Does this proposal have the ability to be scalable?
Yes

If the project received 70% of the requested funding

Describe how the scaling would affect acres/activities and if not proportionately reduced, why?
This project is scalable but private work will be performed in conjunction with the downstream Reach 15 proposed grant project. By scaling this project, construction delays will result and this could result in the loss of the private match.

Describe how personnel and DSS expenses would be adjusted and if not proportionately reduced, why?
Personnel would be adjusted proportionately.

If the project received 50% of the requested funding

Describe how the scaling would affect acres/activities and if not proportionately reduced, why?
This project is scalable but private work, as stated above, cannot be performed until after the upstream Reach 15 grant work is completed. By scaling this project, construction delays will result and could cause the loss of the private match.

Describe how personnel and DSS expenses would be adjusted and if not proportionately reduced, why?
Personnel would be adjusted proportionately.

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	300	-	300
Total	**0**	**0**	**300**	**0**	**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	-	-	$2,941,000	-	$2,941,000
Total	**-**	**-**	**$2,941,000**	**-**	**$2,941,000**

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	-	-	-	-	$2,941,000	$2,941,000
Total	**-**	**-**	**-**	**-**	**$2,941,000**	**$2,941,000**

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	-	-	$9,803	-

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	-	-	-	-	$9,803

Target Lake/Stream/River Feet or Miles

15

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.*

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 necessitated the inclusion of 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.

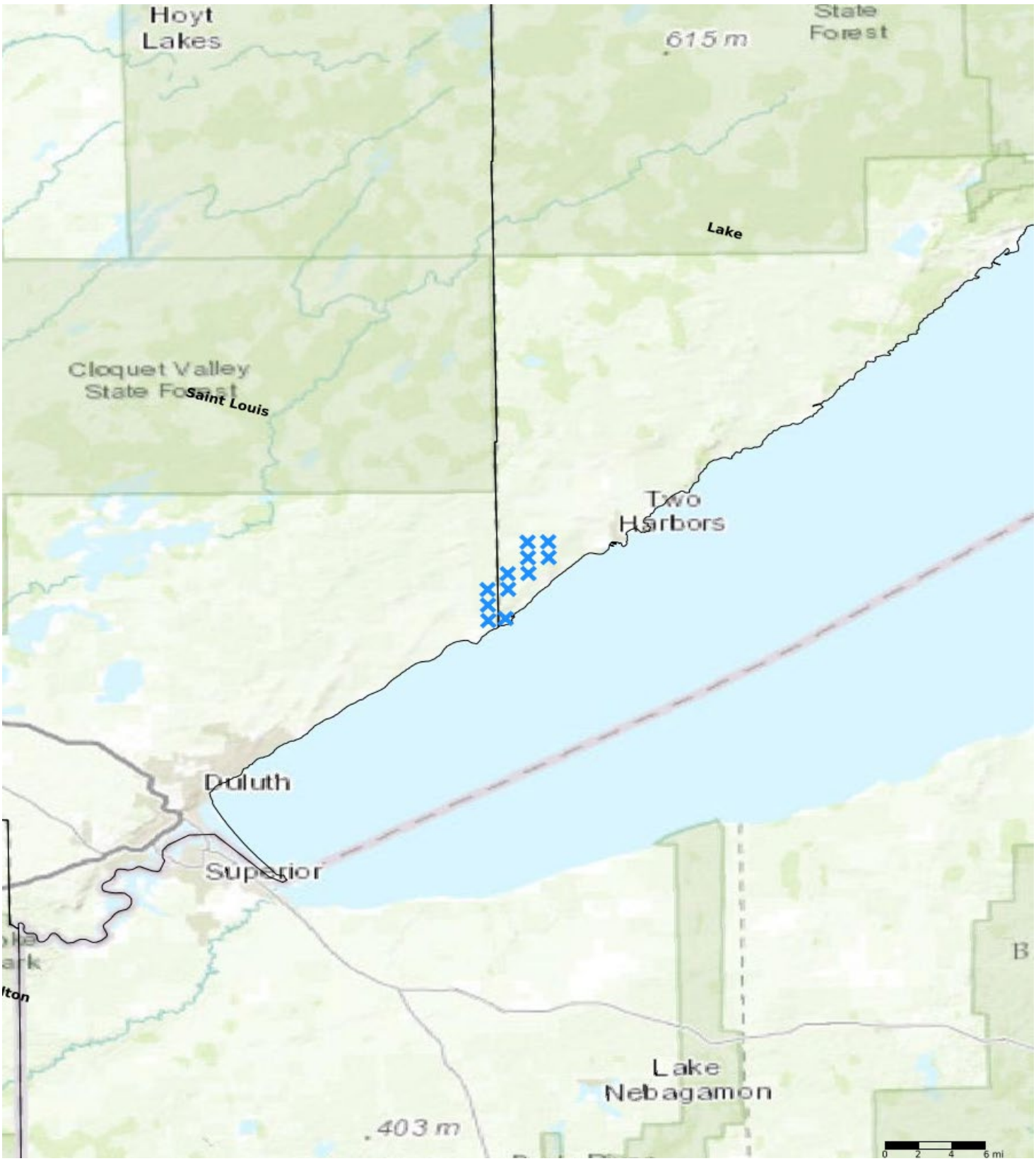
The LSSA also has a policy to work from the top of a reach downstream. Our top-down restoration approach eliminates re-impacting restored reaches downstream and reduces future downstream flooding and sedimentation. As mentioned in the "Design and Scope of Work", the LSSA incorporates a Watershed Restoration 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, the balsam 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. NOTE: No OHF funds were used for this report.

Restore / Enhance Parcels

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

Tony Cuneo
222 E Superior St. Suite 326
Duluth MN 55812
May 24, 2022

Lessard Sams Outdoor Heritage Council &
Minnesota Department of Natural Resources
100 Rev. Dr. Martin Luther King Jr. Blvd.
State Office Building, Room 55
St. Paul, MN 55155

To Whom it May Concern,

I write this letter in strong support of the Lake Superior Steelhead Association (LSSA). For over six years Zeitgeist has been working with LSSA to facilitate the important restoration of the Knife River along Lake Superior's North Shore.

Lake Superior is one of Minnesota's great resources, and its health is directly tied to the health of the streams, rivers, and tributaries that feed it. The Knife River, as one of the very few rivers in Lake Superior that contribute to the Steelhead Trout population, is of particular importance. Unfortunately, the Knife River was taken for granted and as humans changed the conditions along the river, its health has been impaired.

LSSA recognized the issues that were impairing the health of the river and began to work with local contractors and state agencies to develop plans to repair the river. A number of years into that work Zeitgeist was asked to offer its administrative and planning support to help keep that important work going. Zeitgeist is proud to have spent the last six years working with LSSA to improve the conditions along the Knife River. Every visit to the banks of the river where LSSA's work has been accomplished offers a clear view of the wonderful progress that has been made.

However, while Zeitgeist continues to work with LSSA on the currently funded phases, the COVID pandemic continues to stretch Zeitgeist's organizational capacity and focus. Because of that, Zeitgeist has determined we can not take on additional phases or be a part of new applications. It is our sincerest hope though, that the State of Minnesota continues to consider LSSA proposals for new work along the Knife River. Zeitgeist helped establish a number of administrative and evaluative systems in partnership with LSSA and the state that LSSA can continue to use going forward. And with Zeitgeist no longer involved, more of the state's resources can be directed at the rehabilitation work so needed.

Thank you for your past support of the Knife River. Sincerely,

Tony Cuneo

Tony Cuneo
Executive Director, Zeitgeist Center for Arts and Community.

PETE STAUBER
8TH DISTRICT, MINNESOTA

461 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225–6211

Congress of the United States
House of Representatives
Washington, DC 20515–2308

May 25, 2022

Lessard-Sams Outdoor Heritage Council
100 Rev. Dr. Martin Luther King Jr. Blvd.
State Office Building, Room 95
St. Paul, MN 55155

Dear Lessard-Sams Outdoor Heritage Council,

I write in support of the the Lake Superior Steelhead Association's (LSSA) grant application in Phase 7 of their plan to restore a section of the Knife River in Lake County, Minnesota. The Knife River is critically important for Steelhead along Minnesota's North Shore and the section the LSSA plans to restore is an ideal area for spawning. This section was heavily impacted by flooding in 2012 and has several steep eroding banks contributing excessive sediment to the stream. I have visited these LSSA sites on Knife River and have observed their restoration work firsthand. Reducing turbidity will not only benefit Steelhead, but the entire riparian ecosystem. Restoration plans for this project are consistent with current best practices aimed at restoring aquatic habitat and helps fulfill Lessard-Sams Outdoor Heritage Council's goal to "…restore, protect, and enhance Minnesota's wetlands, prairies, forests, and habitat for fish, game, and wildlife…".

Fish habitat in our rivers, and especially those along the North Shore of Lake Superior, are critically important to northeastern Minnesota. The Lake Superior Steelhead Association's Knife River restoration project aimed at improving water quality and boosting natural fish reproduction in Lake Superior is immensely beneficial to our area and it has my full support.

Sincerely,

Pete Stauber
Member of Congress
Minnesota's 8th Congressional District