M.L. 2018 Project Abstract
For the Period Ending June 30, 2022

PROJECT TITLE: Connecting Students with Water Stewardship through Hands-on Learning
PROJECT MANAGER: John Lenczewski
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WEBSITE: www.mntu.org
FUNDING SOURCE: Environment and Natural Resources Trust Fund
LEGAL CITATION: M.L. 2018, Chp. 214, Art. 4, Sec. 2, Subd. 05d as extended by M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 18

APPROPRIATION AMOUNT: $400,000
AMOUNT SPENT: $386,390.23
AMOUNT REMAINING: $13,609.77

Sound bite of Project Outcomes and Results

This project connected approximately 10,000 Minnesota youth with their local watersheds. Through a combination of habitat site explorations, field studies, classroom learning, and outdoor recreation, students gained an appreciation for the natural world and understanding of how their decisions can positively impact water quality and watershed health.

Overall Project Outcome and Results

In today's technology-based society, youth are increasingly becoming disconnected from the natural environment. This disconnect can foster apathy about the environment, natural resources, and outdoor recreation, and impact their ability to make well informed decisions about the environment as adults. The program countered this by using tangible education tools and getting students outdoors for hands-on learning activities that connected them to aquatic ecosystems. It utilized classroom aquariums where students studied the development of trout from egg to juvenile. This served as a springboard for field trips to streams and as a focal point for reinforcing learning about water, watersheds, and ecology. Introductions to outdoor recreation were offered to encourage lifelong, tangible connections to aquatic ecosystems.

The number of schools and nature centers participating in this outdoor education program doubled from 29 during the 2018-2019 school year to 60 during the 2021-2022 school year. The program expanded from Twin Cities metropolitan area to schools in Duluth, Bemidji, Alexandria, Willmar, Winona, and other outstate communities. Despite the serious challenges that the COVID-19 pandemic created for conducting in-person field day and classroom learning, our education team conducted more than 260 hands-on environmental education programs for nearly 9,000 students. In addition, we developed remote learning lessons for teachers, students, and parents to extend learning outside the classroom. We reinforced learning about watershed health with a recreational component that creates lifelong interest in waters through fishing and conservation. Minnesota Trout Unlimited's (MNTU) instructors led nearly 70 introductory fishing skills programs for over 1,000 youth and their families. These clinics were made possible by partnerships with local governments and civic organizations, and numerous Trout Unlimited volunteers.

Approximately 10,000 students developed greater understanding of, and connections to, aquatic ecosystems, which will help them to make well informed decisions that positively impact water quality and watershed health.

Project Results Use and Dissemination

Our website was revamped with updated information about educational opportunities, including Trout in the Classroom and fishing skills programs. The Facebook and Instagram pages were started in 2018 and gained hundreds of followers during this project. A suite of youth educational videos and other resources were developed and are available online. Our team wrote education updates and youth series articles for all three MNTU newsletter editions publish each year. Thousands of hard copies of the newsletters were distributed to teachers for classroom use and/or to send home with students.

Environment and Natural Resources Trust Fund (ENRTF)
M.L. 2018 ENRTF Work Plan Final Report (Main Document)

Today's Date: August 25, 2022

Final Report

Date of Work Plan Approval: June 5, 2018

Project Completion Date: June 30, 2022

PROJECT TITLE: Connecting Students with Water Stewardship through Hands-on Learning

Project Manager: John Lenczewski

Organization: Minnesota Trout Unlimited

College/Department/Division:

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Location: Primarily in the Twin Cities area, but also in outstate communities Statewide

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Total Project Budget: $400,000

Amount Spent: $386,390.23

Balance: $13,609.77

Legal Citation: M.L. 2018, Chp. 214, Art. 4, Sec. 2, Subd. 05d as extended by M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 18

Appropriation Language:

$400,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with Minnesota Trout Unlimited to engage students in classroom and outdoor hands-on learning focused on water quality, groundwater, aquatic life, and watershed stewardship and providing youth and their families with fishing experiences. This appropriation is available until June 30, 2021, by which time the project must be completed and final products delivered.

M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 18. ENVIRONMENT AND NATURAL RESOURCES TRUST FUND; EXTENSIONS. [to June 30, 2022]

I. PROJECT STATEMENT:

This program will get students engaged outdoors through hands-on learning and connecting them with water, aquatic life, groundwater and watersheds. We will expand the current program to more schools, including in outstate communities. Students will learn their role in healthy, sustainable, freshwater habitats and develop a sense of stewardship they carry forward into adulthood. We will reach students in classrooms, during field days and via outdoor recreation which encourages lifelong, tangible connections to aquatic ecosystems.

Youth are increasingly becoming disconnected from the natural environment. This lack of connection follows students into adulthood and impacts their ability to make well informed decisions about their environment. Many schools have some environmental education programming, but fail to adequately reinforce ongoing lessons through real life applications outside. We use tangible education tools and take students outdoors for hands-on learning activities to connect them to aquatic ecosystems. We utilize a national curriculum which places aquariums in classrooms and nature centers so students can follow the development of trout from egg to juvenile. This serves as a spring board for field trips to streams and as a focal point for reinforcing learning about water, watersheds and ecology. Lessons on groundwater will be included. We also use the Project WET watershed curriculum, endorsed by the National Science Teachers Association. Minnesota specific adaptations will be made to include state specific grade level standards and STEM initiatives.

We will enhance students' science skills and knowledge concerning water quality, groundwater, watersheds, native aquatic life and healthy, sustainable, freshwater habitats. Students will engage in interactive science-based natural resource education through the use of technology and applied sciences as they gather first-hand knowledge of healthy ecosystems. Classroom aquariums and outdoor lessons encourage students to use critical thinking skills and foster deeper knowledge in multiple areas, including science, math, language arts and art.

Our year-long program is unique - combining habitat site explorations, field studies and classroom visits with opportunities to explore outdoor recreation, conservation work and careers relating to freshwater habitats.

II. OVERALL PROJECT STATUS UPDATES:

First Update February 15, 2019

We already have 32 aquariums operating in 27 schools and 2 nature centers around Minnesota. Due to good early publicity and an energetic, adaptive staff we have already exceeded our growth target for classrooms in year three of the program (26) in this first year of the program! This past fall we conducted 25 field days and classroom visits around the state, directly connecting more than 1,100 students, teachers, and parents with streams and rivers. This winter our team of MNTU educators is working with students in their classrooms, running learning activities about fish biology and adaptations, watersheds and groundwater, including using watershed/stream models. Trout eggs arrived in classrooms in December and students watched eggs develop and hatch. Students are raising the fish for release in streams next spring. Planning for the March 2019 student summit remains on track. Over 400 students will attend the summit, engaging in many hands-on educational activities and sharing with other students and schools what they have learned through watershed related projects. We have already begun to introduce a water recreation component. More than two dozen youth and family fishing skills programs are scheduled, and we are gathering volunteers to increase the impact and reach.

Second Update August 15, 2019

This past winter our team of MNTU educators worked with students in their classrooms, running learning activities about fish biology and adaptations, watersheds and groundwater, including using watershed/stream models and flying tying. The March 2019 student summit was a big success, with over 350 students attending. They engaged in many hands-on educational activities and shared with other students and schools what they

have learned through watershed related projects. Our schools held fish release days from April to early June. More than two dozen youth and family fishing skills programs were implemented throughout the metro area and in Duluth this summer. We are continuing to build out volunteer list in order to offer more programming and support for teachers and their students.

Third Update February 15, 2020

The second year of MNTU's educational program is going strong with 38 schools and 2 nature centers around Minnesota. We have already surpassed our target number of schools for Year 3 (26) and we have 32 more teachers from around Minnesota on a waiting list to participate during the 2020-2021 school year! Awareness of how we are getting kids outdoors for hands-on learning continues to increase through social media, outreach, and partnerships. Support for the program continues to grow with more volunteers looking to get involved. Last fall we conducted 30 field days around the state and connected with over 2,000 students, teachers, and parents with streams and rivers within their community watersheds. In early December, thousands of trout eggs were delivered to very excited teachers and students, observing them as they developed and hatched. Now, classrooms are working together to keep their fish healthy until they are released in April and May. By mid-March we will have led another 35 programs, leading students and teachers in activities such as fish identification using a dichotomous key, fish dissections, fish biology and adaptations, trout habitat restoration, watersheds, fly tying, and even some ice fishing. Starting in April, we will be leading and assisting with spring trout releases throughout the state. The fishing skills program component of the program had a great start its first summer. This year we have again partnered with organizations for programming and have added to the list of opportunities with 40 youth and family fishing skills programs scheduled.

Amendment Request 06/04/2020:

We are requesting budget shifts among categories to enable more schools and students to participate in the program. In year 2 (2019-2020 school year) we have already far exceeded the year 3 target and plan to add another 20 schools for the 2020-2021 school year. The increased number of students and schools mean increased expenses in the Equipment/Tools/Supplies and Travel expenses in Minnesota budget categories.

We are requesting funds be shifted from the Professional/Technical/Service Contracts budget line to the Equipment/Tools/Supplies budget line.

- Professional/Technical/Service Contracts budget would be reduced by $30,000 to a revised budget of $256,940
- Equipment/Tools/Supplies budget would increase by $30,000 to a revised budget of $60,800

Our staffing structure has kept those expenses lower than originally expected. Unfortunately, the invoice for additional equipment/tools/supplies purchased in October 2019 to equip a total of 38 schools and 2 nature centers tipped our costs in that category over the budget target. Consequently, we are requesting that the increase in the Equipment/Tools/Supplies budget category be made effective October 1, 2019.

We are requesting funds be shifted from the Other budget line to the Travel expenses in Minnesota budget.

- Other budget would be reduced by $10,000 to a revised budget of $37,260
- Travel expenses in Minnesota budget would increase by $10,000 to a revised budget of $30,000

We are also requesting that the subcategories under the Equipment/Tools/Supplies category be merged into just two subcategories: equipment/supplies related to aquariums (currently lines 27 to 29) and equipment/supplies related to field day activities (currently lines 30 to 31). In the process we will clarify that some of these supplies will be supplies/materials used for student lessons/activities.

Amendment Approved by LCCMR 7/15/2020

Fourth Update August 15, 2020

Through early March 2020, our team of MNTU educators worked with students in their classrooms, running learning activities about fish biology and adaptations, watersheds, and groundwater, including using watershed/stream models and fly tying. Trout club meetings and activities continued throughout the winter after school, with participants learning more about watershed, biology and interacting outdoors via fishing. We ran an ice fishing program with one school and participated in an ice fishing event held by a partner organization. When COVID-19 restrictions limited our ability to work directly with students in early March, the education team continued to support teachers by developing e-lessons, videos, and other online resources, also assisting with some virtual spring fish releases. We continue to build our volunteer list to offer more programming and support for teachers and students throughout the upcoming school year, virtually and in person, where possible.

Fifth Update February 15, 2021

The outdoor education program is going strong in its third school year, despite significant disruptions due to the COVID-19 pandemic and unpredictable school closures. Teacher interest is high and we expanded the program in September to a total of 45 schools and 3 nature centers around Minnesota. Uncertainties created by the COVID-19 pandemic caused several schools who previously participated to pause their participation at the last minute, but twenty new schools joined the program. Educators have adapted the program to their schools' educational settings (virtual, hybrid, and in person) and students continue to learn about water resources, watersheds, fish and aquatic ecology, and more.

Although COVID related restrictions reduced large group field activities, our team still worked with more than 450 students this fall on field trips, in classrooms, and virtually, conducting aquatic macroinvertebrate programs around the state. Our dedicated volunteers helped us deliver thousands of trout eggs to excited teachers and students in December. Students and teachers are working hard to keep their fish healthy and growing until they are released this spring, while learning about water quality, trout biology, watershed ecology, and more. The fishing skills program component of the program has had two successful summers and this winter we are conducting ice fishing programs.

Amendment Request 02/27/2021:
We are requesting a budget shift among categories to accommodate increased participation by more schools and students. In this third (2020-2021 school year) we welcomed still more schools and students to the program. The increased number of students and schools meant increased expenses in the Equipment/Tools/Supplies budget category, both for adding new schools and maintaining existing sets. Assistance to students and teachers also increased.

We are requesting funds be shifted from the Personnel and Other budget lines to the Equipment/Tools/Supplies budget line:

- Personnel budget would be reduced by $6,000 to a revised budget of $9,000
- Other budget would be reduced by $17,260 to a revised budget of $20,000
- Equipment/Tools/Supplies budget would increase by $15,700 to a revised budget of $76,500
- The balance of $7,560 would be added to Contracts for a revised budget of $264,500

COVID-19 caused numerous schools which had been participating in the program to unexpectedly pause participation. To adapt to the situation required swift action in October 2020 to purchase sufficient new equipment for 20 new classrooms which took their place. Unfortunately, this tipped our costs in that category over the budget target. Consequently, we are requesting that the increase in the Equipment/Tools/Supplies

budget category be made effective October 9, 2020. We also updated estimates of final costs in each category and rebalanced category totals accordingly.

Amendment Approved by LCCMR 3/11/2021

Amendment Request 06/29/2021:

We are requesting a final budget shift among categories to enable us to offer additional fishing clinics and outings for youth and their families this summer and wrap up the program at the end of the summer. We are requesting funds be shifted from the Equipment/Tools/Supplies and Other budget lines to Contracts and Travel budget lines as follow:

- Other budget would be reduced by $4,300 to a revised budget of $15,700
- Equipment/Tools/Supplies budget would be reduced by $200 to a revised budget of $76,300
- Travel budget would be increased by $100 to a revised budget of $30,100
- Contracts budget would be increased by $4,400 to a revised budget of $268,900

Amendment Approved by LCCMR 8/4/2021

Project extended to June 30, 2022 by LCCMR 6/30/21 as a result of M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 18, legislative extension criteria being met.

Sixth Update August 15, 2021

Between January and March, MNTU educators led 30 programs with students and the public. It was a successful spring release season with 40 tanks of fingerlings released into bodies of water throughout the state. This summer from June through August, MNTU led 15 fishing skills programs around the metro. We had new volunteers join in helping this spring and summer, assisting with spring releases and fishing skills programs. This coming year, 2021-2022, over 60 schools intend to participate in the outdoor education program and a waitlist has started for interested teachers looking to join for the 2022-2023 school year. A teacher training is being held this August for new and returning teachers to learn about program participation and additional trainings will be held virtually throughout the school year. This fall we will be leading at least 15 outdoor field days with multiple schools.

Seventh Update February 15, 2022

Sixty schools are participating in the program this year. In Fall 2021 we conducted 10 field days with schools participating in the program. We provided hands-on outdoor learning about aquatic macroinvertebrates and water quality to approximately 650 students. Eggs for classroom tanks arrived in early December. A group of 20 volunteers helped to transport eggs to nearly 60 schools throughout the state. Twenty additional schools are on a waiting list to participate during 2022-2023 school year if we can secure funding. In March we will offer fly tying programs to interest students in outdoor recreation. Last summer, despite reductions caused by COVID-19 we still introduced 170 Twin Cities area students to fishing. We have nearly 30 programs scheduled for this coming spring and summer. Our volunteer base and list of partners both continue to grow.

Final Report Summary

In today's technology-based society, youth are increasingly becoming disconnected from the natural environment. This disconnect can foster apathy about the environment, natural resources, and outdoor recreation, and impact their ability to make well informed decisions about the environment as adults. The program countered this by using tangible education tools and getting students outdoors for hands-on learning activities that connected them to aquatic ecosystems. It utilized classroom aquariums where students studied the development of trout from egg to juvenile. This served as a springboard for field trips to streams and as a focal point for reinforcing learning about water, watersheds, and ecology. Introductions to outdoor recreation were offered to encourage lifelong, tangible connections to aquatic ecosystems.

The number of schools and nature centers participating in this outdoor education program doubled from 29 during the 2018-2019 school year to 60 during the 2021-2022 school year. The program expanded from Twin Cities metropolitan area to schools in Duluth, Bemidji, Alexandria, Willmar, Winona, and other outstate communities. Despite the serious challenges that the COVID-19 pandemic created for conducting in-person field day and classroom learning, our education team conducted more than 260 hands-on environmental education programs for nearly 9,000 students. In addition, we developed remote learning lessons for teachers, students, and parents to extend learning outside the classroom. We reinforced learning about watershed health with a recreational component that creates lifelong interest in waters through fishing and conservation. MNTU's instructors led nearly 70 introductory fishing skills programs for over 1,000 youth and their families. These clinics were made possible by partnerships with local governments and civic organizations, and numerous Trout Unlimited volunteers.

Approximately 10,000 students developed greater understanding of, and connections to, aquatic ecosystems, which will help them to make well informed decisions that positively impact water quality and watershed health.

Budget note from LCCMR 10/19/22: $5,818 of expenses were moved off ENRTF funds into matching funds between the March 2022 update and the final report (August 2022). This resulted in the final balance being slightly higher than the balance reported in March 2022.

III. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Classrooms, Field Days and Student Summits
Description: Place aquariums with trout eggs in classrooms (grades 4 to 12) and nature centers, train teachers and provide classroom lessons between field days; connect students with the natural world through hands-on outdoor field studies and activities at streams, habitat areas, groundwater sites, etc.; hold a summit each year (up to 500 students and 15 schools attending) in central location(s) where students showcase their projects, participate in outdoor skills learning, and learn about water resources careers from professionals.
As part of this project and in cooperation with the DNR Grants Unit, TU will maintain an up-to-date inventory of equipment and its location.

Outcome	Completion Date
1. Partner with participating schools - year one – 22 schools; year two – 24 schools; year three – 26 schools.	July to Sept., each year
2. Organize equipment and resources, meet with partners, train participating educators, assemble educator manuals focusing on ways to enhance state learning standards and STEM initiatives, and assist with aquarium set up in schools and nature centers. Coordinate with DNR. Utilize contracted educators to work with students in schools located in outstate Minnesota.	July to June, each year
3. Fall trip: macroinvertebrate and stream surveys using technology; groundwater site visits where feasible	Sept to Nov, each year
4. Coordinate with DNR to bring trout eggs into classrooms for rearing by students.	each December
5. Assist with programming on groundwater, watersheds, invasive species, water contaminants, habitat activities, etc.	November to June, each year
6. Students share inquiry based research projects and learn about careers in natural resources.	Mar to April, each year
7. Spring trip: Students release trout in natural environment, other hands-on learning, including chance to try fishing and catch a lifelong interest in outdoor recreation.	each May

First Update February 15, 2019

We were able to set up 32 aquariums, in 27 schools and 2 nature centers, and get all of them operating well in time to receive deliveries of trout eggs in early December. The training in aquarium use which teachers received as part of the two day teacher training we held in August helped us overcome the hitches inevitable when 10,000 trout eggs need to be kept cool and uncrushed while being moved around the state. Students continue lessons on water quality and fish biology as they watch eggs develop and hatch, and raise trout fry.

This past fall students donned boots and waders to explore local creeks and streams. They got a little wet and dirty as they caught, examined, and identified aquatic macroinvertebrates. These and other activities increased learning about biotic indexes, water quality, groundwater, watershed ecology, and human impacts on water and habitat. MNTU's educators are also working with students in their classrooms, running learning activities about fish biology and adaptations, watersheds and groundwater, including using watershed/stream models. Students will share their inquiry-based projects with each other at the student summit in March 2019. DNR representatives have visited high school classrooms to discuss careers in natural resources.

Second Update August 15, 2019

The student Summit in March 2019 was a big success, with over 350 students and teachers attending. They rotated through various educational stations, including casting, watersheds, fish biology, and many more. They also had the opportunity to share their inquiry-based TIC projects with each other.

32 aquariums, in 27 schools and 2 nature centers, and kept rainbow trout fingerlings alive until May, when they were released into DNR approved bodies of water. Throughout the winter and spring, students worked hard to conduct water changes, test water chemistry, and keep their fish fed. In addition to visits from MNTU educators, students also continued lessons with their teachers on water quality and fish biology as they watched their eggs develop, hatch, and grow into fingerlings.

In the spring, thousands of fingerlings were released by the students that worked hard to raise them all year. These releases occurred in various bodies of water all throughout the state, in rivers, lakes, and streams. They also had the opportunity little wet and dirty as they caught, examined, and identified aquatic macroinvertebrates, learned about electroshocking, and explored the watershed. These and other activities increased learning about biotic indexes, water quality, groundwater, watershed ecology, and human impacts on water and habitat. Some students tried their hand at casting, fishing, and one group got to help the DNR stock yearling rainbows into the Vermillion River.

Third Update February 15, 2020

By late November 2019, 44 tanks in 38 schools and 2 nature centers were set up and ready to receive their trout eggs in early December. Teachers were provided with a full day training in August to learn about tank set up, fish care, and other important aspects of the program. Teachers are able to access ongoing support from MNTU education team, our aquarium equipment supply store contacts, and each other through a special google group where new and returning teachers can work together to trouble shoot issues. In fall 2019, well over 2,000 students and teachers engaged in outdoor, hands-on, educational activities getting in and exploring local creeks, streams, and other bodies of water in their local watersheds. They caught, handled, and identified aquatic macroinvertebrates, learning how a biotic index can be used to assess the quality and health of the water. This and other activities taught students about watersheds, water quality, ecology, and human impacts on the environment. Classroom visits are continuing this winter, with over 35 scheduled through mid-March. Outside of classroom visits, teachers are engaging students in a variety of lessons. In May, we will hold a summit where students will be able to share their projects and engage in a variety of fun and educational activities, including fishing, casting, environmental stewardship, and learning about water and natural resource careers from

professionals. We will be leading and/or assisting with almost 30 spring trout releases starting in mid-April, which will include students participating in habitat restoration projects and other activities. We completed an inventory of equipment and supplies in fall 2019.

Fourth Update August 15, 2020

The student Summit planned for March 2020 had to be canceled due to COVID-19 restrictions. It had been scheduled in conjunction with the Great Waters Fly Fishing Expo to increase the variety of educational activities offered, including aquatic macroinvertebrate study, casting, fish identification, and more.

We were unable to hold in-person spring release programs with our schools this year, but teachers continued to care for their fish and kept their students updated with videos and pictures. MNTU educators assisted some teachers in person to present the release virtually with their students and families. Teachers able to release their trout prepared videos, power points, and activities for their students to virtually participate in.

Between January and the March 2020 school closures, students worked hard to conduct water changes, test water chemistry, and keep their fish fed. In addition to visits from MNTU educators, students also continued lessons with their teachers on water quality and fish biology as they watched their eggs develop, hatch, and grow into fingerlings.

Fifth Update February 15, 2021

A group of teachers came together in August and learned how to use students' excitement about the fish raising experiences as springboards to virtual lessons and independent outdoor activities. 48 tanks in 41 schools and 3 nature centers were set up in late fall. Classrooms received trout eggs in early December. Our education team provided teachers with ongoing support and google groups where new and returning teachers trouble shoot emerging issues. Two virtual meeting are held each month to troubleshoot fish raising issues, share resources, and more. This fall more than 450 students, teachers, and parents engaged in hands on through educational activities in streams and lakes in local watersheds. They caught, handled, and identified aquatic macroinvertebrates, learning how a biotic index can be used to assess the quality and health of the water. For students unable to leave the school, our team collected and brought insects to them to learn about, hold, and see up close. Virtual programs were also conducted, including one on fish identification and how to ice fish. Spring releases this year will be both in person and virtual depending on the school's educational setting.

Sixth Update August 15, 2021

Starting in late winter, many schools began bringing students back to in-person learning. This allowed for them to be more fully to engaged in caring for the tank and fish through water changes, observing fish behavior and growth, monitoring water chemistry, and recording data. Teachers engaged students in lessons on water quality, fish biology, watershed ecology, and more as they watched their eggs develop, hatch, and grow into fingerlings.

This also meant that many teachers were able to engage students with in-person, spring release experiences. Our education team worked directly with 275 students this spring on release day outdoor learning activities. Our local Twin Cities TU chapter provided materials and volunteers at programs, leading a water quality citizen science activity with students using the WISE H2O application in order to test and track the water chemistry parameters of their release site.

We were not able to hold a Summit again this spring. However, we were invited to lead a session for St. Croix River Association's annual youth summit, held virtually this year. We led a live aquatic macroinvertebrate

session for 225 students, teaching them about insects as a biotic index for water quality, identification, and how to catch them.

Seventh Update February 15, 2022

In August, a large group of teachers came together to learn about implementing outdoor education lessons and how to use the classroom aquariums to generate excitement for field lessons. We held two virtual teacher trainings each month and recorded them for other teachers that were unable to attend. This school year there are 64 tanks in 58 schools and 2 nature centers. Three-quarters of classrooms are in the Twin Cities metro area. Other classrooms are scattered from Bemidji and Duluth, through Alexandria to Sleepy Eye and Rochester. Other teachers and schools are interested in joining our outdoor education program if we can secure funding to continue the program for the 2022-2023 school year. This fall, we taught approximately 650 students about aquatic insects and how they are good indicators of water quality. Aquatic insects were also brought into schools that were unable to get students offsite due to COVID-19 restrictions. Trout eggs were brought into each classroom in December, thanks to a team of MNTU volunteers. In March we will offer fly tying programs as a way to teach kids about insect lifecycles and encourage outdoor recreation on local streams and lakes.

Final Report Summary

MNTU educators led 194 programs during the fall, winter, and spring. These included classroom and virtual activities in addition to outdoor field days. More than 8,800 students learned about watershed ecology, water quality and health, aquatic insects, fishes of Minnesota, and more. This number represents students our educators worked with directly, but thousands more learned with their teachers and peers, engaging in a wide array of classroom lessons and offsite field trips. These included collecting aquatic insects, testing water quality, fish dissections, hatchery and aquaponics tours, and many more STEAM related activities. We held a summit in spring 2019, but COVID-19 caused the cancellation of subsequent summits.

ACTIVITY 2: Outdoor Recreation – create lifelong interest in outdoor activities by youth and their families.
Description: Create lifelong interest in outdoor activities by getting youth and their families engaged in the outdoors through a series of fishing clinics and outings, camps, and opportunities to participate in conservation projects offered after school and throughout the year.

Outcome	Completion Date
1. Offer calendar of events/opportunities with partners; engage additional students, classes and schools using print news, websites, social media and YouTube	April to June, each year
2. Conduct multiple youth and family fishing events and clinics, advancing MN's Recruitment, Retention, Recruitment and Reactivation (R3) initiative	April to Sept., each year
3. Winter field days: budget permitting, introduce kids to interactive winter outdoor activities and skills, including ice fishing and winter lake ecology	Dec. to March, each year

First Update February 15, 2019

MNTU's education team has developed use agreements with several municipalities and already has more than two dozen free youth and family fishing skills programs in parks scheduled for this summer. We are gathering volunteers to improve the experience and increase the reach of the fishing programs. To increase participation, we have revamped and updated a "Trout in the Classroom" website. Video links and program information is included. "Trout in the Classroom" social media pages were created and/or overhauled in September and the social following and engagement has continually increased. A partial calendar of fishing programs is being

published this month. We have already begun to introduce a recreational component by teaching lure making as an enticement to get students angling this spring and summer.

Second Update August 15, 2019

MNTU's education team developed use agreements with several municipalities and implemented more than two dozen free youth and family fishing skills programs in parks throughout the metro area this summer. We are continuing to gather volunteers and build partnerships to improve the experience and increase the reach of the fishing programs. Fishing programs were also promoted through social media, MNTU newsletters, and through the various partner organizations. We will be continuing to work with partner organizations to plan fishing programs throughout the year for both TIC students and their families, as well as the general public.

Third Update February 15, 2020

We continue to partner with several organizations to implement fishing skills programs around the metro area. There are 40 programs and events currently on the calendar, with a few more to be added soon. Our list of partners and programs has grown in order to encompass a wider audience of participants. These programs will be advertised through MNTU and partner organization's websites, newsletters, and social media. Both youth and family fishing skills programs will be conducted by our passionate and experienced fishing skills instructors. In its pilot year, MNTIC's Trout Club has become a hit with the teachers, students, and volunteers. As an after-school opportunity to further their engagement with the program, students learn more about fishing with casting practice, learning how to tie knots and flies, and getting out to fish on the ice this winter and open water in the spring with their fellow club members, teachers, and family members. At spring releases this April and May, students will have the opportunity to participate in various conservation projects around their release locations.

Fourth Update August 15, 2020

MNTU's fishing skills instructors were able to implement approximately 20 youth and family fishing skills programs in parks throughout the metro area this summer, working with our partners to adhere to changing COVID-19 guidelines. Many programs had to be canceled before the summer started and throughout. A new group of students reached this summer were the families of homeschooled children. We will be continuing to work with partner organizations to plan fishing programs throughout the year for students and families of participating schools, as well as the general public.

Fifth Update February 15, 2021

We continue to partner with various organizations and implement fishing skills programs around the metro area. Between January and early March, we will have conducted 25 in person, hands-on programs with youth and their families. Attendees are learning about Minnesota's icy lakes and the fish life beneath them. In a partnership with the St. Croix River Association, program attendees also have the opportunities to get out into natural setting to learn through winter ecology hikes. Our fishing skills program calendar is filling up for this summer. Our list of partners and programs has grown to encompass a wider audience of participants. Programs are advertised through MNTU and the partner organization's websites, newsletters, and social media. Both youth and family fishing skills programs will be conducted by our passionate and experienced fishing skills instructors. One of our school Trout Club groups went on a fishing trip to Whitewater State Park this fall. We will fish with students or at least teach some fishing basics during the spring release days.

Sixth Update August 15, 2021

Despite COVID related restrictions, MNTU's education team still led 30 programs this winter for 540 participants. Participants learned about Minnesota winter ecology and how to ice fish, tie flies, and snowshoe. In the spring, we worked with approximately 275 students leading their spring release events. In addition to releasing their fish and testing the water quality, some groups also went canoeing and fishing in lakes near their release sites. Already this summer roughly 200 people attending our fishing skills programs, learning the basics and getting to practice both fly and spin fishing. One program with Dakota County, titled "Explore a Trout Stream", involved attendees collecting and identifying aquatic macroinvertebrates, and learning about them as a biotic index for water quality. They also learned about fishing safety, equipment, and strategies, how to read the water, and fish habitat.

Seventh Update February 15, 2022

Last summer, despite reductions caused by the COVID-19 pandemic, we introduced 170 Twin Cities area students to fishing. We continue to gain more partner organizations looking to work with us to provide fishing skills programming to audiences in their communities. We have nearly 30 programs scheduled for this coming spring and summer. We are expanding opportunities for youth and families in new parts of the metro area, utilizing parks and local waters.

Final Report Summary

MNTU's fishing skills instructors led approximately 70 programs for over 1,000 youth and their families during the summer fishing skill programs. We partnered with organizations throughout the Twin Cities metro area to promote the programs and take registrations. Students and their families also participated in ice fishing lessons during winter 2020 and 2021. These programs taught participants all they need to know to continue fishing on their own, including setting up rods, tying on hooks, baiting hooks, "reading" water, casting, and unhooking landed fish. Participants also learned about aquatic invasive species, "leave no trace" ethics, and Minnesota waters.

IV. DISSEMINATION:

Description: We will conduct evening, weekend and summer education/outreach events for students, their families and the community to participate, including students whose classrooms did not have an opportunity to participate in all aspects each year. We will expand the impact of the program by engaging other classes and schools through the use of social media, YouTube, and website capacities. The goal is to reach as many students and teachers as possible and to share the experiences and knowledge gained from the program. By using the Trout Unlimited websites (www.mntu.org and www.twincitiestu.org) as our starting point, we will work with schools to help them create links to or pages for their school websites or blog/Facebook pages. A youth column in Minnesota Trout Unlimited's quarterly newspaper will be added to share the experiences with both members and nonmembers around the state. The student summits will be great opportunities for students to share and network with other classes engaged in the similar experiences.

First Update February 15, 2019

We revamped and updated our "Trout in the Classroom" website and social media pages beginning in September. We have experienced a marked increase in social media following and engagement. MNTU's statewide newspaper includes both program updates as well as articles targeted to students. For example, the November 2018 issue of *Trout Unlimited Minnesota* included a four page pull out section which includes a

macroinvertebrate identification key to encourage kids to extend learning outside school. At the request of participating teachers, we now provide copies of the newsletter to all classrooms and students in the program.

Second Update August 15, 2019

To increase participation, we are continuing to revamp and update our "Trout in the Classroom" website. Video links and program information are also currently included on the website, but we will also be working to add curriculum and activities for teachers to access in addition to a link to for videos to help with trouble shooting aquarium equipment and fish care. "Trout in the Classroom" social media pages were overhauled in September and the social following and engagement has continued to increase each time there is a post. The goal moving forward into the school year is at least one post per week.

Each MNTU statewide newspaper includes both program updates as well as articles targeted to students. For example, the November 2018 issue of Trout Unlimited Minnesota included a four page pull out section which includes a macroinvertebrate identification key to encourage kids to extend learning outside school and the February 2019 issue focused on Seasons of a Stream, and the June issue had a student focused article about Building Stronger Watersheds. At the request of participating teachers, we now provide copies of the newsletter to all classrooms and students in the program.

Teacher interest in the program continues to grow. 14 new schools throughout the state joined the program for the upcoming 2019-2020 school year and there is currently a waitlist of almost 20 teachers, with more contacting the education program supervisor each week.

Third Update February 15, 2020

Many of our new teachers this year maintain classroom websites and regularly post Trout in the Classroom related pictures and videos. Our social media following continues to increase as students, teachers, partners organizations, and volunteers engage with us. The revamping of our Trout in the Classroom website has increased the ability for teachers and volunteers to learn about the program and find our contact information. The website also has a list of our summer fishing skills programs with live links to the partner registration websites for easy sign up access. These programs will also be advertised by our partner organizations. Teachers love the youth series articles and having access to hard copies of MNTU's newsletters for their students to read and use in classroom lessons. Recently, Minnesota Bound interviewed MNTU educators, TIC students, and their teacher at one of our schools for a story about TIC and Trout Club. The excitement about this program in schools and on social media has caught on. We already have 32 interested teachers on a waiting list to participate in the next year's watershed education program.

Fourth Update August 15, 2020

Summer fishing skills programs were promoted through social media, MNTU newsletters and website, and through the various partner organizations. We are working to add curriculum and activities for teachers to access in addition to a link to for videos to help with trouble shooting aquarium equipment and fish care. "Trout in the Classroom" social media pages continue to gain followers and engagement through Instagram stories, pictures, and videos. Watershed Wednesday and Fishy Friday were started this spring, consisting of fish biology, fishing, watershed ecology, macroinvertebrates, and more, to maintain a connection through COVID-19 closures.

Each MNTU statewide newspaper includes an education program update and a youth series article for students. We continue to provide copies of the newsletter to all classrooms and students in the program. The June 2020 issue had our first ever "MNTU Youth Essay Contest" with students answering the question "What does fishing

mean to you?". This contest will be advertised through social media, schools, and MNTU emails for each newsletter.
The outdoor education program in continues to grow around the state. Currently, there are 49 schools and 3 nature centers planning to participate for the 2020-2021 school year. With a lot of unknowns, these numbers will likely change, but many teachers plan to run an aquarium as an educational tool of their classroom regardless of the type of learning set up their school goes with for the fall.

Fifth Update February 15, 2021

Our social media pages, Instagram and Facebook, are regularly maintained and continue to gain attention and followers. Each MNTU newsletter since November 2018 contains one or more articles targeted at youth, as well as a program update publicizing the great progress. An updated website lets educators and the public learn more about MNTU's education programs, including how to participate in Trout in the Classroom and links to register for fishing skills programs. Updates are in the works to provide a place where teachers can find related resources and lessons. Interest in the program remains very high.

Sixth Update August 15, 2021

The Minnesota Trout Unlimited website was completely redone with updated information about MNTU's education and outreach. There are new pictures and information for teachers to learn about the program and how they can get involved.

Seventh Update February 15, 2022

Education program updates and a youth series articles are regular features in MNTU's statewide newspaper, that is distributed three times per year. Teachers get hard copies for their students to read in class and take home if they want. Pictures and information about MNTU's education programs continues to be shared through social media and our website. We give presentations to teacher groups, volunteer organizations, and MNTU chapter members. Interest in the program remains very high.

Final Report Summary

Our website was revamped with updated information about educational opportunities, including Trout in the Classroom and fishing skills programs. The Facebook and Instagram pages were started in 2018 and gained hundreds of followers during this project. A suite of youth educational videos and other resources were developed and are available online. Our team wrote education updates and youth series articles for all three MNTU newsletter editions publish each year. Thousands of hard copies of the newsletters were distributed to teachers for classroom use and/or to send home with students.

V. PROJECT BUDGET SUMMARY:

A. Preliminary ENRTF Budget Overview:

See budget spreadsheet

Explanation of Capital Expenditures Greater Than $5,000:

Explanation of Use of Classified Staff:

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

Enter Total Estimated Personnel Hours: 3500	Divide by 2,080 = TOTAL FTE: 1.7

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

Enter Total Estimated Personnel Hours: 2100	Divide by 2,080 = TOTAL FTE: 1.0

B. Other Funds:

SOURCE OF AND USE OF OTHER FUNDS	Amount Proposed	Amount Spent	Status and Timeframe
Other Non-State $ To Be Applied To Project During Project Period:			
MNTU/TU cash and in-kind support	$ 10,000	$ 35,000	Spent through June 2022
Other State $ To Be Applied To Project During Project Period:			
MNDNR in-kind support	$	$ 7,000	
Past and Current ENRTF Appropriation:			
M.L. 2015, Chp. 76, Sec. 2, Subd. 05b	$ 400,000	$ 257,456	Completed
Other Funding History:			
	$	$	

VI. PROJECT PARTNERS:

A. Partners receiving ENRTF funding: None

B. Partners NOT receiving ENRTF funding

Name	Title	Affiliation	Role
MNDNR			Professional staffing and presentations
Schools and school districts			In-kind assistance and transportation cost sharing

VII. LONG-TERM- IMPLEMENTATION AND FUNDING:

Project Team/Partners

Minnesota Trout Unlimited and chapters – will received funding and contributed cash and in-kind assistance;
Schools and school districts – contributed extensive in-kind assistance and required cost sharing to stretch budget;
MNDNR – will contributed in-kind support through professional staffing.

Project Impact and Long-Term Strategy

By reaching kids in classrooms, in the field and after school, we got them excited about watersheds, the outdoors and outdoor recreation. We combine outdoor "classrooms" with technology through STEM related activities so students may master state standards across a spectrum of subjects, develop skills necessary for making informed decisions about the water resources, create connections to the natural world, and think critically about their roles in the environment. Students learn to appreciate the watersheds in which they live, become active in the outdoors and stewards of land and water. Recreational activities encourage enduring connections to the outdoors beyond the classroom. Afterschool, weekend and summer programs for youth,

families and diverse audiences cement lifelong involvement in outdoor recreation and conservation. YouTube and other media extended the reach and impact of the programs. This program directly reached approximately 10,000 students, despite COVID-19 restrictions. Thousands more used program components to learn with participating teachers and students.

This program built an educational and organizational support base among Minnesota youths for understanding and supporting natural resource stewardship and management of our cold-water streams and their fisheries resources. Activities and the media coverage generated attention that is beginning to garner additional support and may result in long term programmatic and financial support beyond that received from the Environment and Natural Resources Trust Fund. Best efforts will be made to ensure that aquarium equipment set up in schools and nature centers will continue to be used for its intended purpose for its useful life-- this may include having schools and nature centers take on ownership and maintenance responsibilities after the project ends.

VIII. REPORTING REQUIREMENTS:

- **The project is for 4 years, will begin on 7/1/18 and end on 6/30/2022.**
- **Periodic project status update reports will be submitted February 15 and August 15 of each year.**
- **A final report and associated products will be submitted between June 30 and August 15, 2022.**

IX. SEE ADDITIONAL WORK PLAN COMPONENTS:

A. Budget Spreadsheet
B. Visual Component or Map
C. Parcel List Spreadsheet
D. Acquisition, Easements, and Restoration Requirements
E. Research Addendum

Attachment A:
Environment and Natural Resources Trust Fund
M.L. 2018 Budget Spreadsheet

Project Title: Connecting Students with Water Stewardship through Hands-on Learnin
Legal Citation: M.L. 2018, Chp. 214, Art. 4, Sec. 2, Subd. 05d
Project Manager: John Lenczewski
Organization: Minnesota Trout Unlimited
College/Department/Division:
M.L. 2018 ENRTF Appropriation:
Project Length and Completion Date - 4 yrs.; ending 6-30-2022
Date of Report: August 25, 2022 (Final Report)

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	REVISED BUDGET 6/30/2021	Amount spent	TOTAL BALANCE
BUDGET ITEM			
Personnel (Wages and Benefits)	$9,000	$6,586	$2,414
TU national Director of youth education– 5% fte; 68 % salary/32% fringe; 36 months; (average of approximately $3,300 annually); Subtotal = approximately $9,900;			
TU national Accounting staff - 5% fte; 68 % salary/32% fringe; 36 months; (based upon actual personnel and contracted staffing; average of approximately $1,700 annually); Subtotal = approximately $5,100;			
Professional/Technical/Service Contracts	$268,900	$263,843	$5,057
MNTU Program manager – average of approximately $3,000 annually; independent contractor, not an employee, and paid an hourly fee]; Subtotal = approximately $9,000;			
Education Supervisor - independent contractor, not an employee, and paid an hourly fee of up to $30/hr with hard cap at $60,000 over 3 years; perhaps half of hours in year 1 to set up structure; Subtotal = approximately $60,000;			
Classroom Environmental Educator - Full Time Position; "12 month"(11 months in year 1); independent contractor, not an employee, and paid an hourly fee of $20/hour; YR 1 (46 weeks) - $36,800; YR 2 (48 weeks) - 38,400; YR 3 (48 weeks) - $38,400; Subtotal = approximately $113,600;			
Classroom Environmental Educator - 60% Part Time Position - 10 months = 40 weeks; independent contractor, not an employee, and paid an hourly fee of $20/hour; 24/hrs/week; $19,200/yr; Subtotal = approximately $57,600;			
Fishing skills Intern #1 - independent contractor, not an employee, and paid an hourly fee of up to $15/hr - 30 hrs/wk x 11 weeks = $4,950/season; # year Subtotal = $14,850;			
Fishing skills Intern #2 - independent contractor, not an employee, and paid an hourly fee of up to $15/hr - 30 hrs/wk x 11 weeks = $4,950/season; # year Subtotal = $14,850;			
Interns for field day assistance, etc. - independent contractors, not employees, and paid an hourly fee of $15/hr = $120/day; up to 142 days over three years; Subtotal = approximately $17,040;			
Contracts for use of facilities to hold student Summits - approximately $2,000 to $3,000 per year;			
Equipment/Tools/Supplies			
Equipment and supplies needed to operate and maintain aquariums: comprehensive aquarium equipment at $1,300 per new classroom set; Maintenance/replacement of portions of existing aquarium equipment set - $150/year per set, plus periodic replacement of filters ($200 each) and chillers ($600 each) on older equipment; other aquarium supplies such as fish food ($25/aquarium/yr); shipping of equipment and supplies to schools; approximately $55,000 total;	$73,300	$73,255	$45
Materials, supplies and other items needed for field days and activities: Printing/copying for teacher manuals and class worksheets, handouts, summit banners, etc.; field aquariums for Macro studies; other supplies and materials for student lessons/activities. Estimated to be approximately $5,800 over 3 years;	$3,000	$2,928	$72
Travel expenses in Minnesota	$30,100	$29,052	$1,048
Travel: Travel expenses of environmental education specialists, interns, and project coordinator to and from schools, field sites, DNR facilities, etc. Limited travel of project manager to key meetings with coordinator, schools, events, & DNR. Mileage expense estimated at IRS rate of 0.535/mile			
Other	$15,700	$10,727	$4,973
Fish eggs and disease testing with shipping - $300/classroom aquarium per year (x 22,24,26 = 72) = $21,600;			
Essential food for instructors at: Centralized teacher orientation on use of equipment, fish raising issues, etc. - $100 x 3 yrs. = $300; Lunches for non-teacher volunteers/agency help at field days - $50/field day x 72 field days over 3 years = $3,600; Summits – lunches for volunteers, agency help needed for student summits - $200/summit x 3 summits = $600; Food subtotal - $4,500;			
Storage of seasonal equipment that cannot fit in trailer $60/mo. x 36 mo. = $2,160;			
Bus transportation: $350/trip x 44 trips over three years for those schools not able to fund all three buses each year; $350/trip x 44 trips = 15,400 over three years;			
Porta potties as needed for 60+ students for those field days which take place on streams not near bathrooms (school buses do not have bathrooms); estimate 24 of 72 field days likely not near bathrooms; - $150 x 24 = $3,600;			
COLUMN TOTAL	**$400,000**	**$386,391**	**$13,609**

MINNESOTA
TROUT UNLIMITED

TROUT IN THE CLASSROOM

- Let us chill
- Don't overfeed us
- Keep our water clean
- If you do it, write it down

Follow MNTIC on Instagram and Facebook
www.mntu.org/trout-in-the-classroom