February 11, 2025

Red River Basin River Watch 2024 Report

Red River Basin River Watch is an educational program that engages students in hands-on learning about their local watershed through water quality sampling, ecological studies, and real-world scientific experiences.

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Education Director
International Water Institute

Contents

Program Overview - Celebrating 30 Years of River Watch

The Red River Basin River Watch Program (RW) offers innovative watershed education initiatives to schools and communities throughout the Red River of the North Basin. Rooted in the belief that education is the most effective means of transforming attitudes and behaviors, RW provides hands-on science and watershed exploration activities for elementary, middle, and high school students. These activities are designed to engage students, deepen their understanding of water resources, and challenge them to think critically about water resource issues.

Supported by the Red River Watershed Management Board and local watershed districts, the RW program provided by the International Water Institute (IWI) has become a widely supported educational program. RW students have collected valuable water quality data, which is utilized by the Minnesota Pollution Control Agency to complement the state's surface water assessments.

Funding from the Clean Water Legacy Fund has enabled the expansion of the RW program offering participants additional opportunities to learn how to protect and improve Minnesota's vital water resources, including:

- Biological Monitoring
- River Watch Forum
- River of Dreams
- River Explorers
- Teacher/Student Training

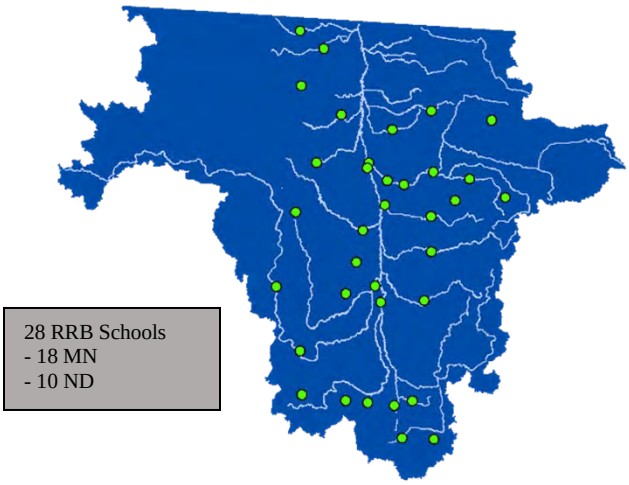
The IWI takes a watershed-based, cross-curricular approach to watershed science utilizing the "4 C's":

– **Challenge** participants to collect and think critically about scientific data
– **Create** a sense of responsibility and stewardship for local waterways
– **Connect** learners to their local rivers through experiential learning opportunities
– **Cultivate** interest and appreciation for watershed science careers and opportunities

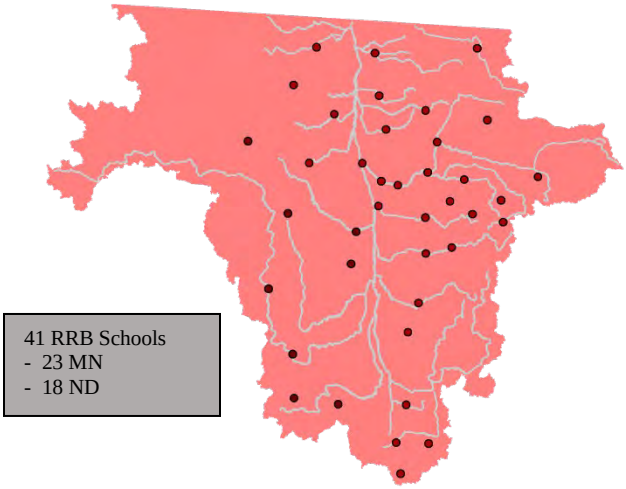
We strive to introduce students to their local watershed, helping them connect with the world around them, both upstream and downstream, through education focused on their home watershed.

Participating Schools

River Watch



River of Dreams



Project Goals, Work Tasks, and Outcomes

The project goal is to engage Red River Basin high school, middle school, and elementary students in hands-on education programs focused on river resources within their local watershed. Program activities include integrated classroom and outdoor experiences that build awareness of river ecosystems and watershed connections, increase student capacity to make informed decisions about their environment, and instill a sense of place about the uniqueness of their local watershed. The work tasks and activities completed from January 2024 through December 2024 are discussed below. For reference, the 2024 – 2025 Clean Water Fund Work Plan is included as *Attachment A*.

Objective 1. River of Dreams: Engage elementary students in River of Dreams (ROD) a hands-on education program focused on the valuable river resources of the Red River Basin. Provide integrated classroom and outdoor experiences that; build awareness of river ecosystems and watershed connections, increase student capacity to make informed decisions about their environment and instill a sense of place about the uniqueness of their local watershed—historic, economic, and ecological.

Measurable Outcomes - ROD

- Classroom resources prepared and delivered including books, art supplies, and canoes.
- Completed 46 classroom sessions to present materials and go over program expectations.
- Completed 46 field sessions with ROD participants. Release of individual ROD canoes and review of watershed lessons learned by students.
- Created canoe pages and entered canoe tracking information into the ROD database. Program and canoe information can be found here.
- Assessment pre/post surveys of students.
- Completed June 2024.

Objective 2. Red River Explorers Paddling Program: Increase awareness and knowledge of local land use and watershed connections through a Red River Explorers Paddling Program to allow RW teams and community members to "water-truth" streams in the Red River Basin, documenting local watershed conditions.

Measurable Outcomes – Paddle Trips

- Sixteen guided river ecology excursions with 173 RW students
- Ten guided river ecology excursions with 320 ROD students.
- No river trip reports were completed in 2024. Past reports can be viewed here.
- Completed November 2024.

Measurable Outcomes – Watershed Connections

- Seven macroinvertebrate monitoring events completed. Provided resource materials and equipment for RW schools with assistance from IWI staff.
- Produced and distributed three electronic newsletters promoting watershed education and awareness in the Red River Basin.
- Participated in three Red River Basin Water Festivals. Three staff lead activities related to relevant watershed issues (water quality, flooding, groundwater, AIS). Over 800 grade school students participated.
- In partnership with MN 4-H, IWI provided paddling equipment and staff resources for 4-H camp held August 5th through the 7th at Lake Bronson State Park.
- Completed December 2024.

Objective 3. Stem Assistance: STEM ASSISTANCE: Assist in provision of Science, Technology, Engineering and Math (STEM) education and engagement opportunities through watershed science.

Measurable Outcomes – Teacher Development/Student Training

- Three regional fall kick-offs were held in 2024. 129 students and thirteen teachers received training in watershed mapping, crowdsourcing (survey creation, distribution and data interpretation), watershed stewardship plans and professional poster display development.
- Partnered with Wilderness Inquiry to provide canoe trips for participants at each location (Moorhead, East Grand Forks, and Thief River Falls).
- Completed October 2024.

Measurable Outcomes – Research and Outreach

- Hosted the 29th Annual River Watch Forum. Over 200 students and teachers were in attendance. Forum schedule included a keynote speaker and break-out sessions with hands-on activities relating to watershed management or river monitoring careers.
- The 2024 theme "Leaping into Watershed Communications" had students dropping their scientific equipment and reaching for a camera and entering the recording studio instead. Each participating team created content by designing a calendar and by producing a podcast all about their local river or watershed. They also added a binder to catalog information about their water quality monitoring sites and a poster display for live judging.
- Past forum events can be viewed here.
- Contacts were made to K-3 educators at schools that currently are involved with IWI programs to seek involvement in gap identification and development of new watershed education programming for K-3 students.
- Completed October 2024.

Objective 4. Oversight: Project Management and Reporting.

Measurable Outcomes – Oversight

- Grant-related expenditures tracked, bills paid and expense reimbursements submitted quarterly.
- 2024 report completed and submitted to Commissioners and Legislative Committees.
- Site visit with MPCA project manager July 23, 2024.
- Completed February 2025.

Budget Performance

Below is the project budget summary through December 31, 2024.

Line Item	Funds Awarded	Funds Expended	Balance	Budget Expended (%)
Personnel	$273,500.00	$113,597.00	$159,903.00	**42%**
Travel Reimbursement	$20,500.00	$9,986.35	$10,513.65	**49%**
Equipment & Supplies	$32,000.00	$6,611.56	$25,388.44	**21%**
Total:	**$326,000.00**	**$130,194.91**	**$195,805.09**	**40%**

Project Evaluation

Evaluation surveys are requested every two years from participants. The last survey was completed in 2023. Twenty-five Minnesota and North Dakota educators that were involved with the RW program were provided an opportunity to complete an online survey. Eighteen educators completed the online survey (eleven from Minnesota). Overall teachers were pleased with the quality of watershed science activities offered and found them useful in helping meet education requirements. Select individual question responses are shown below (Figures 1 – 5).

Figure 1.

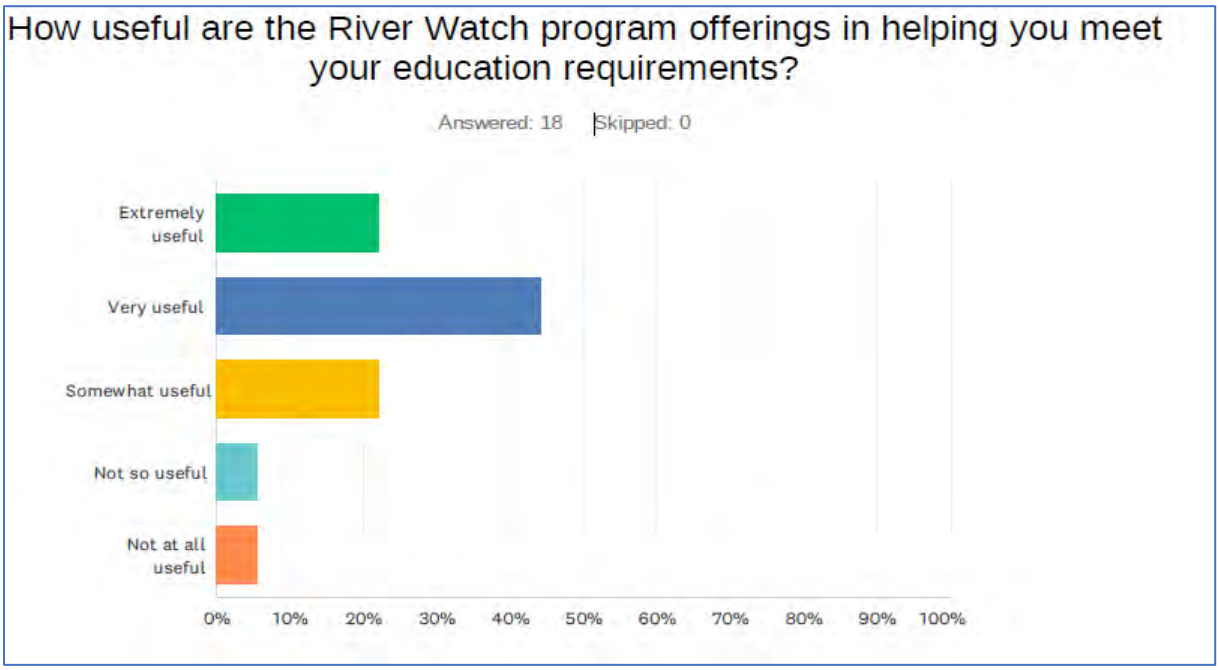


Figure 2.

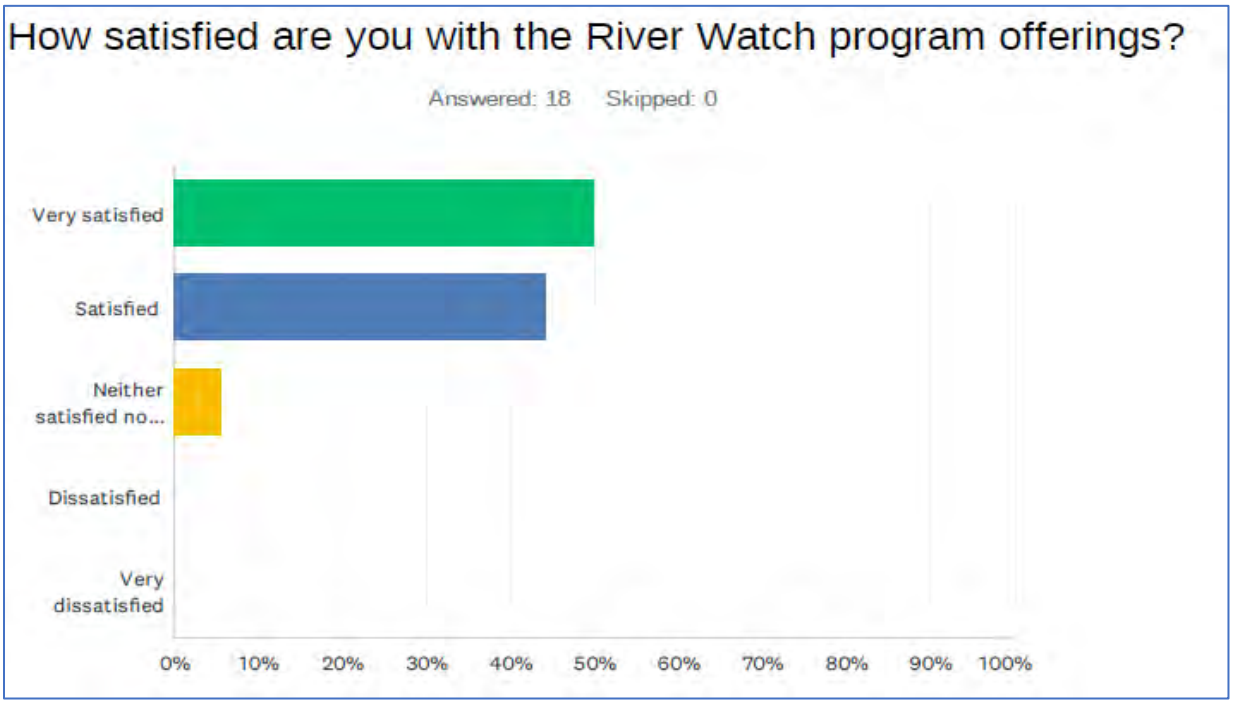


Figure 3.

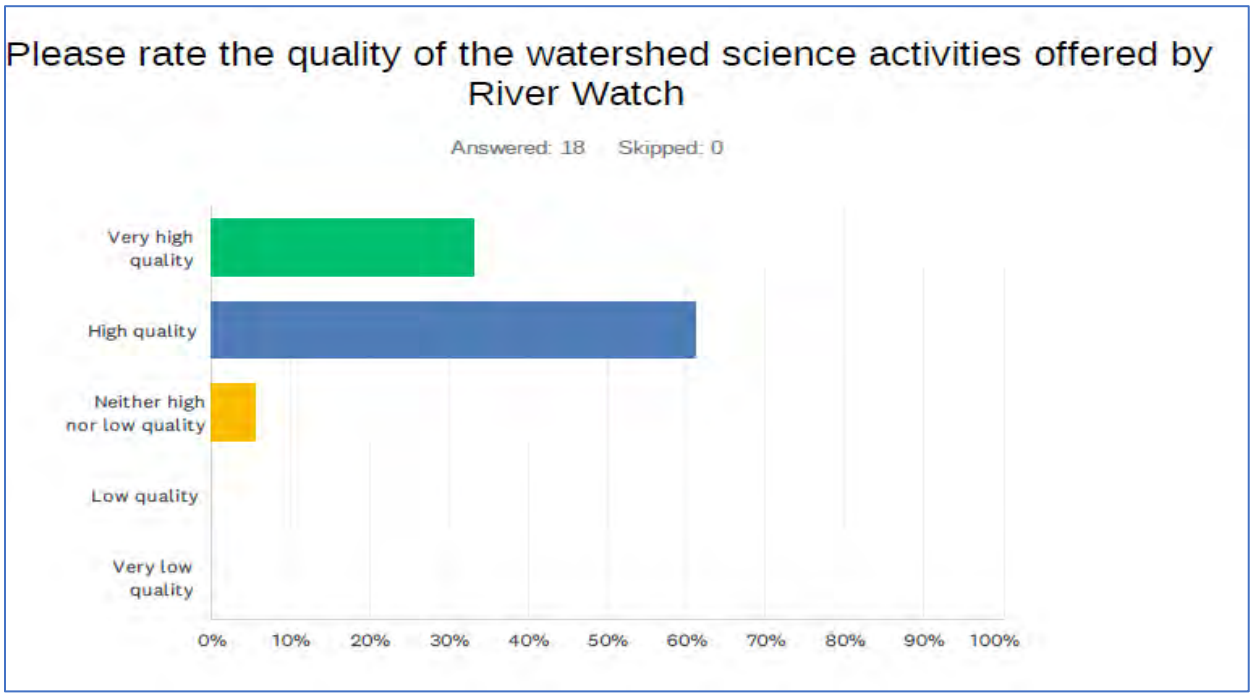


Figure 4.

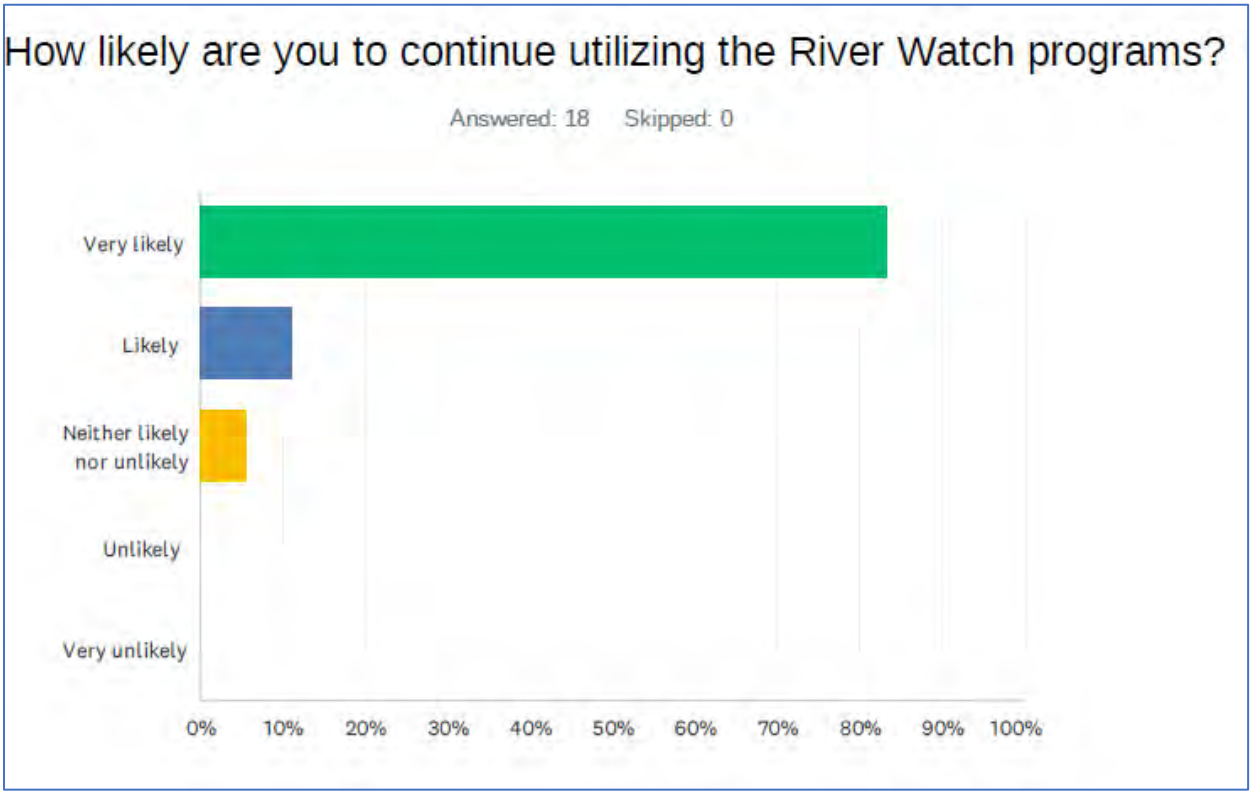
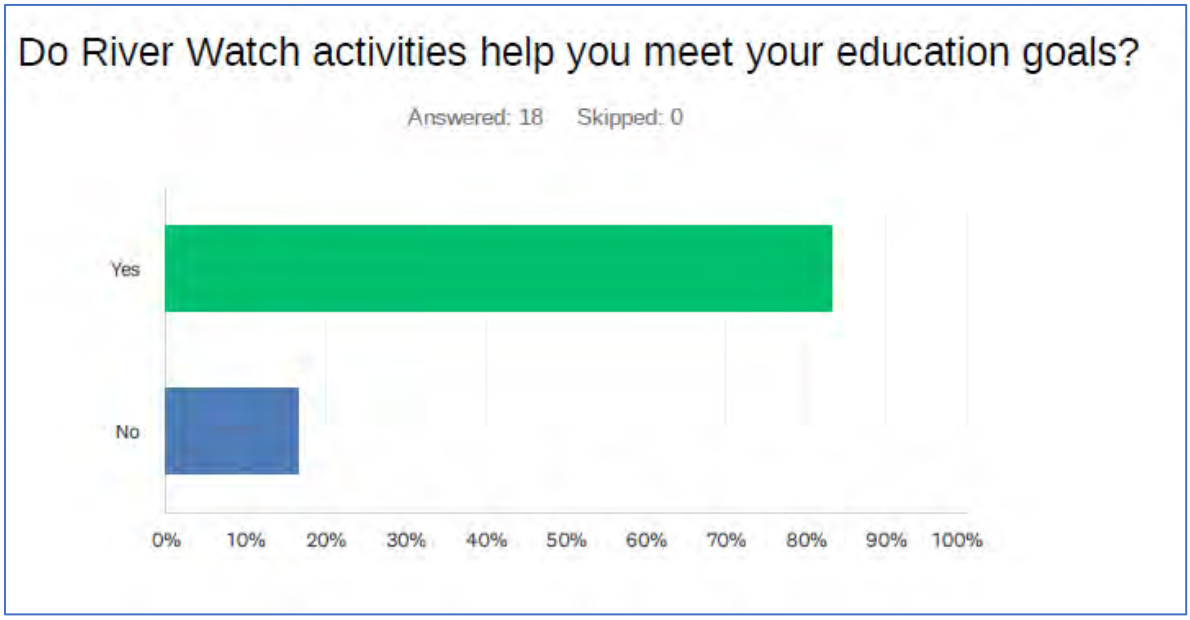
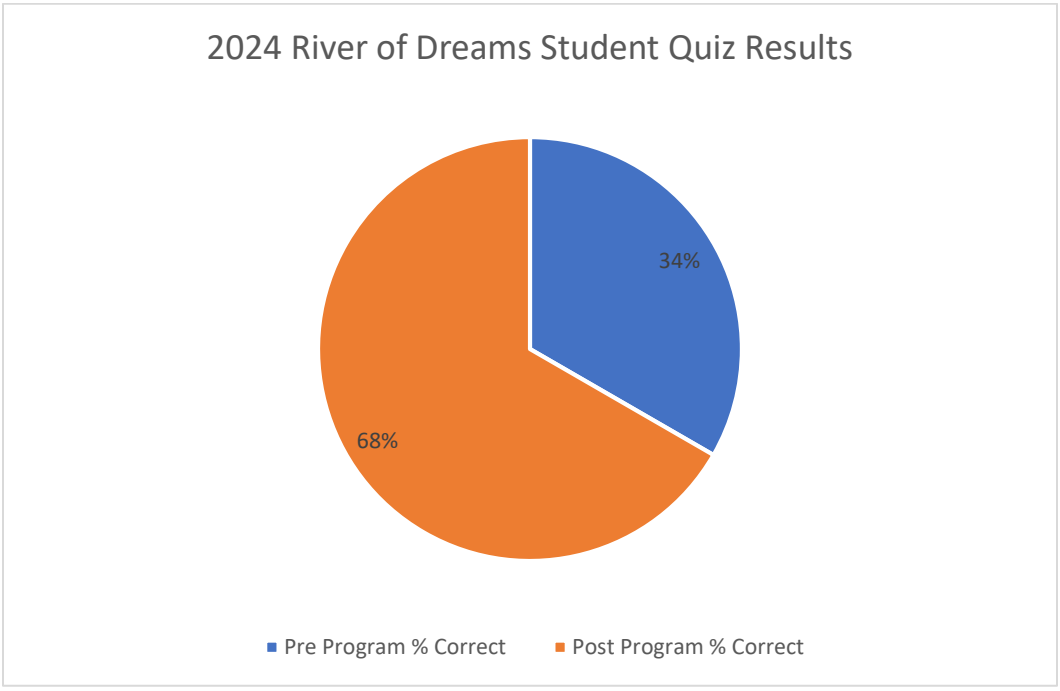


Figure 5.



ROD student pre and post-quizzes are given yearly during classroom sessions. In 2024, 1,249 participants completed the evaluation quizzes. Students were asked a series of questions related to watershed/river terminology and pollution sources. Pre-program correct response rate was at 34% with the post-program correct response rate increasing to 68%. Student quiz response results are shown below (Figure 6).

Figure 6.



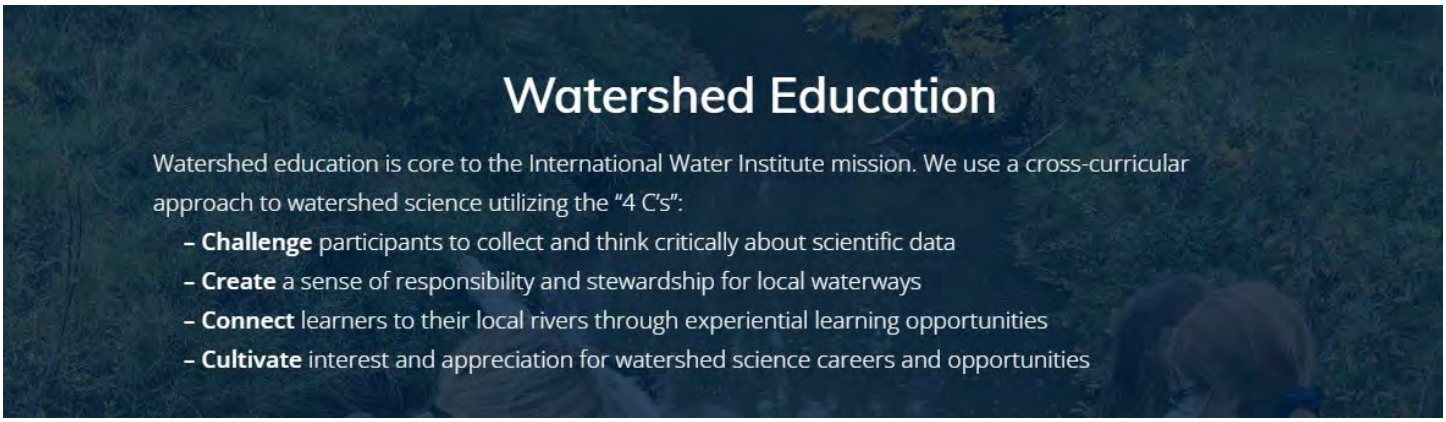
Future Activity Recommendations

Eligible RW grant activities should target elementary through high school-aged students, teachers, and youth groups. Examples of effective RW program opportunities suited to a local school, community, and watershed needs are listed below.

- *Water Quality Monitoring:* Collect and record conditions at local rivers and streams using state-of-the-art scientific methods and equipment.
- *Biological Monitoring*: Macroinvertebrate monitoring provides additional insights into watershed and ecosystem health.
- *River Explorers:* Guided kayak excursions on local rivers to observe and document watershed conditions.
- *Annual Teacher and Student Training:* proper sampling techniques, data analysis and provide access to resources and experts in current watershed issues.
- *River Watch Forum:* Annual event challenging students to learn and share about emerging local watershed issues.
- *Real-Time Monitoring:* Students build, deploy and maintain real-time water quality monitoring stations. Data analyzed and used to characterize stream water quality.
- *River of Dreams:* A cross-curriculum watershed education program tailored to elementary students. Participants learn watershed terminology and how their sub-watershed fits into their River Basin.

Information and Education Outputs

The Red River Basin RW Program has been an ongoing program for 30 years and has developed numerous information and education outputs throughout the years. Recent outputs including training materials, videos, virtual activities, education opportunities, and newsletters can be explored on the International Water Institute Education Website.



MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

RRWMB 2024/2025 Legislative Pass Through Grant Workplan & Budget

Doc Type: Contract

SWIFT Contract number:
Purchase Order number:
Agency Interest ID:
Activity ID:

Project title: Red River Basin River Watch 2024-2025

1. Project summary:

Organization: Red River Watershed Management Board
Contractor contact name: Danni Halvorson
Title: Education and Monitoring Director
Address: 11 East 5th Ave Ada MN, 56510

Phone: (218) 290-0515
Email: danni@iwinst.org

MPCA project manager: Kelly O'Hara
Title: Program Coordinator

Phone: (651) 757-2226
Email: kelly.ohara@state.mn.us

Project information

***Counties:** Kittson, Roseau, Marshall, Red Lake, Pennington, Polk, Beltrami, Clearwater, Mahnomen, Norman, Clay Becker Ottertail, Wilkin, Grant, Stevens, Traverse and Big Stone
Start date: 4/1/2024 **End date:** 3/31/2026
Total cost: $326,000.00
***Full time equivalents:**

***Major watershed(s):**

☒ Red Lake River	☒ Red Rvr of the North Tamarac River	☒ Bois d Sioux River	☒ Thief River	☒ Buffalo River
☒ Two Rivers	☒ Mustinka River	☒ Roseau River	☒ Clearwater River	☒ Red Rvr of the North Marsh River
☒ Red Rvr of the North Sandhill River	☒ Otter Tail River	☒ Snake River	☒ Red Rvr of the North Grand Marais Creek	☒ Thief River

***Organization type:** ☒ Non-Profit

***Project type:** ☒ Education/Outreach/Engagement ☒ Monitoring ☒ Research

Brief project summary

MN Legislative Clean Water Fund funding ($326,000) to the Red River Watershed Management Board for the River Watch Program. River Watch (RW) enhances watershed understanding and awareness for tomorrow's decision-makers through direct hands-on, field-based experiential watershed science. Schools throughout the Red River of the North Basin participate in a variety of unique and innovative watershed engagement opportunities suited to their school, community, and watershed needs

Goal of project

Non-point source pollution is the leading source of water quality impacts on rivers and lakes. In the Red River Valley, as elsewhere in Minnesota, citizen involvement is crucial to identifying and reducing problems from non-point source pollution. This project will build on the foundation of the existing Red River Basin River Watch program.

The River Watch program will be delivered through an effective working partnership between local schools and communities; local, state, and federal agencies; and academic institutions throughout the Red River Basin (https://iwinst.org/mesmerize/watershed-education/). The Red River Watershed Management Board (RRWMB) will be the project sponsor with lead coordination and project management provided by the International Water Institute.

2. Workplan detail

Objective 1: RIVER OF DREAMS: Engage elementary students in River of Dreams (ROD) a hands-on education program focused on the valuable river resources of the Red River Basin. Provide integrated classroom and outdoor experiences that; build awareness of river ecosystems and watershed connections, increase student capacity to make informed decisions about their environment and instill a sense of place about the uniqueness of their local watershed—historic, economic, and ecological.

Task A: Secure participation and implement ROD activities in 90 elementary classrooms in the Red River Basin.

Subtask 1: School contacts to solicit classrooms to be involved. Identify lead teacher and determine the number of students to be involved. Completed January 2025 (45 classrooms) and January 2026 (45 classrooms).
Subtask 2: School classrooms sessions. Hold classrooms sessions to present materials and go over program expectations. Completed March 2025 (45 classrooms) and March 2026 (45 classrooms).
Subtask 3: Field sessions with ROD participants. Release of individual ROD canoes and review of watershed lessons learned by students. Completed June 2024 (40 sessions) and June 2025 (45 sessions).
Subtask 4: Teacher evaluation of implementation, problems, and highlights of ROD activities, as well as pre/post surveys of students. Results will be reported as part of Final Report due March 31, 2026.

Task B: Purchase ROD materials, assemble classroom packets and Data entry.

Subtask 1: Purchase classroom resources; books, art supplies, canoes and canoe labels. Ongoing completed February 2026.
Subtask 2: Package classroom resources for delivery including canoe assembly. Ongoing completed February 2026.
Subtask 3: Create canoe pages and enter canoe tracking information into the ROD database. Ongoing completed March 2026.

Objective 2: RED RIVER EXPLORERS PADDLING PROGRAM: Increase awareness and knowledge of local land use and watershed connections through a Red River Explorers Paddling Program to allow RW teams and community members to "water-truth" streams in the Red River Basin, documenting local watershed conditions.

Task A: Red River Explorers Paddling Program river route determinations to allow RW teams and community members to safely explore and document river conditions.

Subtask 1: IWI paddling staff scout rivers at different water levels to assess safety and water levels needed for safe passage by RW student exploratory teams. Ongoing through 2025.
Subtask 2: Equipment and materials purchased for river trips and documenting field conditions. Completed July 2025.

Task B: Lead 8 guided river ecology excursions in both 2024 and 2025 on various reaches of rivers in the Red River Basin.

Subtask 1: Sixteen guided river ecology excursions in the Red River Basin, all utilizing GPS and mapping/photo documentation of baseline geomorphology and recreation conditions. Completed November 2025.
Subtask 2: Create and share information from river trips on IWI website via on-line map and multimedia reports. Reports may include the following; number of trip participants, river route and reaches covered, photo-documentation of river conditions, and a summary of observations by trip participants on river conditions and recreation suitability. Completed December 2025.

Subtask 3: Final Report to include river miles explored, number of participants and links to all of trip reports Completed March 31, 2026.

Task C: Watershed Connections: Macroinvertebrates and outreach.

Subtask 1: Provide macroinvertebrate monitoring resource materials and equipment for RW schools with assistance from IWI staff. Ongoing over contract period, completed December 2025.
Subtask 2: Produce and distribute a quarterly electronic newsletter that promotes watershed education and awareness in the Red River Basin. 8 newsletters developed over the contract period. Completed April 2026.
Subtask 3: Participate in 2-3 Red River Basin Water Festivals. Lead activities related to relevant watershed issues (water quality, flooding, groundwater, AIS). 500-700 grade school students each year. Completed November 2025.
Subtask 4: Provide ROD and River Explorer experiences at local science academies and camps. 1-2 events each year. Completed November 2025.

Objective 3: STEM ASSISTANCE: Assist in provision of Science, Technology, Engineering and Math (STEM) education and engagement opportunities through watershed science.

Task A: Provide professional teacher development through watershed inquiry and education opportunities. Regional fall kick-off events, incorporating team building skills, local watershed project presentations and data interpretation will be held for RW teachers and youth leaders. Training sessions will be held for teachers and RW team captains to provide extended learning opportunities on watershed topics such as river ecology, watershed connections, water quality monitoring, and biological monitoring.

Subtask 1: 2-3 regional fall kick-off events in both 2024 and 2025 two summer teacher/youth training sessions. Summary report will be provided to document participants at regional kick-off events, topics covered, and evaluation comments from participants. A summary report will also be provided for the trainings documenting participation and materials presented. Completed December 2025.

Task B: Utilize the annual River Watch Forum to provide exposure to relevant research topics and an opportunity to present findings from current watershed education involvements. Provide opportunities for youth to engage in scientific research and outreach.

Subtask 1: River Watch Forum presented each year with keynote speaker and concurrent sessions focused on emerging watershed education, natural resource careers, and research. Poster displays, written reports and/or video presentations of assigned research topics, service learning projects and special investigations by RW teams in collaboration with watershed partners. Completed April 2026.
Subtask 2: Summary report written to document participating RW teams/schools and highlighting awards and watersheds represented in research, with links to posters. To be completed and included in Final Report due March 31, 2026.

Task C: Complete K-3 analysis of watershed education gaps, develop classroom action plan to address gaps, and implement a pilot project to improve K-12 watershed education programming in the Red River Basin.

Subtask 1: Solicit currently involved school districts for interested K-3 educators to participate in; 1) identification of current watershed education programming and 2) creating projects to fit within K-3 standards to achieve desired outcomes that meet state standards. Completed October 2024.

Subtask 2: Create a project team to develop an action plan to limit educational gaps in watershed education programming. Project team members will include IWI staff, K-3 educators, elementary administrators, graduate students, and higher ed professors. The team will document standards and create learning objectives for the pilot. Completed December 2024.
Subtask 3: Develop pilot project documents, materials, and classroom activities utilizing the expertise of the project team members. Completed February 2025.
Subtask 4: Implement project in 5 schools within the Red River Basin. Assess project activities and learning outcomes. Completed March 2026.
Subtask 5: Summary report written to document participating schools, project activities and outcomes. To be completed by March 31, 2026 and included in the Final Report.

Objective 3: OVERSIGHT: Project Management and Reporting

Task A: Track project grant-related expenditures. Compile and organize invoices, pay bills and submit for expense reimbursements in a timely manner.

Subtask 1: Grant-related expenditures tracked, bills paid and expense reimbursements submitted at least quarterly.

Task B: Track objectives, tasks, and FTE to ensure outcomes are being met. Prepare and complete reports and results from the Red River Basin River Watch program as follows:

Subtask 1: Report on appropriation expenditure to Commissioners of Education, MPCA and Legislative

Committees by February 15, 2025.
Subtask 2: Final report of project outcomes and budget/FTE results by March 31, 2026 to the MPCA project manager.
Subtask 3: Annual site visit with MPCA project manager. Dates TBD.

3. Measurable outcomes

- School contacts established and classroom/field sessions held.
- ROD data entered and tracked\
- Guided river ecology excursions completed and reported online.
- Macroinvertebrate monitoring resource materials provided and newsletters published.
- Participation at Red River Basin Water Festivals and local science academies/camps.
- K-3 watershed education pilot established and classroom/field sessions held.
- STEM Kickoff event participation.
- River watch Forum presentation.

4. Project budget

Total Budget		
Staff total cost*		*$273,500.00*
Travel reimbursement **		*$ 20,500.00*
Equipment and supplies		*$ 32,000.00*
	Total:	***$326,000.00***

Estimated FTE: *2.25* *(Final Report shall include actual FTE)*

**** Staff rates shall not exceed the following:***	
Staff 1 rate: Monitoring and Education Spec. (1)	*$ 46*
Staff 2 rate: Monitoring and Education Spec. (2)	*$ 48*
Staff 3 rate: Education and Monitoring Spec.	*$ 52*
Staff 4 rate: Project Specialist	*$ 79*
Staff 5 rate: Monitoring and Ed Director	*$ 91*

***Must follow IRS Mileage Rates within the Commissioner's Plan*