

## **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

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**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.



# Environment and Natural Resources Trust Fund (ENRTF) M.L. 2015 Work Plan Final Report

**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?** No

**PROJECT TITLE:** Mississippi River Water Journey Camps

**Project Manager:** Beth Mercer-Taylor

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

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## 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.

<b>Total ENRTF Project Budget:</b>	<b>ENRTF Appropriation:</b>	<b>\$ 25,000</b>
	<b>Amount Spent:</b>	<b>\$25,000</b>
	<b>Balance:</b>	<b>\$00</b>

**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.



# Environment and Natural Resources Trust Fund (ENRTF) M.L. 2015 Work Plan Final Report

## 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:

- 1) 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.
- 2) 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.



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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.



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### **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,



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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](http://waterjourneycamps.blogspot.com)

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



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### **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.





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### Summary Budget Information for Activity 1:

ENRTF Budget: \$ 19,988  
 Amount Spent: \$ 19,988  
 Balance: \$ 0

Outcome	Completion Date
1. Camp Toolkit including physical maps, camp outline, information resources, contacts, camera equipment, digital mapping system, website, and service planting guide	August 30, 2016
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).



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### 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.



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### 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 wastewater treatment plant, and traveling on a riverboat downriver to where the treatment plant returns water to the Mississippi River.

**Camp 2: “Water Journey: Rain”** 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,



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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



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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 high-quality 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 open-houses 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



## Environment and Natural Resources Trust Fund (ENRTF) M.L. 2015 Work Plan Final Report

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.



## Environment and Natural Resources Trust Fund (ENRTF) M.L. 2015 Work Plan Final Report

### Summary Budget Information for Activity 3:

**ENRTF Budget:** \$ 4,000

**Amount Spent:** \$ 4,000

**Balance:** \$ 0

Outcome	Completion Date
1. 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
2. 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



## Environment and Natural Resources Trust Fund (ENRTF) M.L. 2015 Work Plan Final Report

continue in the next 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 <http://waterjourneycamps.blogspot>. 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](http://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.





## Environment and Natural Resources Trust Fund (ENRTF) M.L. 2015 Work Plan Final Report

**Status as of December 15, 2016:** The website, blog, GIS story maps, and video, at <http://waterjourneycamps.blogspot>, 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.



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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 and 4) hosting the Climate Generation Summer Institute for educators.

### VI. PROJECT BUDGET SUMMARY:

#### A. ENRTF Budget Overview:

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	\$ 62 of general project printing needs and \$ 1,400 for children's water journey books (See amendment for change)
Travel Expenses in MN:	\$ 0	Mileage for field trip site planning visits (See amendment for change)
<b>TOTAL ENRTF BUDGET:</b>	<b>\$ 25,000</b>	

Explanation of Use of Classified Staff: N/A



# Environment and Natural Resources Trust Fund (ENRTF) M.L. 2015 Work Plan Final Report

**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
<b>Non-state</b>			
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.
<b>State: N/A</b>			
<b>TOTAL OTHER FUNDS:</b>	<b>\$ 15,637</b>	<b>\$ 15,637</b>	



# Environment and Natural Resources Trust Fund (ENRTF) M.L. 2015 Work Plan Final Report

## VII. PROJECT STRATEGY:

### A. Project Partners:

#### Project Partners Receiving ENRTF Funds:

- University of Minnesota's (UMN) Institute on the Environment: \$ 16,637 for
  - Beth Mercer-Taylor and graduate student to manage the project
  - 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
  - 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



## **Environment and Natural Resources Trust Fund (ENRTF) M.L. 2015 Work Plan Final Report**

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

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



Amount Spent	Activity 3 Balance	TOTAL BUDGET	TOTAL BALANCE
<i>Community Outreach and</i>			
\$0	\$0	\$19,988	\$0
\$4,000	\$0	\$4,000	\$0
\$0	\$0	\$1,012	\$0
\$0	\$0	\$0	\$0
\$0	\$0	\$0	\$0
<b>\$4,000</b>	<b>\$0</b>	<b>\$25,000.00</b>	<b>\$0.00</b>



# Mississippi River Water Journey Camps

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

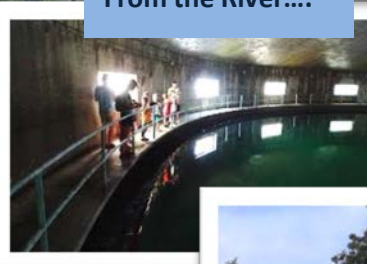
**Where does water come from? Where does water go?**



From the River....



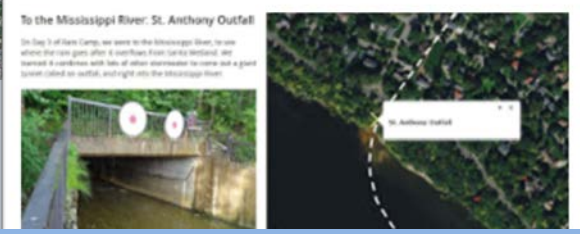
Meeting Water Professionals



What happens to water?  
[ecology & water testing]



...Back to the River




The Story [Nature Journals & GIS Story Maps]



How can I help?  
[wetland planting]

**A project of:**  
 INSTITUTE ON THE ENVIRONMENT  
 UNIVERSITY OF MINNESOTA  
 Driven to Discover™

**Funding provided by:**  
  
 ENVIRONMENT AND NATURAL RESOURCES TRUST FUND

<https://waterjourneycamps.blogspot.com>





# Mississippi River Water Journey Camps Evaluation Report

August 10, 2017

INSTITUTE ON THE  
ENVIRONMENT

UNIVERSITY OF MINNESOTA  
Driven to Discover™

Prepared by Institute on the Environment  
By Jonee Kulman Brigham, Senior Research Fellow  
and Beth Mercer-Taylor, Sustainability Education Coordinator



Funding for this project was provided by  
the Minnesota Environment and Natural Resources Trust Fund  
as recommended by the Legislative-Citizen Commission on Minnesota Resources (LCCMR).

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## Evaluation Executive Summary

### Background

“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,” are held twice each (a total of four camps) at the St. Paul campus of the University of Minnesota. The camps serve youth ages 6-8 and 9-11 and are part of the University of Minnesota Recreation & Wellness Summer Youth Program.



Funding for this project was provided by the Minnesota Environment and Natural Resources Trust Fund as recommended by the Legislative-Citizen Commission on Minnesota Resources (LCCMR).



The project is led by Institute on the Environment, University of Minnesota with a team of collaborators and supporters within and beyond the University. Please see the team list as well as other project materials at the project website:

[waterjourneycamps.blogspot.com](http://waterjourneycamps.blogspot.com)



### Evaluation

Based on the grant goals, student, parent, staff and partner feedback, as well as the wider reception by educators and the public, the Mississippi River Water Journey Camps were a success. The design of the grant as a model to be repeated in following years, offers the opportunity for improving the camps each year, as was already done in summer 2017.

Each summer of camps has its own outreach and dissemination activities through the camper families, partners, and Institute on the Environment communications resources, so that the outreach and dissemination that are built into the camp design continue and can engage more people over time in learning about this model and how to protect the Mississippi River.

***“...Being able to have the experiential piece of trying to help lift a manhole cover, or going into the water treatment plant, or helping with wetland plantings is invaluable. Most kids learn best through tactile, hands on learning, and this is a great format and opportunity in which to do that.” —camp program staff***

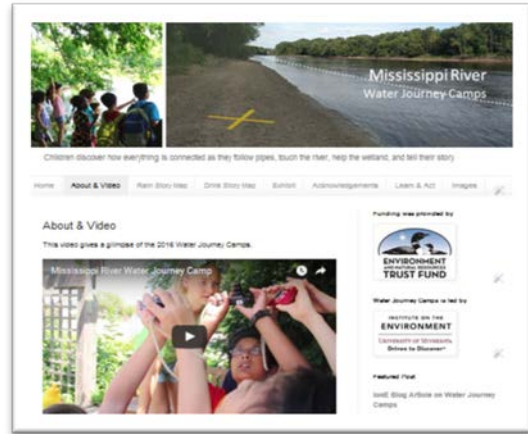
***“The project looks very effective for public education because of how holistic and personable it is.”***  
—participating public water educator

Highlights:

- Participants showed increases in water system awareness, connections to the Mississippi River, stewardship attitudes and skills
- Camp model was delivered to educators and the public online through the website and its resources, a professional video, GIS Story Maps, campers’ photos and artwork, and the art-science exhibit held during the summer.

Additionally

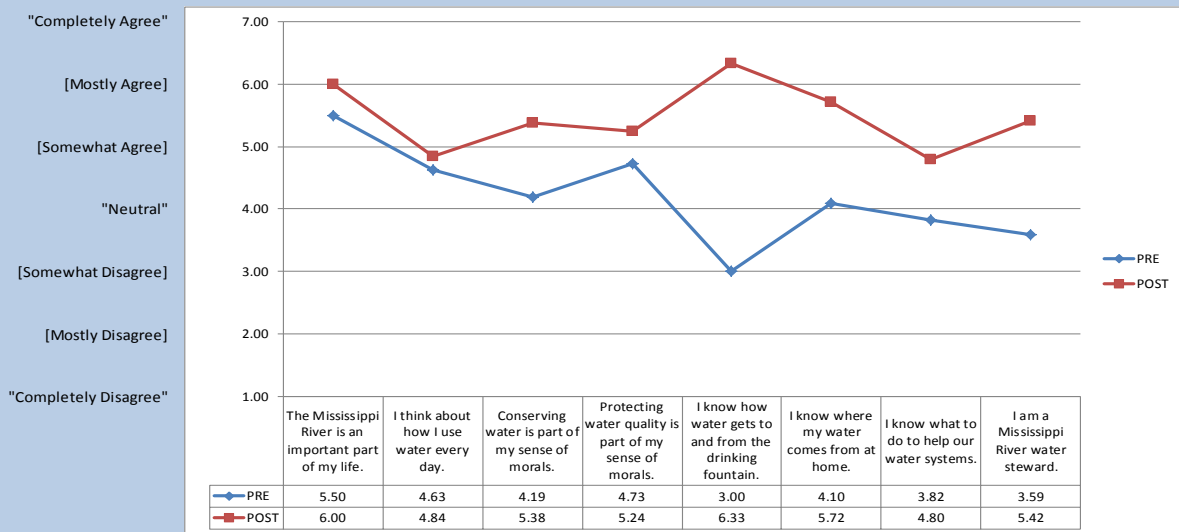
- Presentations to educators were made both locally and nationally
- Presentations to the public, included presence at the EcoExperience at the Minnesota State Fair, as well as exposure through the networks connected to partners and Institute on the Environment



*“Any time you give a child the ability to educate their parents on a particular issue, you create a huge impact in public education. Parents take their kid’s interests, education and concerns very seriously. They will be more likely to think about it too as time goes on. “ —co- instructor*

**Excerpt from Detailed Evaluation Results:**

**Average agreement with statements about water value, knowledge, and conservation attitudes**



**Recommendations**

Recommendations remaining after the logistics and design improvements already made in the camp’s second year are refinements to improve areas such as: ability to measure progress in desired outcomes by fine tuning survey questions, further simplification and streamlining for more focus on the most essential elements, and continued outreach and dissemination to educators and the public.

## Introduction

“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,” are held twice each (a total of four camps) at the St. Paul campus of the University of Minnesota. The camps serve youth ages 6-8 and 9-11 and are part of the [University of Minnesota Recreation & Wellness Summer Youth Program](#).



## Funding

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Funding for this project was provided by the Minnesota Environment and Natural Resources Trust Fund as recommended by the Legislative-Citizen Commission on Minnesota Resources (LCCMR). The Trust Fund is a permanent fund constitutionally established by the citizens of Minnesota to assist in the protection, conservation, preservation, and enhancement of the state's air, water, land, fish, wildlife, and other natural resources. The initial investment established the camp design, content, materials, and approaches so that it is set up to repeat within the structure and fee system of the youth camp program. The first camps were in summer 2016.



## Background

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The camps use an engaging arts/science adventure approach, called [Earth Systems Journey](#), designed 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.



## Goals

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The grant goals and outcomes of Water Journey Camps were:

*1) 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.*

*2) 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.*

## Contacts

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The project is led by Institute on the Environment at University of Minnesota with a team of collaborators and supporters.

For more information about the team, the planning, or design of the Mississippi River Water Journey Camps see the project website at

[waterjourneycamps.blogspot.com](http://waterjourneycamps.blogspot.com)

or contact [Beth Mercer-Taylor](#) or [Jonee Kulman Brigham](#)

For more information about the camp program in which water journey camps are held please see:

[University of Minnesota Recreation & Wellness Summer Youth Program](#)



## Evaluation Scope and Process

Evaluation Scope From Grant:

*“...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.”*

The goals and outcomes of Water Journey Camps are described earlier. They are evaluated in the following ways:

- 1) **Participants:** Participant outcomes were evaluated based on participation level and the results of the pre-post surveys. These outcomes are detailed in the section on Goal 1.
- 2) **Demonstration / Dissemination of model to formal and informal educators**  
The project was shared to educators through targeted outreach and dissemination, including a website, video, exhibit, and selected presentations. These activities are described in the section on Goal 2.
- 3) **Educate Public about water issues and camp model**  
The project was shared to the public through targeted outreach and dissemination, including a website, video, exhibit, and selected presentations. These activities are described in the section on Goal 3.

Note that while some mention is made of improvements incorporated into the second year 2017 camps and resulting outcomes, that the 2017 camps and their evaluation are not part of the grant scope. These improvements in 2017 camps are merely described to show the use of the evaluation process for the granted 2016 camps.

## Goal 1 Evaluation: Camper Participant Outcomes

Participant Goal From Work Plan: *1) 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.*

## **Camps Participation Level**

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Participation level in 2016 was high at 55 campers out of 56 spaces for the set of four camps. The grant was intended to make future camps possible after the grant period. At the time of this report, the 2017 set of four camps have already taken place, with good participation at 45 out of 56 spaces. These camps made use of much of the feedback and evaluation results from the first year. The University of Minnesota Recreation & Wellness Summer Youth Program is very pleased with the camp, and Institute on the Environment remains committed to coordinating it in the future, so the intended four years of camps following the initial camp are still planned, and offer an opportunity to refine the design over time, as well as offer the experience to over 200 campers.

## **Drink Camps Pre and Post Survey Results**

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Participants in the Drink Camp were asked to take a pre-survey at the beginning of camp, and a post survey at the end of camp. The questions were about **their awareness of drinking water systems, the value they place on the Mississippi River, and their identification with water conservation and protection statements.** The results from the pre/post surveys of drink camp participants are described below.



### **Awareness of drinking water/sanitary sewer water cycle**

The drinking fountain at the camp location was the local reference point for the “drink” water journey. In the pre and post tests, participants were shown a picture of this water fountain and asked several questions related to the water cycle upstream and downstream from this fountain. The goal was to use multiple questions to draw out a more complete story of water from the campers. The responses to the

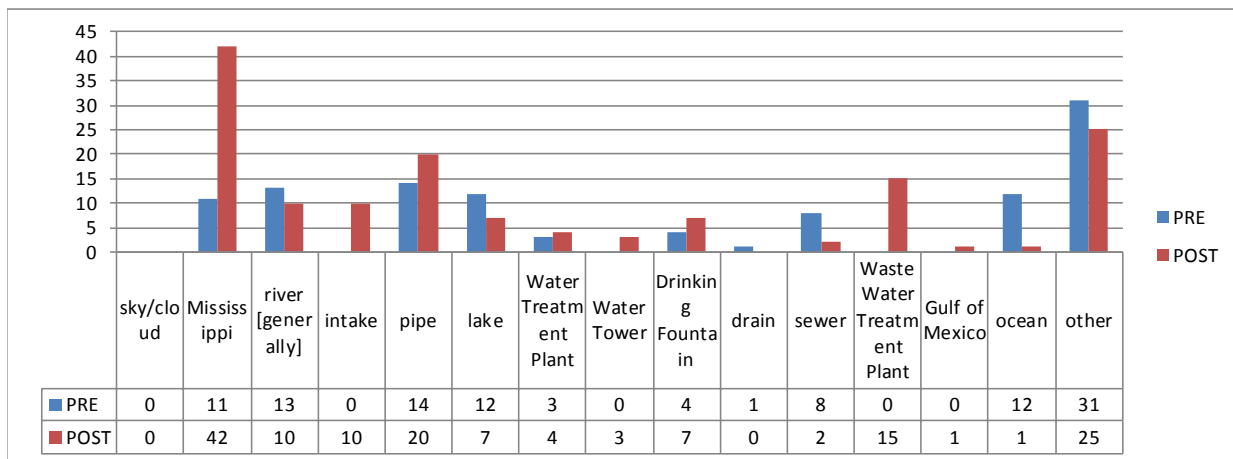


first 6 questions are combined to determine the number of times different elements of the water cycle were mentioned compared to the major elements that were included in the camps.

**Figure 1. Drinking/Sanitary Sewer Water System Awareness**

Number of mentions of elements of local water system in response to questions:

- Where does the water come from?*
- How does it get to the drinking fountain?*
- Where does the water go after it goes in the drain of the drinking fountain?*
- What happens next?*
- What happens to the water all along the way?*
- Where does the water end up?*



River Awareness Observations: Pre-camp, there were 11 mentions of the Mississippi River, and 13 mentions of the “river” generally for a total of 24 river-related mentions. Post camp there were 42 mentions of the Mississippi River, and 10 mentions of the “river” more generally for a total of 52 river-related mentions. This is over twice the number of river mentions.

Interpretation: There appears to be an increased awareness of the Mississippi River as part of the drinking and wastewater system.

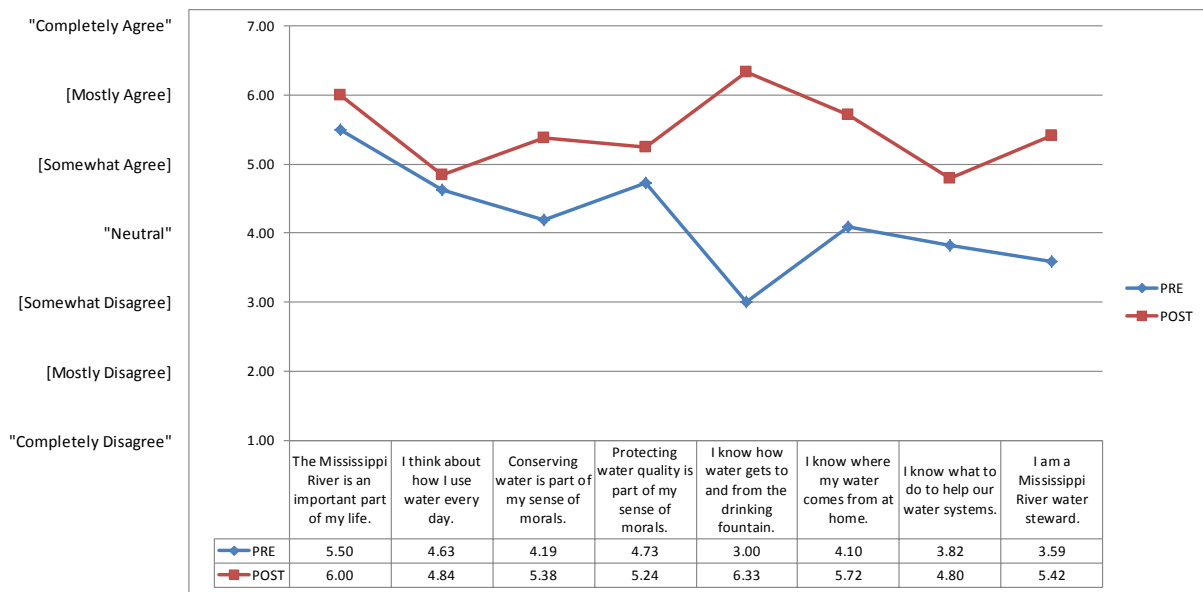
Water infrastructure Awareness Observations: While there were some mentions both pre and post camp that rivers, lakes, pipes, water treatment, and sewers may be involved in the local water system, there were no pre-camp mentions of the interface of the water infrastructure system with the river. Post-camp, there were more mentions of the intake (where water is taken in from the river before water treatment) and the waste water treatment plant (where sewage is treated before being re-released to the river).

Interpretation: There appears to be an increased awareness of the connection of the drinking and waste water infrastructure to the Mississippi River.

## River and water value, water knowledge confidence, and conservation attitudes

A number of questions were asked about water values, awareness, and conservation attitudes. To compare pre-tests and post-tests, the graph, below, plots the average degree of agreement for each, represented on a scale from 1-7 where 1 is “Completely Disagree” and 7 is “Completely Agree.” Depending on the question, between 21-24 campers responded in the pre-test, and 24-25 in the post-test.

**Figure 2. Average agreement with statements about water value, knowledge, and conservation attitudes**



Interpretation: For each question, the average agreement went up, indicating an increase in value placed on water and the Mississippi River, increase in perceived knowledge of water systems, and conservation attitudes. Interestingly, the Mississippi River was mostly perceived by camper’s to be an important part of their lives at the beginning of camp. There was an increase in average identification as a Mississippi River Water Steward from slightly less than neutral, to more than somewhat agree.

The increased perception of knowledge about how water gets to the drinking fountain is supported by the upstream and downstream awareness parts of the survey, and was an emphasis of the camp. The perceived increase of where water comes from at home, may or may not reflect actual awareness, since the camp did not spend time studying the water systems for each campers home cities. Knowledge of what to do to help water systems, was supported by camp stewardship activities, and information, but camper knowledge of those activities was not tested for, specifically.

Recommendations: In future surveys, ask students, to describe ways to help protect water, to evaluate the uptake of that knowledge and skills. In addition, even though camp time may not allow for learning

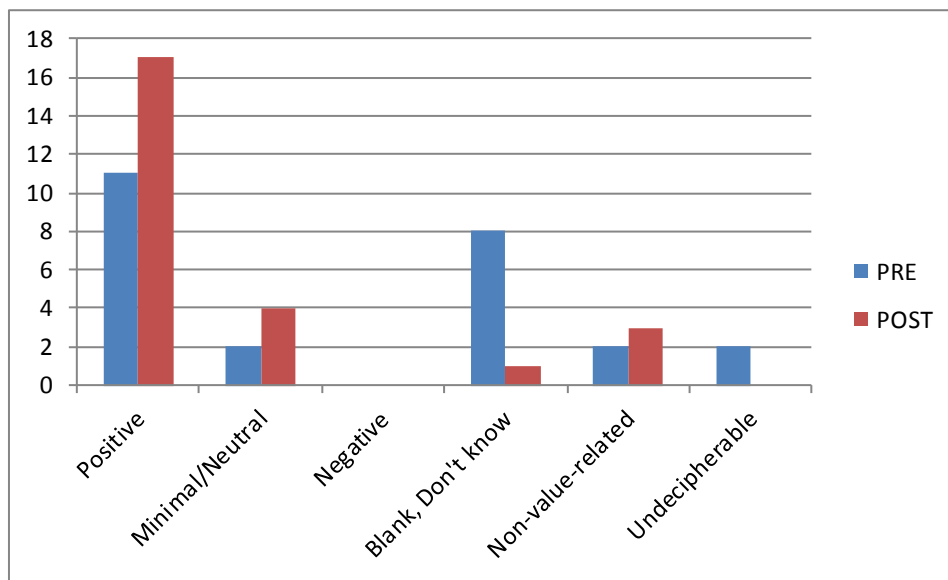
about campers home water systems, using a few examples of how it varies, would help ensure that campers know their own systems might be different.

### More on River Value

In addition, a narrative question was asked about the value of the Mississippi River to the participant, pre and post camp. The responses were categorized as positive value, minimal or neutral value, negative value, and then answers not indicating value: Blank/Don't know, Non-value related answers, and undecipherable.

**Figure 3. Mississippi River Value**

What is the value of the Mississippi River to you?



Observations: Of the 25 pre and post responses, Positive value statements increased from 11 to 17. Also, more campers expressed themselves regarding river value, reducing the number of blank or “I don't know” responses by 7.

### Conclusions on Drink Camp Participant Outcomes

From the comparison of pre and post surveys of campers in drink camp, it appears that awareness of water/river systems increased. It also appears that camper concern about water and river health increased as well as their stewardship identity. Campers also showed an increase in their perception of their own skills to help protect water. This was reinforced by applying skills of planting native plants, communicating the value of water in their photographs and art maps, and using the exhibit and online GIS story map as tools to practice their communication skills as they gave their parents and siblings a guided tour of what they saw and learned. Thus Grant goals for increasing Mississippi River and water awareness, skills and concern, were met.

## Rain Camps Pre and Post Survey Results

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Participants in the Rain Camp were asked to take a pre-survey at the beginning of camp, and a post survey at the end of camp. The questions were about **their awareness of storm water systems, the value they place on the Mississippi River, and their identification with water conservation and protection statements.** The results from the pre/post surveys of rain camp participants are described below.



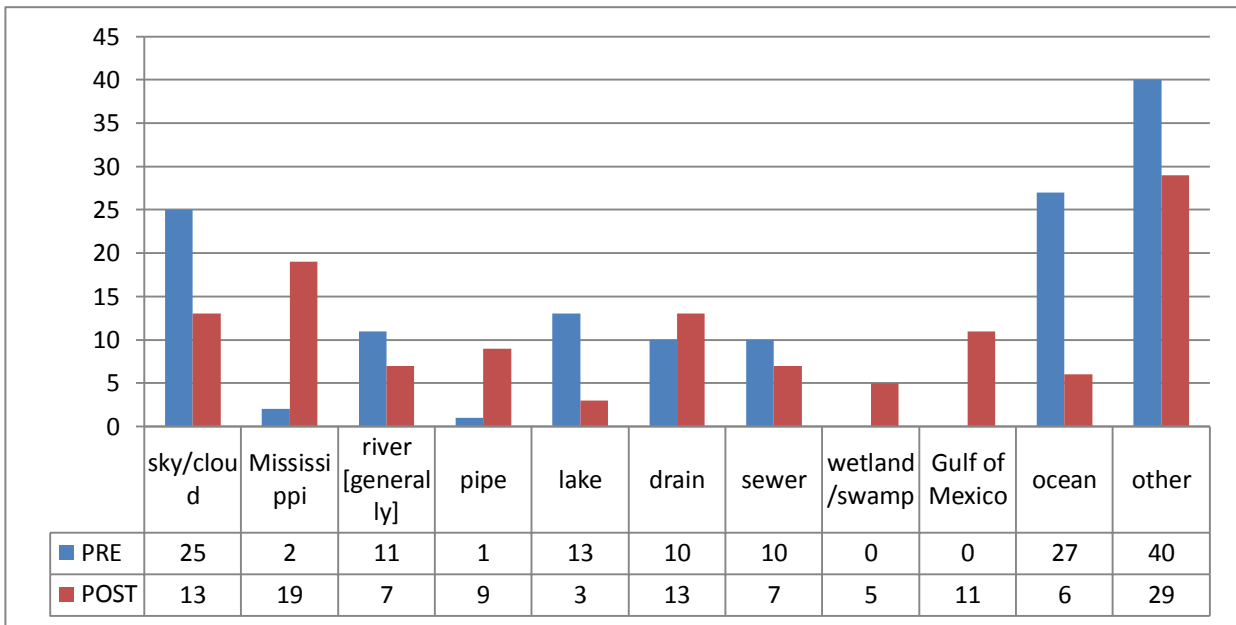
### Awareness of water cycle

The stormwater drain just outside the camp location was the local reference point for the rain water journey. In the pre and post tests, participants were shown a picture of this storm drain and asked several questions related to the water cycle upstream and downstream from this storm drain. The goal is to use multiple questions to draw out a more complete story of water from the campers. The responses to the first 5 questions are combined to determine the number of times different elements of the water cycle were mentioned compared to the major elements that were included in the camps.

**Figure 4. Water System Awareness**

Number of mentions of elements of water system in response to questions:

- Where does the water come from?*
- Where does the water go?*
- What happens next?*
- What happens to the water along the way?*
- Where does the water end up?*



River Awareness Observations: Pre-camp, there were 2 mentions of the Mississippi River, and 11 mentions of the “river” generally for a total of 13 river-related mentions. Post camp there were 19 mentions of the Mississippi River, and 7 mentions of the “river” more generally for a total of 26 river-related mentions. Post camp is substantially higher than pre camp river-related mentions. Note that these are lower than the total Drink camp mentions, probably because the Drink camp water story includes the river at both the upstream and downstream ends of the journey. Also, Drink camp had prominent use of a poem called “River to River” that reinforced the source and destination of the water. Rain camp, however primarily used a single line “Where does the rain go?” from a poem that was not emphasized throughout.

Comment: The journey poem for each camp (which is part of the camp’s source model) is one of several important ways that the connection to the river is reinforced. Consider using a simpler rain week poem in the future that reinforces river relationships more strongly.

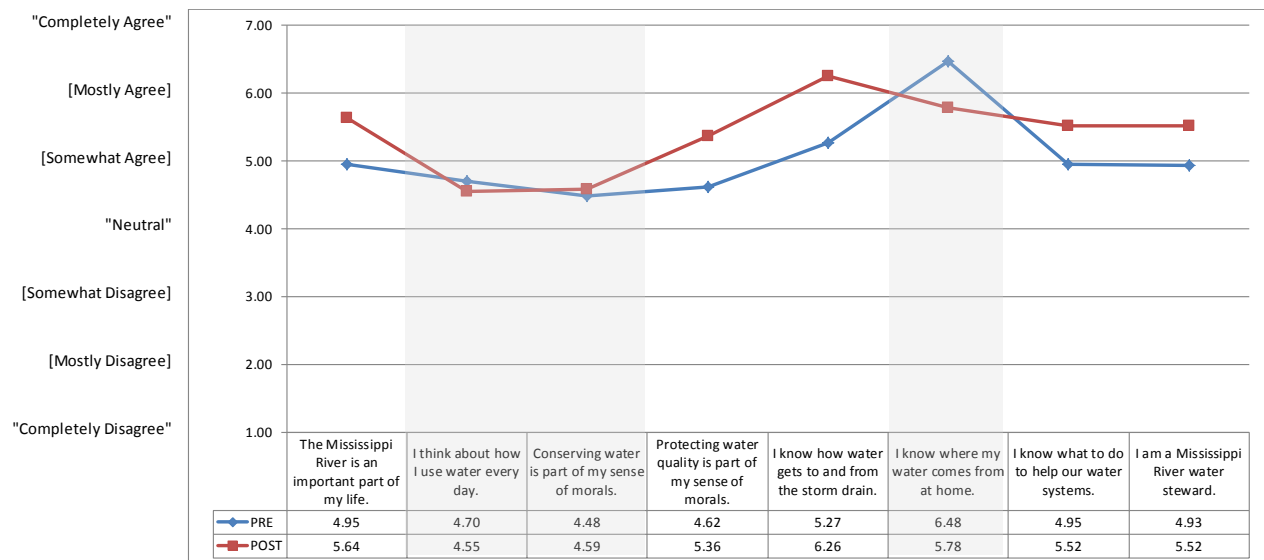
Water Infrastructure Awareness Observations: Due to logistics, campers did not start the rain journey from the roof and downspout. While these were mentioned, it is not surprising that rooves, gutters, and downspouts were not included in camper water stories, since they were not emphasized. Downstream, the sewer, pipes, and wetland were mentioned, with pipes and wetland mentions increasing, although sewer mentions decreased.

Comment: Work out logistics for future camps to more clearly show upstream aspects of stormwater before the drain. Do more review, and reinforcement with a rain journey poem in the future about downstream engineered and natural infrastructure aspects of stormwater.

### River and water value, water knowledge confidence, and conservation attitudes

A number of questions were asked about water values, awareness, and conservation attitudes. To compare pre-tests and post-tests, the graph, below, plots the average degree of agreement for each, represented on a scale from 1-7 where 1 is “Completely Disagree” and 7 is “Completely Agree.” Depending on the question, between 21-23 campers responded in the pre-test, and 22-23 in the post-test.

**Figure 5. Average agreement with statements about water value, knowledge, and conservation attitudes**



Interpretation: Gray shading is placed over the three questions that have more to do with domestic water use and were not the focus of the camp, though they were relevant for the other “Drink camp.” In these questions agreement stayed nearly the same or went down. Since this is not a focus of this camp it is not a concern, and is shown for context with the Drink camp only. For the other unshaded, more relevant questions, agreement went up indicating an improvement in concern for stewardship and the Mississippi, as well as an increase in perceived knowledge about stormwater systems and how to help protect water.

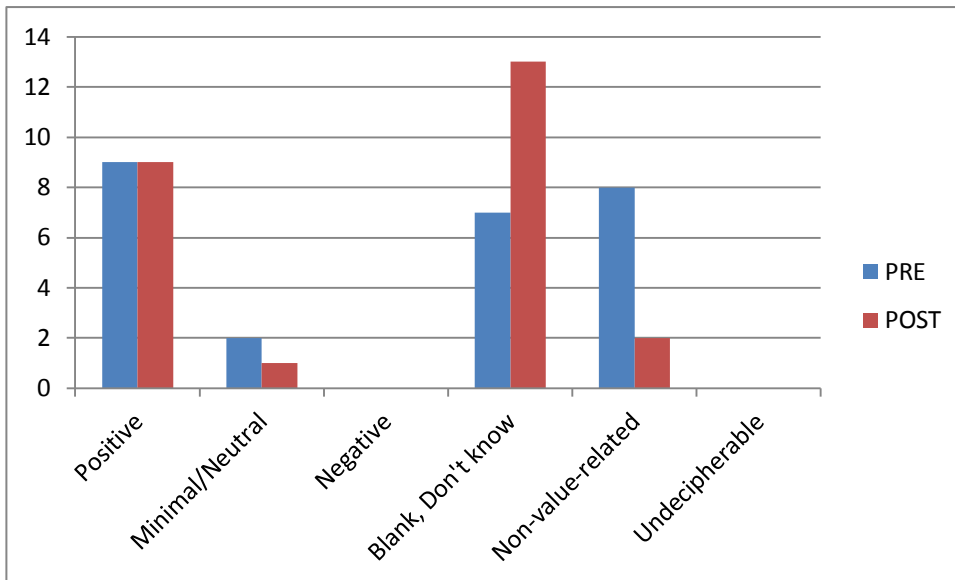
Recommendations: In future surveys, ask students, to describe ways to help protect water, to evaluate the uptake of that knowledge and skills. In addition, even though camp time may not allow for learning about campers home stormwater systems, using a few examples of how it varies, would help ensure that campers know their own stormwater systems might be different.

### More on River Value

In addition, a narrative question was asked about the value of the Mississippi River to the participant, pre and post camp. The responses were categorized as positive value, minimal or neutral value, negative value, and then answers not indicating value: Blank/Don't know, Non-value related answers, and undecipherable.

**Figure 6. Mississippi River Value**

What is the value of the Mississippi River to you?



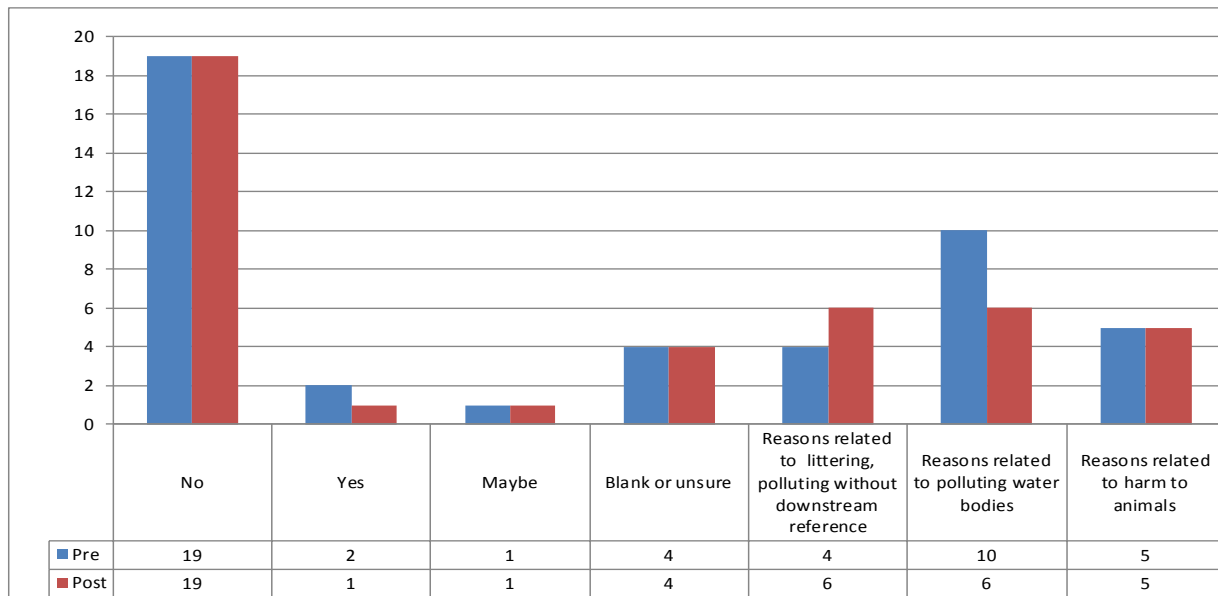
Observations and Comments: Positive value statements did not change and blank or unsure values went up. It is unclear why value of the river did not increase as it did in the drink camp results. The number of non-value statements went down. These were mostly either mentions of the function of the river, eg. "so fish can swim" or were a number. Since the question was on the top of the page with the 1-7 scale for agreement with statements, the campers may have been confused as to how to answer the question, and some put a number. Unless they provided the scale (eg. "from 1-10, 3") numbers were counted as non-value statements. Comment: for future camps, this open ended question could be revised to better assess how/if camper's value of the Mississippi River has increased.

### More on Water Protection

A question was asked in regard to the picture of the storm drain about whether it was a good place to dispose of trash and yard waste and why. Here are the responses:

**Figure 7 Perception of Pollution and Storm Drains**

[In reference to picture of storm drain] "Is this a good place to put your garbage – like oil or pop cans or old leaves if you can't find a trash can? \_\_\_\_\_ Why? "



Observations and Comments: There were already a majority (19 of 26 pretests ) that knew one shouldn't put garbage or yard waste in the storm drain, and this number did not change (19 of 25 posttests). Reasons given were categorized by littering or pollution in general without downstream implications (eg. "because it is littering"), versus reasons that related to the downstream water getting polluted (eg. "because it will pollute the water." It is interesting, that mention of polluting downstream water bodies went down. While this evaluation is not thorough enough to draw final conclusions, one possible reason might be that the visit to the wetland emphasized its positive impact on helping to clean the water before it goes to the Mississippi River, thus, students may have thought downstream pollution was "taken care of." It is recommended in future years to make sure it is clear that even though the wetland helps clean the water, that it is still important to keep pollutants out of the storm drain, especially since many storm drains are not sent to filtering wetlands before they release water to lakes or rivers.

**Conclusions on Rain Camp Participant Outcomes**

From the comparison of pre and post surveys of campers in Rain camp, it appears that awareness of stormwater/river systems increased in some areas, although this wasn't shown strongly in other areas in terms of the water stories. However, campers' confidence in how water gets to and from the storm drain, which was already fairly high to start with did increase. Reinforcing the story of stormwater in future camps could improve these results. Other areas, such as camper concern about water and river health increased as well as their stewardship identity. Campers also showed an increase in their perception of their own skills to help protect water which was reinforced by applying skills of planting native plants, communicating the value of water in their photographs and art maps, and using the exhibit and online GIS story map as tools to practice their communication skills as they gave their parents and siblings a guided tour of what they saw and learned. Thus grant goals for increasing



Mississippi River and water awareness, skills and concern, were met with some room for improvement in reinforcing the sequence of the stormwater journey.

### **Staff and Partner Feedback on Participant Learning**

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Staff and partners for the project were asked via email:

*1. What are your thoughts on the project effectiveness for student learning about water issues and why?*

Here are responses representing a place-guide partners and camp/program staff. All of these responders are involved in education work in one way or another, one in public education about water issues.

“The students gained a far greater understanding of the water cycle and water than they did coming in. It was very clear to see how much they learned during the reception while they were explaining the journey to their parents.” —co-instructor

“Judging from the level of interest of the students at River Park, I think the time there was worthwhile.” —public water educator

“I think this was a great first year of camps, and with a little bit of tweaking, going forward it's going to be amazingly effective for student learning outcomes. Being able to have the experiential piece of trying to help lift a manhole cover, or going into the water treatment plant, or helping with wetland plantings is invaluable. Most kids learn best through tactile, hands on learning, and this is a great format and opportunity in which to do that.” —camp program staff

### **Staff and Partner Feedback on Overall Camp Design**

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Staff and partner feedback was sought informally and through emailed questions. This feedback included staff and partner ideas for improved logistics and camp design, as well as feedback on how the camp worked for them, as participating members of the team. Some of this feedback does not address the three goals directly, but is important to ensure the improvement of the camp design over time, which ultimately does impact the three goal areas.

Highlights of feedback regarding camp design:

- Day one of Drink camp started off packed with field trips, and the camp itinerary could have benefited from more time at the beginning of camp to build relationships between campers and counsellors and teachers as well as set the stage for the field trips to come.  
This feedback was addressed in the second year, with an itinerary change that solved the problem and made camp run more smoothly.
- For both camps, there could have been more breathing room, the schedule of activities was packed tight. While the children and counsellors had positive reviews over all, this was an area mentioned for improvement.

This feedback was taken into account in the following camp year, decreasing the number of

activities, and offering dual track activities, so campers could choose which art activities they most wanted to do.

- Water testing and science time was a well-liked portion of camp, and important to the well-rounded exposure to water issues, but was heaviest at the end of camp. It was suggested that water testing be integrated more throughout camp.

This was taken into account and the second year, water testing was woven through the camp from the beginning, with water testing teams collecting water and performing one of the tests at each location.

Additionally other feedback resulted in improvements in the second year of camps regarding

- the exhibit design (more interpretive material)
- the logistics of downloading photos from each camp day from all the campers (a designated team member was scheduled for this time consuming task)
- the documentation of the camps were too much for teachers to keep up with in the first year (so dedicated team support was assigned to write daily blogs, including camper photos, and also to engage high school interns in the camp)
- some walking tours were too long for the younger campers (added more bus support )

**Partners:** Partners offered ideas for increased engagement with the places they interpreted. All but one partner was interested or able to commit their in-kind time to participate the second year.

## Goal 2 Evaluation: Formal and Informal Educator Outcomes

*Educator Goal from Work Plan: 2) 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.*

A number of artifacts and presentations were created that provide media and educational materials for informal and formal educators to learn about the camps.

### Website (and linked GIS Story Maps, Video)

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A website was created that includes:

- Home page with blog posts describing the activities of each camp day with pictures. This serves as a reference for interested educators, as well as a way to engage parents throughout the camps. The web page serves camps into the future too, and the most recent blog posts are about the most recent camps, after the grant period.
- About page: background on the camps, and the ENRTF funding

- [A video](#) that illustrates the content and concepts of the grants, showing excerpts of camps in progress, as well as staff interviews.
- [Rain Story Map](#) page that describes Rain camp and links to the GIS story map that uses student photos and words to tell the story of the students exploration of the stormwater flowing through the storm drain at their camp and its journey to the Mississippi River.
- [Drink Story Map](#) page that describes Drink Camp and links to the GIS story map that uses student photos and words to tell the story of the students exploration of the drinking water and sanitary sewer upstream and downstream of the drinking fountain at their camp and how they are connected upstream and downstream to the Mississippi River.
- [Exhibit](#) Page that provides information about the public art-science exhibit about the camps. See the Exhibit section for more information
- [Acknowledgements](#) Page, which lists the substantial collaborators, and also serves to show educators the types of partners they should consider if they implement this on their own.
- [Learn & Act](#) page that suggests ideas and links for educators and the public to learn about their own water systems and take action to protect water.
- [Images](#) page which is mostly for the campers and their families to download camper photos, but may be of interest to others who want to see the full set of camper photos and artwork, beyond what campers selected to include in their story maps.

## Exhibit

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The exhibit shows the story of youth exploring their water systems to discover how they are interconnected with the Mississippi River. The exhibit shares what the campers experienced and created through their photographs, nature notebooks, hand made maps, and the final GIS (Geographic Information System) story maps about their journeys.

The exhibit is also part of the camper learning environment, with some gatherings held by the large geodesign display. The exhibit backgrounds are set up before camps each year, and the campers fill the exhibit in with their photos and artwork and science testing during the camp weeks. The camp weeks culminate in exhibit receptions where parents come and their children guide them through the story of water they explored.

The exhibit location is the Commons Meeting and Art Space at Institute on the Environment at the University of Minnesota Located in R350 [Learning & Environmental Sciences](#). The exhibit is typically held all summer, which gives extensive exposure to researchers and visitors to the building.

While educators may not have such as space at their disposal in their learning settings, the exhibit highlights the importance of students sharing their work with the public.

In addition, there are several educational centers in the building that also have a chance to be exposed to the exhibit including the STEM Education Center and the Learning Technologies program. A teacher's institute for Climate Generation that was held in the building also was exposed to the exhibit from the 2017 camps.

## Presentations and Dissemination

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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
- the Upper Midwest Association for Campus Sustainability (UMACS) in Pella, Iowa in late September, 2017
- Camps were presented on a national stage at the Association for Advancement of Sustainability in Higher Education (AASHE) annual conference in October, 2017.
- In the last week of June, 2017, immediately after the 2017 camps were completed, over 100 educators saw the Water Journey Camp exhibit, including nearly 60 attending the Climate Generation Summer Institute at IonE and 45 attending a national workshop on Sustainability and Diversity in Higher Education at IonE.

## Goal 3 Evaluation: Public Education Outcomes

Public Education Goal from Work Plan: *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.*

### Public Education Materials, Activities, Impacts

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The website and materials available (described in the prior section) have been and will continue to be shared with the public, beyond educators, through web and social media outreach done by IonE.

Highlights:

- With the camp location at IonE, IonE staff and faculty were made 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.
- 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) a 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

- Summer 2016, water journey camps including the video were presented at the **Minnesota State Fair on a stage at the EcoExperience.**
- The camps were presented at the annual stormwater meeting for the University of Minnesota in 2016
- The camps concept and use of GIS were presented at the ESRI GIS User Conference in San Diego, CA in summer 2017

### **Staff and Partner Feedback on Public Education**

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Staff and partners for the project were asked via email:

*2. What are your thoughts on the project effectiveness for public education about water issues and why?*

Here are responses representing both place-guide partners and camp/program staff. All of these responders are involved in education work in one way or another, two in public education about water issues.

“Any time you give a child the ability to educate their parents on a particular issue, you create a huge impact in public education. Parents take their kid's interests, education and concerns very seriously. They will be more likely to think about it too as time goes on. “ —co- instructor

“Again, the level of interest of the students I met makes me think that the message didn't end there. I imagine interesting conversations at home.” —public water educator

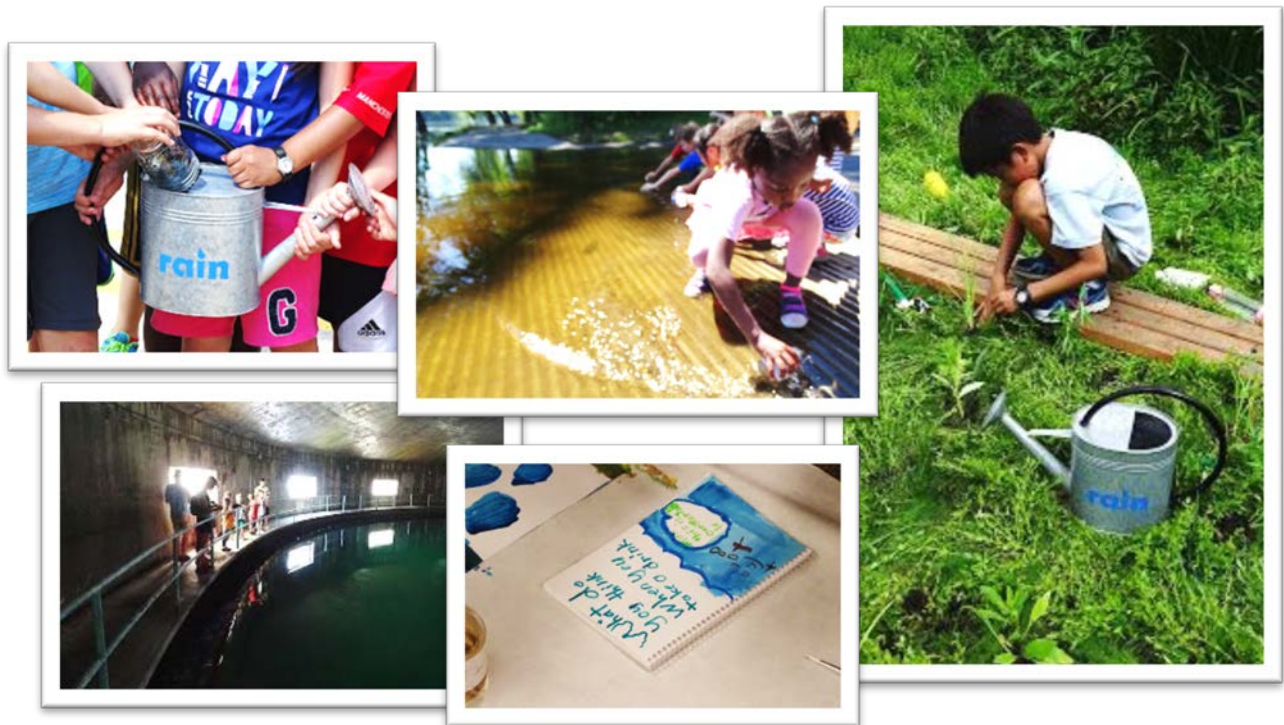
“The project looks very effective for public education because of how holistic and personable it is.”  
—public water educator

“The end of the week open house for the students and their parents got rave reviews from what I heard. For the kids to be able to go in and show their parents their journey through the story maps really opened a lot of their eyes. It has the trickle down effect that these kids are in this summer camp setting, with the opportunity to really do something unique to learn about water issues, are getting excited and bringing home that excitement and new found knowledge to share with their families; and parents talk, so now those parents are telling their adult friends and family members about this awesome opportunity their kids partook in. When it's real, and hands on, and memorable, that's when the true learning happens, and some of these kids will have a little ember lit within them as they move forward in their lives and educational careers. As you can tell, I'm a firm supporter and believer in the effectiveness of this project for the students and the public. And the video! Amazingly well done! I've already shared it with almost everyone I know!” —camp program staff

## Conclusion and Recommendations

Based on the evaluation of grant goals, student, parent, staff and partner feedback, as well as the wider reception by educators and the public, the Mississippi River Water Journey Camps were a success. The design of the grant as a model to be repeated in following years, offers the opportunity for improving the camps each year, as was already done in summer 2017. Each summer of camps, has its own outreach and dissemination activities through the camper families, partners, and Institute on the Environment communications resources, so that the outreach and dissemination that are built into the camp design continue and can engage more people in learning about this model and how to protect the Mississippi River and other water bodies.

Recommendations remaining after the logistics and design improvements already made in the camp's second year are refinements to improve areas such as: ability to measure progress in desired outcomes by fine tuning survey questions, further simplification and streamlining of camp activities for more focus on the most essential elements, and continued outreach and dissemination to educators and the public.





# Mississippi River Water Journey Camps Toolkit Guidance Document

August 10, 2017

INSTITUTE ON THE  
ENVIRONMENT

UNIVERSITY OF MINNESOTA  
Driven to Discover™

Prepared by Institute on the Environment  
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as recommended by the Legislative-Citizen Commission on Minnesota Resources (LCCMR).

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### Toolkit Guidance Document Summary

This Toolkit Guidance Document is one of the outputs of the Mississippi River Water Journeys grant led by Institute on the Environment, with a team of collaborators, and funded by the Minnesota Environment and Natural Resources Trust Fund as recommended by the Legislative-Citizen Commission on Minnesota Resources (LCCMR).

This Toolkit Guidance Document is the main reference document for the toolkit, and makes reference to supplies, equipment, and other supporting documents. The “Camp Toolkit” per the grant work plan consists of documentation, supplies, and equipment.

***“Camp Toolkit including physical maps, camp outline, information resources, contacts, camera equipment, digital mapping system, website, and service planting guide”***

#### **Purpose of the Toolkit Guidance Document**

This document is intended primarily for three audiences.

- For camp coordination team, to help plan for the camps before, during, and after they are held each year including contacts to make, and supplies to inventory and replenish



- For camp instructors and staff (support team from IonE as well as camp counsellors) to become familiar with the camp background, goals, and procedures. Instructors will be primarily concerned with achieving camp goals, but support team and camp counsellors will find this to be useful background as well.
- For formal and informal educators who are interested in this model, to understand the types of planning activities needed, even though the details and participating partners will change for different locations and program needs.

### Notes for Educators Interested in the Model

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- *Note that this is not intended to be a free standing “how to” guide, but rather a glimpse into some of the particulars of this application of the Earth Systems Journey model to this summer camp format.*
- For educators considering implementing a program similar to this, please contact the leadership team for advice.
- The model is intended to be adapted to place, program, and people meaning it is specific to the age, learning goals, teaching goals, integrated standards, and specific water systems at the learning location.
- Also, to get a sense of campers’ experience, learning products, and more on the approach, please see the website that has blog posts of daily activities, a professional video about the camps, GIS Story maps with youth telling the story of their water journey with pictures and words, a record of images youth created, and a “learn&act” page with advice on how to learn about water systems in your area, and actions you can take with students to help protect water resources.
- This is a fairly thorough application of the Earth Systems Journey model, and simpler versions of this are possible and have been conducted before, including shorter journeys that remain on school grounds. Prior Earth Systems Journey projects are listed and linked at <http://earthsystemsjourney.com>
- GIS Story Maps: the camps use the University ESRI account to create the GIS Story maps, but educators should know that ESRI GIS resources for schools and now school clubs as well are **FREE**. The contact, more info, and opportunities for available training is available at this website from the Minnesota Department of Education <http://education.state.mn.us/MDE/dse/tech/gis/index.htm>
- If you are interested in outcomes, please contact leadership regarding the evaluation report. While this evaluation was for a camp as an informal education program, we’d be glad to discuss applications in schools where the model has also been implemented from pre-k and kindergarten, second grade, 6<sup>th</sup> grade, and 9-12<sup>th</sup> grades.

## Introduction

“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,” are held twice each (a total of four camps) at the St. Paul campus of the University of Minnesota. The camps serve youth ages 6-8 and 9-11 and are part of the [University of Minnesota Recreation & Wellness Summer Youth Program](#).



### Funding

Funding for this project was provided by the Minnesota Environment and Natural Resources Trust Fund as recommended by the Legislative-Citizen Commission on Minnesota Resources (LCCMR). The Trust Fund is a permanent fund constitutionally established by the citizens of Minnesota to assist in the protection, conservation, preservation, and enhancement of the state's air, water, land, fish, wildlife, and other natural resources. The initial investment established the camp design, content, materials, and approaches so that it is set up to repeat within the structure and fee system of the youth camp program. The first camps were in summer 2016.



### Background

The camps use an engaging arts/science adventure approach, called [Earth Systems Journey](#), designed 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. See the section on key elements of the model in a later section.



### Goals

The grant goals and outcomes of Water Journey Camps were:

*1) 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.*

*2) 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.*

## **Contacts**

The project is led by Institute on the Environment at University of Minnesota with a team of collaborators and supporters.

For more information about the team, the planning, or design of the Mississippi River Water Journey Camps see the project website at

[waterjourneycamps.blogspot.com](http://waterjourneycamps.blogspot.com)

or contact [Beth Mercer-Taylor](#) or [Jonee Kulman Brigham](#)

For more information about the camp program in which water journey camps are held please see:

[University of Minnesota Recreation & Wellness Summer Youth Program](#)



## **Camp Roles: Leadership, Partners, and Staffing**

These roles represent what has been the case for the first two years of camps. The roles can be changed as camp logistics and circumstances evolve over time.

### **Leadership**

The Mississippi River Water Journey Camps are led out of Institute on the Environment (IonE) by Beth Mercer-Taylor, Sustainability Education Coordinator and Jonee Kulman Brigham, Senior Research Fellow and developer of the Earth Systems Journey model on which the camps are based.

The leaders role includes: to contract for the camps with the University Recreation and Wellness Program, recruit teachers, receive and manage the camp budget for materials which is used to replenish or repair prior inventory and is also used for annual expenses such as the river boat portion of the drink camp. Leadership also reserves the classroom and art space at IonE, and coordinates planning of tours with place guides to reduce the work load burden on the teachers. In addition, leadership coordinates set up of the classroom and an art-science exhibit for the camps, and conducts an annual pre-post evaluation to help continually improve the camps. The leadership also coordinates with U-Spatial to borrow the Geo-Design display, part of the camps, as well as the associated exhibit. Leadership may also conduct the creation of the GIS story maps, depending on the skills/interests of the instructors.

Note that this time from leadership is not reimbursed from camp tuition, and represents an ongoing commitment of resources from Institute on the Environment to this project, which in return offers engagement opportunities for sustainability education student staff (described further below) to grow their experience and skills.

### **Camp Program Partner**

The primary partner is the University of Minnesota Recreation & Wellness Summer Youth Program. Contact Venessa Fiedler, Youth Programs and Community Outreach Coordinator, University Recreation and Wellness, University of Minnesota, [mill1707@umn.edu](mailto:mill1707@umn.edu)

In Fall, a contract is set up between leaders at Institute on the Environment and University Recreation and Wellness to propose the camps for the following year. At this time, the teachers need not be identified, but the promotional text, desired camp weeks, and bus schedules corresponding to the planned itinerary do need to be set up.

### **Instructors**

There is recommended to be two instructors, due to the amount of preparation needed and the dual age groups with twice the number of campers present for some of the days. This also allows for different strengths and can be a good opportunity for dual Science-Technology-Engineering-Arts-Mathematics (STEAM) teaching experience for a more STEM oriented teacher to work with a more arts oriented teacher. The teaching staff should be identified in winter, so planning can begin for the summer. While the essential aspects of the camp are determined, there is room for teachers to innovate and customize to explore their strengths and teaching interests.

The camp tuition covers the cost of the teacher's wages based on the length of each camp. Note that as an unusually intensive camp, with dual teachers, there is more investment of time relative to pay for each teacher than they might find for other camps. Thus, teachers for whom this is a valuable growth/educational/career experience should be sought.

Instructors, in addition to teaching/leading the interface with the campers, also take responsibility for adjusting the itinerary and following it, deciding which of the menu of prior activities to include and delivering those activities, proposing new activities if desired, and communicating with leadership about

needed materials to support activities. Instructors work with leadership to identify support tasks needed.

If instructors are comfortable learning to use GIS Story maps, they can take that on, otherwise leadership can do that. Depending on recruitment and other logistics, one of the leadership may serve as one of the instructors.

### **Camp Counsellors**

Included in the University of Minnesota Recreation & Wellness Summer Youth Program, is the provision of counsellors that accompany the campers at all times and attend to their needs. While this is their primary duty, they are also usually available to assist with instructor-led activities, for example helping campers work through instructions, or engage with their art materials. The Instructors should make sure to be in strong communication with the counsellors regarding schedule, and any desired assistance with instructional content.

### **Support Staff**

IonE has and plans to continue to offer support (via time designated from sustainability education student employees) to instructors on many of the tasks of the camp, particularly those that go beyond the normal contents of a camp. This helps provide experience for students, and helps the camp achieve its dissemination and outreach goals. Some of the tasks that have been provided by support staff in the past include: daily camera downloads of camper cameras and posting online, preparation of parent flyer for Friday reception, daily blog posts on the camp website to inform parents and public of activities as well as serve as a record for future reference, help photograph camp activities, participate as added support to implement some of the camp activities in which more adults are especially useful, help set up the exhibit and take it down, help campers select and caption their favorite photos, and other types of activities.

### **Place Guide and Other Partners**

The camps rely on the participation of place guide and other partners as participants in the experience. The roles and contacts are listed on the website team acknowledgement page and can change, but this represents the past participation which is a starting point for planning future camps.

Place Guide Partners and/or their organizations volunteer their time, and should be gratefully acknowledged, as well as given ample time to plan. Before setting the time for the camps the prior fall, be sure to confirm with the most critical place guide partners that the proposed weeks are available, particularly those where tours are only possible with their participation, such as the St. Paul Regional Water Services who offer a tour of their water treatment plant, and the University Civil Engineer / Facilities Department that make interactive exploration of campus infrastructure possible.

## Key Elements of the Camp Model: Earth Systems Journey

The camp uses the Earth Systems Journey model for art/design-led, place-based, experiential environmental education. The model is used with permission. In order to operate the camps in the way intended, leaders and instructors should become familiar with key elements of the model on which the camps are based. A brief summary of its intents and components is shown here, but more about the model, the intended sequence, and key elements can be learned at its website at [www.earthsystemsjourney.com](http://www.earthsystemsjourney.com), which also has links to videos, articles, and other projects. The following excerpt is from Earth Systems Journey documentation:



***Mission: “Help youth connect and contribute to the world around them.”***

Earth Systems Journey (ESJ) is a curriculum framework for art-led, experiential, place-based environmental education about environmental flows, (such as water, air, energy or material) through the school building and grounds. ESJ is an approach that teaches ecological and environmental content, principles, analysis and decision skills in way that shows how human-engineered systems are integrated with natural systems. At its core, the design of an Earth Systems Journey is to make a special journey starting from a place of personal experience, following a flow of interest to its source and destination, as far as you can, so that when you return to where you started, your view of that place and its flows is transformed by knowing the larger story that runs through it and the places, and people and natural elements that live in relation to it. What makes the journey “special” is its composition as a transformative experience paying attention to props, interactive and expressive activities, participatory storytelling, and time to reflect and integrate the experience into a personal story. By using the natural learning form of story, complex systems can be made both engaging, and comprehensible.

Application Notes: In the case of the Water Journey Camps, the camp poems, ceremonial activities at the “flow nodes” and along the journey (eg. collecting and pouring water), and returning to themes from the poems and camps that reinforce the continuity of the story of water are all important. Even the way the water testing looks at how the stream of water they are following changes its properties over time and space can help reinforce the story of how all the places are linked by the flow of water. The students photos, writing, and artwork should be emphasized as contributions to the public, to help show the story of water, and their own particular perspective on what they are seeing and learning. While specific reflective activities can change, Mississippi River Water necklaces and using the river water for water color were engaging ways to interact with the water itself. The document outlining art map methods, can also lend insight to the nature of the land/human/river interaction, as with the “flood maps” that flood the drawing with dyed water over the flood plain represented.

## Camp Themes and Outline Itinerary

### Camp Themes

Earth Systems Journey can be applied to any number of flows through the learning environment. In the case of Water Journey Camps, there are two different camp themes representing two different flows.

In “**Water Journeys: Drink**” the campers start at the drinking fountain in the atrium of IonE and go on a journey upstream and downstream to find out where the drinking water comes from, and where the water that goes down the drain ends up (both ends of the journey leading to the Mississippi River.) This drinking water/sanitary sewer journey is described in more detail in the GIS Story maps and blog posts on the website. Other nick names for this camp are “Drink Camp” or “Drink Week” or in the case of the GIS Story Map, the story of the camp is called “The Water We Drink.”

In “**Water Journeys: Rain**” the campers start at the storm drain, outside of the IonE building and go on a journey from where the rain comes from to where it ends up at the Mississippi River. This stormwater journey is described in more detail in the GIS Story maps and blog posts on the website. Other nick names for this camp are “Rain week” or “Rain Camp” or in the case of the GIS story map, the story of the camp is called, “The Story of Rain.”

### Camp Outline Itinerary

The Camp outline itinerary adapts the Earth System Journey (ESJ) model to the youth camp format and length. The overarching conceptual outline for each camp aligns with the key steps of ESJ as follows. A more detailed itinerary is refined each year by the instructor, building off of the last year’s detailed itinerary. The details on the itinerary can change each year based on place guide availability, chosen art/science activities, etc.

Monday	Tuesday	Wednesday	Thursday	Friday
<b>Preparation [two camp shifts]</b>	<b>Upstream [combined camp]</b>	<b>Downstream [combined camp]</b>	<b>Stewardship and Reflection [two camp shifts]</b>	<b>Science and Story Sharing [two camp shifts]</b>
Campers get to know each other and instructors; camp opening ceremony with poem and engagement with the “flow node” (drinking fountain or storm drain); excitement is built by preparing for the journey with cameras, notebooks, maps	Field trip starting upstream of the flow node, arriving at the flow node.	Field trip downstream of the flow node, starting at the flow node, and continuing downstream.	Reflective art maps, selection and captioning of favorite photos; steward ship planting project at nearby Sarita Wetland	Complete science study; prepare for exhibit, camp closure ceremony; after camp parent reception (4:30 pm)

## **Two Camps per Week**

Two age groups are represented for each camp, and are, in fact, technically two different camps in the Youth Recreation Wellness System. Each camp can have up to 14 campers and comes with dedicated counsellors who handle supervision, discipline, and assistance for the campers and bring them to the instructional area (this camp) each day. Other parts of the day, the camper participate in a variety of activities, some of which are very active such as swimming or rock climbing.

The two age group camps are concurrent during a single week for sake of time and cost efficiency. On field trip days, the two groups are combined to save on the cost of the bus, and also relieve time needed for the place guides at the visited locations. Note that on combined days, instructors will have twice as many campers at once (up to 28 vs up to 14). This is one of the reasons two instructors are recommended for the camps. Note, however, that on combined days, there are also twice as many counsellors to offer support.

## **Facilities and Locations**

As early as possible, before finalizing the camp weeks in the contract, the classroom and Commons room should be reserved.

The map of locations for each camp along with selected photos and activities at each location is found in the GIS story maps for each camp that can be linked from the website.

<http://waterjourneycamps.blogspot.com>

The primary classroom is the “Seminar Room” in Institute on the Environment which should be reserved for the two weeks of camp. This allows art and science supplies to be set up at all times, and ready for use. It is conveniently located to the Commons room and to the two “flow nodes” (drinking fountain, and storm drain) that are the starting points for the two camps.

The Commons Meeting and Art Space is a multi-use space, this is reserved to make sure campers have access, but there will be others passing through, and in fact this is one of the benefits: the cross-exposure of scientists/scholars and youth, who one day may attend the University.

The second aspect of reserving the commons is to reserve the wall space for an exhibit. Typically the exhibit starts a week or more before camps and runs through the summer. But a week before camp, and a week after camps would also work. Here the idea is two fold: the campers get the experience of interacting with a gallery space full of aerial photos of their journey and waiting for their photos and art work to complete it. This not only heightens the value placed upon their exploration but doubles as a way for them to tell their families the story of their journey at the end of week reception to reinforce their learning and help educate their families as well. Furthermore, for the length of time the exhibit stays up, it helps display water awareness work to IonE’s many visitors and show how IonE is engaging with K-12 .



Sarita Wetland, and Campus Infrastructure Facilities.

The near-infrastructure for drink camp and rain camp includes pumps, water towers, man-holes, overflow drains, and a wetland. The wetland also serves as the site for the youth service-planting project. Coordination with Facilities and Land Care is important early to confirm their ongoing support of offering infrastructure tours, as well as the use of Sarita for planting and education/service projects.

## Camp Planning Steps

Fall prior to camps

- Youth programs contract
- reserving space
- reserving dates/ tours with partners
- determining camp weeks AND bus schedule (thus detailed itinerary changes relating to bus schedule need to be determined by then.)

Winter/Spring prior to camps

- recruiting and hiring teachers
- determining level/type of support and staffing
- checking toolkit equipment inventory
- ordering replenishment of consumable supplies (eg. notebooks)
- camera testing/repairing if needed
- planning for plants and planting locations
- Coordinate with instructor to finalize detailed itinerary and activities

During or before the week before camps

- Buying plants for Stewardship project
- All equipment and supplies ready
- Pre and post tests for both camps finalized and printed
- Print out backgrounds for art maps printed on cardstock or appropriate material
- Parent flyers prepared for the two exhibit receptions
- Outline version of GIS story maps for that year ready – so kids can see the framework they will fill in
- All during-camp responsibilities/schedule confirmed (eg. camera downloads, blog posts, photography, needed support)
- Itinerary finalized, sent to in house team AND to camp counsellors
- Classroom set up
- Commons set up with exhibit materials all ready
  - Geo Design display delivered
  - Maps hung, pedestals designated for exhibit objects

- Interpretive materials posted
  - Custom annual poster created
- Science/Water testing kit and logistics plan set up.

#### During 2 weeks of Camps

- per itinerary coordinated by instructors
- leadership and support staff at ready for trouble shooting and support

#### Immediate Post camp –ideally within a week

- clean, evacuate classroom (at end of reservation)
- put supplies/materials away inventorying and making note of any damage/losses
- debrief meeting with team
- Follow up thank you messages to partners
- Final, summarizing blog post, and outreach

#### Post camp over the summer

- Process the pre-post evaluations, discuss with team
- Resolve any remaining financial items
- De-install exhibit
- Arrange for Geo-Design Display pick up – coordinated with end of exhibit
- Plan for any new dissemination and outreach possibilities over course of the following year.

## Other Toolkit Items

Since there is continuity of camp leadership, questions that arise about camps and prior methods of delivering them can be directed to the leadership contacts.

#### Other toolkit items managed by leadership include

- Website (and associated video, and water protection guidance)
- GIS Story Maps
- Supplies and Equipment (IonE Sust Ed Storage Area)
  - Art supplies, notebooks
  - Cameras and chargers
  - Planting tools
- Exhibit materials (all in IonE Sust Ed Storage Area)
  - Large maps, hanging structure
  - “cloud” cloth, Rain can, Rain collecting jars, etc.
  - Interpretive material
- GeoDesign Display (Owned by U-Spatial, arranged to borrow each year)
- Service Planting guidance/map/ reference materials – though locations may change each year