



## Lessard-Sams Outdoor Heritage Council

Knife River Habitat Rehabilitation-PH VII  
Laws of Minnesota 2024 Accomplishment Plan

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### General Information

**Date:** 06/26/2024

**Project Title:** Knife River Habitat Rehabilitation-PH VII

**Funds Recommended:** \$1,572,000

**Legislative Citation:** ML 2024, Ch. 106, Art. 1, Sec. 2, Subd. 5(s)

**Appropriation Language:** \$1,572,000 the second year is to the commissioner of natural resources for an agreement with the Arrowhead Regional Development Commission, in cooperation with the Lake Superior Steelhead Association, to restore and enhance trout habitat in the Knife River watershed. If the Arrowhead Regional Development Commission declines to serve as the fiscal agent for the project, an alternative fiscal agent must be identified in the accomplishment plan for the project.

### Manager Information

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

**Title:** Blake Francis-Fiscal Manager (RWF), Kevin J. Bovee-Project Manager (LSSA)

**Organization:** Rajala Woods Foundation (RWF), Lake Superior Steelhead Association (LSSA);

**Address:** 30 West Superior Street (RWF) P. O. Box 16034 (LSSA)

**City:** Duluth (Both), MN 55802 (RWF), 55816 (LSSA)

**Email:** blakeafrancis@gmail.com (RWF), outriderduluth@msn.com (LSSA)

**Office Number:** 218/391-2487 (RWF), 218/269-7427 (LSSA),

**Mobile Number:**

**Fax Number:**

**Website:** www.rajalawoodsfoundation.org (RWF), www.steelheaders.org (LSSA)

### 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
- Wetlands
- Habitat

## Narrative

### Abstract

Historic flooding led to severe habitat degradation throughout the Knife River watershed. Including miles of slumping streambanks, thousands of tons of sediment discharge, turbidity measurements exceeding the MPCA's TMDL and loss of instream trout habitat. DNR has documented a 200% increase in adult steelhead population, two miles of restored stream channel, 10,000 feet of stabilized streambanks and annual reduction of sediment discharge by 1,000 tons due to our projects. This seventh project will stabilize over 4,500 feet of slumping streambanks and improve both riparian and instream habitats.

### 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. Habitat rehabilitation projects utilize Natural Channel Design (NCD) parameters. By focusing on the Watershed as a whole and working to fix the root cause, the stream and the immediate riparian zones are much healthier and robust for decades to come, benefitting all trout populations and instream invertebrates.

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 notable Lake Superior tributaries have observed steelhead populations decrease or crash. Two of the most prominent Lake Superior tributaries the Brule River and Portage Creek both saw their adult steelhead returns noticeably decline. The 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 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. This top-down restoration approach eliminates re-impacting previously restored stream sections and reduces downstream flooding and sedimentation because water and sediments are deposited and held on the newly constructed upstream 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 restore the most critical stream reaches.

Finally, we engage 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 discuss key sites proposed for restoration. By utilizing this prioritization approach, we ultimately invest grant funds in the most efficient manner possible.

NOTE: The Arrowhead Regional Development Commission (ARDC) has agreed to work with the LSSA as fiscal manager going forward. Please see note in ATTACHMENTS.

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 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.
- Monitor water temperature.

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

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

The MN DNR has started an initiative to recover "coaster" brook trout populations in Minnesota tributaries to Lake Superior and the Knife River rehabilitation project will support that initiative by providing excellent spawning, rearing and holding habitat for "coasters" and resident brook trout. Anadromous rainbows (steelhead) will benefit in all life stages in the project areas.

### **What are the elements of this plan that are critical from a timing perspective?**

This grant project is combining two reaches (Reaches 15 and 16) into one restoration project. Reach 15 is the proposed grant reach. This reach resides in public ownership, so grant funds can be used to rehabilitate this stream section. The downstream section proposed for restoration is Reach 16. Reach 16 is private ownership, 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 work. The Reach 16 private section is directly downstream, so if Reach 15 is not funded then Reach 16 will not be restored. This is because the upstream impacts from the eroding Reach 15 streambanks would compromise the privately funded Reach 16 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 plan 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 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 streambank erosion, restoring the stream channel's shape, dimension and profile, minimizing downstream flooding by holding floodwaters on the landscape and replanting the riparian zone. This provides a continuous habitat corridor by not leaving fragmented upstream habitats to impact downstream projects. Every foot of stream below our project areas greatly benefits from decreased sedimentation along with the near shore waters of Lake Superior as evidenced by the large muddy plumes seen

after large rain/runoff events.

Also, by using this continuous top/down approach we hold floodwaters upstream on newly created floodplains and floodplain wetlands. By allowing the rising stream improved access to the floodplain during high water events, the damages due to increased downstream flooding are lessened greatly. We also cool upstream water temperatures by reestablishing shade through riparian plantings, create and enhance trout spawning habitat for juvenile trout to rear in the more fertile upper Knife River and we provide better fish passage throughout the watershed. Our previous six phases of work confirm that the LSSA river restoration process is working because our results have been confirmed by the DNR's Knife River Trap to have increased the steelhead population by 200%.

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

- Long Range Plan for Fisheries Management

### **Explain how this plan will uniquely address habitat resilience to climate change and its anticipated effects on game, fish & wildlife species utilizing the protected or restored/enhanced habitat this proposal targets.**

Our habitat restoration projects not only work to improve the instream habitat functions but we also have a large emphasis on riparian planting restoration. The use of NCD parameters allow the river to easier access the floodplain which in turn will reduce erosion and lessen streambed degradation (instream habitat) which will benefit not only all trout species but the all the invertebrate species that are required for a healthy instream environment. Our riparian plantings have been expanded to include tree species that are projected to move into the region by climate assisted migration. We utilize a mix of deciduous and coniferous species without counting on a single specie which may be imperiled in future years due to new invasives, similar to the Emerald Ash Borer found today. Having a diverse planting plan including trees and pollinator shrubs will ensure a healthy riparian zone for decades to come.

### **Which LSOHC section priorities are addressed in this program?**

#### **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

### **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.**

This funding request does not supplant nor is a substitution for previous funding.

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

The LSSA uses NCD for stream restoration projects. This process assesses and survey's the stream channel and landscape to determine the underlying causes for stream impairment and 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.

An 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 to 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 streambed to create current breaks that accumulate gravel. These scour 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.

LSSA volunteers and contractor performs annual spring and fall stream walks to ensure the projects have not degraded from the spring melt or summertime floods. We also check for adequate fish passage, trout spawning activity and fish usage.

**Provide an assessment of how your program celebrates cultural diversity or reaches 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 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 fishing class just for this reason. The class is for kids 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 12 years the LSSA has provided this class, we have had youth and parent participants that have included women, minorities and LGBT individuals. We have found that when young folks and their parents (guardians, etc) take the class together, the family spends more time doing something they all like to do. We have seen past participants (youth and adult) on the area rivers after the classes/stream session have been completed.

**Activity Details**

**Requirements**

**If funded, this program 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 or on lands to be acquired in this program?**

Yes

**Where does the activity take place?**

- Public Waters
- Permanently Protected Conservation Easements

**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 program either in the process of restoration or use as food plots?**

No

**Timeline**

<b>Activity Name</b>	<b>Estimated Completion Date</b>
Riparian planting; site rehabilitation	December 2028
Construction per designed/permitted project	October 2027
Let RFP; Assess/design/permit Reach 15	July 2025

**Date of Final Report Submission:** 06/30/2029

**Availability of Appropriation:** Subd. 7.

Availability of Appropriation

(a) Money appropriated in this section may not be spent on activities unless they are directly related to and necessary for a specific appropriation and are specified in the accomplishment plan approved by the Lessard-Sams Outdoor Heritage Council. Money appropriated in this section must not be spent on indirect costs or other institutional overhead charges that are not directly related to and necessary for a specific appropriation. Money appropriated for fee title acquisition of land may be used to restore, enhance, and provide for public use of the land acquired with the appropriation. Public-use facilities must have a minimal impact on habitat in acquired lands.

(b) Money appropriated in this section is available as follows:

- (1) money appropriated for acquiring real property is available until June 30, 2028;
- (2) money appropriated for restoring and enhancing land acquired with an appropriation in this section is available for four years after the acquisition date with a maximum end date of June 30, 2032;
- (3) money appropriated for restoring or enhancing other land is available until June 30, 2029;
- (4) notwithstanding clauses (1) to (3), money appropriated for a project that receives at least 15 percent of its funding from federal funds is available until a date sufficient to match the availability of federal funding to a maximum of six years if the federal funding was confirmed and included in the original approved draft accomplishment plan; and
- (5) money appropriated for other projects is available until the end of the fiscal year in which it is appropriated.

## Budget

*Budget reallocations up to 10% do not require an amendment to the Accomplishment Plan.*

### Totals

Item	Funding Request	Leverage	Leverage Source	Total
Personnel	\$182,000	\$2,000	Private	\$184,000
Contracts	\$1,303,500	\$150,000	Private-Other	\$1,453,500
Fee Acquisition w/ PILT	-	-	-	-
Fee Acquisition w/o PILT	-	-	-	-
Easement Acquisition	-	-	-	-
Easement Stewardship	-	-	-	-
Travel	-	\$8,000	Private, LSSA Volunteer	\$8,000
Professional Services	-	\$2,000	Private, LSSA	\$2,000
Direct Support Services	-	-	-	-
DNR Land Acquisition Costs	-	-	-	-
Capital Equipment	-	-	-	-
Other Equipment/Tools	\$2,500	\$9,000	Private, LSSA Volunteer	\$11,500
Supplies/Materials	\$84,000	\$2,500	Private, LSSA Volunteer	\$86,500
DNR IDP	-	\$250,000	DNR	\$250,000
<b>Grand Total</b>	<b>\$1,572,000</b>	<b>\$423,500</b>	-	<b>\$1,995,500</b>

### Personnel

Position	Annual FTE	Years Working	Funding Request	Leverage	Leverage Source	Total
Fiscal Management	0.5	4.0	\$91,000	\$1,000	Private	\$92,000
Project Management	0.5	4.0	\$91,000	\$1,000	Private	\$92,000

**Amount of Request:** \$1,572,000

**Amount of Leverage:** \$423,500

**Leverage as a percent of the Request:** 26.94%

**DSS + Personnel:** \$182,000

**As a % of the total request:** 11.58%

**Easement Stewardship:** -

**As a % of the Easement Acquisition:** -

**How will this program accommodate the reduced appropriation recommendation from the original proposed requested amount?**

As mentioned in original AP, less work will be accomplished under this grant phase. This funding will allow for the project to go to RPF and contract award, design and permitting.

**Detail leverage sources and confirmation of funds:**

Sources: LSSA General/Charitable Gaming funds; work being done (used as match) below Reach 15 area on private property where state funds cannot be applied-this work contingent on obtaining grant; volunteer efforts.

**Does this project have the ability to be scalable?**

Yes

**If the project received 50% of the requested funding**

**Describe how the scaling would affect acres/activities and if not proportionately reduced, why?**

Scaling would affect how much work can be accomplished under a single grant. Private work (used as leverage) performed downstream in conjunction with Reach 15 could be jeopardized by construction delays due to scaling. If scaled, more than a single grant would be needed.

**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

**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 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?**

Replacement parts/repairs to existing tools (not owned operated by contractor); possible replacement of tools; gas/oil etc for internal combustion tools, 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	-	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	-	300	300
<b>Total</b>	-	-	-	<b>300</b>	<b>300</b>

**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	-	-	-	\$1,572,000	\$1,572,000
<b>Total</b>	-	-	-	<b>\$1,572,000</b>	<b>\$1,572,000</b>

**Acres within each Ecological Section (Table 3)**

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

**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	-	-	-	-	\$1,572,000	\$1,572,000
<b>Total</b>	-	-	-	-	<b>\$1,572,000</b>	<b>\$1,572,000</b>

**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	-	-	-	\$5,240

**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	-	-	-	-	\$5,240

**Target Lake/Stream/River Feet or Miles**

15 Miles

## Parcels

### Parcel Information

#### 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.

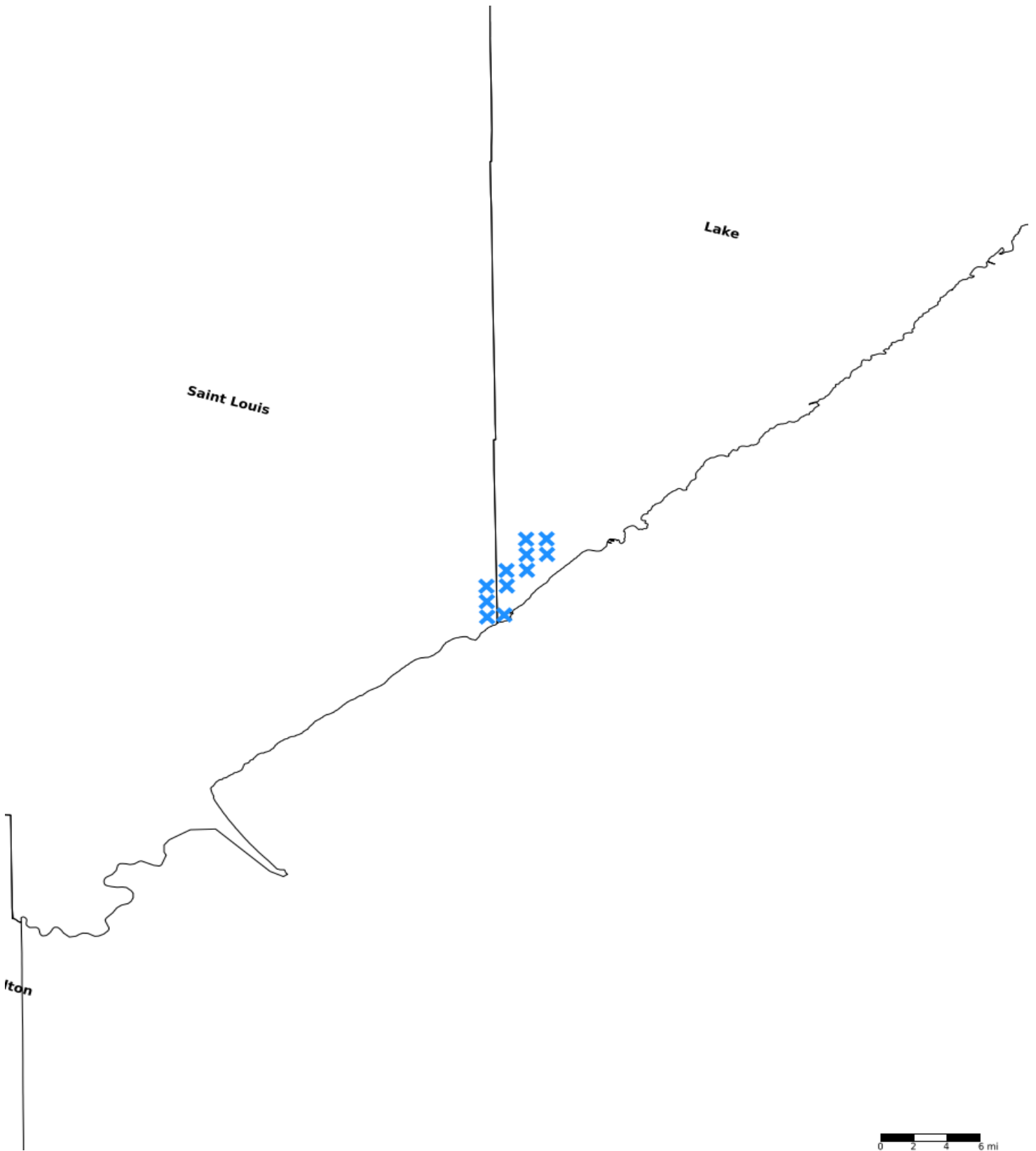
The LSSA also has a policy to work from the top of a reach downstream. Our top-down restoration approach eliminates re-impacting restored reaches downstream and reduces future downstream flooding and sedimentation. As mentioned in the "Design and Scope of Work", the LSSA incorporates a Watershed Restoration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

### Restore / Enhance Parcels

Name	County	TRDS	Acres	Est Cost	Existing Protection	Description
PH VII	Lake	05211208	58	\$304,936	Yes	Stream/Riparian Zone
PH VII	Lake	05211218	37	\$194,528	Yes	Stream/Riparian Zone
PH VII	Lake	05211219	37	\$194,528	Yes	Stream/Riparian Zone
PH VII	Lake	05211204	37	\$194,528	Yes	Stream/Riparian Zone
PH VII	Lake	05211205	29	\$152,468	Yes	Stream/Riparian Zone
-	Lake	05211209	2	\$10,515	Yes	Stream/Riparian Zone
-	Lake	05211231	2	\$10,515	Yes	Stream/Riparian Zone
PH VII	Lake	05211217	22	\$115,665	Yes	Stream/Riparian Zone
-	St. Louis	05212225	35	\$184,013	Yes	Stream/Riparian Zone
-	St. Louis	05212236	15	\$78,863	Yes	Stream/Riparian Zone
Reach 16	St. Louis	05212224	25	\$131,438	Yes	Stream/Riparian Zone

Parcel Map



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