

# Outdoor Heritage Fund Stories

+ Three Rivers Park District – Crow-Hassan Prairie Restoration

– Koochiching SWCD – Collaborations along the Rat Root River



In the 1930s the Rat Root River was swarmed by thousands of spawning walleye each spring. By the 1970s there was a tenfold decrease in fish. Working together, the Rainy Lake Sportfishing Club, local DNR staff, and the Koochiching Soil and Water Conservations District set out to use Conservation Partner Legacy Grants to restore spawning in the Rat Root River. The team removed log jam barriers, stabilized shorelines, and installed spawning riffles for fish. Today the DNR is watching the projects for spawning fish. Knowing if the work done along the Rat Root is resulting in bringing walleye back is critical in strategically and efficiently using Legacy Funds in the future.



## Koochiching Soil and Water Conservation District— Collaborations along the Rat Root River

### OUTDOOR HERITAGE FUND

In the 1930s the Rat Root River was swarmed by thousands of spawning walleye each spring. Eggs would hatch and walleye fry would filter into Rainy Lake supporting a thriving fishery. By the 1970s there was a tenfold decrease in fish spawning in the Rat Root River.

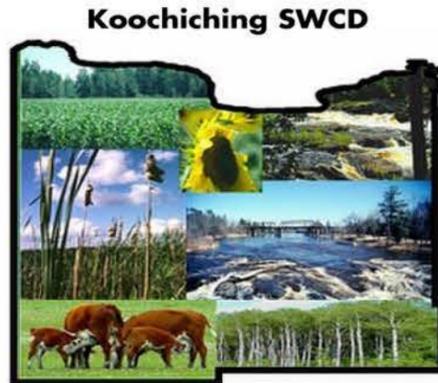
Working together the Rainy Lake Sportfishing Club, local DNR staff, and the Koochiching SWCD set out to use Conservation Partner Legacy Grants to restore spawning in the Rat Root River. Phase one of the project removed channel spanning log jams that were blocking fish from getting to suitable spawning habitat.

Phase two continued to open the channel, stabilized shorelines to reduce erosion, and installed spawning riffles for fish. Phase three of the project expanded these efforts three miles further into the Rat Root River.

Today the Minnesota Department of Natural Resources is watching the riffles for walleye eggs, and more importantly to see if those eggs are hatching into fry. Knowing if the work done along the Rat Root is resulting in bringing walleye back is critical in strategically and efficiently using Legacy Funds in the future.

### RESTORATION HIGHLIGHTS

- Multidisciplinary project teams used to strategically work to address root causes of problems
- Comprehensive and ongoing documentation of project goals, methodology and outcomes
- Monitoring data being collected to guide future projects
- Long-term management is practical for meeting proposed outcomes



*Rat Root River Sediment Control  
&  
Spawning Enhancement*



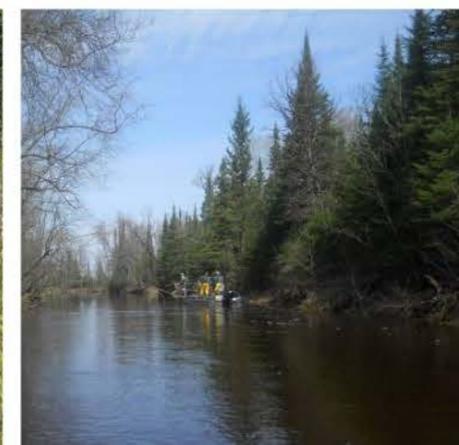
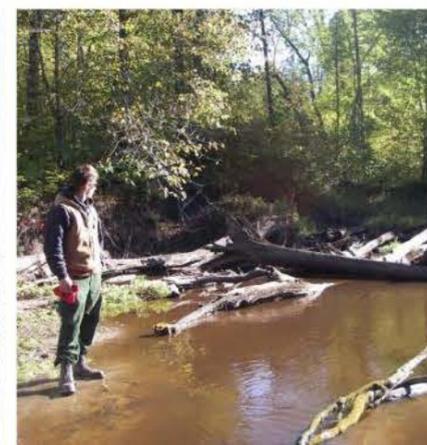
In the spring of 2010, the Rainy Lake Sportfishing Club (RLSC) partnered with the Koochiching Soil & Water Conservation District (SWCD) to seek funding that would assist them in restoring and enhancing the walleye spawning run on the Rat Root River system, a major tributary to Rainy Lake.



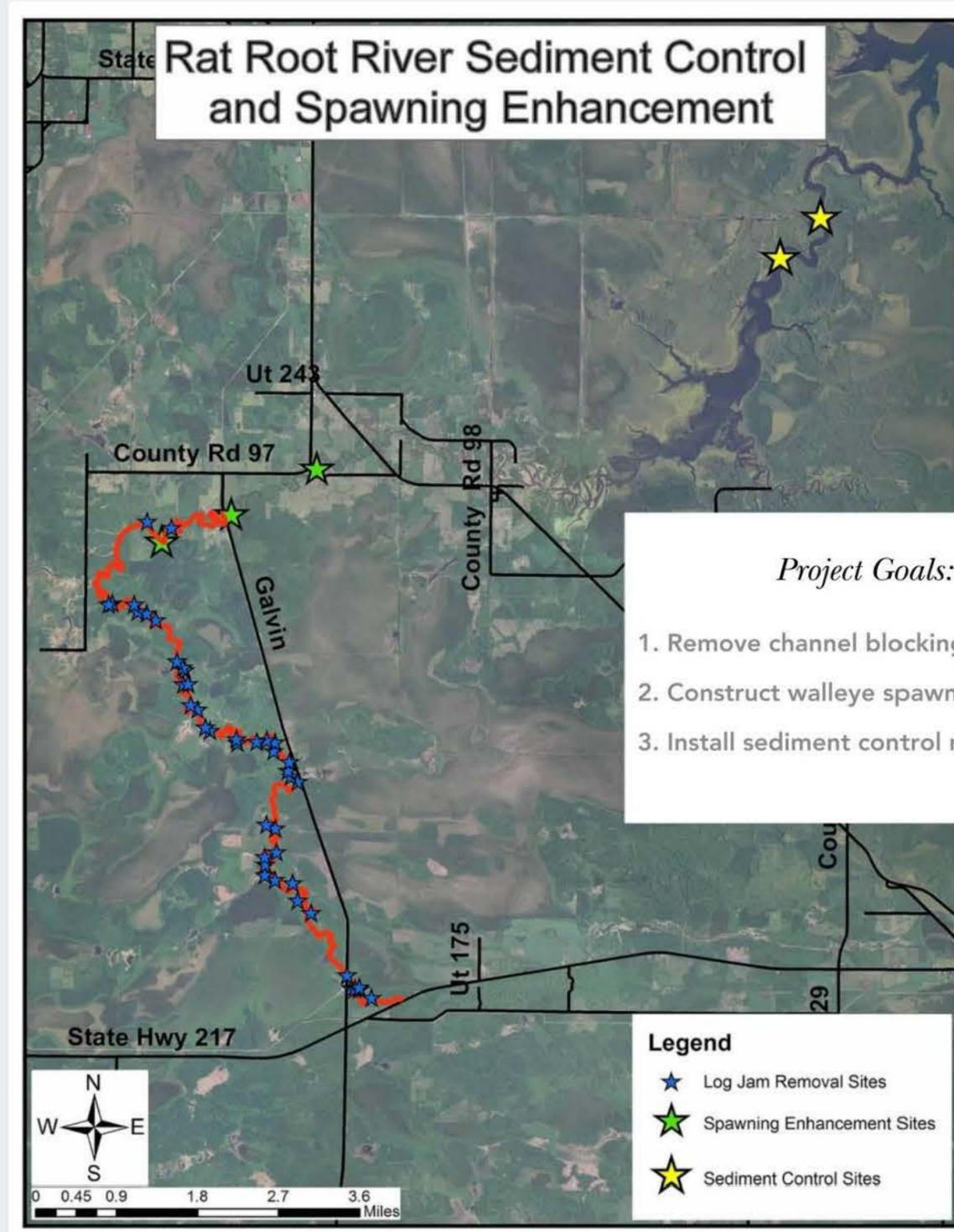
With funding awarded in 2011 and 2012 through the Conservation Partners Legacy (CPL) Grant, along with financial and technical support from RLSC, SWCD, Koochiching County and the local DNR, progress is being made to restore and enhance the fish habitat in the Rat Root River.



Here is our story...



## HISTORY

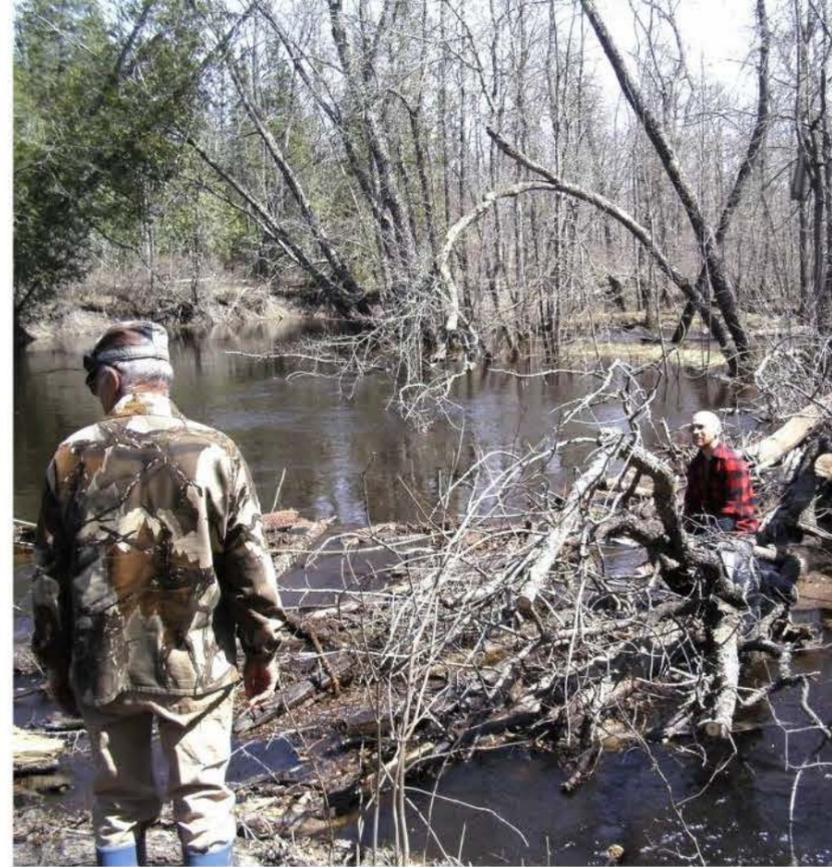


### *Project Goals:*

1. Remove channel blocking log jams
2. Construct walleye spawning riffles
3. Install sediment control measures



The Rat Root River plays an important role in maintaining a healthy, self-sustaining walleye fishery on Rainy Lake. In the 1930's, sedimentation began impacting walleye spawning movements and by the mid-1950's, accumulated sediment had filled in portions of Rat Root Lake enough to severely limit walleye migration. Compounding the problem was the high occurrence of log jams which were impeding navigation and flow, trapping more sediment, and blocking fish migration. In 2008, with funding provided by the Rainy Lake Sportfishing Club, Sandy Verry of Ellen River Partners identified channel blocking log jams spanning a distance of 15 miles and, soon after the study was complete, a plan was set in motion to restore and improve fish habitat in the Rat Root River.



## *PHASE 1*

Log Jam Removal - Spring 2011



BEFORE

Using chainsaws, winches and pick axes, a local contractor and his crew removed massive amounts of wood from the river by hand, a method that was extremely labor intensive but also protected sensitive riverbanks from further erosion where deadfall trees created unstable areas. This initial effort resulted in the removal of 15 large log jams over a span of five miles.

"As you can see from the pictures, this river was impassible by any means at project beginning...boat and snowmobile travel is now possible, even in low water, from Hwy 217 all the way to Rat Root Lake."

Jami Schaak,  
Schaak Contracting, LLC



AFTER



As Phase 1 continued on through the winter of 2011, log jam removal efforts continued starting at the north end of the river and moved south. Due to the high volume of snow accumulation and the complexity of individual jams beneath the water's surface, the removal process proved to be more labor intensive than anticipated, however, the contractor and his crew were still able to partially open or completely remove all log jams in the entire 15 mile project area.



## *PHASE 2*

Log Jam Removal - Spring 2012



At the end of Phase 1, the Rat Root River was experiencing a dramatic increase in current and, although this provided multiple benefits to the river including the cleaning of spawning substrate, it also contributed greatly to the formation of new log jams at known congregation points along the river. Phase 2 began in the spring of 2012 with local contracted labor continuing to open and remove channel blocking log jams.



As Phase 2 continued on through the winter of 2012, cold weather and very little snow fall provided excellent conditions for log jam removal efforts.

With over 90% of the wood in each jam accessible above the ice surface, the contractor and his crew were able to successfully open each jam and move the majority of wood to locations outside the flood-prone areas.





In the summer of 2013, Nature Valley partnered with the Rainy Lake Sportfishing Club to work at the watershed scale and plant longer lived conifers in an effort to stabilize sensitive shoreline areas of the Rat Root River. This support project brought together dozens of volunteers from across the United States along with members of the CCM Summer Youth Corps.

## *PHASE 2*

Log Jam Removal - Fall 2013



BEFORE



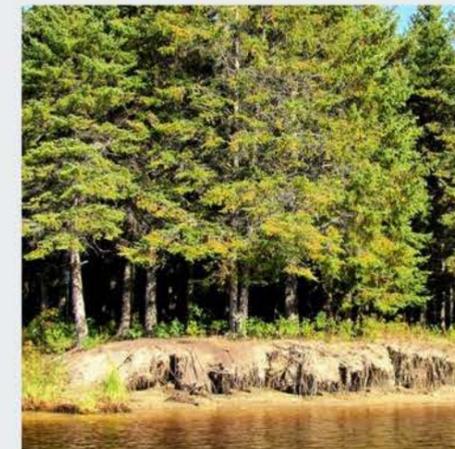
AFTER



With improved water flow came an increase in wood movement as well as beaver activity. In the fall of 2013, Conservation Corps Minnesota spent two weeks clearing new log jams and beaver dams.

## PHASE 2

Erosion Control - Fall 2013



Two popular Koochiching County public campsites located just north of Rat Root Lake had become major sediment contributors to the Rat Root River system. In order to stabilize the severely eroding shoreline and protect fish habitat from the effects of sediment, the Koochiching County Land & Forestry Department sought out an engineered design that would provide long-term bank protection, improve water quality, and enhance spawning habitat.

## Rat Root Picnic Site



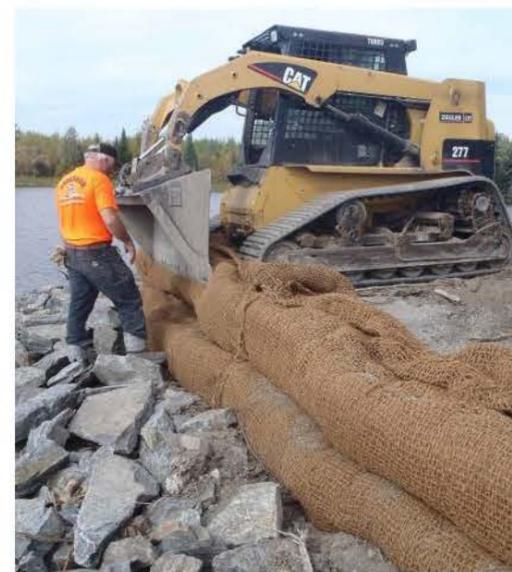
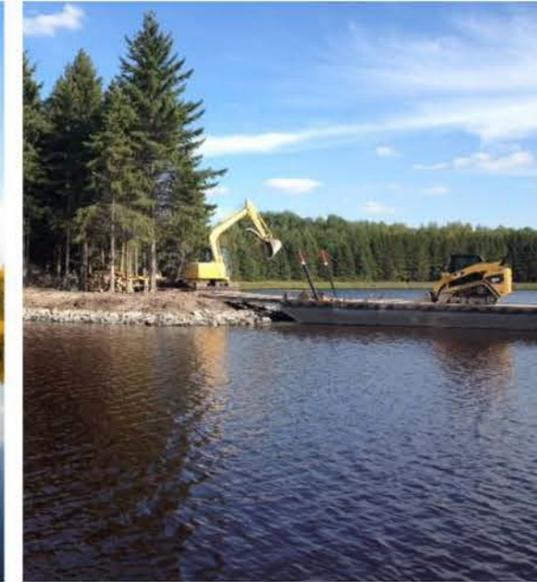
With the help of the Koochiching SWCD and local DNR staff, the County was successful in finding the right design and contracted with the North Central MN Joint Powers Board for engineering services. Utilizing a combination of rock rip rap, bioengineering, and native plant cuttings, more than 900 feet of shoreline was transformed.

The rock rip rap supports and stabilizes the sediment control structure and protects the shoreline from wave action and soil erosion.

The bioengineering material, RoLanka's "BioD-Roll", provides erosion protection and creates an excellent environment for sustainable riparian vegetation.

The 900+ Bebb's willow and red osier dogwood cuttings planted by the County are fibrous root species that help prevent soil erosion and promote wildlife habitat.

In the spring of 2014, the Rainy Lake Sportfishing Club plans to donate docks for each site.



## Fish Camp Campsite



# PHASE 2

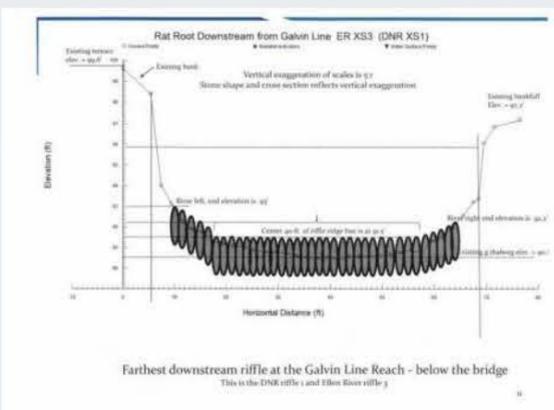
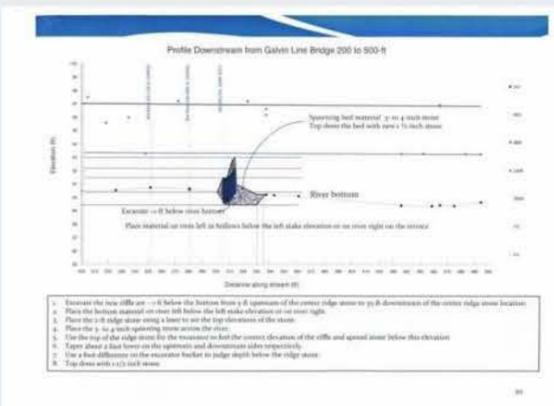
Walleye Spawning Riffle Construction - Winter 2013 / Spring 2014



Access to the walleye spawning riffle site passes directly through private property. Landowner permission was requested and granted in writing.



In the fall of 2012, with funding provided by Minnesota DNR, Sandy Verry of Ellen River Partners began working on walleye spawning riffle designs that would assist in creating additional spawning habitat in the Rat Root River. By February 2013, designs for three locations were complete however, after review, it was soon realized that current available funding would not be sufficient to construct riffles at all three locations. A collective decision was made to install one riffle at the middle location and in November 2013, the project was awarded to a local contractor with construction to begin between January and April of 2014 when conditions are most favorable.

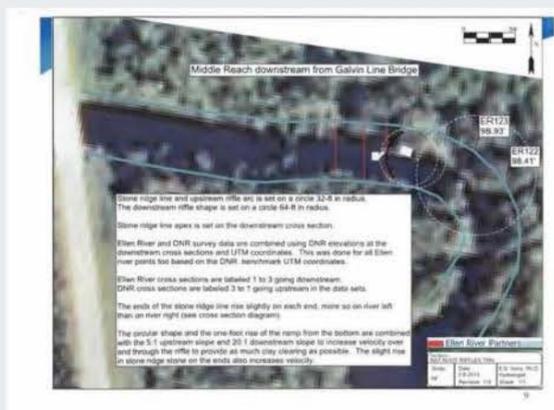


## Riffle Designs for West Branch of the Rat Root River

Ellen River Partners  
February 8, 2013

Quantities for MIDDLE Reach downstream from Galvin Line Bridge

- 45 2-ft diameter stones, 14 cubic yards or 23 tons
- 122 cubic yards of 3- to 4-inch stone, or 202 tons
- 20 cubic yards of 1 1/2-inch stone, or 33 tons (~ a 3-inch depth that will work in to the larger stone).



## *PHASE 3*

### Future Projects



Organized to assist in the enhancement of the fisheries resources on Rainy Lake, Rainy River, and their tributaries, the volunteer members of the Rainy Lake Sportfishing Club have invested considerable time and money to improve the walleye spawning run in the Rat Root River system.

As Phase 2 of the Rat Root River Sediment Control & Spawning Enhancement effort begins to wrap up, the project partners are busy planning Phase 3 which will likely include additional spawning riffle construction and other habitat improvement projects.

On this 5th anniversary of the Clean Water, Land and Legacy Amendment, the Rainy Lake Sportfishing Club, Koochiching Soil & Water Conservation District, and Koochiching County would like to thank the Conservation Partners Legacy Grant program and the Lessard-Sams Outdoor Heritage Council for assisting us in protecting and enhancing our most valuable resources!

Financial and technical support for this project has been provided by the Conservation Partners Legacy Grant, Rainy Lake Sportfishing Club, Koochiching Soil & Water Conservation District, Koochiching County, MN Department of Natural Resources, Conservation Corps Minnesota, and Nature Valley.

Funds used to produce this book were provided by the Rainy Lake Sportfishing Club and the Koochiching Soil & Water Conservation District.