

2010 Project Abstract

(For the Period Ending June 30, 2012)

PROJECT TITLE: Minnesota River Experts: An Educational Field Trip Online

PROJECT MANAGER: Kimberly Musser

AFFILIATION: Minnesota State University, Mankato Water Resources Center

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WEBSITE: <http://mrbdc.mnsu.edu/learn>

FUNDING SOURCE: Environment and Natural Resources Trust Fund

LEGAL CITATION: M.L. 2010, Chap. 362, Sec. 2, Subd. 8k

APPROPRIATION AMOUNT: \$124,000.00

Overall Project Outcome and Results

Considerable public funding and effort has gone into better understanding and restoring the Minnesota River. Research about the river is housed in an array of scientific publications not easily accessible for the public. This project helps to bridge the information gap between researchers and the public and to generally improve environmental education about the river. The project's goal is to increase public awareness about the river's health by using new media techniques to engage students and the public.

Major results included 1) developing and delivering the "Ask an Expert about the Minnesota River" website and 2) performing educational outreach. This project developed a multi-media virtual field trip with accompanying educational materials to showcase what scientists are learning about the Minnesota River. Citizens have a unique opportunity to learn directly from natural resource experts about the current state of the Minnesota River. Video clips of interviews and related information are available online on the Minnesota River Basin Data Center website: <http://mrbdc.mnsu.edu/learn>

Online Educational Website – Ask an Expert about the Minnesota River

Video clips of scientist and citizen experts answering questions about the river's health are the central feature of the website enriched by accompanying handouts, and graphics. Specifically, the major features of the website include:

- 171 video clips of experts answering questions;
- 27 handouts with background information developed to enrich each theme;
- 9 panoramic virtual tours and 20 slideshows;
- 5 educator's guides and 7 accompanying PowerPoint presentations on prairies, wetlands, agriculture, fish, and mussels.

Educational outreach and learning stations

Four computer kiosks (learning stations) were installed at key educational centers across the basin – specifically Treaty Site History Center in St. Peter, MN; Regional River History Center in New Ulm, MN; Ney Nature Center in Henderson, MN; and Clean Up the River Environment (CURE) office in Montevideo, MN – likely reaching 4,000-8,000 people in the upcoming year. Open houses at the four educational centers and other events directly reached approximately 349 people during the project period. Four school classroom presentations reached approximately 371 students.

Project Results Use and Dissemination

The broad dissemination goals for the project are to share data with the public, students and teachers through both traditional and nontraditional outreach methods. The dissemination of this project proceeded at several levels. All the project data is available on the web in a user-friendly format. Computer kiosks (learning stations) highlighting the project were developed and installed in four key river and history centers across the basin. We also conducted outreach to three schools and four

educational centers that included presentations and open houses. We have also used social media resources such as Facebook and YouTube to disseminate information about the project.

We worked collaboratively with a wide range of state and local agencies (MPCA, MDNR, Department of Agriculture, etc.) and citizen organizations (CURE, Ney Nature Center, Nicollet County Historical Society) to develop and publicize the project. Project staff have spoken about the project to local and state officials and staff, nonprofit organizations, teachers and students, and citizens. The project has received attention at scientific meetings (both poster session in 2011 and presentation in 2012 at the Minnesota Water Resources Conference) and educational training (DNR Naturalists). The project team plans to continue outreach to schools and putting on public events to promote the project and further raise public awareness about the Minnesota River.

**Environment and Natural Resources Trust Fund (ENRTF)
2010 Final Report**

Date of Report: August 15, 2012

Final Report

Date of Work Program Approval: June 9, 2010

Project Completion Date: June 30, 2012

I. PROJECT TITLE: Minnesota River Experts: An Educational Field Trip Online

Project Manager: Kimberly Musser
Affiliation: Minnesota State University, Mankato Water Resources Center
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Website Address: <http://mrbdc.mnsu.edu/learn>

Location: *Regions:* Southwest, Central, Metro and Southeast
Counties within the Minnesota River Basin: Big Stone County, Blue Earth County, Brown County, Carver County, Chippewa County, Cottonwood County, Dakota County, Douglas County, Faribault County, Freeborn County, Grant County, Hennepin County, Jackson County, Kandiyohi County, Lac qui Parle County, Le Sueur County, Lincoln County, Lyon County, Martin County, McLeod County, Murray County, Nicollet County, Otter Tail County, Pipestone County, Pope County, Ramsey County, Redwood County, Renville County, Rice County, Scott County, Sibley County, Stearns County, Steele County, Stevens County, Swift County, Traverse County, Waseca County, Watonwan County, Yellow Medicine County

ENRTF Project Budget:	ENRTF Appropriation	\$ 124,000.00
	Minus Amount Spent:	\$ 113,005.95
	Equal Balance:	\$ 10,994.05

Legal Citation: M.L. 2010, Chap. 362, Sec. 2, Subd. 8k

Appropriation Language:

\$124,000 is from the trust fund to the commissioner of natural resources for an agreement with Minnesota State University - Mankato to develop online educational materials on the Minnesota River for schools and outreach centers.

II. and III. FINAL PROJECT SUMMARY

Overall Project Outcome and Results

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IV. OUTLINE OF PROJECT RESULTS:

RESULT 1: Develop and deliver online educational field trips

Description:

This project will develop an innovative multi-media virtual field trip and educational materials available online to teach the public about the Minnesota River. This interactive website will enable people to choose from a map or list of key questions about the Minnesota River. Using concise video clips, key questions about the river’s health will be answered by scientific experts working in the field. Other interactive features and new media techniques (such as Google-Earth flybys and panoramic images) will be woven into the website to create a rich, virtual experience for the website user. The project will be housed on the Minnesota River Basin Data Center website <http://mrbdc.mnsu.edu>.

Major steps to develop the online educational field trips include: 1) conduct interviews 2) develop graphics and website and 3) develop Minnesota River based educational materials.

Deliverable 1: Interview Video Clips

The project will commence with the assembly of an advisory group of scientists, high school teachers, agency personnel, and citizens who will help to identify the list of interviewees and key Minnesota River water quality questions. The same group will advise the project throughout and test the final product.

We will conduct 20 video interviews with natural resource scientists focusing on environmental issues affecting the Minnesota River. Interviews will largely take place in the field as

researchers, land managers, and conservationists perform research and explain key findings or summarize river conditions or trends. We will strive to capture these charismatic experts immersed in the field as they clearly and concisely explain issues that help people understand major topics about the health of the Minnesota River. Another aim of the project is to help people understand the diverse array of research and restoration activities that are underway across the basin to improve water quality and ecosystem health. Each expert interview will be videotaped and edited to distil key video clips.

Timeline: July 31, 2010 – June 30, 2012

Budget: \$23,000

Deliverable 2: Graphics and website

The interactive website will include expert interview video clips along with maps, graphics, photos, aerial imagery, and access to a rich array of information. Major tasks include: performing graphics research, constructing web pages, creating maps, researching historical photographs, processing aerial imagery, and taking new photos. Google-Earth fly-throughs will also be developed to give people a birds-eye view of the landscape and particular interview sites. Additionally, 360-degree panoramic images of interview or research sites will enable visitors to feel immersed in the location. Other explanatory graphics such as graphs and charts will be included. This array of multimedia graphics will provide a rich site context and additional information to clarify the question or issue at hand.

The website will be available online at the Minnesota River Basin Data Center website (<http://mrbdc.mnsu.edu>). We will also utilize a variety of new media venues (e.g. YouTube, Facebook) to publicize the products. The goal is to make this information readily available to a broader audience and delivered in an engaging format.

Timeline: July 31, 2010 – June 30, 2012

Budget: \$40,600

Deliverable 3: Minnesota River based educational materials

Educational materials that accompany the online interviews will be developed to further illustrate or explain the “ask-an-expert” questions. Working with the advisory group and especially with the three high school teachers and their students, we will craft educational materials related to particular interview topics that will be suitable for high school students and the general public. To help develop these educational materials, we will draw from existing publications such as the data-rich the Minnesota River Trends Report, an easy-to-read overview summarizing some of the major demographic, land use, water quality, biological and recreational trends in the basin. We will work with team teachers and the broader advisory group to identify a few “ask-an-expert” interview topics to highlight what best fits into existing high school curricula and merge with Minnesota Academic Standards.

Timeline: July 31, 2010 – June 30, 2012

Budget: \$20,400

Summary Budget Information for Result 1:	ENRTF Budget:	\$ 84,012.54*
	Amount Spent:	\$ 83,977.02
	Balance:	\$ 35.52

***Actual per accepted budget spreadsheet – p.10 of 10 in the ENRTF 2010 Work Program. Rounded to \$84,000 in the ENRTF 2010 Work Program narrative.**

Deliverable	Completion Date	Budget
1. Interview Video Clips A series of video clips from each of the 20 natural resource expert interviews.	June 30, 2012	\$23,000
2. Graphics and website Website that contains video clips, maps, graphics, photos, multimedia imagery, and access to a rich array of information.	June 30, 2012	\$40,600
3. Educational materials Educational materials that accompany the online interviews and help to illustrate or clarify the “ask-an-expert” question.	June 30, 2012	\$20,400

Result Completion Date: June 30, 2012

Final Report Summary:

RESULT 1: Develop and deliver online educational field trips

Deliverable 1: Interview Video Clips:

Advisory Committees

We worked with two advisory committees to create the framework for the project – in the lower and upper portions of the Minnesota River Basin. We wanted to ensure that the advisory committee contained an array of citizen, agencies, non-profits, watershed groups, Soil and Water Conservation Districts (SWCDs), educators as well as broad geographic representation from across this large river basin. We were fortunate to have advisory teams of this caliber with diverse views, rich experience and insight.

Lower Watershed Advisory Committee (Henderson, MN – October 28, 2010)

The group worked together to (1) identify key questions affecting the environmental health of the Minnesota River; (2) identify additional experts to interview; and (3) brainstorm educational materials and graphic/visual aids for the project. The first advisory committee brainstorming session was held on October 28, 2010 at the Ney Nature Center. Ten members of the committee attended the three hour session: Pat Baskfield (MPCA), Carrie Jennings (MN State Geological Survey), Tom Kalahar (Renville SWCD), Bernard Sietman (MDNR), Lauren Klement (Le Sueur County), Art Straub (Educator), Barb Straub (Educator), Paul Wymar (Chippewa River Watershed Project), Becky Pollack (Ney Nature Center) and Katie Rassmussen (MSUM Water Resources Center). We also conducted one-on-one meetings with members of the advisory committee who are unable to attend the brainstorming sessions. For example, we had a follow up meeting with Ben Leonard of the Nicollet County Historical Society to ensure that we are effectively integrating historical perspectives into the project.

Upper Minnesota River Watershed (Montevideo, MN - February 3, 2011)

A second meeting with members of the advisory committee was held in Montevideo on February 3, 2011 to refine the project's framework. The group brainstormed and identified (1) key questions affecting the environmental health of the Minnesota River; (2) additional experts to interview; and (3) educational materials and graphic/visual aids for the project. Ten members attended this advisory meeting: Brett Arne (Pomme de Terre River Association), Audrey Arner (Moonstone Farm), Chris Domeier (MDNR), Butch Halterman (Montevideo High School), Jennifer Hoffman (Chippewa River Watershed Project), Joe Montonye (Grant SWCD), Patrick Moore (Clean Up the River Environment), Cory Netland (Hawk Creek Watershed Project), Kylene Olson (Chippewa River Watershed Project), and Del Wehrspann (Landowner and Citizen Advocate).

Video Partnering (Sub-contract with Friends of the Minnesota Valley /EPIC Media)

This project was greatly enriched by our involvement with the film documentary "River Revival: Working Together to Save the Minnesota River" produced by EPIC Media, Ron Schara Productions and the MSUM Water Resource Center. The one-hour was broadcast prime time on KARE 11 TV on June 12th. Approximately 38,000 households (~85,000 viewers) watched the show and the ratings tied with 60 Minutes. The documentary was hosted by Ron Schara and 10-minute excerpts were featured in a 4-part series on his *Minnesota Bound* TV shows - <http://www.mnbound.com/> in March 2011. The show is broadcast twice weekly on KARE 11 averaging 220,000 viewers per week so we assume the 4-part documentary series was viewed by this large audience as well. The video can be viewed at <http://mnrriver.org/>. Ask an Expert project was able to build upon the success of this documentary by highlighting the Minnesota River. It helped to build momentum, generate publicity and interest in the Minnesota River Basin Data Center website (where the Ask an Expert resides).

Videographer Jon Carlson and Producer John Hickman of www.h2ovideos.com videotaped dozens of people across the Minnesota River Basin. They interviewed a diverse selection of citizens, government staff, nonprofit leaders, watershed specialists and others covering a wide range of topics. As part of their subcontract, the filmmakers generously donated all of their used and unused footage for use in the Minnesota River Experts project. This partnership ultimately enabled us to integrate more topics and a richer array of information into the project. At the onset of our project we joined them on numerous interviews. Award-winning videographer Jon Carlson mentored our team about the overall approach, interview process, video equipment as well as editing techniques.

We inventoried the video and used many landscape shots and aerial imagery as well as excerpts from numerous interviews. For example, the types of video footage that we integrated into this project includes:

- MDNR staff Lee Sundmark and Dirk Peterson, Fisheries Chief discussing the state of the [fisheries](#) in the Minnesota River Basin.
- Environmental scientist Megan Ulrich from the Upper Sioux Community illustrating [macroinvertebrates](#) as important bioindicators of the river's health.
- Geologist Dr. Carrie Jennings from the Minnesota Department of Natural Resources describing area [geology](#) and the formation of the Minnesota River valley.

Interviews

A central portion of this project centered on interviewing citizen and scientist experts about the health of the river. With video and still cameras in hand, we tromped through wetlands and

prairies, rode combines and toured farms. We have waded into rivers, rode on fishing boats, and walked along the banks of the Minnesota River to conduct interviews capturing the expert's answers to key questions about the current and historic condition of the river. We captured excellent footage covering the major themes identified by our advisory committees.

To characterize the historic landscape, we interviewed MDNR Geologist Carrie Jennings who explained Minnesota River Valley geologic history. Mary Mueller, Randy Schindle and Henry Panowitsch all answered questions about prairies in the Minnesota River Basin. To characterize the current and historic role of wetlands in the basin, we interviewed Dr. Brad Cook, biology professor at Minnesota State University Mankato and Mary Mueller, a wetland and prairie restoration expert.

To characterize landscape today, we interviewed conventional corn and soybean farmers (Dave Craigmile, Dave Bergeson, Brad Link) and a livestock operator Paul Schroedl. We toured an organic farm (Carmen Fernholz) and a Community Supported Agriculture (CSA) Farm (Earthrise Farm: Annette and Kay Fernholz).

The water quality story featured interviews with Pat Baskfield of MPCA, Scott Matteson of MDA, and Paul Wymar of the Chippewa River Watershed Project and Katie Rassmussen of the MSU Water Resources Center. We spent quite a bit of time with conservation leaders like Tom Kalahar of Renville SWCD and Cory Netland of the Hawk Creek Watershed Project to capture case studies of successful restoration efforts.

To explore biological indicators, we interviewed MDNR malacologists (mollusk biologist) Mike Davis and Bernard Sietman. We videotaped Brad Koenen of MDNR fisheries conducting a fish survey on the Minnesota River and Chris Domeier (Ortonville MDNR fisheries) talking about impacts of dams on fisheries. Paul Wymar explained what clues macroinvertebrate communities give about the health of the Chippewa River. We also videotaped community events including the Henderson Hummingbird Hurrah, New Ulm Riverblast, and the Ney Nature Center Fall Festival.

The following profiles are included in our "Meet the Experts" web page:

[Pat Baskfield - Hydrologist, Minnesota Pollution Control Agency](#)

[David Bergeson - Farmer, Lac qui Parle County](#)

[Dr. Brad Cook - Biology Professor, Minnesota State University, Mankato](#)

[Mike Davis - Malacologist, Minnesota Department of Natural Resources \(Minnesota DNR\)](#)

[Chris Domeier - Assistant Fisheries Supervisor, Minnesota DNR, Ortonville Office](#)

[Dr. Dan Engstrom](#) - Director, St. Croix Watershed Research Station

[Carmen Fernholz - Organic Farmer, Madison, MN](#)

[Kay and Annette Fernholz - Organic Farmers, Earthrise Farm](#)

[Bob Finley - Regional Manager, Minnesota Pollution Control Agency](#)

[Dr. Carrie Jennings - Geologist, Minnesota Department of Natural Resources](#)

[Tom Kalahar - Renville Soil and Water Conservation District](#)

[Brad Koenen - Fisheries Technician, Minnesota DNR, Hutchinson Office](#)

[Scott Matteson - Monitoring Hydrologist, Minnesota Department of Agriculture](#)

[Mary Mueller - Farmer conservationist, Lower Minnesota River Watershed](#)

[Cory Netland - Coordinator, Hawk Creek Watershed Project](#)

[Henry Panowitsch - Prairie Advocate](#)

[Randy Schindle - Private Lands Specialist, Minnesota DNR, Division of Wildlife](#)

[Dr. Shawn Schottler - Senior Scientist, St. Croix Watershed Research Station](#)

[Bernard Sietman - Malacologist, Minnesota DNR](#)

[Paul Wymar - Watershed Scientist, Chippewa River Watershed Project](#)

Deliverable 2: Graphics and website

We revised, updated and expanded the Minnesota River Basin Data Center (MRBDC) website – the online location for the Ask an Expert project. Web link: <http://mrbdc.mnsu.edu> This overhaul makes significant strides towards making the website the central portal for Minnesota River data. We have transferred the entire site into a new content management system (Drupal). Changing the web platform greatly enriched the end result of this project. With the new website design, site visitors can conduct a comprehensive search and be able to view videos, photos, contacts, reports, articles, educational materials and other information. Major components of the revised site features: general information about the Basin, all the major watersheds, a large selection of reports related to the Minnesota River, contacts, and Maps & GIS data. It also summarizes how people can get involved with the effort to improve water quality and includes a section about exploring the basin. One of the most exciting aspects of this redesign is the use of a visually immersive 360 panoramic images that can incorporate sound, photos, flash files, video and other links within the panoramas. Link to 360 virtual tours: <http://mrbdc.mnsu.edu/ask-expert-360%C2%B0-virtual-tours>

On June 12 2011 we launched the newly expanded and updated MRBDC website in conjunction with the airing of the “River Revival” documentary. Website statistics from January 2010 through August 2011 indicate a striking peak in June when the website received nearly a half million hits (471,973) compared to an average of just under 100,000 for the previous months. This is likely correlated with the publicity generated by the documentary. It played an important role in the significant jump in web traffic. A preliminary pattern indicates that the average number of hits per month before the website redesign was 78,000 (January 2010 – May 2011) while after the launch of the website indicates over a three-fold increase to average

monthly hits of 278,000 (June – August 2011) after the redesign. The revised website now includes social features allowing all users to both view and contribute information in several formats. We have developed [Facebook](#) and [YouTube](#) and [flickr](#) sites associated with the MRBDC that will be enriched and expanded over the coming year. A [Minnesota River Basin Blog](#) has also been created on Tumblr to let people share their views and opinions about the Minnesota River.

On October 7, 2010 we obtained a \$60,000 grant from the McKnight Foundation to redesign and update the Minnesota River Basin Data Center (<http://mrbdc.mnsu.edu>). Our vision was to seamlessly integrate and highlight this project with this web redesign.

Deliverable 3: Educational materials

Initially, we collected and compiled available educational materials related to the Minnesota River. Our goal was to learn what had already been created by other organizations and to draw from existing lesson plans and other publications before developing new materials.

We asked the broader advisory committee about existing educational materials. We also met with teachers involved in the project in January 2011 to learn more from them about existing educational materials and target state standards. Teachers in the basin including Butch Halterman from Montevideo Public School and Anthony Sonnek and Nicole Kotassek of the Minnesota New Country School (Henderson) to learn about existing educational materials, to brainstorm educational modules to create and to discuss the best approach to integrate educational standards into the Ask an Expert project. We obtained useful feedback about what might be helpful to teachers to make the product useful in the classroom.

Five major themes were enriched with lesson plans to be used in classroom presentations in conjunction with the video clips. A team of three interns researched, compiled and developed educational materials. Interns reviewed state standards, collected existing lesson plans, modified and created new lesson plans, and assembled PowerPoint presentations. The educational modules were developed with teachers and tested in area classrooms to ensure that they fit with existing high school curricula and merge with Minnesota Academic Standards.

Educational Guides were created for the following themes:

- Prairies
- Wetlands
- Agriculture
- Mussels
- Fish

RESULT 2: Educational Outreach and learning stations

Description:

Interactive, multimedia kiosks will be located in four key history and river interpretive centers across the basin. Visitors will be able to access quick, web-style information about the project. The long-term kiosk installations will provide ongoing outreach for the project. The kiosk's intuitive touch-screen interactivity will make it easy for visitors to navigate through the site and

explore questions of interest to them and hear researchers explain key information about the river.

The goal of these learning stations is to introduce visitors to the project, to enable them to explore some of the interviews while at the site, and hopefully return to the website later (on their own) as questions about the river arise. The ideal outcome after exploring the multimedia kiosk will be to inspire students and the public to want to learn more about the river and to take the next step to explore and protect the dynamic river environment.

We will promote the website and learning stations with classroom and public presentations and build a richer relationship with the three partner schools. Outreach to promote the website will include kiosks at key educational centers and public presentations. We will also employ new media techniques to continue the development and delivery of the project including the use of YouTube, Facebook, Twitter, news releases, etc. We will share project information with the public, students and teachers via both traditional and nontraditional outreach.

Deliverable 1: Learning Stations/Multimedia kiosks

We will design, develop, and set up four learning stations (multimedia kiosks) at key educational centers across the Basin. A wooden kiosk base will support a large printed map of the Minnesota River Basin in back of a computer touch screen. The kiosk's panel graphics will provide geographic context to the Minnesota River Basin and an overview of the project. It will be done in a format to grab the visitor's attention and spark their interest in exploring the website. Based on average annual visitation of 16,000 people for the four educational centers, we estimate 25 to 50 percent of visitors (4,000-8,000 people) per year might use multimedia kiosks.

Learning stations sites include:

- Treaty Site History Center, St. Peter, MN
- Regional River History Center, New Ulm, MN
- Ney Nature Center, Henderson, MN
- Clean Up the River Environment (CURE) Office, Montevideo, MN

Treaty Site History Center: St. Peter, MN

As the headquarters of the Nicollet County Historical Society, the Treaty Site History Center allows visitors to stroll through a restored prairie, discover the historical Traverse des Sioux crossing on an oxbow of the Minnesota River and learn about the history of the region. The Treaty Site History Center holds three exhibit halls with permanent and changing displays along with a research library.

Annual Visitation: 9,100 people

Regional River History Center: New Ulm, MN

Located on the Minnesota River at Riverside Park, the Regional River History Center of New Ulm provides citizen access to the Minnesota River and Cottonwood River watershed basins including online data, along with area historical and cultural artifacts. This history center strives to sponsor presentations related to the historical, cultural and natural aspects of the Minnesota River Basin.

Annual Visitation: 1,200 to 1,500 people

Ney Nature Center: Henderson, MN

The Ney Nature Center is dedicated to establishing a place where time is forgotten and heard only in the echoes of pioneer efforts to sustain themselves in what to them was a wilderness. It allows the land to return to a state where time is measured by the seasons and cycles of the moon, returning to a state once known by the first Americans. It is designed to maintain a safe refuge for native creatures – plant and animal, securing a healthy habitat for their continued survival.

Annual Visitation: 3,000 to 4,000 people

Clean Up the River Environment: Montevideo, MN

Founded in 1992, Clean Up the River Environment (CURE) works to restore, celebrate and protect the Upper Minnesota River Watershed. CURE seeks to inspire area youth and the general public through river trips and field trips. This nonprofit organization has over 500 members advocating for public policy at the local, regional, and national level.

Annual Visitation: 1,300 to 1,500 people

Timeline: July 31, 2010 – June 30, 2012

Budget: \$23,700

Deliverable 2: School and Public Outreach

Schools:

We will work with three partner schools and teachers to directly reach at least 150 students by conducting hands-on presentations on how the website can be used both inside and outside of the classroom. We will develop a richer and on-going relationship with these partner schools to broaden the experience of students by connecting them with existing Minnesota River programs such as river cleanups, surveying for frogs or mussels, etc.

In order to evaluate knowledge gained from using the “ask-an-expert” website, we will work with teachers and the broader advisory group to construct an evaluative tool that will assess pre- and post knowledge related to the website and educational materials.

Educational Centers:

We will host a public event/reception at each of the four educational centers after the learning stations have been installed to directly reach approximately 200 -300 citizens. A presentation about the project will be given at each of these events to publicize the website. The overarching goal of these events is to publicize the project and website with the broader aim to increase public awareness of river issues and promote environmental stewardship.

Kiosk use will be tracked by a counter on each kiosk. In order to give kiosk users an opportunity to learn more, we will include an e-mail sign up to connect them to upcoming river events across the basin, obtain the Minnesota River Weekly Update and/or River Talk newsletters. Similarly at presentations, we will track attendance and offer participants ways to learn about the river and river events.

Through both traditional and nontraditional outreach, we will share project information with the public, students and teachers. We will employ new media techniques to publicize the website through use of YouTube, Facebook, Twitter, etc. Website access will likely exceed many thousand website visits. Website use will be monitored by tracking use statistics on the Minnesota River Basin Data Center website.

Timeline: July 31, 2010 – June 30, 2012

Budget: \$16,300

Summary Budget Information for Result 2:	ENRTF Budget:	\$ 39,987.46*
	Amount Spent:	\$ 29,028.93
	Balance:	\$ 10,958.53

*Actual per accepted budget spreadsheet – p.10 of 10 in the ENRTF 2010 Work Program. Rounded to \$40,000 in the ENRTF 2010 Work Program narrative.

Deliverable	Completion Date	Budget
1. <i>Design, develop, and install learning stations</i> Four wooden multimedia kiosk with computer screen and large graphic panel installed at key river educational centers across the basin.	June 30, 2012	\$23,700
2. <i>School and public outreach</i> Outreach and presentations to three schools and four educational centers directly reaching at least 150 students and 200 citizens. Educational center kiosks will potentially reach 4,000-8,000 people per year while online website can reach many thousands. Will also include an evaluative tool to assess knowledge gained from use of the project.	June 30, 2012	\$16,300

Final Report Summary:

RESULT 2: Educational Outreach and learning stations

Deliverable 1: Learning Stations/Multimedia kiosks

We researched regional museums to find models for engaging, interactive interfaces for the learning stations to draw attention to the project. One feature that we discovered and added to this project was to integrate 360 panoramas into the kiosk interface. We worked with area history and river centers to design and develop four kiosks. We researched area museums to find the best model for the physical design of the kiosk and ended up using the high quality exhibits from the Nicollet County Historical Center (NCHS) as a model. A local cabinetmaker crafted four birch wood kiosks. A large map of the Minnesota River Basin and logos were developed and graphics were produced by a graphics vendor. Large scale (20-inch monitors) touch-screen computers (HP Touchsmart 9300) were purchased and programmed and inserted into the kiosks.

Kiosks were assembled and delivered to the following educational centers:

- Treaty Site History Center, St. Peter, MN
- Regional River History Center, New Ulm, MN
- Ney Nature Center, Henderson, MN
- Clean Up the River Environment (CURE) Office, Granite Falls, MN

There was a change in kiosk location per CURE suggestion that the kiosk be located in their office in Granite Falls on the banks of the Minnesota River in the recently restored historic K.K. Berge building. CURE assumed that this new location would draw more visitors and be a better location for the interactive kiosk than their office in downtown Montevideo.

We have \$10,994.05 remaining in the project budget. The remaining funds are in this category (Result 2) and largely due to kiosks costing less than anticipated. We originally envisioned needing a computer and monitor but later found a high quality touch screen computer with an integrated computer and monitor. This enabled significant cost savings for the project. We were able to purchase all the supplies with \$4,597.84 remaining.

Project staffing also changed during the project period. Project staff member Scott Kudelka took another position, and we were unable to completely utilize the reallocated funds for staff salary. The slight overage in student salary (\$597.72) was due to hiring additional assistance to work with Scott before he left. We also saved time and reduced project cost by using some video interviews that Jon Carlson and John Hickman (of h20videos) conducted.

Deliverable 2: School and Public Outreach

Promotion of the project has been ongoing involving public presentations, classroom sessions, informational tables, one-on-one contacts, fact sheets, posters, etc. We were able to publicize the Ask an Expert Project through other Water Resources Center projects and will continue to do this in the future. One of the best ways to promote the project we discovered involves the topics of mussels, macroinvertebrates and fish. People are very interested in these subjects and they provide an interesting way to talk about the health of the Minnesota River. Both public and classroom presentations across the Minnesota River Basin have received positive feedback from citizens, students and resource specialists. Future presentations are being planned to continue to publicize the project and to broaden the project's appeal beyond the basin's borders (in particular through the Minnesota Department of Natural Resources Naturalists). Fact sheets developed for the project will also help to promote the project whether it is citizens using them as field guides or teachers integrating them into their classroom curriculum.

Schools:

We worked with partner schools and teachers to directly reach 371 students by conducting hands-on presentations on how the website can be used both inside and outside of schools. We developed the educational modules with help from teachers and delivered the modules in three schools (listed below).

Montevideo High School (Montevideo, MN)

Scott Kudelka and Kimberly Musser presented the Bioindicator - Mussel presentation to approximately 49 Junior and Senior Biology class students on May 16, 2012.

Teachers: Danny Kurkiewicz and Richard Halterman

Nicollet County Environmental Education Day at Fort Ridgely State Park (Fairfax, MN)

Scott Kudelka presented a program focusing on water including mussels, macroinvertebrates and fish in 7 sessions to 285 students on May 17, 2012.

Minnesota New Country School (Henderson, MN)

Nicole Hogan presented the agriculture module to 15 students on May 24, 2012.

Teachers: Nichole Kotasek and Anthony Sonnek

Bridges Community School (Mankato, MN)

Scott Kudelka and Kimberly Musser presented the mussel and macroinvertebrate presentation to 22 students on May 25, 2012.

Teacher: Meghan Wall

Our initial proposal included presenting to Dawson-Boyd Public School but we were not able to due to conflicting time commitments. Instead we did presentations at the Nicollet County Environmental Education Day and Bridges Community School.

Initially, we proposed a formal pre- and post-knowledge assessment of the Ask an Expert website. After consulting our advisory board and teachers, it became clear that conducting a series of more informal assessments with both students and citizens who participated in a classroom session or public presentation would be a more effective evaluation method. We used this feedback while developing the project and feel that it has led to a more useable product.

We developed one theme (mussels) as a pilot and gained valuable feedback from reviewers (experts, teachers, students and others) about what worked and what needed to be changed. They provided input about the overall organization of the website, about incorporating the various educational materials (fact sheets, power-point presentations, slideshows, etc.) and integrating the 360 virtual tour into the project structure. A key point came from students exploring the pilot theme who expressed it was important to be able to launch all the different elements of Ask an Expert within the website instead of being redirected. Originally, the videos were launched from YouTube until we redesigned the website structure to directly launch videos within the website.

Our experts, students and videographers reviewed some of the first videos and provided feedback during the development of the project. We learned that the most successful videos were fast-paced, graphic-rich videos that distilled key points. This helped us integrate more imagery and maps to support the expert's main points. We were also able to change our approach during the interview process by seeking out and capturing more action scenes from the experts.

Informal feedback also proved to be valuable during the classroom sessions when teachers and students noted how effective and useful the summary handouts are for understanding a particular theme. They pointed out that the strongest handouts were visually engaging, reinforced concepts and summarized main points. Teachers noted that the most useful handouts were those that they could easily integrate into existing lesson plans and curriculum. They stressed the importance of these products to complement existing materials and provide a local context to what typically a more generic (or statewide) perspective. Feedback from

biology teachers resulted in the development of handouts and field guides for the mussel, fish and macroinvertebrate sections to encourage field trips and outdoor adventures.

We were able to informally assess student knowledge of topics within our class presentations. For example, during a mussel presentation we started by brainstorming with the class about their knowledge of mussels. Most had limited awareness and exposure. By the end of class, they had a good knowledge of mussel life cycle, diversity, ecological role, and importance as an indicator of watershed health. Finally, we received enthusiastic responses from teachers, students and experts about the use of the visually immersive 360 panoramic virtual tours. In response, we added this element to the Ask an Expert project wherever feasible. This iterative and ongoing evaluation process enabled us to obtain feedback throughout the development of the project which ultimately strengthened the final product.

Educational Centers & Public Events:

Our vision for the public events was to provide an overview of the Ask an Expert project and invite one or two of the experts to discuss the type of research they are conducting in the Minnesota River Basin. We also developed a poster and a fact sheet explaining the project to the public. Outreach included a poster session at the annual Water Resources Conference (October 18-19, 2011) and the four open houses. We have been invited to present a summary of Ask an Expert at the 2012 Water Resources Conference on October 16-17, 2012 (one of three education and engagement talks invited statewide).

We hosted a public event/reception at each of the four educational centers and directly reached 349 citizens. We can track kiosk use for each computer and assess the relative use of each kiosk at the four locations. We have included handouts near the kiosks that includes the web address so that kiosk users can take with them and continue to explore the site further after their visit. Additional information about other Minnesota River related information such as the Minnesota River Weekly Update is included to help citizens learn more about the river and upcoming events. Overall website use will be monitored by tracking use statistics on the Minnesota River Basin Data Center website.

Ney Nature Center, Henderson, MN

We hosted our first open house on October 15, 2011 at the Ney Nature Center in conjunction with their annual Fall Festival. Approximately 60 people of all ages filled their historic barn to learn about the Minnesota River from citizen advocates and conservation leaders Art and Barb Straub. Their interactive talk used a wide range of river artifacts (e.g. bison bones, mussel shells) to enrich their engaging stories about the Minnesota River. We created a poster and Ask an Expert project handout and provided a project overview to the group.

Treaty Site History Center, St. Peter, MN

Tom Kalahar spoke about "Beaver Creek Water Quality Success Story" on May 16, 2012. Approximately 7 people attended. Project staff provided materials and an overview of Ask an Expert for approximately 40 people on May 15, 2012 (Le Sueur Civic Engagement Potluck) and 50 people on May 19 (Red Jacket Trail Dedication) and 37 people on May 19, 2012 (Minnesota Master Naturalist Conference). We are working with Nicollet County Historical Center Staff to plan another event to publicize Ask an Expert in the St. Peter area.

Regional River History Center, New Ulm, MN

Carrie Jennings presented “Minnesota River Geology” at the public library in New Ulm on May 2, 2012. Approximately 10 people attended (due to tornado warnings). To reach a larger audience in the New Ulm area, we plan to highlight the kiosk at the Regional River History Center and publicize Ask an Expert at the Riverblast Celebration in September 2012. This event draws thousands of area residents.

Clean Up the River Environment (CURE) Office, Montevideo, MN

Fisheries Biologist Chris Domeier of the Minnesota Department of Natural Resources (MDNR) was the featured expert giving a presentation on the health of the fish and dams in the Minnesota River on May 16, 2012. It was held at the Montevideo/Chippewa County Public Library (across from the CURE office) and approximately 40 people attended.

Newspaper Article in the Advocate Tribune:

<http://www.granitefallsnews.com/news/x1035954290/Domeier-to-talk-about-Fish-and-Dams-in-the-Upper-Minnesota-River-Wed-May-17>

Minneopa State Park, Mankato, MN

To reach a broader audience, numerous Ask an Expert-based presentations highlighting mussels, macroinvertebrates and fish were conducted at Minneopa State Park. The audience included the general public and park campers.

- Mussels - May 26, 2012 - 37 people
- Fish - June 9, 2012 - 26 people
- Macroinvertebrates - June 15, 2012- 42 people

V. TOTAL ENRTF PROJECT BUDGET:

Personnel: ~~\$104,100~~ **105,406.59**

Kimberly Musser, Assistant Director, Minnesota State University, Mankato Water Resources Center.

Tasks: Project manager; conduct interviews; develop graphics, website, and education materials, promotion.

Percent full-time employment: 25%

Scott Kudelka, Communications Coordinator, Minnesota State University, Mankato Water Resources Center

Tasks: Conduct interviews, develop education materials, promotion.

Percent full-time employment: 33%

Richard Moore, GIS Specialist, Minnesota State University, Mankato Water Resources Center

Tasks: Conduct interviews; create maps and graphics such as Google Earth fly-throughs.

Percent full-time employment: 14%

Contracts: \$4,000 - Friends of the Minnesota Valley

Tasks: A portion (roughly 20 percent) of videography and video editing.

Equipment/Tools/Supplies: \$ 13,600

Kiosks - \$12,400

Each of the four kiosks will include a computer, touch screen monitor, graphic panels, and wooden kiosk

Camcorder with hard disk/wireless microphone/external hard drive - \$1,200

Purchasing new digital video recorder will save time and money. Replacing outdated equipment will enable us to increase efficiency going direct to digital video shortening processing and editing time significantly.

Travel: ~~\$2,300~~ \$1,001.45- Travel to interview locations and project meetings.

TOTAL ENRTF PROJECT BUDGET: \$124,000

Explanation of Capital Expenditures Greater Than \$3,500: N/A

VI. PROJECT STRATEGY:

A. Project Partners:

Minnesota State University, Mankato Water Resources Center Staff

Kimberly Musser, Assistant Director, Minnesota State University, Mankato Water Resources Center.

Scott Kudelka, Communications Coordinator, Minnesota State University, Mankato Water Resources Center

Rick Moore, GIS Specialist, Minnesota State University, Mankato Water Resources Center

Scientists and Citizens

Natural resource scientists and citizen and that will be interviewed, help to develop education materials, and will serve as an advisory team include:

- Bernard Sietman and Mike Davis (mussels), Chris Domier (fisheries) and Bob Beck (state park naturalist) - Minnesota Department of Natural Resources;
- Pat Baskfield, Hydrologist - Minnesota Pollution Control Agency;
- Carrie Jennings, Senior Scientist - Minnesota Geology Survey;
- Joel Wurscher, Project Coordinator - High Island Creek Project;
- Brooke Patterson, Project Coordinator - Rush River Project;
- Tom Kalahar, District Technician - Renville Soil and Water Conservation District;
- Lauren Klement, Le Sueur County Water Planner;
- Paul Wymar, Watershed Scientist - Chippewa River Watershed Project

Teachers, Educational Center, and Nonprofit Staff

- Greg Wyum, Science Teacher - Dawson-Boyd Public School;
- Greg Elseth, Science Teacher - Sibley East Public School;
- Anthony Sonnek and Nicole Kotasek, Science Teachers - MN New Country School;
- Becky Pollack, Executive Director - Ney Nature Center;
- Ron Bolduan, Curator - Regional River History Center;
- Ben Leonard, Executive Director - Minnesota River Treaty Center
- Patrick Moore, Executive Director - Clean Up the River Environment (CURE)
- John Hickman - Friends of the Minnesota Valley

B. Project Impact and Long-term Strategy:

This project is part of a larger strategy to increase public awareness about the health of the Minnesota River. The online interviews would offer an innovative way to educate citizens about what scientists are learning about rivers and lakes in the basin. The proposed project would improve information flow, enrich and update the Minnesota River Basin Data Center website (<http://mrbdc.mnsu.edu>). This project would also serve as a tool for future efforts to integrate Minnesota River research into the high school science curriculum across the Minnesota River Basin.

In order to move forward with the effort to clean up the Minnesota River, we need to engage and inform citizens about the state of the river. This project will help to bridge the information gap between scientific experts and citizens. After exploring a virtual tour hosted by a variety of experts, website users will leave with a richer understanding of this diverse river basin and also gain exposure to many one-of-a-kind places. They will get to experience some of the many rivers, streams and lakes across the basin that awaits exploration. Exposing people to the river and capturing their interest is an important step in improving and protecting it for today and future generations.

C. Other Funds Proposed to be Spent during the Project Period:

Each of the project partners listed above (citizen, scientists, teachers and educational center staff) will provide in-kind donation of approximately \$500.

D. Spending History:

VII. DISSEMINATION:

The main plans for disseminating information include 1) Learning Stations - Multimedia kiosks located in four key river and history centers across the basin 2) School and Public Outreach at three schools and four educational centers involving presentations, open houses, and stewardship projects.

Result number two (deliverable 2) details the dissemination plans for the project. The broad dissemination goals for the project include sharing data with the public, students and teachers by both traditional and nontraditional outreach. The ultimate aim is to increase public awareness about the Minnesota River and promote environmental stewardship.

The website will be housed on the Minnesota River Basin Data Center website: (<http://mrbdc.mnsu.edu>).

VIII. REPORTING REQUIREMENTS: Periodic work program progress reports will be submitted not later than November 30, 2010, May 31, 2011, and November 30, 2011. A final work program report and associated products will be submitted between June 30 and August 1, 2012 as requested by the LCCMR.

Reimbursement Request – Invoice Summary Spreadsheet - Part 2

Attachment A: Budget Detail for 2010 Projects - Summary and a Budget page for each partner (if applicable)

Project Title: MN River Experts: An Educational Field Trip On-Line

Project Manager Name: Kimberly Musser

Trust Fund Appropriation: \$ 124,000.00

Legal Citation: Laws of Minnesota 2010, Chapter 362, Section 2, Subdivision 8k.

Period Covered by Reimbursement Request: 12/01/11-06/30/12 FINAL REPORTING

2010 Trust Fund Budget	Result 1: Develop and deliver on-line educational field trips.							Result 2: Educational Outreach and learning stations.							PROJECT TOTAL						
	Budget	Revised Budget Result 1 03/28/12	Revised Budget Result 1 05/15/12	Beginning Balance	Current Invoice	Expenditure Total (to-date)	Ending Balance	Budget	Revised Budget Result 2 03/28/12	Revised Budget Result 2 05/05/12	Beginning Balance	Current Invoice	Expenditure Total (to-date)	Ending Balance	BUDGET (Original)	Revised Budget 03/28/112	Revised Budget 05/05/12	BEGINNING BALANCE	CURRENT INVOICE	TOTAL EXPENDED (to-date)	ENDING BALANCE
				40,877.00	41,129.00		41,129.00				40,877.00	41,129.00		41,129.00				40,877.00	41,129.00		40,877.00
BUDGET ITEM																					
PERSONNEL: wages and benefits	77,764.54	77,764.54	77,813.09	26,271.87	26,271.87	77,813.09	-	26,369.20	26,369.20	27,593.50	24,808.88	18,406.31	21,190.93	6,402.57	104,133.74	104,133.74	105,406.59	51,080.75	44,678.18	99,004.02	6,402.57
Kimberly Musser -50% FTE	24,474.93	25,396.54	26,420.84	3,199.61	3,199.61	26,420.84	-	5,694.27	6,687.17	6,971.82	4,187.20	2,334.26	5,118.88	1,852.94	30,069.20	31,982.71	33,392.66	7,386.81	5,533.87	31,539.72	1,852.94
Scott Kudelka - 33.25% FTE	22,859.66	29,939.69	29,939.69	8,722.01	8,124.29	29,341.97	597.72	14,918.93	19,782.03	13,704.34	13,704.34	13,553.78	13,553.78	150.56	37,778.59	49,721.72	43,644.03	22,426.35	21,678.07	42,895.75	748.28
Richard Moore - 13.85% FTE	14,640.00	6,639.36	8,932.59	3,187.66	3,187.66	8,932.59	-	5,856.00	-	6,917.34	6,917.34	2,518.27	2,518.27	4,399.07	20,496.00	6,639.36	15,849.93	10,105.00	5,705.93	11,450.86	4,399.07
STUDENT 100% summer employment(8hrs/day, 40 day/wk) 45% academic year (20 hrs/wk max allowed)	11,696.26	11,696.26	8,426.28	7,068.90	7,068.90	8,426.28	-	-	-	-	-	-	-	-	11,696.26	11,696.26	8,426.28	7,068.90	7,068.90	8,426.28	-
STUDENT 100% summer employment(8hrs/day, 40 day/wk)	4,093.69	4,093.69	4,093.69	4,093.69	4,691.41	4,691.41	(597.72)	-	-	-	-	-	-	-	4,093.69	4,093.69	4,093.69	4,093.69	4,691.41	4,691.41	(597.72)
Contracts	4,000.00	4,000.00	4,000.00	-	-	4,000.00	-	-	-	-	-	-	-	-	4,000.00	4,000.00	4,000.00	-	-	4,000.00	-
Professional/technical: Friends of the MN Valley videography and video editing	4,000.00	4,000.00	4,000.00	-	-	4,000.00	-	-	-	-	-	-	-	-	-	-	-	-	-	4,000.00	-
Supplies	1,198.00	1,198.00	1,198.00	41.87	-	1,156.13	41.87	12,393.96	12,393.96	12,393.96	12,393.96	7,838.00	7,838.00	4,555.96	13,591.96	13,591.96	13,591.96	12,435.83	7,838.00	8,994.13	4,597.83
Graphics Panel (4)	-	-	-	-	-	-	-	2,733.96	2,733.96	2,733.96	2,733.96	1,436.00	1,436.00	1,297.96	2,733.96	2,733.96	2,733.96	2,733.96	1,436.00	1,436.00	1,297.96
Touch Screen Monitor (4)	-	-	-	-	-	-	-	3,760.00	3,760.00	3,760.00	3,760.00	1,112.00	1,112.00	2,648.00	3,760.00	3,760.00	3,760.00	3,760.00	1,112.00	1,112.00	2,648.00
Computer (4)	-	-	-	-	-	-	-	3,000.00	3,000.00	3,000.00	3,000.00	2,880.00	2,880.00	120.00	3,000.00	3,000.00	3,000.00	3,000.00	2,880.00	2,880.00	120.00
Kiosk (4)	-	-	-	-	-	-	-	2,900.00	2,900.00	2,900.00	2,900.00	2,410.00	2,410.00	490.00	2,900.00	2,900.00	2,900.00	2,900.00	2,410.00	2,410.00	490.00
Camcorder with hard disk/wireless microphone/external hard drive	1,198.00	1,198.00	1,198.00	41.87	-	1,156.13	41.87	-	-	-	-	-	-	-	1,198.00	1,198.00	1,198.00	41.87	-	1,156.13	41.87
Travel expenses in Minnesota	1,050.00	1,050.00	1,001.45	145.65	152.00	1,007.80	(6.35)	1,224.30	1,224.30	-	-	-	-	-	2,274.30	2,274.30	1,001.45	145.65	152.00	1,007.80	(6.35)
COLUMN TOTAL	84,012.54	84,012.54	84,012.54	26,459.39	26,423.87	83,977.02	35.52	39,987.46	39,987.46	39,987.46	37,202.84	26,244.31	29,028.93	10,958.53	124,000.00	124,000.00	124,000.00	63,662.23	52,668.18	113,005.95	10,994.05



