

**Prepared by: Nancy Sheehan
Volunteer Stream Monitoring Coordinator, The Rock River Coalition**

Monitoring Program

Purpose:

High levels of phosphorus and sediment coupled with low dissolved oxygen levels threaten the health of streams and lakes throughout the Yahara River watershed (YRW). Of the approximately 580 stream miles within the Yahara River watershed, over 39% are currently listed as “impaired” by the Wisconsin Department of Natural Resources (WDNR). These streams do not meet water quality standards established by the Clean Water Act Section 303 (d). One of the main contributors of pollution is phosphorus.

Because many of stream segments within the YRW lacked sufficient in-stream water quality data, the Rock River Coalition (RRC) put forth a proposal to fund an extensive network of citizen stream monitors that could augment existing stream monitoring established by the WDNR, MMSD and USGS. Begun in 2013, this project has two main goals:

- To determine in-stream water quality conditions (status) for streams previously lacking data; and,
- To track changes in stream water quality over time (trends) that may be caused by changing land use and water management practices.

Including volunteer stream monitors in the Adaptive Management Program

- expands geographical coverage to include more stream stretches than might otherwise be possible with more expensive monitoring methods;
- increases the frequency of monitoring; and
- builds greater awareness of the threats to water quality in the Yahara River Watershed.

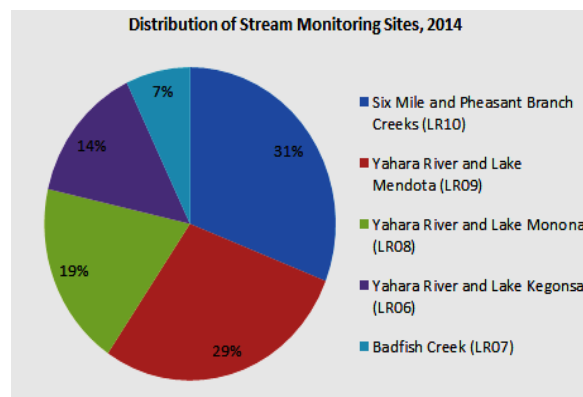


Site Selection:

Volunteer teams monitored a total of 35 stream sites in 2014.

- 2013--volunteers monitored 23 stream sites.
- 2014--21 of the 2013 sites were continued.
- 2014--14 sites were added.

The majority of sites monitored by volunteers were located in three subwatersheds with 31% of the sites located in the Six Mile Creek Pheasant Branch Watershed and 29% of the sites located in the Yahara River Lake Mendota Watershed. Individual sites are listed below.



List of Stream Monitoring Sites By Subwatershed¹

Six Mile and Pheasant Branch Creeks (LR10)

1. Dorn Creek at Meffert Road
2. Six Mile Creek at Highway 113, Waunakee
3. Six Mile Creek at Division Street and Knightsbridge Road
4. Six Mile Creek at Mill Road
5. Six Mile Creek at South Woodland Road
6. Unnamed Tributary at Highway 19, Waunakee Wildlife Area and west of Kuehn Road
7. Pheasant Branch at Airport Road
8. Pheasant Branch at Schneider Road
9. Pheasant Branch between Park Street and Middleton High School
10. Pheasant Branch behind Clark Street Alternative High School
11. Pheasant Branch, Unnamed Tributary in Pheasant Branch Conservancy
12. Willow Creek at Linden Drive Foot Bridge (UW Campus), Madison
13. Wingra Creek at Olin Park, Madison

Yahara River, Lake Mendota Watershed

1. West Branch Yahara River at N. Yahara Road
2. Primary Upper Yahara River at Linden Drive
3. Pine Springs Creek at River Rd
4. Yahara River at Vetran's Park
5. Yahara River at Sunny Brook Park
6. Cherokee Marsh at School Road
7. Token Creek At Daentl Rd
8. Token Creek Millpond at Portage Road Dam
9. Token Creek near Mill Road
10. Token Creek- 10M downstream of Egge Road Crossing

Yahara River and Lake Monona Watershed (LR08)

1. Nine Springs at Jenni and Kyle Preserve
2. Nine Springs at Anderberg Drive, Fitchburg
3. Starkweather Creek at Melvin Ct 200 ft upstream of bike path
4. Starkweather Creek at Hwy 30 underpass, Madison
5. Starkweather Creek at Milwaukee St
6. Starkweather Creek at bike path/Olbricht Gardens, Madison
7. Murphy Creek at Lalor Rd
8. Swan Creek at Lalor Road

Yahara River and Lake Kegonsa (LR06)

1. Door Creek at Siggelkow Road
2. Door Creek at County Hwy MN
3. Keenan's Creek at Keenan Road, Dunn Township
4. Yahara River at Spring Road
5. Yahara River at Prospect St

Badfish Creek (LR07)

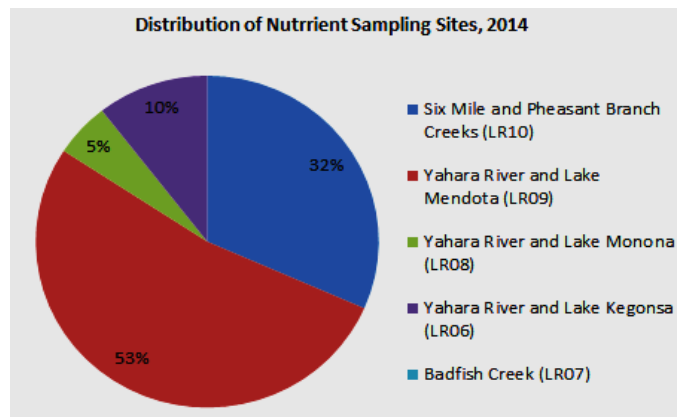
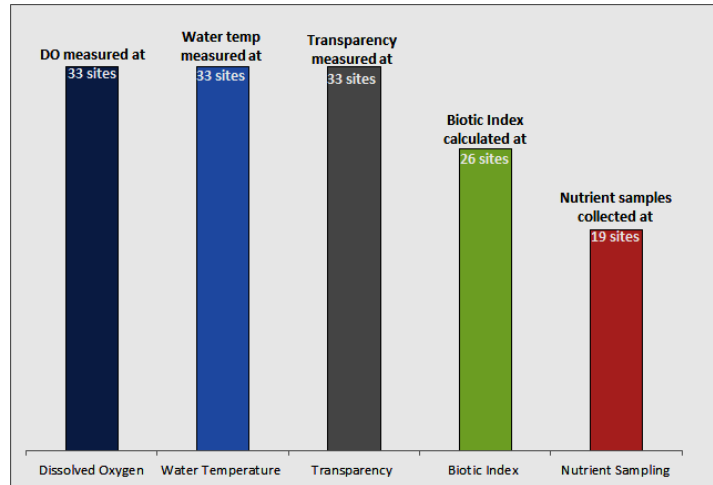
1. Badfish Creek at Old Stage Road
2. Badfish Creek at North Casey Road
3. Rutland Branch at Cty Hwy A

¹ It should be noted that 42 sites were supported at the beginning of the 2014 monitoring season. However, four sites were devoted to outreach and education to schools and the general public. Also three volunteers dropped out of the program. These six sites were not included in the final account of stream monitoring sites.

Program Design:

Using protocols adapted from the Water Action Volunteers program, volunteer teams monitored both chemical and biological parameters including dissolved oxygen (mg/L and %saturation), water temperature (either continuous or instantaneous), transparency, and Biotic Index. Data was collected on a monthly basis from May to October.

Volunteers also collected water quality nutrient samples once a month from May to October at 19 stream sites across the Yahara River Watershed. Volunteers delivered these samples to MMSD Nine Springs Plant for analysis. A total of 116 samples were analyzed.² The majority of nutrient sampling sites were located in the upper Yahara River Watershed with 53% of the sites located in the Yahara River Lake Mendota Watershed and 32% of the sites located in the Six Mile Creek Pheasant Branch Watershed. Individual stream sites included in the 2014 nutrient sampling program are listed below.



² A subset of sites was included in a winter monitoring program. Volunteers continued to collect samples for the months of: November, December, February and March. This report includes results from the 2013-2014 winter sampling program.

List of 2014 nutrient sampling sites by subwatershed

Six Mile and Pheasant Branch Creeks (LR10)

1. Dorn Creek at Meffert Road
2. Six Mile Creek at Highway 113, Waunakee
3. Six Mile Creek at Mill Road
4. Six Mile Creek at South Woodland Road
5. Pheasant Branch at Airport Road
6. Pheasant Branch at Schneider Road

Yahara River, Lake Mendota Watershed

1. West Branch Yahara River at N. Yahara Road
2. Primary Upper Yahara River at Linden Drive
3. Pine Springs Creek at River Rd
4. Cherokee Marsh at School Road
5. Token Creek At Daentl Rd
6. Token Creek Millpond at Portage Road Dam
7. Token Creek near Mill Road
8. Token Creek- 10M downstream of Egge Road Crossing

Yahara River and Lake Monona Watershed (LR08)

1. Nine Springs at Anderberg Drive, Fitchburg

Yahara River and Lake Kegonsa (LR06)

1. Door Creek at County Hwy MN
2. Yahara River at Prospect St

Data Management:

Volunteers entered all water quality data directly into either the Water Action Volunteers program database or the WDNR Surface Water Integrated Monitoring System (SWIMS) database. As of January 2105, these two databases have been merged. All volunteer collected data can now be accessed by third parties through the WDNR Surface Water Data Viewer (SWDV). At present, results from the nutrient sampling are held by MMSD. MMSD has plans to work with a new lab information management system that will include data transfer capabilities from MMSD to WDNR SWIMS database.

Reporting:

The RRC coordinator has published site reports for all volunteer stream monitoring sites funded through the Yahara WINs grant. These site reports have been posted to on the Rock River Coalition website.

One of the objectives of the citizen stream monitoring program is to measure monthly total phosphorus concentrations (mg/L) and analyze the results in terms of the numeric total phosphorus criteria established by Wisconsin in 2010. According to the Wisconsin state standard the median total phosphorus concentrations for a six month period are not to exceed 0.075 mg/L for all rivers and streams in the Yahara River watershed with one exception. The phosphorus standard for the Yahara River from the outlet of Lake Kegonsa to the Rock River is 0.1 mg/l. The following charts report cumulative results for total phosphorus concentrations (mg/L) for all sites included in year one (2013) and year two (2014) of this project.

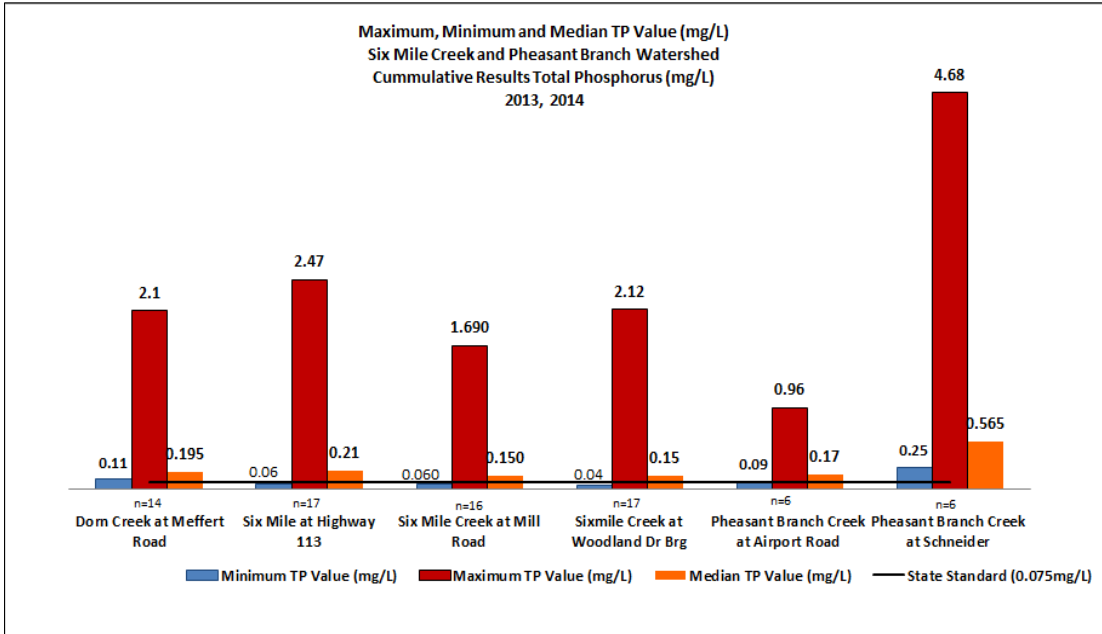
Nutrient Samples Submitted by Volunteer Teams to MMSD, 2013-2014

	# Samples Submitted 2013	# Samples Submitted 2014	Total # of Samples Submitted
Six Mile Creek and Pheasant Branch Watershed			
Dorn Creek at Meffert Road	8	6	14
Six Mile at Highway 113	8	9	17
Six Mile Creek at Mill Road	8	9	17
Sixmile Creek at Woodland Dr	8	8	16
Pheasant Branch Creek at Airport Road	0	6	6
Pheasant Branch Creek at Schneider	0	6	6
Six Mile Creek and Pheasant Branch Watershed			
West Branch Yahara River at N. Yahara Road	0	5	5
Primary Upper Yahara River at Linden Drive	0	6	6
Pine Springs Creek at River Rd	0	4	4
Cherokee Marsh at School Road	0	6	6
Yahara River at Sth 113, Madison	0	6	6
Token Creek At Daentl Rd	0	5	5
Token Creek Millpond at Portage Road Dam	0	6	6
Token Creek near Mill Road	0	7	7
Token Creek- 10M downstream of Egge Road Crossing	0	7	7
Yahara River and Lake Monona Watershed			
Nine Springs at Anderberg Drive	0	6	6
Yahara River and Lake Kegonsa Watershed			
Door Creek at Highway MM, McFarland	0	6	6
Yahara River at Prospect Street, Stoughton	8	8	16
Totals	40	116	156

Monthly concentrations of total phosphorus (mg/L) for streams sampled within four subwatersheds in the Yahara River Watershed.

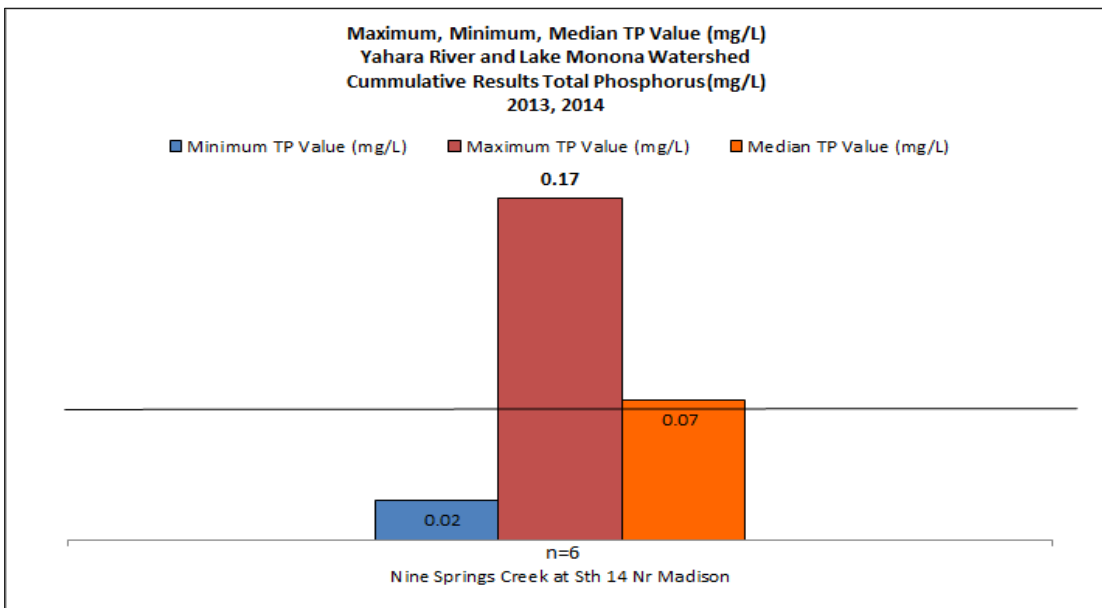
Six Mile and Pheasant Branch Creeks Watershed

The median total phosphorus concentrations for all 6 stream sites included in the nutrient sampling program exceeded the state standard for phosphorus of 0.075 mg/L.



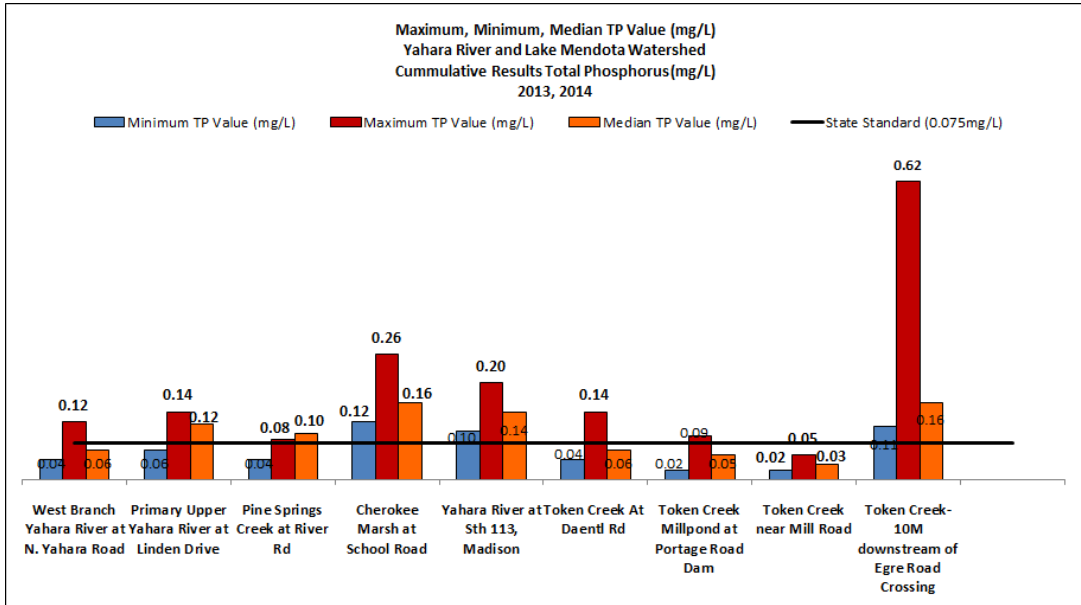
Yahara River and Lake Monona Watershed

The median total phosphorus concentrations for the 1 stream site included in the nutrient sampling program exceeded the state standard for phosphorus of 0.075 mg/L.



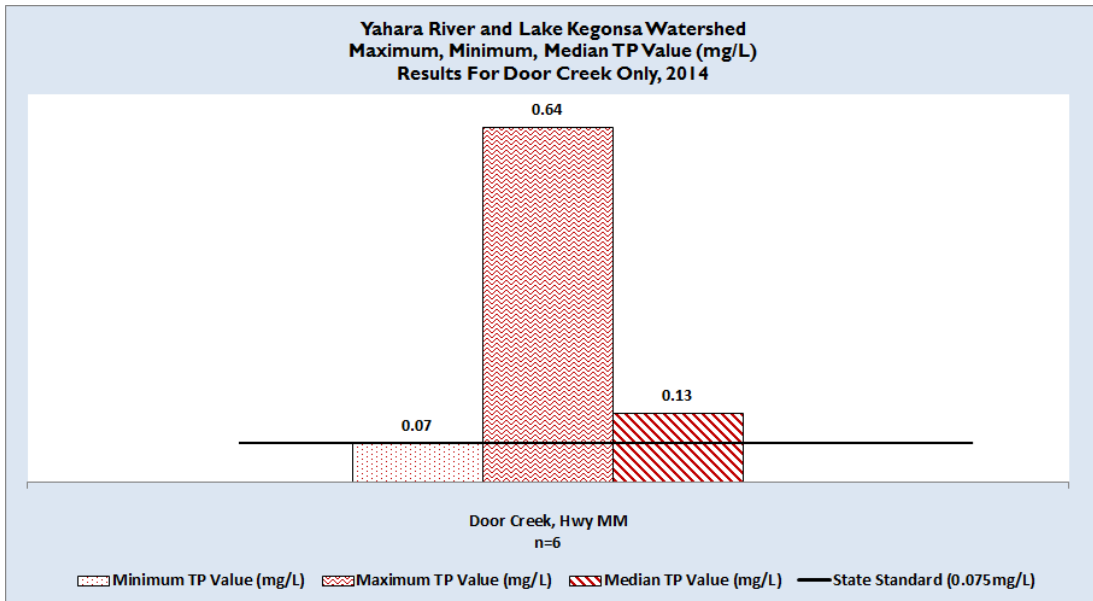
Yahara River and Lake Mendota Watershed

The median total phosphorus concentrations for 5 of the 9 stream sites included in the nutrient sampling program exceeded the state standard for phosphorus of 0.075 mg/L.



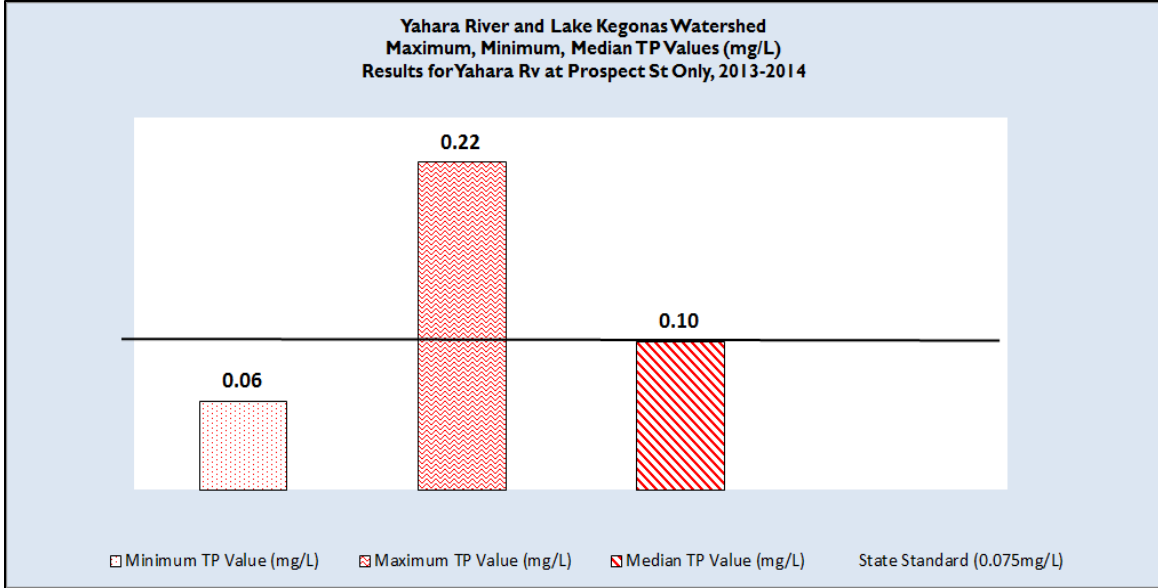
Yahara River and Lake Kegonsa Watershed—Door Creek

The median total phosphorus concentrations for the 1 stream site included in the nutrient sampling program exceeded the state standard for phosphorus of 0.075 mg/L.



Yahara River and Lake Kegonsa Watershed—Yahara River at Prospect St., Stoughton

The median total phosphorus concentrations for the 1 stream site included in the nutrient sampling program met the state standard for phosphorus of 0.1 mg/L. exactly.



Volunteer Program:

Training:

The RRC coordinator organized and facilitated four training workshops. Trainings were held in the Village of DeForest Library and Cambridge Amundson Center. A total of 52 participants attended.

Estimating Volunteer Contributions:

Volunteers contributed an estimated 433 hours to monitor water quality throughout the Yahara River watershed. These volunteer hours represent a monetary value of \$9,418.

Retention Rate:

There was a 93% retention rate of volunteer teams throughout the 2014 stream monitoring season (only 3 out of 42 volunteer teams dropped out of the program).

Educational Events:

The RRC coordinator worked with Friends of Pheasant Branch Kids for the Earth Program to facilitate two field trips for youth attending summer camp through the Middleton/Cross Plains School District. Approximately 20 youth engaged in various stream monitoring activities. Funding for these outreach events were provided by Dane County Environmental Council Grant in support for the overall water quality improvement efforts undertaken by Yahara WINS.

The RRC coordinator also worked with Friends of Yahara River Headwaters to support two educational programs including working with Village of DeForest high school students and a summer camp for youth. Funding for these educational programs were provided by Friends of Yahara River Headwaters to support greater awareness of water quality in the Yahara Headwaters.

The RRC coordinator supported the Recreational Program Coordinator with the Village of Waunakee to conduct stream monitoring open to various participants. Funding for this support was covered by the Yahara WINS grant.

Workshop for volunteers and watershed groups:

Working with the River Alliance of Wisconsin and Dane County Office of Lakes and Watersheds, the RRC stream monitoring coordinator organized and facilitated a workshop for partners and volunteer stream monitors. The overall goals of this workshop were:

- To update participants on the adaptive management process.
- To give a brief overview of what we are learning from volunteer stream water quality monitoring funded through Yahara WINS work as well as USGS stations.
- To provide case studies on how local groups might engage in stream restoration work
- To create an opportunity for peer networking.



This workshop took place on February 28th (9:00AM to 12:30PM) and was held at the Fitchburg Community Center. A recap of this workshop with workshop agenda can be found in Appendix #2 and #3.

Site Reports:

The RRC coordinator has published site reports for all volunteer stream monitoring sites funded through the Yahara WINS grant. These site reports have been posted to on the Rock River Coalition website. These reports present data summaries for total phosphorus, dissolved oxygen, water temperature and transparency.

Appendices

Appendix #1: Year 2 Project Budget, 12/2014

Appendix #2: Recap of Celebrating Our Streams Workshop

Appendix #3: Celebrating our Streams Workshop Agenda

Appendix #1: Year 2 Budget Summary

Yahara WINS Contract - \$20,875								
End of Year 2 Report								
	Yahara WINS Budget	Fringe & equip adjust	amendment	Yahara Budget	Partner Contributions**	Total Budget	Total Expenses January 2014-March 2015	Balance Left On Contract
	\$20,875.00			\$20,875.00	\$3,100.00			
Nancy's time (hr)	\$496.74	\$31.00	\$26.00	\$553.74	\$45.25	\$598.99	\$598.99	\$0.00
Nancy's pay + fringe (22.10/hr)	\$10,978.00	\$685.10	\$574.60	\$12,237.70	\$1,000.00	\$13,237.70	\$13,237.68	\$0.02
Nancy - Mileage	\$283.00			\$283.00		\$283.00	\$631.50	-\$348.50
Misc project Costs Room reservations, Materials Develop	\$150.00			\$150.00		\$150.00	\$151.97	-\$1.97
Administration	\$450.00			\$450.00		\$450.00	\$439.18	\$10.82
Equipment*	\$9,014.00	-\$6,580.46		\$2,433.54	\$2,100.00	\$4,533.54	\$4,193.91	\$339.63
Totals	\$20,875.00			\$15,554.24	\$3,100.00	\$18,654.24	\$18,654.24	\$0.00
** Friends of Yaraha Headwaters Village of Deforest = 2500 (1,500 equipment, 1,000 time)								
** Town of Windsor, Token Creek Conservancy Committee = 600								
Year 2 equipment paid for with Year 1 money =					\$6,580.46			
Equipment								
Ben Meadows, April					\$1,148.93	<i>(additional amount paid for in Year 1)</i>		
Ben Meadows shipping, May					\$26.56			
various equipment, May					\$62.77			
UWEX level 1 kits, June					\$2,600.00			
Walgreens, Aug					\$1.39			
Hach, Dec					\$33.04			
YSI Inc, Dec					\$175.22			
Onset, Dec					\$146.00			
Money for Year 2 Equipment that was paid with Year 1 money					\$6,580.46			

RECAP: Celebrating Our Streams in the Yahara River Watershed

Participation: 30 individuals

Groups represented:

- Friends of Pheasant Branch
- Friends of Starkweather Creek
- Friends of Lake Kegonsa
- Sierra Club Four Lakes
- First Unitarian Society, Water Sentinels
- Token Creek Conservancy Committee
- West Waubesa Preservation
- City of Fitchburg
- Dane County, Office of Lakes and Watersheds
- River Alliance of Wisconsin
- Upper Sugar River Watershed Association
- Rock River Coalition

Suggestions for future gatherings:

- Continue to work with local groups to get engaged
- Get press coverage
- Work with neighborhood associations
- A discussion of how different is what YRW programs are from other watersheds across the state
- Provide more events for groups to discuss project ideas
- Like to find out more about Dane County's work with landowners
- More opportunity to work with watershed groups – partnering
- Schedule a tour of monitoring sites to volunteers can feature their work
- Organize a walking tour of different stream sites to discuss what might be possible in terms of stream restoration
- Fair-like event for municipalities to feature their stream restoration projects

Restoration Projects Mentioned

- Badfish Creek– Japanese knotweed and plantings
- Token Creek-- Japanese knotweed
- Johnson Creek – beginning restoration with the city of Johnson Creek
- Pheasant Branch – Wetland Restoration -- drain tiles removed -- Middleton restoration project – AIS including reed canary grass. Active monitoring efforts
- Starkweather Creek – with City of Madison Carpenter Ridgeway community, MATC, Voigt wetland restoration project
- Upper Sugar River Watershed Association – purple loosestrife, clean up for canoe trail, prairie restoration
- Fitchburg – urban greenway, McKee Farm Park

Celebrating Our Streams in the Yahara River Watershed

When: 28 February 2015 From 9:00AM To 12:30PM

Where: City of Fitchburg Community Center, 5510 Lacy Road, Fitchburg

Time	Session	Activity/Presenters/Panelist
9:00-9:15	Registration	
9:15 – 9:30	Welcome & Introductions	
	“Eco-Community Cinema”	“Hidden Creek” a mini-documentary by Freshwater Illustrated
9:30-10:15	Monitoring of water quality for adaptive management in the Yahara River Watershed	Ralph Erikson, Madison Metropolitan Sewerage District
	Moderator: Nik Simonson, Dane Co. Office of Lakes & Watersheds	Nancy Sheehan, Rock River Coalition Todd Stuntebeck, WI Water Science Center, USGS
10:15-10:30	Break—Coffee and Tea	
10:30-12:00	Stream Restoration Panel	Faith Fitzpatrick, WI Water Science Center, USGS
	Moderator: Allison Werner, River Alliance of Wisconsin	Bob Hansis, retired WDNR water management specialist Wade Moder, Exec. Dir., Upper Sugar River Watershed Association Steve Richter, The Nature Conservancy
12:00-12:30	“Eco-Community Cinema” Mix and Mingle	“Urban Waters: Restoring the Bronx River” a mini-documentary by Wildlife Conservation Society

*For more information contact Nancy Sheehan, nancy@rockrivercoalition.org/608-233-7758
Volunteer Stream Monitoring Coordinator, The Rock River Coalition*