

Lessard-Sams Outdoor Heritage Council

Fiscal Year 2020 / ML 2019 Request for Funding



Date: May 31, 2018

Program or Project Title: Knife River Habitat Rehabilitation-Phase IV

Funds Requested: \$2,400,000

Manager's Name: Tony Cuneo and Kevin J. Bovee

Title: Ex. Director and Project Manager

Organization: Zeitgeist (ZG) and Lake Superior Steelhead Association (LSSA)

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Website: www.steelheaders.org

County Locations: Lake, and St. Louis.

Regions in which work will take place:

- Northern Forest

Activity types:

- Enhance

Priority resources addressed by activity:

- Wetlands
- Forest
- Habitat

Abstract:

Poor historic forestry practices in the Knife River watershed have degraded trout habitat and resulted in a TMDL exceedance for turbidity. The LSSA proposes to locate, assess and rehabilitate identified stream impacts within the watershed. The LSSA will use the new MPCA and Natural Channel Design evaluation criteria to rank and prioritize locations for rehabilitation. Our major focus will be stabilizing streambanks, installation of instream habitat and replanting riparian forest. Only stream sections located on public lands and private lands with DNR easements will be considered for this project. See the LSSA website for more information on the project <http://www.steelheaders.org/projects.html>.

Design and scope of work:

PROBLEM TO BE ADDRESSED

The Knife River watershed once held one of the largest populations of natural reproducing steelhead in the Great Lakes. Since the late 1970's, the Knife River steelhead population has seen a dramatic decrease. One of the reasons for this decline is long-term habitat loss resulting from historic logging. The pre-settlement forest composition within the Knife River watershed consisted primarily of old growth trees. The removal of large trees from the riparian zone destabilized streambanks. The slumping streambanks have also resulted in a high rate of erosion causing a TMDL exceedance for turbidity in the Knife River. Recognizing the threat, the DNR started performing limited stream studies. These studies have determined that habitat degradation in the watershed has resulted in poor rearing conditions for juvenile trout.

SCOPE OF WORK

- Use Rosgen Level II personnel to survey the Knife River using DNR required methodology.
- Collect survey data necessary to complete project permit applications and design a rehabilitation project.
- Collect biological data necessary to complete project permit applications and design a rehabilitation project.
- Monitor water temperature to select project site(s).
- Use Rosgen Level IV personnel to design a rehabilitation project using DNR required MPCA and Natural Channel Design methodology.
- Enhance and restore in-stream habitat by placing large woody debris, rock vanes and "J" hooks into the channel.

- Conduct one stakeholder meeting.
- Meet with regulators to receive timely project approvals.
- Rehabilitate the stream using a Level IV Rosgen trained Construction Supervisor.

RIPARIAN ZONE RESTORATION

The riparian zone will be restored via plantings of native pollinator shrubs and native deciduous and coniferous tree species. Riparian zone plantings can occur on the Main Knife River and its major tributaries. After planting the rehabilitation project construction sites, emphasis will be given to replanting the riparian zone in upper river stretches that lack any riparian cover presently.

URGENCY AND OPPORTUNITY OF THE PROJECT

The upper section of Reach 4 is scheduled to be funded in 2018. This proposed project will restore the remaining 4800 linear feet of Reach 4. If this project is funded, the permit and construction could continue uninterrupted which could save mobilization costs.

STAKEHOLDER INVOLVEMENT

The LSSA will conduct one stakeholder meeting to inform the public and solicit their responses to our project. Based on the nature of the responses, the LSSA may modify our project plans as necessary.

Which sections of the Minnesota Statewide Conservation and Preservation Plan are 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 other plans are addressed in this proposal:

- Long Range Plan for Fisheries Management
- National Fish Habitat Action Plan

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

- Steelhead juveniles appear to be emigrating from the Knife River due to the lack of rearing habitat.
- Early emigrating juveniles is a major limiting factor to the recovery of the steelhead population in the Knife River.
- Restoring Knife River habitat should equate to a greater retention of 2 - year old juvenile steelhead.
- This greater retention could double the adult steelhead population in the Knife River Watershed.
- The LSSA restoration area (Reach 4) has a lower MPCA Stream Habitat Assessment (MSHA) score than the reference reaches on the Knife River (NRRI, Dumke 2017).
- By restoring the stream's rearing habitat using NCD Methodology, the MSHA score for Reach 4 will greatly improve.
- This will result in exceeding the reference reaches on the Knife River.

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:

The LSSA exclusively uses Natural Channel Design (NCD) methodology for all its stream restoration projects. This process restores the stream's geomorphic parameters by placing natural materials in and along the streambed to restore the channel's size, configuration and profile and stabilize streambanks. This is different from traditional restoration projects that apply armor to streambanks without addressing stream channel deficiencies.

Another benefit of NCD projects, is the restoration, creation and enhancement of instream habitat features that support trout. Prior to the turn of the century, large trees fell into the channel providing instream habitat and overhead cover to invertebrates, trout, and non-game species. This instream deposition of large wood also resulted in the creation of deep scour pools that provided additional trout habitat features. With the clearcutting of riparian trees during historic logging operations, the Knife River has lost almost 150 years of large woody deposition. By using NCD methodology, the LSSA is restoring this lost habitat component by importing large root wads and logs from local loggers. This not only benefits the stream but provides additional income to loggers.

Another advantage of NCD stream restoration projects, is they typically do not require ongoing maintenance. These projects when

properly designed are self-maintaining. This is due to the extensive survey and assessment parameters that are incorporated into the project's design. This data provides the basis for construction plans and specifications, so restoration activities can properly resize stream channels, set floodplain elevations and stabilize streambanks to withstand large flood events.

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:

NCD utilizes a science-based process to bring an unstable eroding stream reach back to a stable state. This method surveys an impacted stream reach to collect data to compare it to several stable stream sections. All survey work is performed using a geomorphic trained Stream Specialist. The assessment data that is collected includes: stream width to depth ratios, floodplain elevation, erosion calculations, longitudinal profile, cross-section elevation and vegetation cover. This assessment data is entered into a computer program called Geomorph to create plans and specifications that will redesign the impacted Knife River channel profile, dimensions and shape to mimic stable reaches within the Knife River watershed. These plans create the basis for the construction project by depicting channel reconfiguration, placement of structures, location of streambed excavation, location and elevation of the floodplain and realignment of the channel.

The LSSA's NCD process also features a top/down restoration approach. This approach extends the habitat corridor downstream in three ways:

- Downstream habitats are protected because the upstream sediment load is reduced. By stabilizing these upstream eroding banks, hundreds of tons of sediment will no longer discharge into the stream channel each year. This discharged material will no longer fill pools and runs that are critical to rearing trout.
 - Instream trout spawning success is more productive. When trout spawn they discharge their eggs into the gravel. When sediment discharges during high spring flood events, these eggs or newly hatched trout become covered by settling silts and suffocate larval trout. By stabilizing these upstream banks sediment discharge is greatly reduced, which generally increases trout production.
 - Newly constructed stream channels are reconnected to the floodplain. These restoration projects reconnect the stream channel to the floodplains, which allows floodwaters to crest the bank and dissipate the current's energy. Floodwaters also become trapped and stored in associated floodplain wetlands. This results in a lower velocity of floodwater and less volume of floodwater that discharges downstream. This reduction of floodwater velocity and volume minimizes downstream erosion and habitat degradation.
- Our Reach 4 project will protect approx. 17 miles of downstream stream habitat and stabilize streambanks.

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 a designated trout stream. The trout stream designation is provided to watersheds that have a cold-water resource. Cold-water streams are designated for protection because of their value to fish and wildlife and their relatively scarce nature in Minnesota. The Knife River is even more unique than other cold-water trout resources in Minnesota because this watershed has an anadromous fishery and does not have a barrier falls. The Knife River is the only watershed in Minnesota that combines these two features. Of the 60+ tributaries that connect to Lake Superior with populations of anadromous trout, only the Knife River does not have a barrier waterfall that limits upstream migration of steelhead, coaster brook trout or brown trout.

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

This proposal addresses rehabilitating instream habitat to enhance and protect the uniqueness of the Knife River trout population. This project will provide, enhance and protect instream habitats that are critical to trout spawning, rearing and staging prior to emigrating to Lake Superior.

This project is even more critical with the closing of the French River Hatchery and also because the Knife River is no longer stocked. Trout stocking has been discontinued in the Knife River to protect the unique genetics of over 100 years and with the closure of the French River Hatchery the safety net is gone to reestablish a Knife River fishery. So essentially, the Knife River is its own natural fish hatchery that must be protected and enhanced to continue to produce trout that have evolved unique genetic qualities and traits since the late 1800s.

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

Steelhead Trout are an indicator species in the Knife River.

- o Knife River juvenile steelhead are expected to leave the Knife River at age 2 for Lake Superior.
- o Approximately 75% of Knife River juvenile steelhead prematurely for Lake Superior.
- o Early emigration appears to be due to the lack of rearing habitat.
- o When juvenile steelhead prematurely (before age 2) leave the Knife River they are smaller in size and significantly preyed upon.

- o When juvenile steelhead leave Knife River at age 2 they are larger and are preyed upon less frequently.
- o 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.
- o 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 35 times greater rate.
- o Early emigrating juveniles is a major limiting factor to the recovery of the steelhead population.
- Restoring Knife River habitat should equate to a greater retention of 2 - year old juvenile steelhead.
- 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 ~25% to 50%, we would expect the population of adult steelhead to double.

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 and stream trout populations should increase. This project will also provide habitat to invertebrate, amphibians, reptiles, birds and mammals. This project also will replant the riparian zone of the river with old growth tree species and pollinator shrubs. These plantings will reestablish a healthy riparian canopy. Stream flow should increase due to less evaporation and improved riparian cover should help cool the water.*

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

A critical component of this project is to insure beaver do not re-impact areas that have been rehabilitated. To insure that the Lessard Sams Outdoor Heritage Council projects are maintained after project completion, annual helicopter flights are conducted to insure beavers do not re-colonize the project areas. These beaver flights are conducted in late autumn by the DNR as they have been previously for over 15 years. If dams or beaver activity is noted in the annual flight, the DNR will contract with Federal trappers to remove the beavers and notch their dams. The estimated cost of the flight, beaver removal and dam notching throughout the entire Knife River watershed is approximately \$15,000. If the DNR loses funding for this project, the TMDL implementation plan has budgeted \$35,000 annually for this task. Included in this budget is beaver flights, trapping, dam notching and supplemental tree planting.

Explain the things you will do in the future to maintain project outcomes:

| Year | Source of Funds | Step 1 | Step 2 | Step 3 |
|------------------------------|-----------------|----------------|-----------------|-------------------------|
| July 1, 2019 - June 30, 2020 | DNR | Beaver Flights | Beaver Trapping | N/A |
| July 1, 2019 - June 30, 2020 | LSSA | Beaver Flights | Beaver Trapping | Tree Planting |
| July 1, 2020 - June 30, 2021 | DNR | Beaver Flights | Beaver Trapping | N/A |
| July 1, 2020 - June 30, 2021 | LSSA | Beaver Flights | Beaver Trapping | Stream Walks/Assessment |
| July 1, 2021 - June 30, 2022 | DNR | Beaver Flights | Beaver Trapping | N/A |
| July 1, 2021 - June 30, 2022 | LSSA | Beaver Flights | Beaver Trapping | Tree Planting |
| July 1, 2022 - June 30, 2023 | DNR | Beaver Flights | Beaver Trapping | N/A |
| July 1, 2022 - June 30, 2023 | LSSA | Beaver Flights | Beaver Trapping | Stream Walk/Assessment |

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

The LSSA has been awarded a 2018 LSOHC grant (Phase III) for the upper portion (~2,200 linear feet) of Reach 4. By funding this project the remainder of Reach 4 could be completed without delaying construction on the lower portion of Reach 4.

The other reason timing is so critical is to reestablish the lost riparian canopy. A major component of rehabilitating a trout stream is to restore a mixed overhead canopy. This canopy takes 5 to 10 years for shrubs and 25 to 75 years for large trees to reestablish. The reestablishment of riparian cover is critical to minimize the colonization of invasive species, such as reed canary grass and buckthorn that are already present in the watershed.

How does this proposal include leverage in funds or other effort to supplement any OHF appropriation:

The LSSA has used our charitable gaming proceeds to fund 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/labor and stocking of fish.

We continued to use our gaming funds to supplement our first two phases of this LSOHC grant. The LSSA has spent is approximately \$60,000 to fund grant work on private, non-easement property design on the second falls restoration project and creation of an educational/promotional video on our Grant Funded Projects. The LSSA has also spent approximately \$20,000 on beaver flights, dam removal and beaver trapping in the watershed.

Finally, the LSSA has provided a large in-kind volunteer effort. This in-kind donation has amounted to over \$60,000 for equipment use and rental, volunteer labor, meals, travel and other expenses in previous grants. Zeitgeist/LSSA anticipates contributing XXX to this project (Phase IV Lower Reach 4) in the form of payments and in-kind donations.

Relationship to other funds:

- Clean Water Fund
- Coastal Grant Program

Describe the relationship of the funds:

The LSSA was awarded a Coastal grant (NOAA funded, MN DNR administered) for the permitting/design of the entire Reach 4 complex. Even though the coastal grant will be used prior to the work outlined in PH IV, the coastal funding will allow the proposed work in PH IV to be implemented in a very short time frame. PH IV will be very close to shovel ready.

In 2012, Legacy Clean Water Fund and Great Lakes Commission provided money to the Lake County Soil and Water Conservation District for the Knife River watershed’s private stream sections. This money was used to stabilize slumping clay banks as part of the TMDL implementation plan. This money was awarded to the Lake County Soil and Water Conservation District. The Lake County SWCD has also received three Buck thorn removal grants to protect the Knife River riparian zone.

The LSSA and SWCD have been working cooperatively on separate sections of river to insure the entire watershed is addressed and improved. The LSSA is primarily working on the upper river habitat on public lands and private lands with easements, while the SWCD is working on the lower river sections and concentrating on private lands.

Per MS 97A.056, Subd. 24, Any state agency or organization requesting a direct appropriation from the OHF must inform the LSOHC at the time of the request for funding is made, 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:

This funding request by ZG/LSSA does not supplant or substitute any previous funding.

Describe the source and amount of non-OHF money spent for this work in the past:

| Appropriation Year | Source | Amount |
|--------------------|---|---------------|
| FY 2012 | Great Lakes Commission-Hawk Hill Road Project | \$ 293,000.00 |
| FY 2012 | Clean Water Fund-Copperhead Road Project | \$ 212,000.00 |
| FY 2015 | LCMR-Buckthorn Removal | \$ 54,000.00 |
| FY 2016 | DNR-Buckthorn Removal | \$ 12,800.00 |
| FY 2017 | Clean Water Fund-Buckthorn Removal | \$ 144,000.00 |
| FY 2018 | Federal-MN Coastal Grant (LSSA) | \$ 50,000.00 |

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 (County/Municipal, Public Waters)**

Do you anticipate federal funds as a match for this program - **No**

Land Use:

Will there be planting of corn or any crop on OHF land purchased or restored in this program - **No**

Accomplishment Timeline

| Activity | Approximate Date Completed |
|--|-----------------------------------|
| Biological Assessments | September 1, 2019 - June 30, 2022 |
| Reach Survey and Project Design To Meet MN DNR Recommendations | July 1, 2019 - June 30, 2022 |
| Design/Build/Restoration and Construction Activities | June 15, 2020 - June 30, 2022 |
| Tree Planting | July 1, 2019 - June 30, 2022 |

Budget Spreadsheet

Total Amount of Request: \$2,400,000

Budget and Cash Leverage

| BudgetName | LSOHC Request | Anticipated Leverage | Leverage Source | Total |
|----------------------------|--------------------|----------------------|-----------------------------|--------------------|
| Personnel | \$382,000 | \$5,000 | Private Source: LSSA | \$387,000 |
| Contracts | \$1,735,000 | \$9,000 | Private Source: LSSA | \$1,744,000 |
| Fee Acquisition w/ PILT | \$0 | \$0 | | \$0 |
| Fee Acquisition w/o PILT | \$0 | \$0 | | \$0 |
| Easement Acquisition | \$0 | \$0 | | \$0 |
| Easement Stewardship | \$0 | \$0 | | \$0 |
| Travel | \$0 | \$13,000 | Private Source: ZG and LSSA | \$13,000 |
| Professional Services | \$0 | \$11,000 | Private Source: ZG and LSSA | \$11,000 |
| Direct Support Services | \$0 | \$0 | | \$0 |
| DNR Land Acquisition Costs | \$0 | \$0 | | \$0 |
| Capital Equipment | \$0 | \$0 | | \$0 |
| Other Equipment/Tools | \$8,000 | \$36,200 | Private Source:LSSA | \$44,200 |
| Supplies/Materials | \$275,000 | \$0 | | \$275,000 |
| DNR IDP | \$0 | \$60,000 | MN DNR Fisheries | \$60,000 |
| Total | \$2,400,000 | \$134,200 | | \$2,534,200 |

Personnel

| Position | FTE | Over # of years | LSOHC Request | Anticipated Leverage | Leverage Source | Total |
|----------------------|-------------|-----------------|------------------|----------------------|----------------------|------------------|
| Project Fiscal Lead | 0.60 | 4.00 | \$191,000 | \$0 | | \$191,000 |
| Project Site Manager | 0.60 | 4.00 | \$191,000 | \$5,000 | Private Source: LSSA | \$196,000 |
| Total | 1.20 | 8.00 | \$382,000 | \$5,000 | | \$387,000 |

Amount of Request: \$2,400,000

Amount of Leverage: \$134,200

Leverage as a percent of the Request: 5.59%

DSS + Personnel: \$382,000

As a % of the total request: 15.92%

Easement Stewardship: \$0

As a % of the Easement Acquisition: -%

Does the amount in the contract line include R/E work?

YES; 100%

Describe and explain leverage source and confirmation of funds:

LSSA's charitable gaming, general fund and in-kind donations. Allocated by LSSA Board approval. ZG funds allocated by ZG board approval. Other Knife River leverage estimated at \$ 100,000: MNDNR-weir operation, creel census, temp monitoring, steelhead relocation, easement work. Our awarded coastal grant will allow for an almost shovel ready project

Does this proposal have the ability to be scalable? - Yes

Tell us how this project would be scaled and how administrative costs are affected, describe the "economy of scale" and how outputs would change with reduced funding, if applicable:

Less linear feet of stream would be rehabilitated/restored. But by not funding the completion of Reach 4 in its entirety, costs may increase due to duplication of efforts: new RFP, remobilizing costs for contractor, market price increases for all materials involved.

Output Tables

Table 1a. Acres by Resource Type

| Type | Wetlands | Prairies | Forest | Habitats | Total |
|--|----------|----------|--------|----------|-------|
| 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 | 325 | 0 | 325 |
| Total | 0 | 0 | 325 | 0 | 325 |

Table 2. Total Requested Funding by Resource Type

| Type | Wetlands | Prairies | Forest | Habitats | Total |
|--|----------|----------|-------------|----------|-------------|
| 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 | \$2,400,000 | \$0 | \$2,400,000 |
| Total | \$0 | \$0 | \$2,400,000 | \$0 | \$2,400,000 |

Table 3. Acres within each Ecological Section

| Type | Metro/Urban | Forest/Prairie | SE Forest | Prairie | Northern Forest | Total |
|--|-------------|----------------|-----------|---------|-----------------|-------|
| 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 | 325 | 325 |
| Total | 0 | 0 | 0 | 0 | 325 | 325 |

Table 4. Total Requested Funding within each Ecological Section

| Type | Metro/Urban | Forest/Prairie | SE Forest | Prairie | Northern Forest | Total |
|--|-------------|----------------|-----------|---------|-----------------|-------------|
| 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 | \$2,400,000 | \$2,400,000 |
| Total | \$0 | \$0 | \$0 | \$0 | \$2,400,000 | \$2,400,000 |

Table 5. Average Cost per Acre by Resource Type

| Type | Wetlands | Prairies | Forest | Habitats |
|--|----------|----------|---------|----------|
| Restore | \$0 | \$0 | \$0 | \$0 |
| Protect in Fee with State PILT Liability | \$0 | \$0 | \$0 | \$0 |
| Protect in Fee W/O State PILT Liability | \$0 | \$0 | \$0 | \$0 |
| Protect in Easement | \$0 | \$0 | \$0 | \$0 |
| Enhance | \$0 | \$0 | \$7,385 | \$0 |

Table 6. Average Cost per Acre by Ecological Section

| Type | Metro/Urban | Forest/Prairie | SE Forest | Prairie | Northern Forest |
|--|-------------|----------------|-----------|---------|-----------------|
| 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 | \$0 | \$0 | \$7,385 |

Target Lake/Stream/River Feet or Miles

Approx. 18+ miles of river.

I have read and understand Section 15 of the Constitution of the State of Minnesota, Minnesota Statute 97A.056, and the Call for Funding Request. I certify I am authorized to submit this proposal and to the best of my knowledge the information provided is true and accurate.

Parcel List

Explain the process used to select, rank and prioritize the parcels:

The LSSA conducted a rapid stream survey to determine the Knife River's overall condition. As stream impacts were identified during the survey, impaired stream reaches were photographed and mapped using a GPS unit. The LSSA also monitored water temperatures to determine where trout survival is the highest. Finally, biological data was collected to determine the quality of in-stream trout habitat. This data was combined to rank and prioritize restoration areas where the worst stream impacts are restored, that reside in coolest water zones, within the best habitat corridors.

This data concluded that "first-priority reaches" are located in the upper main Knife River. This also achieves our goal of a top-down restoration approach, which benefits the river by:

- Reducing upstream sediment from discharging downstream re-impacting restored habitats.
- Minimizing lower river flood damage by restoring upstream wetlands.

Section 1 - Restore / Enhance Parcel List

Lake

| Name | TRDS | Acres | Est Cost | Existing Protection? |
|-------------|----------|-------|----------|----------------------|
| Knife River | 05211204 | 0 | \$0 | Yes |
| Knife River | 05211205 | 0 | \$0 | Yes |
| Knife River | 05211208 | 0 | \$0 | Yes |
| Knife River | 05211209 | 0 | \$0 | Yes |
| Knife River | 05211217 | 0 | \$0 | Yes |
| Knife River | 05211218 | 0 | \$0 | Yes |
| Knife River | 05211219 | 0 | \$0 | Yes |
| Knife River | 05211231 | 0 | \$0 | Yes |
| Knife River | 05311205 | 0 | \$0 | Yes |
| Knife River | 05311207 | 0 | \$0 | Yes |
| Knife River | 05311208 | 0 | \$0 | Yes |
| Knife River | 05311217 | 0 | \$0 | Yes |
| Knife River | 05311218 | 0 | \$0 | Yes |
| Knife River | 05311220 | 0 | \$0 | Yes |
| Knife River | 05311229 | 0 | \$0 | Yes |
| Knife River | 05311232 | 0 | \$0 | Yes |
| Knife River | 05311233 | 0 | \$0 | Yes |
| Knife River | 05411220 | 0 | \$0 | Yes |
| Knife River | 05411229 | 0 | \$0 | Yes |
| Knife River | 05411232 | 0 | \$0 | Yes |

St. Louis

| Name | TRDS | Acres | Est Cost | Existing Protection? |
|------------------|----------|-------|----------|----------------------|
| Knife River | 05212224 | 0 | \$0 | Yes |
| Knife River | 05212225 | 0 | \$0 | Yes |
| Knife River | 05212225 | 0 | \$0 | Yes |
| Main West Branch | 05312202 | 0 | \$0 | Yes |
| Main West Branch | 05412235 | 0 | \$0 | Yes |

Section 2 - Protect Parcel List

No parcels with an activity type protect.

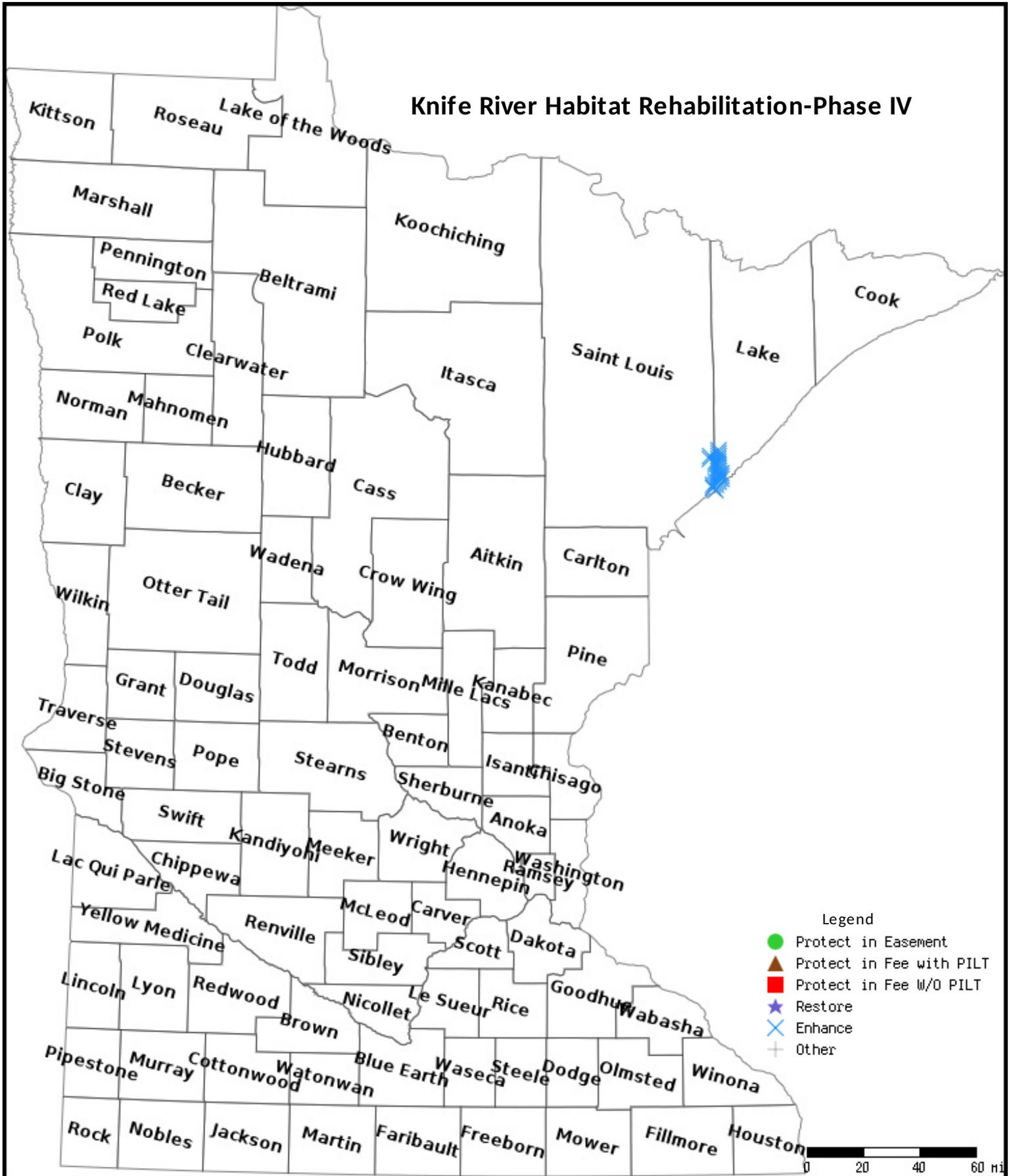
Section 2a - Protect Parcel with Bldgs

No parcels with an activity type protect and has buildings.

Section 3 - Other Parcel Activity

No parcels with an other activity type.

Parcel Map



Data Generated From Parcel List

Map of Lower Reach 4



Slumping Bank Lower Reach 4 – Rehabilitation similar to Reach 12







Saint Louis County

First District Commissioner • 100 N. 5th Avenue West, Room 202 • Duluth, MN 55802
Phone: (218) 726-2458 • Fax (218) 726-2469 • Email: jewellf@co.st-louis.mn.us

Frank Jewell
County Commissioner

May 30, 2018

LSOHC
100 Rev. Dr. Luther King Jr. Blvd
State Office Building, Room 95
St. Paul, MN 55155

Dear LSOHC Committee Members,

I am writing to support a grant application from the Lake Superior Steelhead Association (LSSA) to restore a reach of the Knife River in Lake County. The Knife River is critically important for Steelhead along Minnesota's North Shore and the reach that the LSSA plans to restore is within the known spawning area. This reach was heavily impacted by flooding in 2012 and has several steep eroding banks contributing excessive sediment to the stream.

Late last fall I visited a site with Kevin Bovee, an Association member, to look at a recently completed restoration they did on the Knife River. It was extremely well done and I was impressed by the way in which the Association worked with private property owners and the state to accomplish it. The project was very successful and clearly demonstrates LSSA's ability to succeed in this next project.

It is important to St. Louis County that there are NGO's that can drive these projects and assure that they get done. While this project is aimed at fish habitat I know, as Chair of the MN Clean Water Council, that it will also have a large clean water benefit by decreasing the turbidity downstream and out into Lake Superior. I lend my wholehearted support to their work and look forward to touring another successful project when completed.

Sincerely,

Frank Jewell
St. Louis County Commissioner, First District

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