# 2015 Project Abstract

For the Period Ending June 30, 2017

PROJECT TITLE: Mississippi River Water Journey Camps
PROJECT MANAGER: Beth Mercer-Taylor
AFFILIATION: Sustainability Education, Institute on the Environment (IonE), University of Minnesota – Twin Cities
MAILING ADDRESS: 325 LES Building,1954 Buford Ave.
CITY/STATE/ZIP: St. Paul MN 55108
PHONE: 612-624-9430
E-MAIL: bethmt@umn.edu
WEBSITE: http://waterjourneycamps.blogspot.com/
FUNDING SOURCE: Environment and Natural Resources Trust Fund
LEGAL CITATION: M.L. 2015, Chp. 76, Sec. 2, Subd. 05e

APPROPRIATION AMOUNT: \$25,000 AMOUNT SPENT: \$25,000 AMOUNT REMAINING: \$0

### **Overall Project Outcomes and Results**

Mississippi River Water Journey Camps get children ages 6-11 outdoors exploring water connections between the built and natural environment, doing wetland plantings, and teaching the public about water systems and how to improve water quality. The grant funded development of a toolkit and first year support for two one-week summer camps: "Water Journey: Drink" and "Water Journey: Rain," held twice each at the Institute on the Environment, at St. Paul Campus, University of Minnesota as part of the University Recreation & Wellness Summer Youth Program. The camps adapt an existing arts/science adventure approach called Earth System Journey that engages youth with the infrastructure connecting daily water use to what happens at the other end of the pipes, in order to make conservation lessons relevant to students' experience. This reflects environmental education needs for place-based education, bridging actions with impacts, getting kids outdoors, and engaging learners as real-world contributors.

The project goals were achieved. The evaluation report shows increased camper water system knowledge, stewardship attitudes and skills. This impacted 55 campers in summer 2016, with estimated 128-224 more campers reached in the coming four years of camp that the toolkit makes possible. While future camps are funded through camp tuition, support from the Institute on the Environment will continue. The project successfully demonstrated a model for formal and informal educators and increased public awareness of water issues and education methods. Outreach deliverables include a website, video, GIS story maps, summer art/science exhibit, and numerous educator and public presentations including at the 2016 EcoExperience. Inspired by this project, three education grants have been proposed including one in northern Minnesota, with one awarded so far. The model supports emerging approaches for integrated water management and education across public works and natural resource management organizations. Learn more and see all reports at http://waterjourneycamps.blogspot.com/.

### Project Results Use and Dissemination

A key outcome for Water Journey Camps is continuation of the program without LCCMR grant support in the summer for 2017, when 44 new children participated in four week-long camps that closely followed the model established in 2016. Another 3 years of camps are planned. In 2017, revenues from camp fees paid by each child, along with scholarships for low-income children, offset most of the costs, including staff pay, field trips, transportation and expendable art supplies like papers and beads. The bulk of art, science and photography supplies purchased in 2016, with LCCMR funds, were used again in 2017. The art and science "kit" should serve Water Journey Camps for at least 3 more years. Water Journey Camps is now a well-established and sustainable program that will ultimately reach more than 200 campers over 5 years.

Another outcome of Water Journey Camps is learning gains made by the campers themselves. The Evaluation Report details results of pre and post-camp surveys filled out by the children, with help from counselors for the youngest children. This survey data indicates gains in awareness of how we use water, knowledge of where water comes from and importance of water stewardship. In end-of-camp reflection on their experience, campers indicated more comfort with and interest in STEM projects, as they enjoyed 1) water quality testing and analysis, 2) learning about and planting plants and 3) crafting questions for professionals working in water systems. The art projects and mapping experiences were highlights for many campers. The Youth Program leaders offered informal feedback that parents were pleased with what their children learned. Water Journey Camps were the favorite of several children who enrolled in multiple camps at the University of Minnesota.

A Toolkit is now available on the Water Journey Camps website, aimed at serving teachers and informal educators interested in the approach to learning about water in a particular place or using specific projects. The Toolkit is itself an outcome of the grant. It is flexible enough to allow for replication of the entire overall concept of Water Journey Camps, the use of one or more of the projects in a class period or field trip, or the addition of a new element - such as story maps, photography, planting or tracking pipes – in an existing lesson. The website and materials available have been or will be shared with hundreds of educators through conference presentations and networking sessions as well as web and social media outreach done by IonE. The conferences include the Minnesota Association for Environmental Education (MAEE) meetings in 2016 and 2017, the Minnesota Educator's Academy annually in October as well as the Upper Midwest Association for Campus Sustainability (UMACS) in Pella, Iowa in late September, 2017, and on a national stage at the Association for Advancement of Sustainability in Higher Education (AASHE) annual conference in October, 2017. AASHE invited Beth Mercer-Taylor to serve on its first panel on K-12 sustainability summer programs supported by campus sustainability units.

As a key partner, the Institute on the Environment (IonE) gained the unexpected benefit of expansion into new water and K-12 programming as a result of Water Journey Camps. IonE's provision of significant staff support, no-cost space and a beautiful public gallery space for display of camp maps, art and science projects made more IonE staff and faculty keenly aware of the power of an art, science and storytelling approach to learning about water. The energy of the campers and their learning about water systems inspired the staff and faculty as well as many visitors attending meetings and events at IonE. In the last week of June, 2017, immediately after the camps were completed, over 100 educators saw the Water Journey Camp displays, including nearly 60 attending the Climate Generation Summer Institute at IonE and 45 attending a national workshop on Sustainability & Diversity in Higher Education at IonE. Water Journey Camps contributed to IonE staff and faculty expanding their engagement in water related and K-12 programming, including:

- 1) a new stewardship project starting in fall, 2017 at Sarita Conservation Area;
- 2) an partnership between IonE and the "Water Bar" where flights of local tap waters are served to students and community partners;
- 3) placement of 5 high school interns from the City of St. Paul Right Track program at IonE in summer 2017, including 3 assisting with Water Journey Camps;
- 4) hosting the Climate Generation Summer Institute for educators.



Date of Report: August 15, 2017 Final Report Date of Work Plan Approval: June 11, 2015 Project Completion Date: June 30, 2017 Does this submission include an amendment request? <u>No</u>

# PROJECT TITLE: Mississippi River Water Journey Camps

Project Manager: Beth Mercer-Taylor

**Organization:** Sustainability Education, Institute on the Environment, University of Minnesota-- Twin Cities

Mailing Address: 1954 Buford Ave.

City/State/Zip Code: St. Paul, MN 55108

Telephone Number: (612) 624-9430

Email Address: bethmt@umn.edu

Web Address: http://environment.umn.edu/leadership/susted/

#### Location:

St. Paul Gym, St. Paul Campus, University of Minnesota, -- Twin Cities, Ramsey County, Minnesota. (With travel to surrounding areas.)

This project is expected to impact the seven-county Twin Cities metro area, including Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.

Total ENRTF Project Budget:	ENRTF Appropriation:	\$ 25,000
	Amount Spent:	\$25,000
	Balance:	\$00

Legal Citation: M.L. 2015, Chp. 76, Sec. 2, Subd. 05e

### Appropriation Language:

\$25,000 the first year is from the trust fund to the Board of Regents of the University of Minnesota to design and pilot two week-long summer camps for youth ages 6-11 focused around clean water and the Mississippi River and designed to get children outdoors exploring and engaged with the natural environment and creating educational materials to help their communities protect water quality.



### I. PROJECT TITLE: Mississippi River Water Journey Camps

### **II. PROJECT STATEMENT:**

"Water Journey Camps" get children outdoors exploring the natural environment, doing service plantings, and teaching the public how to conserve water and improve water quality to help protect natural areas. Two different one-week summer camps: "Water Journey: Drink" and "Water Journey: Rain," will be held twice each (a total of four camps) at the St. Paul campus of the University of Minnesota. The camps will be offered as one of the specialized programs available for children to attend during the University of Minnesota Recreation & Wellness Summer Youth Program (more information at http://www.recwell.umn.edu/youth/structure.php). "Water Journey Camps" will serve youth in ages 6-8 in one set of the camp offerings and age 9-11 in the other set.

The camps use an engaging arts/science adventure approach to bridge a gap between environmental education focused on conservation behavior and environmental education focused on downstream impacts of conservation. By revealing the water infrastructure that connects daily use of water with what happens at the other end of the pipes, conservation lessons can be made more relevant to students' experience. The camps are designed to address four areas that research indicates enhance stewardship behavior. (1) Children need more opportunities for outdoor experiential environmental education to form bonds with nature. (2) People must see the connection between their actions in the human-built environment and the associated impacts in the natural environment. (3) Children need opportunities to contribute through service activities and using their learning to help others in order to enhance their stewardship competence and identity. (4) Children and the public they will help educate need to have local, place-based examples of how their actions affect the natural areas in their community to increase the immediacy and relevance of stewardship.

# The goals and outcomes of Water Journey Camps are:

 Participants (the children who are campers) will gain first-hand knowledge of how they depend on and impact freshwater, the way that infrastructure carries water into and away from their homes and schools, the benefits of healthy wetlands, lakes and rivers, and will develop inspiration and skills for stewardship. This will impact 32-56 campers in the project period, with an estimated additional 128-224 campers affected in the four years of camp this project makes possible after the project period.
 Water Journeys will serve as a demonstration to formal and informal educators for how integrating STEM skills, arts, storytelling and experiential learning develops in children an awareness of water and of how to live more sustainably by conserving and keeping water clean. The project will be shared to educators through targeted outreach and dissemination, including a website and short video that will be created.

3) Through the work of Institute on the Environment's communications team—who will make use of participants' artwork, stories and service projects—the public, and particularly the St. Paul campus and its immediate neighborhood will become a more water-aware, sustainable community through the Water Journeys programs taking place in indoor recreational spaces, outdoor classroom spaces, field trip locations and at the St. Paul campus Sarita wetland and pond, which is also a location for service learning.



There are three main activities to implement the project: (1) Plan and Prepare Water Journey Camps Toolkit and Documentation, (2) Conduct Four Water Journey Camps for Environmental Education, and (3) Conduct Community Outreach and Education. After the project period, the ENRTF project will be used as a foundation for extending the Water Journey camps and associated community water stewardship education and outreach four (4) or more years. The ongoing camps will be funded through the cost structure of the youth programs, supplemented by additional support from Institute on the Environment. The camp model will be shared with the wider community through a website and presentations to inspire and assist others to create similar programs. Future funding requests to ENRTF are not anticipated for Water Journey Camps.

# **III. OVERALL PROJECT STATUS UPDATES:**

### Project Status as of December 15, 2015:

The overall program for Water Journey Camps 2016 is planned. Camps will occur July 18- 22 and July 25-29 at the St. Paul campus gymnasium, with daily meetings at the Institute on the Environment (IonE). Campers will soon be able to enroll through the University's Youth and Community Programs website or by mailing in forms. By mid-January, the website will be updated at : http://recwell.umn.edu/youth/summer.php. Camp descriptions are:

### Water Journey Camp: Drink!

Where does water in our drinking fountain come from? Where does it go? Get ready for a grand adventure as you follow water in and out of pipes and through treatment plants all the way to the Mississippi River! Get your hands dirty planting to protect water at a wetland. All week you'll take photos and make art about your discoveries on your field trips and share your work in an online gallery using story maps! No prior experience or equipment is needed.

### Water Journey Camp: Rain!

Where does the rain go? Get ready to explore as you follow water's path from the sky to the land and down the storm drain, through a wetland, and all the way to the Mississippi River! Get your hands dirty planting to protect water at a wetland. All week you'll take photos and make art about your discoveries on your field trips and share your work in an online gallery using story maps! No prior experience or equipment is needed.



### Project Status as of June 15, 2016:

Water Journey Camps are fully enrolled for both Drink! And Rain! In both age groups, of 6-8 and 9-12, with the website through University Youth Programs operational as expected, counselors hired, field trips scheduled with transportation in place and background checks and safety training occurring now. Detailed activity plans for each day of camp are being made. Educators with Fond Du Lac Tribal College and University of Minnesota, Duluth have expressed interest in adopting the curriculum for another project, and will be visiting during the camps.

### Project Status as of December 15, 2016:

Four Water Journey Camps were successfully completed with Rain! camps taking place July 18-22 and Drink! camps taking place July 25-29. There were two different age groups each week (total 4 camps), with 55 children attending in total. The camps included children of diverse racial, cultural, and economic backgrounds as well as varied interests, in being outside, making art and understanding how things work. Children traveled from a storm-drain or drinking fountain at camp upstream and downstream to discover how these everyday water systems are connected to the Mississippi River. Using their art, photographs, measurements, observations, and a GIS story map, they reflected on the journey creating a physical and online multimedia display. To extend the lessons and express their stewardship of the water they learned about, the campers planted native grasses and flowers in a nearby wetland. Each week's camp concluded on Friday afternoon with a well-received special open house for parents and families featuring photography by the children as well as some of the science and art projects they made. A highlight for the parents was watching their children showcase their own photos of water, nature and infrastructure in the Twin Cities - namely the places they had visited during the camp week embedded within an interactive map on a large, touch-screen monitor. The children spent their time preparing for their water journeys and making artwork reflecting on their experiences in the LES building, which is shared with researchers and college students, who themselves learned about drinking water and stormwater, at the most local level, through the work of the campers displayed over the weeks. The GIS-story maps formed the platform for the projects of the camp and are a key part of the toolkit and documentation for the camps. The project model, blog and eight-minute video of the camp were shared at the Minnesota Educator's Academy (MEA) in October, at the Minnesota Association for Environmental Education (MAEE) Conference in August, and the EcoExperience at the Minnesota State Fair in August. The project will continue to be presented at other environmental education gatherings. http://waterjourneycamps.blogspot

Since camps filled quickly and parent and youth feedback was very positive, University Youth Programs is pleased to continue the program in summer 2017.

# Amendment Request, March 10, 2017:

A retroactive Amendment Request is being made due to a change from printed to web-based materials for the program, or more specifically from a printed book with color maps (not printed) to an enhanced blog/ website (was produced!) that was used by the campers themselves and by interested teachers,



families and the community at large. This change required more time to be spent by two staff and meant that printing costs were not incurred at all and some of the art supplies that would have enhanced printed materials were not needed, reducing the equipment & supply budget slightly. Also travel for meetings was shifted to time on the website development. The change resulted in an overspending of -\$1,866 in personnel and underspending of the same in printing (which had a \$1,462 budget, with 0 used) and in equipment, tools & supplies (which used \$265 less than the \$1,277 budgeted) and in travel, where the \$139 budgeted was not used.

# Amendment Request, July 19, 2017:

Since this budget sheet for the retroactive budget amendment submitted March 10, 2017 contained an error, with regard to the \$139 budget, which was pointed out by LCCMR staff in March and not corrected by the PI until July, 2017, due to the failure of the PI to respond promptly to the email reminders and calls regarding this error, this Amendment Request is more than 6 months late. **Amendment Approved: 07/27/2017** 

# **Overall Project Outcomes and Results:**

Mississippi River Water Journey Camps get children ages 6-11 outdoors exploring water connections between the built and natural environment, doing wetland plantings, and teaching the public about water systems and how to improve water quality. The grant funded development of a toolkit and first year support for two one-week summer camps: "Water Journey: Drink" and "Water Journey: Rain," held twice each at the Institute on the Environment, at St. Paul Campus, University of Minnesota as part of the University Recreation & Wellness Summer Youth Program. The camps adapt an existing arts/science adventure approach called Earth System Journey that engages youth with the infrastructure connecting daily water use to what happens at the other end of the pipes, in order to make conservation lessons relevant to students' experience. This reflects environmental education needs for place-based education, bridging actions with impacts, getting kids outdoors, and engaging learners as real-world contributors.

Project goals were achieved. The evaluation report shows increased camper water system knowledge, stewardship attitudes and skills. This impacted 55 campers in summer 2016, with estimated 128-224 more campers reached in the coming four years of camp that the toolkit makes possible. While future camps are funded through camp tuition, support from the Institute on the Environment will continue. The project successfully demonstrated a model for formal and informal educators and increased public awareness of water issues and education methods. Outreach deliverables include a website, video, GIS story maps, summer art/science exhibit, and numerous educator and public presentations including at the 2016 EcoExperience. Inspired by this project, three education grants have been proposed including one in northern Minnesota, with one awarded so far. The model supports emerging approaches for integrated water management and education across public works and natural resource management organizations. Learn more at: www.http://waterjourneycamps.blogspot.com

# **IV. PROJECT ACTIVITIES AND OUTCOMES:**



# ACTIVITY 1: Plan and Prepare Water Journey Camps Toolkit and Documentation

**Description:** Adapt existing (Earth Systems Journey) place-based curriculum framework to the Summer Youth Program camp context, adjusting it for: the two different age groups participating, the camp time frame and format, specific way water flows at the building, local ecological and infrastructure systems that serve that building, the resources and opportunities from community partners, service project opportunities and needs, and learning communication methods.

This work involves working with Summer Youth Program staff, facility managers, utility representatives, land care staff, park rangers, and others to identify the water pathways, create kid-friendly maps, plan tour logistics and content of the water infrastructure and natural areas, and arrange permissions, guidance and materials for the service plantings. There is also work to assemble the nature photography toolkit and set up the digital mapping system and online communication channels that will highlight student work.

Digital Mapping: The University of Minnesota has access to an advanced online mapping tool called ArcGIS Online. With ArcGIS Online, participants will be able to create their own maps to share what they have learned with the rest of the class and beyond. These story maps will take advantage of a wealth of spatial information available for the St. Paul campus and surrounding metro area, and allow students to collect their own observational data out in the field and communicate their exploration with the public online. The work to set up the digital mapping includes setting up the story map template, customizing the base map, setting up fields for campers' content (text and images), and refining the interface to result in an easy and engaging online experience for intended audiences.

Documentation for how to run the curriculum in the Summer Youth Program camp context will be created and refined after implementation, and the project staff will conduct a project evaluation. The evaluation will include feedback from project partners, camp staff, advisory group members, and the public on project effectiveness for student learning, and public education. The students will participate in a simple pre-post survey to assess changes in their awareness, skills and concern related to the water issues they have explored. These materials help in future implementation of the camp, both in future iterations within the Summer Youth Program, as well as in dissemination of the camp as a model for other educators in informal or in school settings.

In addition to ENRTF funds, this activity will be supported by in kind time and expertise of partners to help plan the activities such as the local watershed district and the national park service.



#### Summary Budget Information for Activity 1:

ENRTF Budget:	\$ 19,988
Amount Spent:	\$ 19,988
Balance:	<b>\$ 0</b>

Outcome	Completion Date
<b>1.</b> Camp Toolkit including physical maps, camp outline, information resources, contacts,	August 30, 2016
camera equipment, digital mapping system, website, and service planting guide	
2. Project reporting including project evaluation	September 30, 2016

Activity Status as of December 15, 2015: The overall planning for Water Journey Camps is complete, which will be an important resource for the Camp Toolkit, as it forms the framework for the camp outline and associated information resources. Work to enable creation of the physical maps and the digital mapping system is underway, through meetings between project staff and through staff participation in U Spatial workshops relating to using maps in educational settings. Coordination between University offices around service planting at Sarita (on campus) is underway, and includes Landcare, University Services, Institute on the Environment, the College of Food, Agriculture and Natural Resource Sciences and the Sustainability Office. The camp dates are approved times for the service planting, and in the spring, further meetings will occur to ensure a smooth experience for campers and to plan for maintenance and care of plants after camps end.

Activity Status as of June 15, 2016: The GIS "Story Map templates," which are full-color aerial maps for the locations where the Water Journey Campers will be visiting, have been identified, printed on large poster-size paper and are now hanging in an installation at the Institute on the Environment (IonE) Commons Art & Meeting space, where some of the camp activities will be taking place. Specific plant species for the campers' planting project, and a site at Sarita Conservation area on campus for the planting, have been identified, with assistance from Civil Engineering staff at the University of Minnesota, U of M College of Biological Sciences faculty member David Moeller and Capitol Region Watershed District (CRWD) education and technical staff. Planning involved several site visits to Sarita. For the Camp Toolkit, 14 refurbished Fujifilm digital cameras have been purchased, as well as one Blu (cellphone) Super Camera, which will allow for sound recording with photography, and one Samsung tablet to allow for campers to participate in photo editing (via mini storage card).



### Activity Status as of December 15, 2016:

#### Camp Toolkit

The camp toolkit components are complete. The digital cameras, map-based artwork and GIS Story Maps were a hit and highlight of the camp program, and they engaged all of the children in a project with environmental STEM aspects. The Story Maps integrated photographic documentation and artwork by each camper as a way to tell the story of water in infrastructure, integrated with the story of water in nature. Each camper got a chance to learn about and then to actually plant prairie wetland plants at the Sarita Conservation Area. Very hot and very wet conditions proved manageable, thanks to the cooperation of local cranes, ducks, grasshoppers and other insect life to engage the campers.

### Project Reporting and Evaluation

The camp met its goals of improving the children's understanding of the water systems, and also satisfied both parents and University staff who oversee all camps, as it succeeded in engaging the children while educating them. For evaluation purposes, data were collected from pre- and post-camp assessments of the children's knowledge of their drinking and stormwater systems, and of opportunities for stewardship of these resources. The younger children struggled with the vocabulary and required help from counselors to complete the assessment, but they did have answers to the questions. The evaluation showed that although many campers already had some of knowledge of water systems, educational outcomes were achieved. The primary feedback for improvement from camp staff was that the pace was sometimes intense and activities could be pared down somewhat to make the schedule more relaxed. Partners (expert tour guides of various sites) expressed interest and willingness to continue their participation in future years.

#### **Final Report Summary:**

An Evaluation report and Toolkit for educators have been completed, offering in-depth information on program learning outcomes and the effectiveness of the activities as well as ways to adapt the Water Journey Camps model for use in other programs, in schools or in other formal or informal settings. The Evaluation report shows that the camps met the overall goal of improving children's understanding of water systems. The fact that University staff invited the Water Journey Camps to continue in 2017, and likely for the next two years as well, also indicates that the program was judged to be a worthwhile experience for children and their families. Worth noting is that the number of activities was reduced slightly in the 2017 iteration of the camps, to allow more time for relationship building with the campers and the instruction staff as well as time for campers to engage in reflection after completing their projects. The campers' learning from both years of offering the camps was drawn on in creating the Toolkit for teachers and informal educators. The Toolkit offers both overall concepts and specific projects, including maps, templates for art projects, water quality activities, service planting and more, all of which could be adapted for use in school, camp or informal educational settings in Minnesota or beyond. While the importance of the Mississippi River to the drinking and stormwater systems in the metro area is clear, other surface waters and aquifers will be at the center of Water Journey offerings in other places.



## **ACTIVITY 2: Conduct Four Water Journey Camps for Environmental Education**

**Camp 1: "Water Journey: Drink**" This camp is held twice, once for each of two age groups, consisting of: 6-8 and 9-11 year old children exploring and documenting potable water uses at camp, learning about visual nature journals and photography, and going on a journey. First they journey from a camp drinking fountain upstream to the Mississippi River to visit a stormwater demonstration park across the river from where St. Paul collects water for treatment, then they follow water infrastructure to the treatment plant, the water tower on campus, the water meter in their camp building, and the pipes leading to the camp's drinking fountain. Campers then travel downstream from the drinking fountain, peering into manholes, visiting the waster treatment plant, and traveling on a riverboat downriver to where the treatment plant returns water to the Mississippi River.

<u>Camp 2:"Water Journey: Rain</u>" This camp is held twice, once for each of for two different age groups, consisting of: 6-8 and 9-11 year old children exploring and documenting the flow of rain water at camp, learning about visual nature journals and photography, and going on a journey. First they see a downspout and follow it to where rain goes into a storm sewer, then follow storm sewer maps that lead to Sarita Wetland and pond on the campus where they will learn about its plants, animals and how it helps manage stormwater flows. Then campers follow a map of the stormwater pipes and take a bus to the Mississippi River. Here they see the outfall where their rain water flows into the river near the Lake Street Bridge. They will go to the nearby Mississippi River Gorge Park where they explore a prairie and learn about its ecology and how stormwater is handled in that environment.

**Both Camps:** Students conduct a service planting at Sarita Wetland and pond, learning about its connection to clean water, the river and habitat, use photography and observational skills to create visual nature journals. These journals will become part of public educational materials, described in activity 3.

Project personnel will assist and observe as camp staff implement the curriculum and use the toolkit. This information will be used for refining the documentation and informing the evaluation described in Activity 1.

ENRTF budget supports personnel costs of developing an enhanced blog and website containing the student's photographs as well as GIS storymaps, for use by the students and to be shared as part of community outreach, education and dissemination activities.

The "Water Journey Camp Toolkit" developed under Activity 1 provide the content and equipment for implementing the Water Journey Camps in activity 2.

Other expenses needed to conduct the camps are provided by partner support from the University of Minnesota Recreation and Wellness Youth Program. This program provides the camp infrastructure for the Water Journey Camps through the normal camp cost structure. University Recreation and Wellness Youth Programs will be providing the programming space for these camps (classrooms and buildings as needed), along with the recruitment, hiring and training (15 hours in person group leader training,



covered cost of background checks, First Aid & CPR certifications, Blood borne Pathogen, Belay Certification, Concussion Training, and Safety of Minors on Campus Policy/Mandatory Reporter training) of Group Leader Staff (2 staff per group at a total of 320 hours over the 4 camps) who will lead and attend the Water Journeys camps with the participants. Youth Programs has a 27 year camp history of providing gold standard summer day camp opportunities for youth ages 5-15, with a mailing list of over 25,000 that receive our marketing materials each year, and will be providing the recruitment of, and all administrative duties for, program registrants. Along with partnering to provide the Water Journeys instructional components of the camp, Youth Programs day camps also feature rock climbing, swimming, art instruction, physical education & nutrition instruction, and tours & demos for all of the camp participants for one affordable fee. The kids spend the entire day with us (up to 50 hours per week) for a high quality, well rounded academic and recreational experience. These covered expenses also include management of the need-based scholarship program, bus trips, field trip fees, and a modest supply budget.

Summary Budget Information for Activity 2:

ENRTF Budget:	\$0
---------------	-----

Amount Spent: \$0

Balance: \$0

Outcome	Completion Date	
1. 32-56 kids, ages 6-11, complete outdoor water journey experience and create water journey books to document that experience	July 31, 2016	
2. Four Service plantings sessions completed at Sarita Wetland	July 31, 2016	
3. Students give presentations of their water journey to parents and public for each camp	July 31, 2016	

Activity Status as of December 15, 2015: As indicated above in more detail, overall planning for the camps is now complete, with work still to be done this spring on detailed day-to-day lesson plans, camp staffing, supply procurement, planting purchases and event planning for the parent and community presentations.

Activity Status as of June 15, 2016: The team is planning day-to-day camp activities now. To support those, a decision will be made soon regarding what type of camper journals will be donated or purchased (lined or art paper, size, etc.). As indicated above, service planting purchase decisions and logistics are well underway, and dates for planting are set. The end of week camper presentations for parents and community will be occurring at the Commons Art & Meeting Space at Institute on the Environment (IonE) on Friday, July 22 and Friday, July 29, in the late afternoon

Activity Status as of December 15, 2016: The key camp activities were all completed as planned, with 55 campers participating. Throughout the water journeys and camp week, campers took pictures, used sketchbooks, contributed to a GIS story map, created map art reflecting on their visits, participated in



water testing, and used poetry and movement to engage with the content. The engagement of many staff members of multiple partner organizations as guides to the various places on the water journey exceeded expectations and was much appreciated by the campers and counselors. In addition to the water journeys around the cities and to the Mississippi River, activities included service plantings at Sarita Wetland, and a final open house with campers presenting to parents and families that attended. These open houses with students showcasing their art-maps and contributions to the GIS Story Maps were a wonderful learning experience for all, and a point of pride for the Institute on the Environment (IonE).

The main change to the plan was that there was a shift in the approach to the visual nature journals. Initially each child was to receive a high quality custom nature journal containing their photographs from the journey as well as entering their notes and sketches. Selections from this visual work would also double for exhibit at each open house. Due to anticipated time constraints to turn printing around, as well as a desire for more flexibility in visual work the team shifted to a hybrid approach. Children each received a high quality blank sketchbook to use throughout the camps with sketching and watercolor media provided. Additional visual work was done outside the journal in larger format art-map making projects they could take home, and their photographs were included in a collective GIS story map online. All their photographs were also posted online for public viewing and for those who want to print them after the camp. The exhibit made use of selected photographs, sketchbooks, art maps, and a large screen display of the GIS Story map. The camp website still serves as an online visual display of the Mississippi River sites visited, augmented by daily blog updates and summarized in the final video. http://waterjourneycamps.blogspot.com

**Budget:** The shift in approach to visual work impacted the expenses. Instead of the high-volume highquality printing of photographs in nature journals, there was more time spent by staff to develop art activities and develop the online photography approach.

### **Final Report Summary:**

In 2016 and 2017, over 100 campers who participated in Water Journey Camps created their own journals, took a plethora of photographs and created hundreds of art or science projects. Campers and counselors presented this work at the end of each camp week, both in 2016 and 2017, at planned openhouses for parents and the Institute on the Environment (IonE) community. All campers' work is included on an up-to-date camp website. The website was updated with blog entries daily during the 2017 camp sessions and will be updated again during camp weeks in future years, as it has proven to be very popular with campers and their families, and helpful in telling the story of Water Journey Camps to K-12 educators, higher education faculty and staff and artists who are interested in bridging the art, science and story of water. In particular, the integration of the campers' own understanding of water into a GIS story map format has been seen as a valuable STEM, arts and place-based education approach, in the eyes of educators, parents and IonE visitors alike. The Water Journey Camp team expects the concepts behind Water Journey Camps to be taken new places.

### **ACTIVITY 3: Conduct Community Outreach and Education**

**Description**: Create environmental education materials for use in a public website and presentations in which children's explorations and creative work are featured. The website about the project will feature



student photography and observations tied to an interactive online map showing where photos were taken. This "storymap," which uses GIS software, will create an expandable framework so that student work in future camps can be added. The website will also present the public with the environmental education video from the project. See the dissemination section of this work plan for more information on public presentations and displays.

# Environmental Education Video:

A 3-5 minute video will be created to educate the public about local watershed and water conservation issues. The video will use the student experience at the camps and make use of student photography and interviews as a way to use the human story of student experience to engage the public in the environmental story of local water issues. In addition to public stewardship education, the video will also be used for recruiting students to future camps and to share the model with other educators.

The narrative of the video will be about the campers' journey alongside water flows through their camp. In the beginning, camp leaders and students start with rain and drinking water and trace the water cycle all the way to the Mississippi River. The video will document highlights of youth experiences with the Water Journey Camps by shooting youth action segments outdoors as they're happening and incorporate youth photography and candid comments of reflection in a wide range of forms. As the camps unfold and we witness creative expressions about what the Water Journey Campers are observing and learning, we'll capture these moments and build a video that tells the human and environmental story of Water Journey Camps.

Steps of video production:

- Preproduction planning: Prioritize most important activities to shoot, and explore the best way to shoot video and capture audio. Craft a preliminary narrative of the video.
- Production: Capture video, audio and photography of the Water Journey Camps.
- Post production: Organize and log digital assets. Create a rough edit, gain collaborative feedback from team. Revise and finalize edit. Upon approval of final, output and upload video to website and/or social media destinations.

The ENRTF funds under Activity 3 Community Outreach and Education support creation of the educational video. The creation of and updates to the website are from cash support by Institute on the Environment for a designated communications student position managed by Institute staff. The education and outreach also makes use of the GIS Map funded under Activity 1. Project partners will also support community outreach and education through their communication channels.



Summary Budget Information for Activity 3:

ENRTF Budget: \$4,000

Amount Spent: \$4,000 Balance: \$0

Outcome	<b>Completion Date</b>
<b>1.</b> Public website with interactive maps documenting the water flows through the camp location on St. Paul Campus and Sarita Wetland to the landscapes beyond the campus.	August 15, 2016
<b>2.</b> 3-5 minute educational video about water journey camps, featuring campers and their work	August 15, 2016

Activity Status as of December 15, 2015: As indicated, registration materials for both camps will be available soon, but the public website will be planned this spring and actually built out by the campers themselves during the camps in July.

Activity Status as of June 15, 2016: A website is in development, as is the "story board" for the educational video, after several recent meetings of the camp educational staff, video producer and Polar Geospatial staff.

Activity Status as of December 15, 2016: The completed website, blog, GIS Storymaps and short video (8 minutes) capture the camp story, its approach and its activities and this collection of communications media has been appreciated by the campers, their parents and families and by the environmental educators, teachers and members of the public who have had a chance to see them. The web resources and video were promoted in a session at the Minnesota Association for Environmental Education (MAEE) conference in August, on the first Friday of the EcoExperience at the Minnesota State Fair, 2016, at the Minnesota Educator Academy (MEA) in October, at the Association for the Advancement of Sustainability in Higher Education (AASHE) conference in Baltimore, Maryland, also in October, in meetings of a student sustainability leadership program at the University of Minnesota and at the public stormwater meeting at the U of MN in November. Future conference presentations and events are planned. IonE featured the camp and video in its website for thousands of regular readers, and the student-focused sustainability education blog featured the camp while it was underway, particularly the involvement of undergraduate student staff as assistants for the program. The video is embedded in the blogspot website and showcases both the learning of the children and the hard work of those who keep our water clean in Minnesota.

**Final Report Summary:** The well-designed, story-based and comprehensive nature of the short video as well as all of the media materials has had great appeal to campers, parents and to the education community, including environmental educators, K-12 teachers across subject areas and members of the public who have had a chance to see them. Since the website and video were quite popular with campers and their families, as well as educators, in the first year of the Water Journey Camps in 2016, the materials were used again and updated in the second year of the camps. This pattern will most likely



continue in the net two years of offering the camps. New content on the website in 2017 included additions to the blog and GIS Storymaps, again featuring nearly all camper photography and artwork. A link to the Water Journey Camps web content was included on the Institute on the Environment's page, but campers and educators generally found the site directly through its own address at <a href="http://waterjourneycamps.blogspot">http://waterjourneycamps.blogspot</a>. Again in the second year, the website included summaries of the various camp projects as well as annotations of photographs by each of the campers. Day-to-day updates on camp activities and learning were written up by the instructors, counselors and interns and included on the website. The short video (8 minutes) about Water Journey Camps, made in 2016, continued to be used for explaining the camp to prospective families, to share the camp program at conference presentations and to educate the University of Minnesota St. Paul campus community about the program.

The web resources and video were featured in a session at the Minnesota Association for Environmental Education (MAEE) conference in August, 2017 at Wolf Ridge and will be featured in the first panel on sustainability education programs offering summer camps, at the Association for the Advancement of Sustainability in Higher Education (AASHE) annual conference in San Antonio, Texas, coming up in October, 2017. The media materials are a focus of an emerging St. Paul campus-based sustainability project involving educating people about and improving local stormwater quality. IonE again in 2017 featured the camp and video in its website and on social media. Future conference presentations and events that make use of the website and video are planned, as the program is seen within IonE as a good example of materials successfully reaching K-12 audiences. The video is embedded in the blogspot website and showcases both the learning of the children and the hard work of those who keep our water clean in Minnesota. http://waterjourneycamps.blogspot

# V. DISSEMINATION:

**Description:** The project will have a web page that is part of or linked from the University of Minnesota's Institute on the Environment web page (at environment.umn.edu). The exact URL will be provided in a status update once it is determined. The web page audience will include participants and their families, the public, particularly those living near the area studied, and educators interested in this as a model. Targeted announcements directing audience to the web page will be made to participant families, local leaders, the Institute on the Environment community, University of Minnesota media resources, and organizations interested in environmental education. Selected presentations will be made to environmental and education groups. For example, the outreach materials, including children's photography, the story maps and the short video will be featured at events such as those hosted by SciMath MN, which is a professional and networking organization for teachers, and could be offered as a professional development workshops and an annual STEM day at the Minnesota State Fair.

**Status as of December 15, 2015:** The Institute on the Environment (IonE) Sustainability Education program is currently revising and updating its website, which will be released this spring, 2016 and will include a suite of community programs, including Water Journey Camps.

**Status as of June 15, 2016:** The IonE Sustainability Education program is now drafting a blog post about Water Journey Camps, which will be hosted on a separate website, soon to be released.



**Status as of December 15, 2016:** The website, blog, GIS story maps, and video, at <a href="http://waterjourneycamps.blogspot">http://waterjourneycamps.blogspot</a>, were completed and promoted at numerous events as described above, under Activity 3, and will continue to be presented at events in the coming months, in partnership with Climate Generation, Minnesota's Green Schools Alliance, SciMath MN and with individual schools and teachers that express interest in the model.

### **Final Report Summary:**

A key outcome for Water Journey Camps is continuation of the program without LCCMR grant support in the summer for 2017, when 44 new children participated in four week-long camps that closely followed the model established in 2016. Another 3 years of camps are planned. In 2017, revenues from camp fees paid by each child, along with scholarships for low-income children, offset most of the costs, including staff pay, field trips, transportation and expendable art supplies like papers and beads. The bulk of art, science and photography supplies purchased in 2016, with LCCMR funds, were used again in 2017. The art and science "kit" should serve Water Journey Camps for at least 3 more years. Water Journey Camps is now a well-established and sustainable program that will ultimately reach more than 200 campers over 5 years.

Another outcome of Water Journey Camps is learning gains made by the campers themselves. The Evaluation Report details results of pre and post-camp surveys filled out by the children, with help from counselors for the youngest children. This survey data indicates gains in awareness of how we use water, knowledge of where water comes from and importance of water stewardship. In end-of-camp reflection on their experience, campers indicated more comfort with and interest in STEM projects, as they enjoyed 1) water quality testing and analysis, 2) learning about and planting plants and 3) crafting questions for professionals working in water systems. The art projects and mapping experiences were highlights for many campers. The Youth Program leaders offered informal feedback that parents were pleased with what their children learned. Water Journey Camps were the favorite of several children who enrolled in multiple camps at the University of Minnesota.

A Toolkit is now available on the Water Journey Camps website, aimed at serving teachers and informal educators interested in the approach to learning about water in a particular place or using specific projects. The Toolkit is itself an outcome of the grant. It is flexible enough to allow for replication of the entire overall concept of Water Journey Camps, the use of one or more of the projects in a class period or field trip, or the addition of a new element - such as story maps, photography, planting or tracking pipes – in an existing lesson. The website and materials available have been or will be shared with hundreds of educators through conference presentations and networking sessions as well as web and social media outreach done by IonE. The conferences include the Minnesota Association for Environmental Education (MAEE) meetings in 2016 and 2017, the Minnesota Educator's Academy annually in October as well as the Upper Midwest Association for Campus Sustainability (UMACS) in Pella, Iowa in late September, 2017, and on a national stage at the Association for Advancement of Sustainability in Higher Education (AASHE) annual conference in October, 2017. AASHE invited Beth Mercer-Taylor to serve on its first panel on K-12 sustainability summer programs supported by campus sustainability units.



As a key partner, the Institute on the Environment (IonE) gained the unexpected benefit of expansion into new water and K-12 programming as a result of Water Journey Camps. IonE's provision of significant staff support, no-cost space and a beautiful public gallery space for display of camp maps, art and science projects made more IonE staff and faculty keenly aware of the power of an art, science and storytelling approach to learning about water. The energy of the campers and their learning about water systems inspired the staff and faculty as well as many visitors attending meetings and events at IonE. In the last week of June, 2017, immediately after the camps were completed, over 100 educators saw the Water Journey Camp displays, including nearly 60 attending the Climate Generation Summer Institute at IonE and 45 attending a national workshop on Sustainability & Diversity in Higher Education at IonE. Water Journey Camps contributed to IonE staff and faculty expanding their engagement in water related and K-12 programming, including: 1) a new stewardship project starting in fall, 2017 at Sarita Conservation Area, 2) an partnership between IonE and the "Water Bar" where flights of Iocal tap waters are served to students and community partners, 3) placement of 5 high school interns from the City of St. Paul Right Track program at IonE in summer 2017, including 3 assisting with Water Journey Camps and 4) hosting the Climate Generation Summer Institute for educators.

# VI. PROJECT BUDGET SUMMARY:

Budget Category	\$ Amount	Overview Explanation
Personnel:	\$ 19,988	1 project manager at 3.8% FTE each year for 1 year; 1 project designer/leader at 10.1% FTE each year for 1 year; 1 digital mapping coordinator at 1% FTE each year for 1 year; 1 student at 50% FTE for (1) 8 week summer session.
Professional/Technical/Service Contracts:	\$ 4,000	1 contract with Favorito Media for production of educational video.
Equipment/Tools/Supplies:	\$ 1,012	Nature photography tool kit suitable for young children: Fifteen (15) digital kid-friendly cameras, associated USB cords for downloading photos, and rechargeable batteries and rechargers for cameras. [Camera toolkit becomes part of the camp toolkit for repeats of camp in future years.]
Printing:	\$0	<ul> <li>\$ 62 of general project printing needs and</li> <li>\$ 1,400 for children's water journey books</li> <li>(See amendment for change)</li> </ul>
Travel Expenses in MN:	\$0	Mileage for field trip site planning visits (See amendment for change)
TOTAL ENRTF BUDGET:	\$ 25,000	

### A. ENRTF Budget Overview:

Explanation of Use of Classified Staff: N/A



Explanation of Capital Expenditures Greater Than \$5,000: N/A

Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation: 0.23 FTEs

Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation: 0.05 FTEs

#### **B. Other Funds:**

Source of Funds	\$ Amount Proposed	\$ Amount Spent	Use of Other Funds
Non-state			
Institute on the Environment (Cash Support)	\$ 2,400	\$2,400	Committed summer student to do public communications on the project. (Undergrad student in summer for 12 weeks x 20hrs/wk x \$10/hr = \$2400).
U of MN Recreation and Wellness Youth Camp (In-kind Support)	\$ 3,120	\$ 3,120	Contributed costs via camp fees for camp class instructor, bus trips, admission for riverboat, and miscellaneous supplies. Camp promotion and recruiting, and management of the need-based scholarship program are also provided by this partner.
The University of Minnesota (In- kind Support)	\$ 10,117	\$ 10,117	The University of Minnesota's Facilities and Administrative rate is 33% of modified total direct costs. The amount, if F&A expenses would have been allowed on the project, would be \$10,117. The University will provide office space, IT services, and administrative / financial services in support of the project.
State: N/A			
TOTAL OTHER FUNDS:	\$ 15,637	\$ 15,637	



## VII. PROJECT STRATEGY:

### A. Project Partners:

# Project Partners Receiving ENRTF Funds:

- University of Minnesota's (UMN) Institute on the Environment: \$ 16,637 for
  - o Beth Mercer-Taylor and graduate student to manage the project
  - O Jonee Kulman Brigham (currently in the Department of Curriculum and Instruction, and recently at the UMN Center for Sustainable Building Research) to join Institute on the Environment to lead the implementation of the project with the pilot participants
  - o Associated travel, printing, and equipment for the toolkit
- UMN U-Spatial: \$ 4,441 for Len Kne and a graduate student to lead the set up and use of digital mapping resources for learning and public educational outreach
- Favorito Media: \$ 4,000 for Video Producer, Audrey Favorito, to create the educational video for the project.

Project Partners Not Receiving ENRTF Funds:

- U of MN Recreation & Wellness Department: coordinating camp recruitment, logistics, and general camp support activities
- Capitol Regional Watershed District: providing educational support and co-coordination of service plantings at Sarita Wetland
- St. Paul Regional Water Services: providing tours of their facilities
- National Park Service, Brian Goodspeed, Park Ranger: providing interpretation as a guide to the natural features of the Mississippi in a riverboat ride
- An advisory group of experts (TBD): providing advice and connections to inform the project and assist with outreach.

# B. Project Impact and Long-term Strategy:

The project aims to impact Minnesota's environment and natural resources through creating awareness and stewardship attitudes about water resources that help lead to positive water behaviors. Specifically, this project is designed to inspire a sense of interconnection between daily water impacting activities and downstream water bodies and the Mississippi River. While the lessons of water flows are similar in many areas, focusing on a particular place, leads to more relevance to the learners and a more interesting story of water exploration for local and regional audiences. In addition to their own experience, the student's exploration makes for an engaging way to tell others' about water flows and what they can do to improve water quality.

Water Journey Camps is part of a larger effort of applying the Earth Systems Journey approach to a variety of locations and communities. A pilot has been completed, centered in Little Canada for preschoolers, and another project is underway south of the river in St. Paul at a high school. The camp format of this project gives the opportunity for students particularly interested in water and the environment to have the same experience, whatever school they normally go to. The University of



Minnesota Summer Youth Programs has a need-based scholarship component, increasing access for students who might not otherwise be able to attend a camp program.

The project will be used as a foundation for extending the camps and associated community water stewardship education and outreach four (4) or more years. The ongoing camps will be funded through the cost structure of the youth programs, supplemented by additional support from Institute on the Environment. The camp model will be shared with the wider community through a website and presentations to inspire and assist others to create similar programs. Future funding requests to ENRTF are not anticipated for Water Journey Camps.

**C. Funding History:** *N/A* 

VIII. FEE TITLE ACQUISITION/CONSERVATION EASEMENT/RESTORATION REQUIREMENTS:

A. Parcel List: N/A

B. Acquisition/Restoration Information: N/A

IX. VISUAL COMPONENT or MAP(S): See attached illustration.

X. RESEARCH ADDENDUM: N/A

XI. REPORTING REQUIREMENTS:

Periodic work plan status update reports will be submitted no later than December 15, 2015, June 15, 2016, and December 15, 2016. A final report and associated products will be submitted between June 30 and August 15, 2017.

# Environment and Natural Resources Trust Fund M.L. 2015 Project Budget

Project Title: Mississippi River Water Journey Camps

Legal Citation: M.L. 2015, Chp. 76, Sec. 2, Subd. 05e

Project Manager: Beth Mercer-Taylor

Organization: University of Minnesota, Institute on the Environment

M.L. 2015 ENRTF Appropriation: \$ 25,000

Project Length and Completion Date: 2 Years, June 30, 2017

# Date of Report: August 15, 2017

ENVIRONMENT AND NATURAL RESOURCES TRUST	Activity 1		Activity 1	Activity 2		Activity 2	Activity 3
FUND BUDGET	Budget	Amount Spent	Balance	Budget	Amount Spent	Balance	Budget
BUDGET ITEM	Plan and Prepa	are Water Journ	ey Camps	Conduct Four	Water Journey	Camps for	Conduct Comn
	Toolkit and Do	cumentation		Environmental Education			Education
Personnel (Wages and Benefits)	\$19,988	\$19,988	\$0	\$0	\$0	\$0	\$0
Personnel: Beth Mercer-Taylor, Institute on the Environment,	\$4,239	\$4,239	\$0				
Personnel: Jonee Kulman Brigham, to be hired as part time	\$11,307	\$11,307	\$0				
Personnel: Len Kne, U Spatial, UMN	\$905	\$905	\$0				
Personnel: Student TBD, U Spatial, UMN	\$3,536	\$3,536	\$0				
Professional/Technical/Service Contracts	\$0	\$0	\$0	\$0	\$0	\$0	\$4,000
Video Producer: Audrey Favorito to create a 3-5 minute	\$0	\$0	\$0				
Equipment/Tools/Supplies	\$1,012	\$1,012	\$0	\$0	\$0	\$0	\$0
Nature photography tool kit suitable for young children:	\$1,012	\$1,012	\$0				
Printing	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Printing costs for reports and for camp activities, based on	\$0	\$0	\$0				
Travel expenses in Minnesota	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Field Trip site planning visits (one visit each location) and	\$0	\$0	\$0				
COLUMN TOTAL	\$21,000	\$21,000	\$0	\$0	\$0	\$0	\$4,000



Amount Spent	Activity 3 Balance	TOTAL BUDGET	TOTAL BALANCE
	nunity Outreach and		
\$0	\$0	\$19,988	\$0
\$4,000	\$0	\$4,000	\$0
\$0	\$0	\$1,012	\$0
\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0
\$4,000	\$0	\$25,000.00	\$0.00



*Children discover how everything is connected as they follow pipes, touch the river, help the wetland, and tell their story.* 

Where does water come from? Where does water go?





Meeting Water Professionals



What happens to water? [ecology & water testing]



A project of:

INSTITUTE ON THE ENVIRONMENT

UNIVERSITY OF MINNESOTA

Driven to Discover\*







Funding provided by:

ENVIRONMENT

TRUST FUND



The Story [Nature Journals & GIS Story Maps]



...Back to the River

How can I help? [wetland planting]

https://waterjourneycamps.blogspot.com