



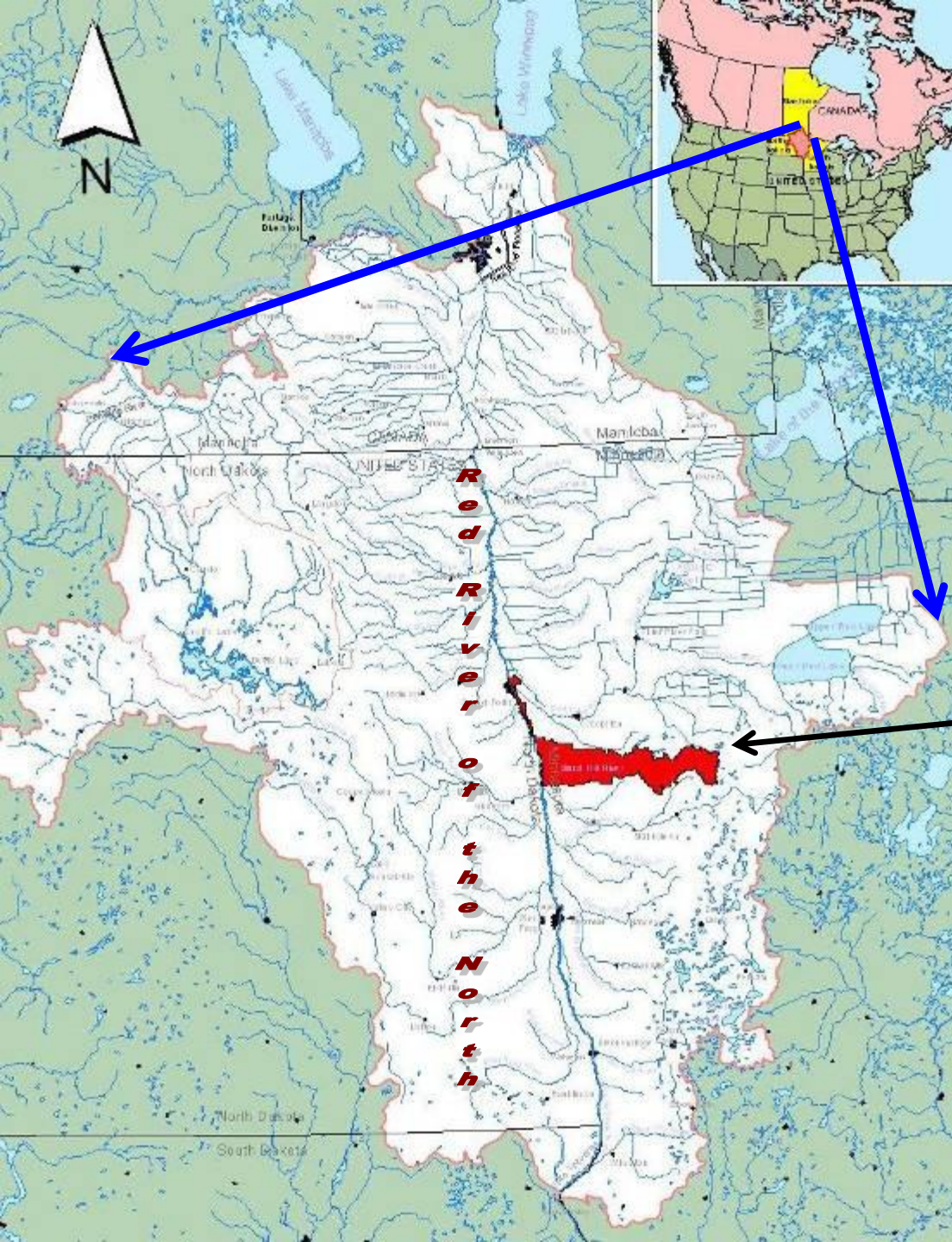
# Red River Basin Watershed Science

Rigor, Relevance, Relationships



# River Watch Origins in Red River Basin

In 1995 four schools in the Sand Hill River watershed began monitoring sites along the Sand Hill River via a MN Board of Water and Soil Resources Challenge Grant.



# River Watch Goals

- Understand water's role in the environment and human interactions
- Develop sound science and critical thinking as basis for knowledgeable decision making
- Help meet resource managers monitoring and management needs
- Instill a sense of place in the watershed



# Education Monitoring



# Key Elements in River Watch

Standard methods, Thorough training,  
Quality Control



Credible, Comparable, Useful Results

# Change in Program - 2002



**For nutrients switch from school to certified labs to assure safety and data validity**



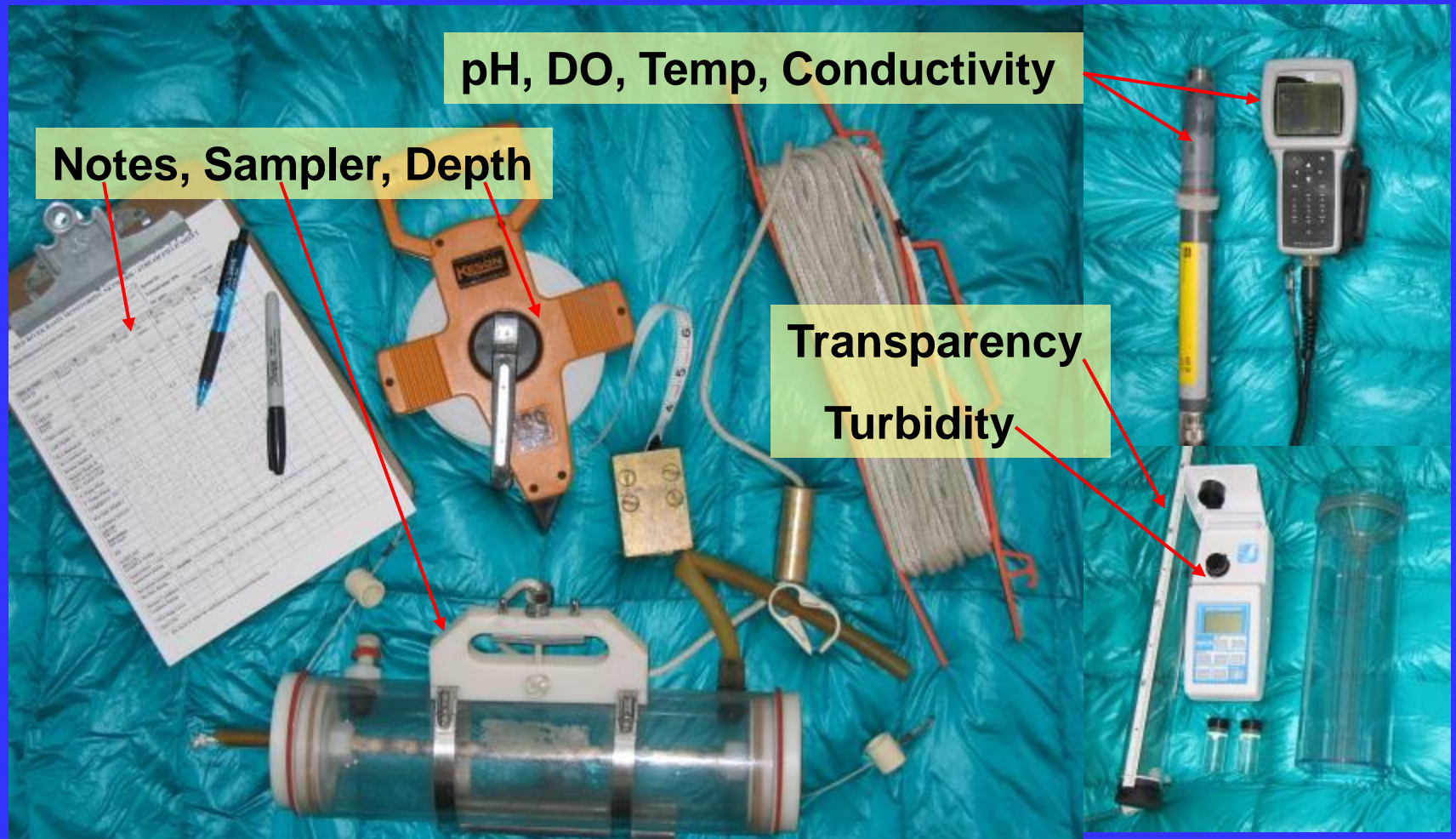
# Field Based Monitoring

Teams of 6-8 high school students/school

Monthly monitoring at 6-8 sites/school  
(April-Oct)

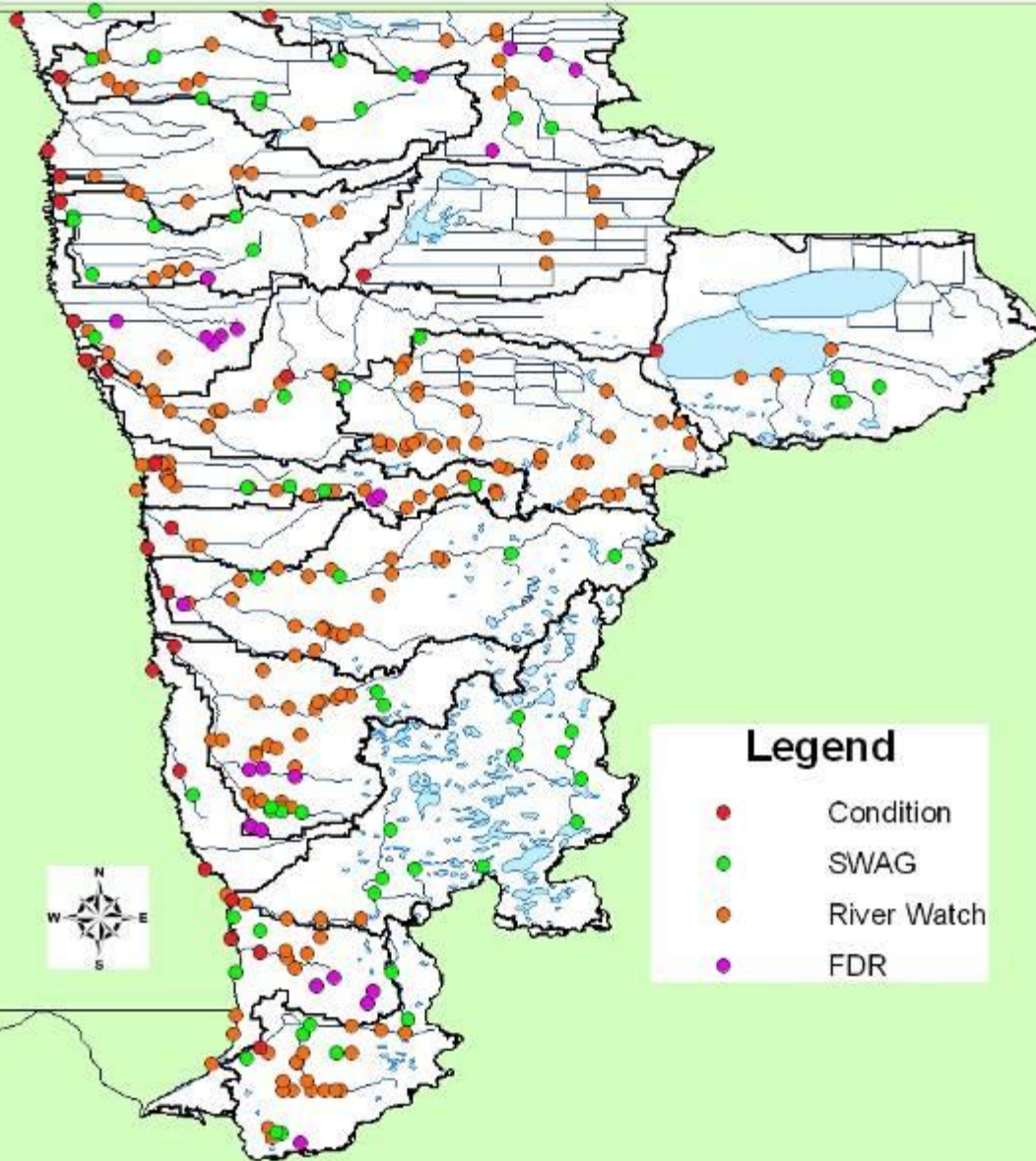


# Field Based River Watch





## Red River Basin Monitoring Network Partners and Projects



Map Created by DLH, RRRWMB

# **Monitoring Network Coordination**

**Who's  
monitoring  
What,  
When,  
Where,  
Why,  
and How.**

# River Watch web based Data Management

<http://riverwatch.umn.edu/>

IWI - RRBDIN - River Watch



**River Watch**  
Citizen Monitoring Program



[About](#) [Map](#) [Data](#) [Import](#)

## River Watch

[Log In](#)

Welcome to the River Watch website. Use the tabs above or the links below to navigate the site.

### About River Watch

[Samplers](#)

[Sites](#)

[Log In](#)

[Request Account](#)

[Contact Us](#)

Overview of the program, forms and resources.

Active contributors to the River Watch program

Monitored sites and their locations

Log in to your River Watch Sampler account

Request a sampler account

Questions? Comments? Let us know.





# River Watch Data site: <http://riverwatch.umn.edu/>

- Download in various formats
- Graphing options for parameters



Home Samplers Sites Data Options Admin

IWI - RRBDIN - River Watch

## Data for RR6 (S000-557)

Logged in as goeken | Log Out

Only showing visits recorded for the REDRIVER project. Change Filter...

Data: 93 Visits to RR6  
Download: CSV | Excel | STORET  
Show All Fields

up  
TWO1  
RR5 > RR6


First: 2003-04-08  
Latest: 2007-10-15  
Year: all

Sampler	Date	Time	QA	Ammonia (mg/l)	Conductivity (µΩ/cm)	Dissolved Oxygen (mg/l)	Lab Turbidity (NTU)	NO2 (mg/l)	NO3 (mg/l)	OP (mg/l)	pH	Stage (Depth) (ft)	Sulfate (mg/l)	TKN (mg/l)	Total Chloride (mg/l)
RRBMN	10/15/2007	9:18			1232			0.06	0.036	8.48					0.
RRBMN	09/11/2007	9:30			870	9.37		<0.02	0.142	8.53					0.
RRBMN	08/13/2007	8:23			879	8.02		0.42	0.167	8.34					0.
RRBMN	07/23/2007	10:05			832	5.92		0.47	0.236	7.97					0.
RRBMN	07/10/2007	12:19			730	5.91		0.53	0.26	7.94					0.

- Several graphing options available
- Upstream/downstream comparisons
- Customize graph options (multiple sites, fields, etc.)

## Turbidity at SH1

Logged in as goeken | Log Out

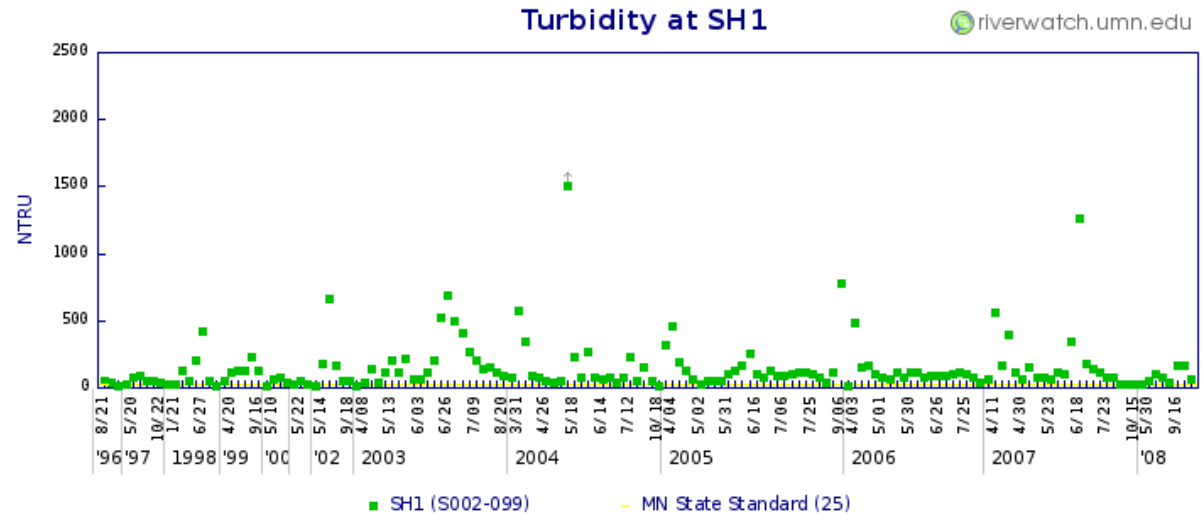
Turbidity 

up	down
CD12W	CL20
— SH1	—

SH1

Reference: None | Site Average | MN State | RRV Ecoregion | Valid Range

**Use Support:** Not Supporting (93.2% exceeding)



Customize this graph...



# River Watch Forums



- Annual gathering of River Watch Schools:
- Learn new skills,
  - Share data and report results,
  - Receive recognition and awards for service to community and watershed

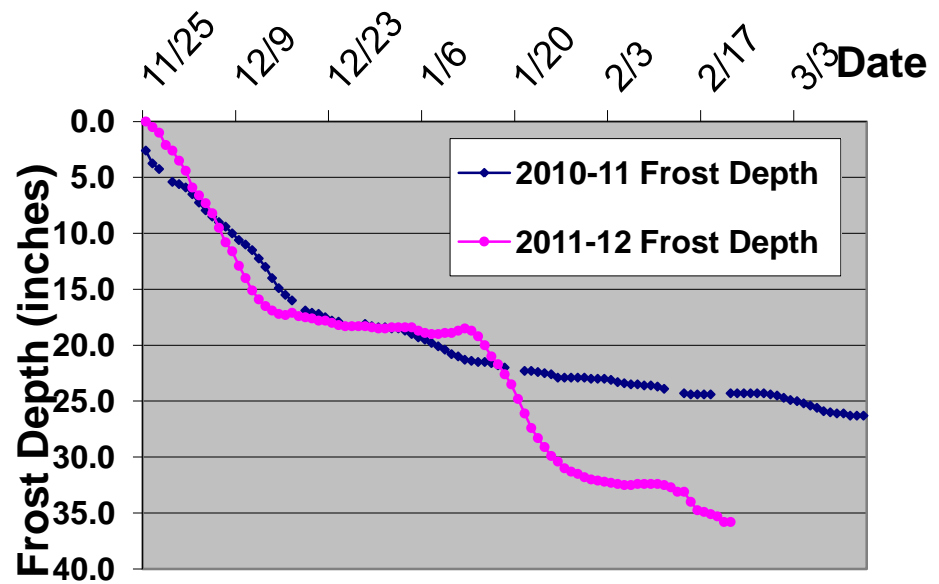
# Applied Research

- Applied research on current watershed issues
- Collaborative research projects
- Scientific methods and skills development
- Data sharing and analysis tools development
- Results influence decisions and actions for sustainable watersheds and communities

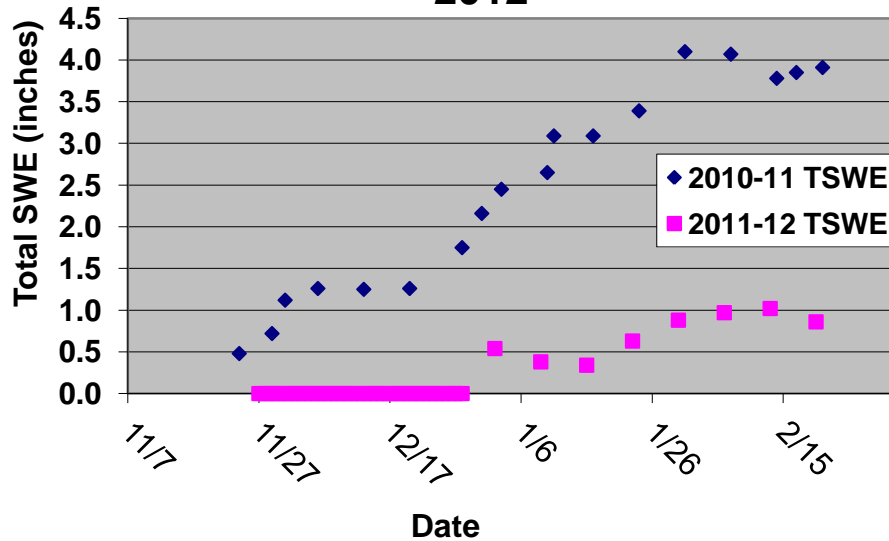


# SNOW STUDY

## Frost Depth - 2011-2012



## Total Snow Water Equivalency 2011-2012



# Biological Monitoring



Holistic, integrated  
watershed health





# Biological Assessment of Sediment Health



# Curriculum Integration

- Focus on priority watershed science topics including flooding
- Address state and national science standards
- Integrate across grade span and subject areas
- Connect Educators with Resource Managers - “Real World”





# Youth Leadership & Community Engagement





# Assist with Water Festivals



*Stephen/Argyle*

# *Science Camp*





# ~~Watershed Connections~~

**Adopt a River ~ ~ River Clean-up...**



**...& Canoeing**



# *River of Dreams*



# Watershed Science Opportunities



- Watershed education
- Applied research
- Promote engagement
- Build partnerships
- Leverage resources
- Enhance basin leadership
- Support more effective learning methods
- Promote youth & volunteers as resources

# Monitoring/Education Partnerships

- Red River WMB
- MN BWSR
- SWCDs/WCDs
- MPCA & EPA
- International Water Institute
- U of M Extension
- NW Reg. Sustainable Dev. Partnership
- Red Lake DNR
- ND Dept. of Health
- Oak Hammock Interp Ctr
- NDSU Extension Service
- Watershed Districts
- RRBasin Commission
- MnDNR
- NW MN Foundation

\*K-12 schools & post-secondary educational institutions\*





**SOUTH CENTRAL  
ECO INSTITUTE**

username:

submit

password:



HOME

ENTER COLLECTED DATA

EXPORT DATA

GRAPH DATA

OUR WATER SITES

WATERSHED MAP

# Prairie Waters

Education & Research Center

♦Valley City State University♦

*Providing environmental  
education and research  
opportunities for students,  
teachers, and professionals  
in North Dakota.*



# Watershed Monitoring



# & Education







Our  
F  
u  
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e



**For more information:**  
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