



**Instructions on Page 5**

## I. Project information

Project title: Event Based Stream Sampling in Northeastern Minnesota 2014-2015

**Local Partner information:**

Organization name: Regents of the University of Minnesota  
Natural Resources Research Institute

Street address: Regents: SPA/200 Oak St  
NRRI: 5013 Miller Trunk Hwy

City: Regents: Minneapolis  
NRRI: Duluth State: MN Zip code: Regents: 55455-2070  
NRRI: 55811-1442

Project PI: Elaine Ruzycski Phone: 218.788-2737

Primary contact name: Grant-Contract Admin: Claudia Carranza Phone: 218.726.8342

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Fiscal contact name: Kerry Marsolek, Sr. Financial Manager Phone: 612.624.8053

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Field contact name: Jerry Henneck Phone: 218.788.2721

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**Reporting period:**

Start date: 1/1/2015 End date: 6/30/2016  
(mm/dd/yyyy) (mm/dd/yyyy)

**Project details:**

Basin (check all that apply):

Red River  Rainy River  Lake Superior  Minnesota  Lower Mississippi  St. Croix  Upper Mississippi

Major Watershed(s): St Louis, Cloquet, Rainy Hydrologic unit code(s): 04010201, 04010202, 09030001

Name of eligible laboratory: ERA Laboratories, Inc. bought out by PACE Analytical in 2015

How many full-time equivalents (FTEs) worked on this project (total project hours/2,088 hours): 1.20 (Based on workplan estimates. Hours were not tracked in FY12 therefore the FTE proposed in the workplan was used.)

## II. Activities completed

**Table 1: Workplan activities**

1. **Please list activities completed during the reporting period. Include task level detail as appropriate. Please separate activities by calendar year, if applicable.** Refer to the instructions for examples. (Insert more rows as needed by hitting the tab key in the last row/column.)

Objective	Description
Obj 1: Data Collection	The field meters were calibrated prior to each sampling event and recorded into a log sheets. Ice out occurred approximately mid-March-early April and 20-25 samples (29 for Kawishiwi, a major

watershed) were collected at all eight sites from this point through October 31 using methods described in the WPLMN SOP. See Table 2 for specific details on samples collected. Two field duplicates were collected at each site. Sampling continued monthly during the winter for the one major watershed site on the Kawishiwi R. (sampled monthly from November 2015 through January 2016).

We also met with DNR staff at several project stream sites to become familiar with stream gauging and sampling location details.

The majority of call-in meetings were attended.

Obj 2: Project Management	Invoices were submitted monthly. Invoice issues were resolved in 2016. An interim progress report was submitted in January 2015 and a final report in June 2016. Grantee personnel attended WebEx training sessions held March 9, March 11 and April 15 in 2015.
Obj 3: Data Management and Submission	Interim data reports were submitted approximately monthly. Field calibration logs, site inspection notes, photos, and field data were submitted to MPCA by 10/31/2015. The lab submitted data through Lab_MN. FLUX load estimates for 2013 were made for four streams. The Grantee also participated in several FLUX data result verifications.

**2. Please answer the following questions relating to the deliverables for the project.**

a. Were any changes made to the Quality Assurance Project Plan during the reporting period?

Yes  No Revision date (mm/dd/yyyy): \_\_\_\_\_

If yes, please summarize:

b. Was an Interim Progress Report submitted?

Yes  No Submittal date (mm/dd/yyyy): 1/20/2015

If no, please describe why:

c. If applicable, were FLUX32 pollutant loads submitted to your MPCA Project Manager?

Yes  No  N/A

Please list the sites and years where loads were calculated:

*Second Ck H0315001 - 2013*

*St Louis River @ Forbes H03115001- 2013*

*Swan H03084001- 2013*

*Whiteface H03055001 - 2013*

If no, please describe why:

d. Were you able to attend a majority of the weekly check-in telephone conferences during the project period?

Yes  No

If no, please describe:

e. Was a backup sampler used to collect any of the samples?

Yes  No

If yes, please describe when, who, if they were trained, and any other details:

*Andrea Crouse sampled the Cloquet 7/14/2015 and the Meadowlands/Floodwood streams (SLR Forbes and Floodwood, Swan and Whiteface) on 8/20/15, 8/24/15, and 9/8/2015 as well as SLR Floodwood and Swan on 9/3/2015. Andrea was trained by Ruzyccki and also had prior stream sampling experience.*

**Table 2: Lab analyte summary**

3. Please enter the number of samples collected at each site for each analyte over the reporting period. Refer to the instructions at the end of this report for an example of the completed table. Please describe conditions when either sample count was more or less than what is specified in the workplan. A Microsoft Excel template is also available to complete this table. Please see instructions for more information. (Insert more rows as needed by hitting the tab key in the last row/column.)

Year	Site Type	Stream Name	EQUIS ID	TSS	SVS	Turbidity	OP	TP	NOx	TKN	Comments
2015	subwatershed	Whiteface	S005-763	23	23	23	23	23	23	23	Ice cover during snow melt limited number of samples collected.
2015	subwatershed	Swan	S000-641	27	27	27	27	27	27	27	There were several flood events during May. Upon approval from our MPCA Project Manager, additional samples were collected to capture these events.
2015	subwatershed	St Louis at Forbes	S000-568	24	24	24	24	24	24	24	Ice out was missed and the extra sample was used at another site with more rain events.
2015	subwatershed	St Louis at Floodwood	S005-303	26	26	26	26	26	26	26	There were several flood events during May. Upon approval from our MPCA Project Manager, additional samples were collected to capture these events.
2015	subwatershed	Second Creek	S007-023	22	22	22	22	22	22	22	This creek experienced few runoff events in 2015
2015	subwatershed	Cloquet	S007-610	26	26	26	26	26	26	26	There were several flood events during May. Upon approval from our MPCA Project Manager, additional samples were collected to capture these events.
2015	subwatershed	Stony	S002-811	23	23	23	23	23	23	23	This creek experienced few runoff events in 2015.
2015	major watershed	Kawishiwi	S005-522	29	29	29	29	29	29	29	There was 1 large event of the year which was sampled well. Baseline conditions were well sampled resulting in less samples needed. Only two field duplicates were collected.
2016	major watershed	Kawishiwi	S005-522	1	0	0	1	1	1	1	

Table 3: QA/QC samples summary

4. Please complete the table below. The table should include actual results for the original and duplicate samples over the project period. The RPD should be calculated. Provide additional information in the comments about site conditions, sampling error, etc., if known. A Microsoft Excel template is also available to complete this table. Please see instructions for more information. (Insert more rows as needed by hitting the tab key in the last row/column.)

Stream Name	Date		TSS	RPD	SVS	RPD	Turbidity	RPD	DOP	RPD	TP	RPD	NOx	RPD	TKN	RPD
St Louis at	4/9/15	Sample	3.0	0.0	2.0	66.7	3.6	2.7	0.003	0.0	0.025	48.5	0.07	0.0	0.50	22.2

Forbes		QA/QC	3.0		1.0		3.7		0.003		0.041		0.07		0.40	
St Louis at Forbes	5/15/15	Sample	18.0	5.7	3.0	0.0	20.0	50.0	0.002	66.7	0.084	47.1	0.14	0.0	1.00	9.5
		QA/QC	17.0		3.0		12.0		0.004		0.052		0.14		1.10	
Swan	5/11/15	Sample	8.0	11.8	2.0	0.0	6.6	11.4	0.006	0.0	0.007	0.0	0.35	2.8	0.90	10.5
		QA/QC	9.0		2.0		7.4		0.006		0.007		0.36		1.00	
Swan	5/26/15	Sample	70.0	4.4	7.0	33.3	33.0	0.0	0.003	50.0	0.157	13.6	0.24	0.0	1.20	8.7
		QA/QC	67.0		5.0		33.0		0.005		0.137		0.24		1.10	
Stony	5/11/15	Sample	2.0	0.0	1.0	0.0	2.0	0.0	0.002	0.0	0.019	10.0	0.04	0.0	0.90	10.5
		QA/QC	2.0		1.0		2.0		0.002		0.021		0.04		1.00	
Stony	8/12/15	Sample	1.0	0.0	1.0	0.0	1.6	6.1	0.002	40.0	0.019	10.0	0.02	0.0	0.80	0.0
		QA/QC	1.0		1.0		1.7		0.003		0.021		0.02		0.80	
St Louis at Floodwood	6/9/15	Sample	26.0	3.8	5.0	22.2	24.0	4.3	0.004	0.0	0.077	8.7	0.11	8.7	1.10	0.0
		QA/QC	27.0		4.0		23.0		0.004		0.084		0.12		1.10	
St Louis at Floodwood	5/13/15	Sample	43.0	2.3	4.0	28.6	27.0	3.6	0.006	0.0	0.101	3.0	0.05	0.0	1.00	0.0
		QA/QC	44.0		3.0		28.0		0.006		0.098		0.05		1.00	
St Louis at Floodwood	8/13/15	Sample	6.0	18.2	2.0	66.7	5.0	4.1	0.003	40.0	0.049	0.0	0.19	10.0	0.90	57.1
		QA/QC	5.0		1.0		4.8		0.002		0.049		0.21		0.50	
Whiteface	4/20/15	Sample	6.0	0.0	2.0	0.0	7.8	1.3	0.005	0.0	0.072	1.4	0.08	0.0	1.10	0.0
		QA/QC	6.0		2.0		7.9		0.005		0.071		0.08		1.10	
Whiteface	8/13/15	Sample	3.0	0.0	2.0	66.7	3.8	7.6	0.001	66.7	0.030	0.0	0.01	0.0	0.70	0.0
		QA/QC	3.0		1.0		4.1		0.002		0.030		0.01		0.70	
Kawishiwi	5/20/15	Sample	3.0	0.0	3.0	0.0	1.4	15.4	0.002	40.0	0.017	16.2	0.02	40.0	0.50	0.0
		QA/QC	3.0		3.0		1.2		0.003		0.020		0.03		0.50	
Kawishiwi	6/8/15	Sample	1.0	66.7	1.0	0.0	1.2	15.4	0.001	0.0	0.016	6.1	0.02	0.0	0.50	0.0
		QA/QC	2.0		1.0		1.4		0.001		0.017		0.02		0.50	
Second	4/13/15	Sample	3.0	40.0	2.0	66.7	4.0	11.8	0.003	0.0	0.026	20.7	0.03	28.6	0.50	0.0
		QA/QC	2.0		1.0		4.5		0.003		0.032		0.04		0.50	
Second	4/20/15	Sample	2.0	0.0	1.0	0.0	5.0	3.9	0.003	0.0	0.033	31.6	0.21	0.0	0.60	0.0
		QA/QC	2.0		1.0		5.2		0.003		0.024		0.21		0.60	
Cloquet	5/26/15	Sample	4.0	22.2	2.0	0.0	2.3	12.2	0.001	0.0	0.023	8.3	0.12	0.0	0.80	0.0
		QA/QC	5.0		2.0		2.6		0.001		0.025		0.12		0.80	
Cloquet	8/12/15	Sample	1.0	0.0	1.0	0.0	1.2	15.4	0.002	40.0	0.013	26.7	0.01	0.0	0.60	0.0
		QA/QC	1.0		1.0		1.4		0.003		0.017		0.01		0.60	

Comments:

All field duplicate samples were above detection limits. The majority of field duplicate RPDs were below maximum expected values except for several samples at or near detection limits (e.g. most ortho-P values). Total phosphorus for SLR@Forbes (4/9 and 5/15/2015) and TKN for SLR@Floodwood (8/13/2015) exceeded RPD of 30%. Laboratory QA parameters for these analyses were within limits.

5. Please answer the following questions and provide comments.

Were you comfortable with your level of training and current ability to:

- a. Collect stream samples over the entire range of the hydrograph?  Yes  No

Comments:

- b. Calibrate and use the field meter and equipment?  Yes  No

Comments:

- c. Enter data and information into the MPCA templates and logs?  Yes  No

Comments:

- d. Use the FLUX32 model and submit pollutant load data and supporting information?  Yes  No

Comments:

- e. Complete and submit invoices?  Yes  No

Comments:

*We did have some difficulty in completing the reimbursement spreadsheets but have identified where the problem occurred with assistance from our project manager(s).*

- f. Complete the Interim Progress Report?  Yes  No

Comments:

**6. Describe in detail any problems, delays, or difficulties that occurred in fulfilling the requirements of the workplan. How did you resolve these problems?**

*We had no problems with meeting the requirements of the work plan. We did underbudget for the effort required for the FLUX load determinations and verification sessions as well as for that required for budget management. This resulted in requests to move funds within the objectives to cover personnel costs. We request more flexibility to move funds within objectives without having to submit change orders as long as these requests don't exceed 10% of the original budget.*

**7. Were there any change orders and/or amendments to the contract and workplan? If yes, summarize the changes.**

Yes  No

Comments:

*CO 1 - increased sample number for two sites to allow for continued sample collection through the fall. Executed 10/1/2015*

*CO 2 - updated laboratory change to PACE Analytical (purchased ERA Labs). Executed 10/1/2015.*

*CO 3 - move \$2500 from Obj 1 Personnel into Obj 2 and 3 Personnel. Executed 10/26/2015.*

*CO 4 - moved \$936 from Obj 1 Lab to Obj 1 Personnel and \$1,025.09 from Obj 1 Travel to Obj 2 Personnel. Executed 3/21/2016.*

*CO 5 - several adjustments made to budget to spend down remaining balance. Total moved \$2,312.20. Executed 6/7/2016.*

**8. If there are unspent funds, please list the Objective and Task and explain the reason for the unspent funds:**

*Objective 2 Personnel. There is a balance of \$0.09 due to rounding hourly staff rates. A change order in June 2016 zeroed out the remaining balances in the other line items.*

**9. Please provide any constructive feedback regarding the WPLMN (training, forms, program directives, etc.):**

*HYDSTRA Forms- CANVAS appears to address the issues we had with the HYDSTRA data sheet.*

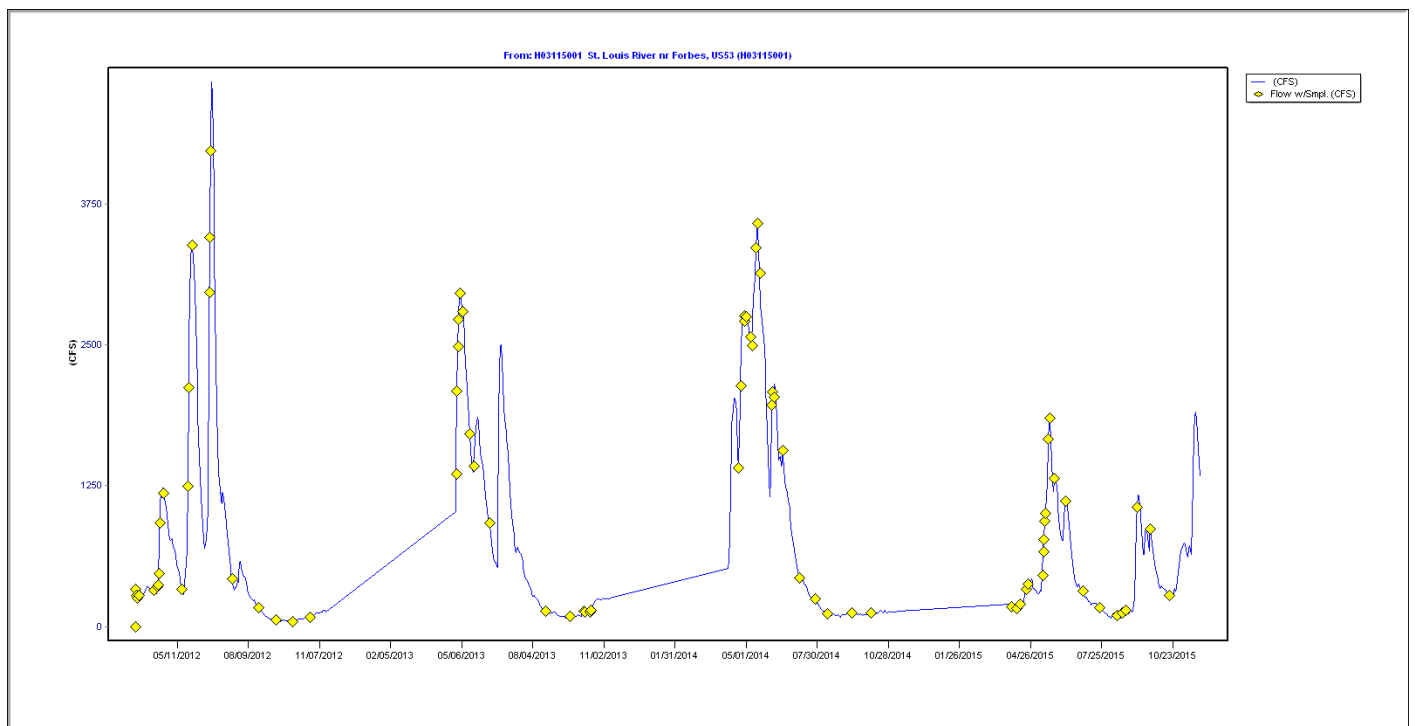
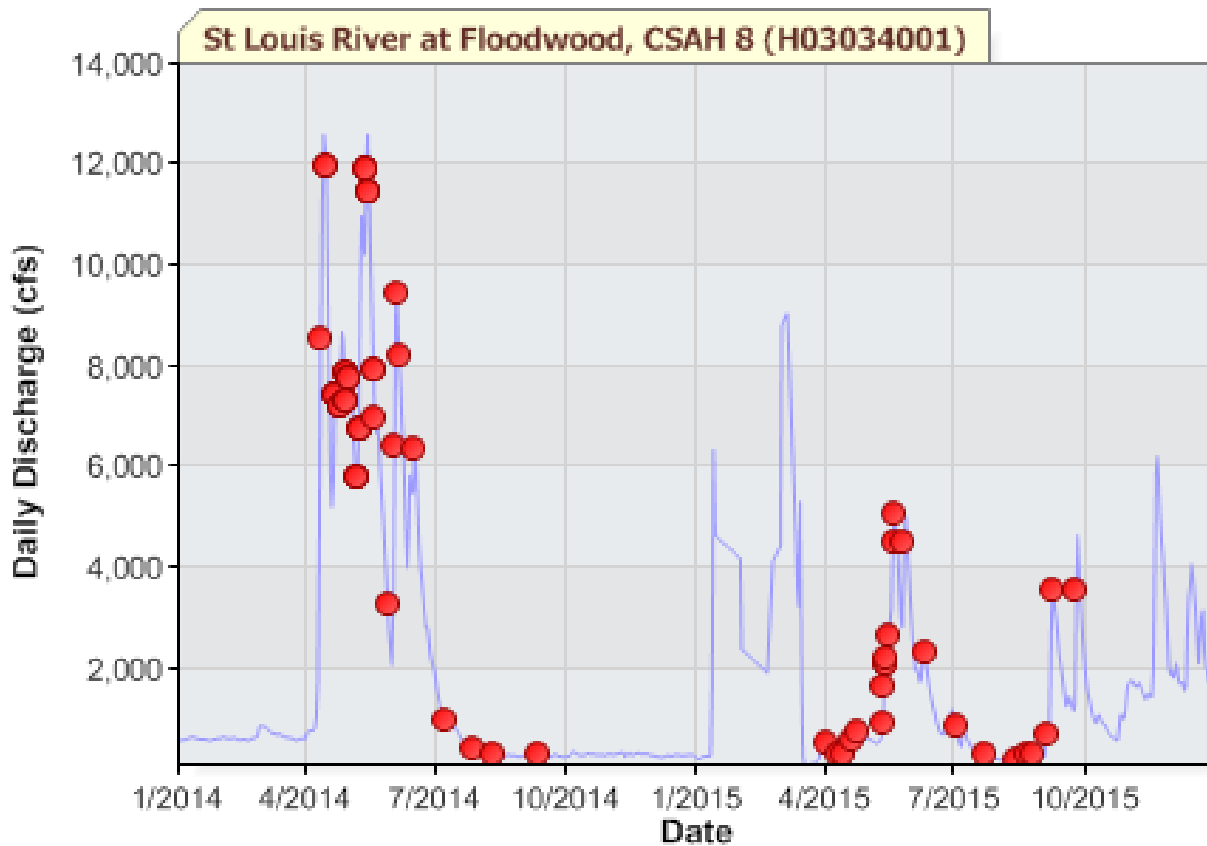
*We think the interim and final report budget forms would require much less time to complete if they matched the reimbursement spreadsheets.*

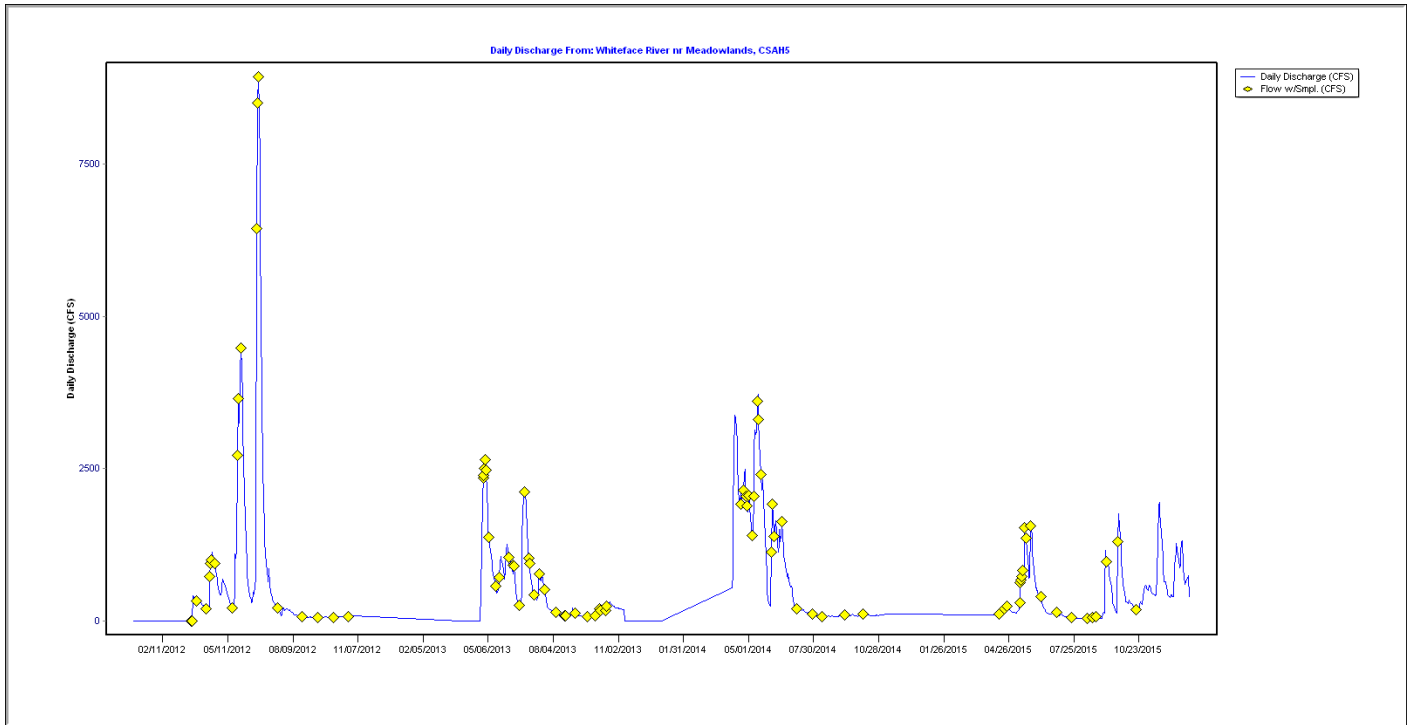
### III. Budget information

Budget item	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Total expended
<b>Objective title:</b>	Data Collection	Project Management	Data Management			
<b>Personnel: wages and benefits</b>						
NRRRI Personnel: No. of hours *	\$ 55,092.82	\$ 21,985.74	\$ 32,970.73	\$	\$	\$ 110,049.29
NSL SWCD: No. of hours *	\$ 20,378.00	\$ 5,970.00	\$ 2,402.00	\$	\$	\$ 28,750.00
Staff #3: No. of hours _____	\$	\$	\$	\$	\$	\$
<b>Laboratory analyses:</b> No. of stream samples _____	\$ 67,938.93	\$	\$	\$	\$	\$ 67,938.93
<b>Travel reimbursement:</b> No. of miles _____	\$ 16,503.41	\$	\$	\$	\$	\$ 16,503.41
<b>Equipment</b>	\$	\$	\$	\$	\$	\$
<b>Monitoring supplies</b>	\$ 15,305.92	\$	\$	\$	\$	\$ 15,305.92
<b>Shipping</b>	\$ 150.00	\$	\$	\$	\$	\$ 150.00
<b>Training and materials</b>	\$	\$	\$	\$	\$	\$
<b>Other</b> (describe the activity and cost – be specific):						
	\$	\$	\$	\$	\$	\$
	\$	\$	\$	\$	\$	\$
<b>Column total:</b>	<b>\$175,369.08</b>	<b>\$27,955.74</b>	<b>\$35,372.73</b>	<b>\$ 0.00</b>	<b>\$ 0.00</b>	<b>\$238,697.55</b>

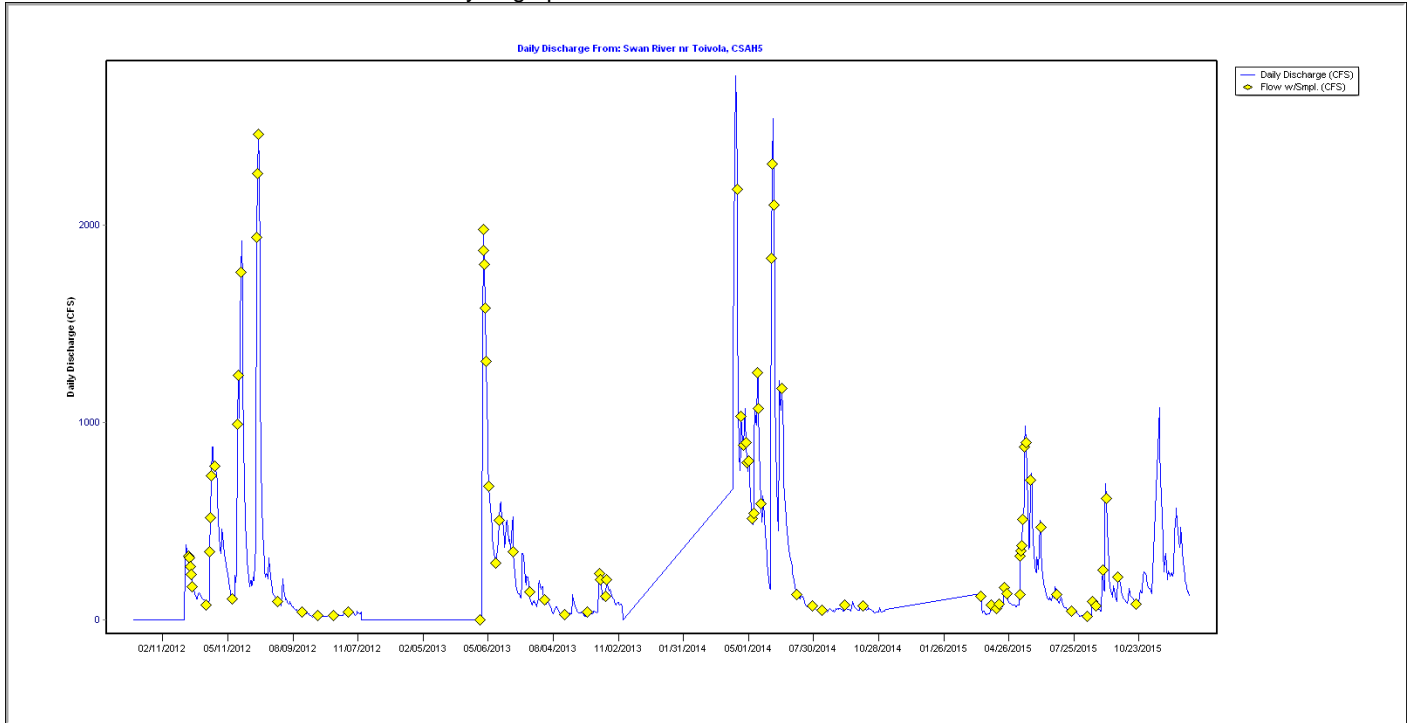
**Comments:** \* the hours were not easily available because the 2012 invoicing and tracking did not require the hours to be split out by Objective.

## IV. Hydrographs



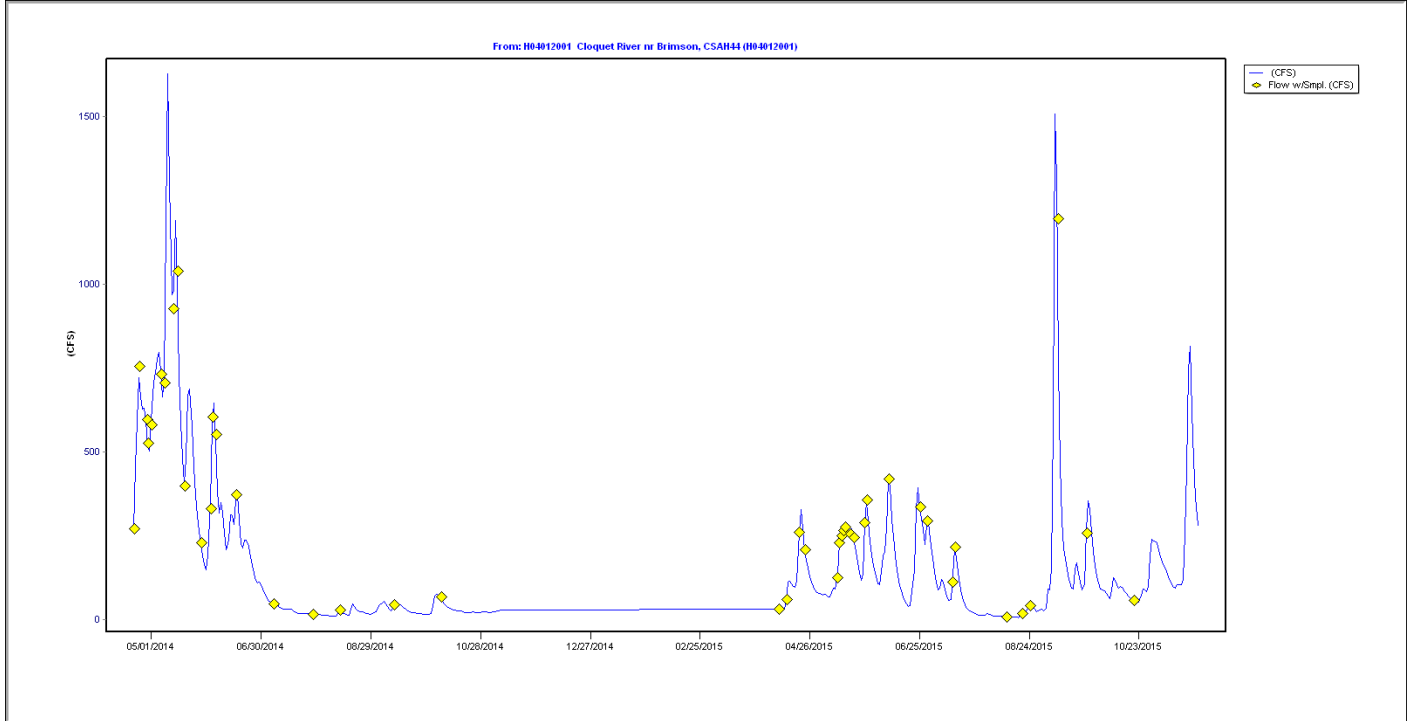
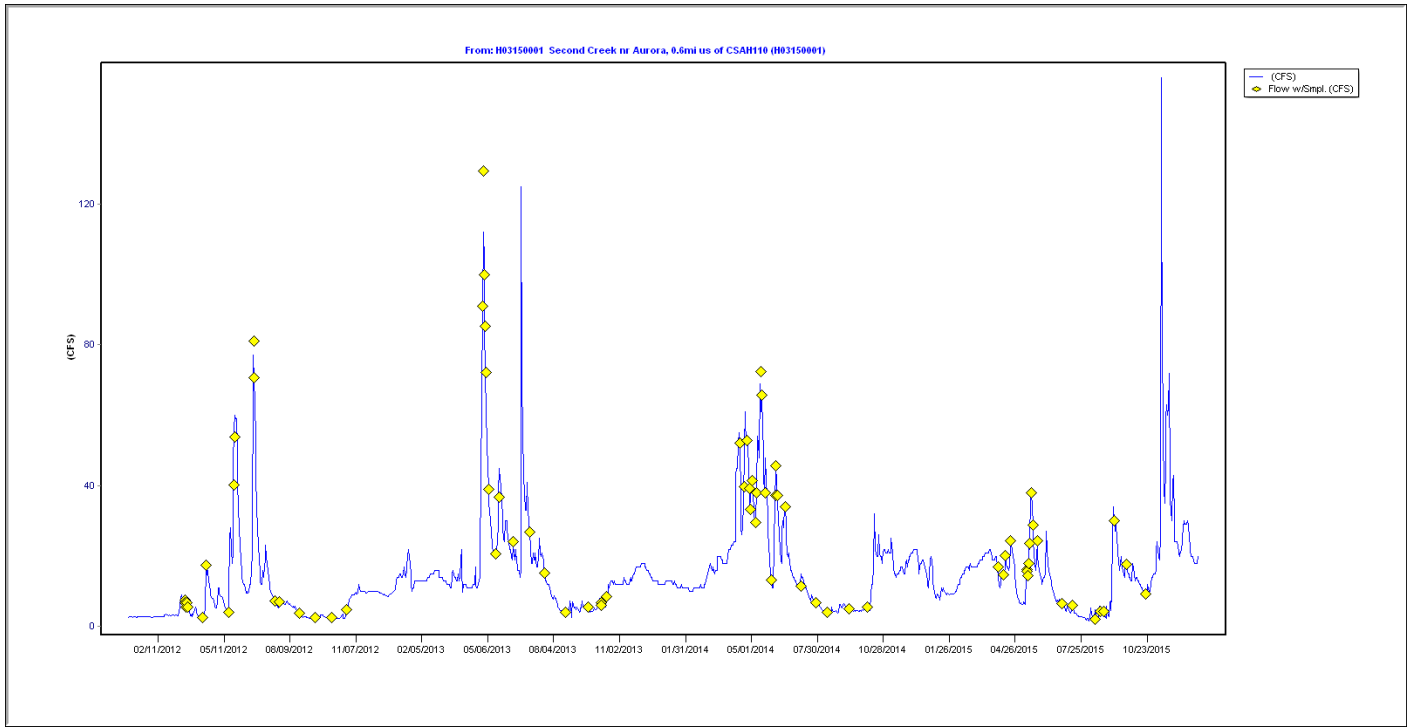


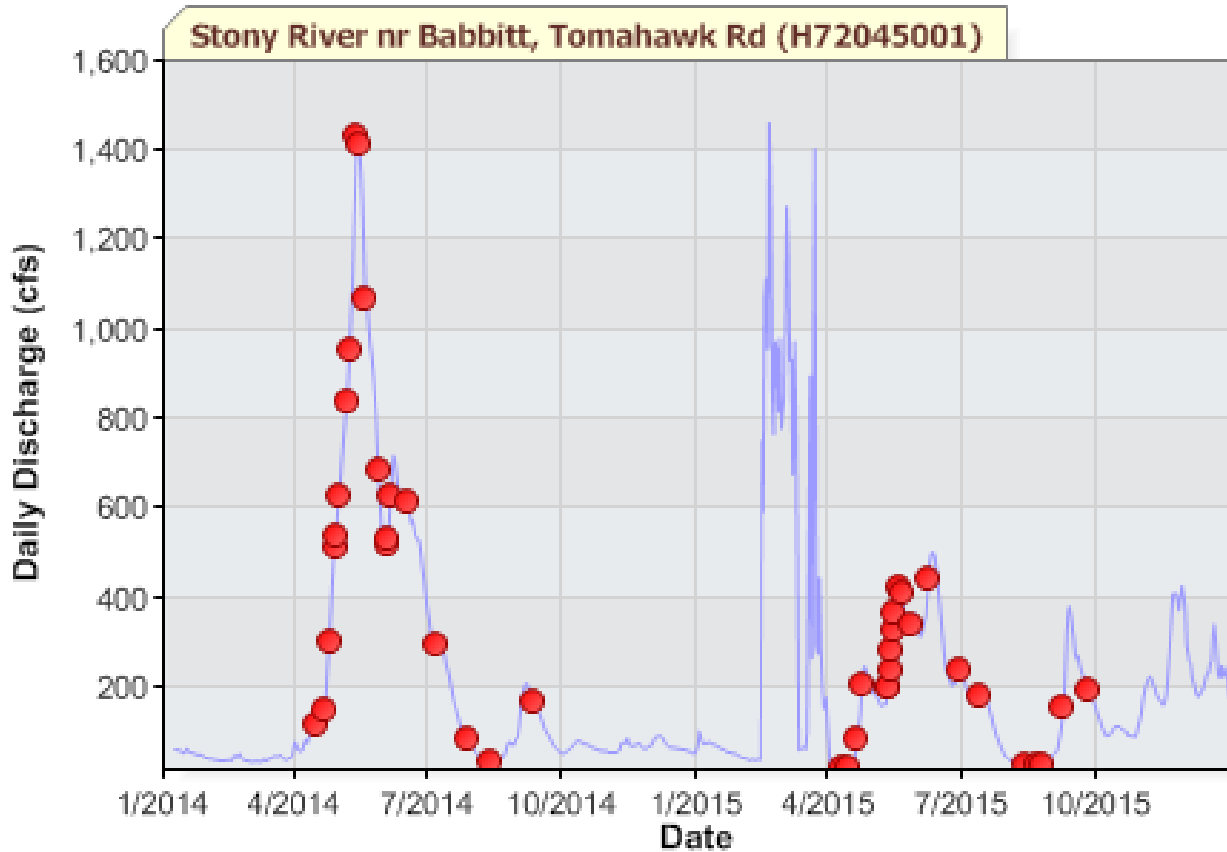
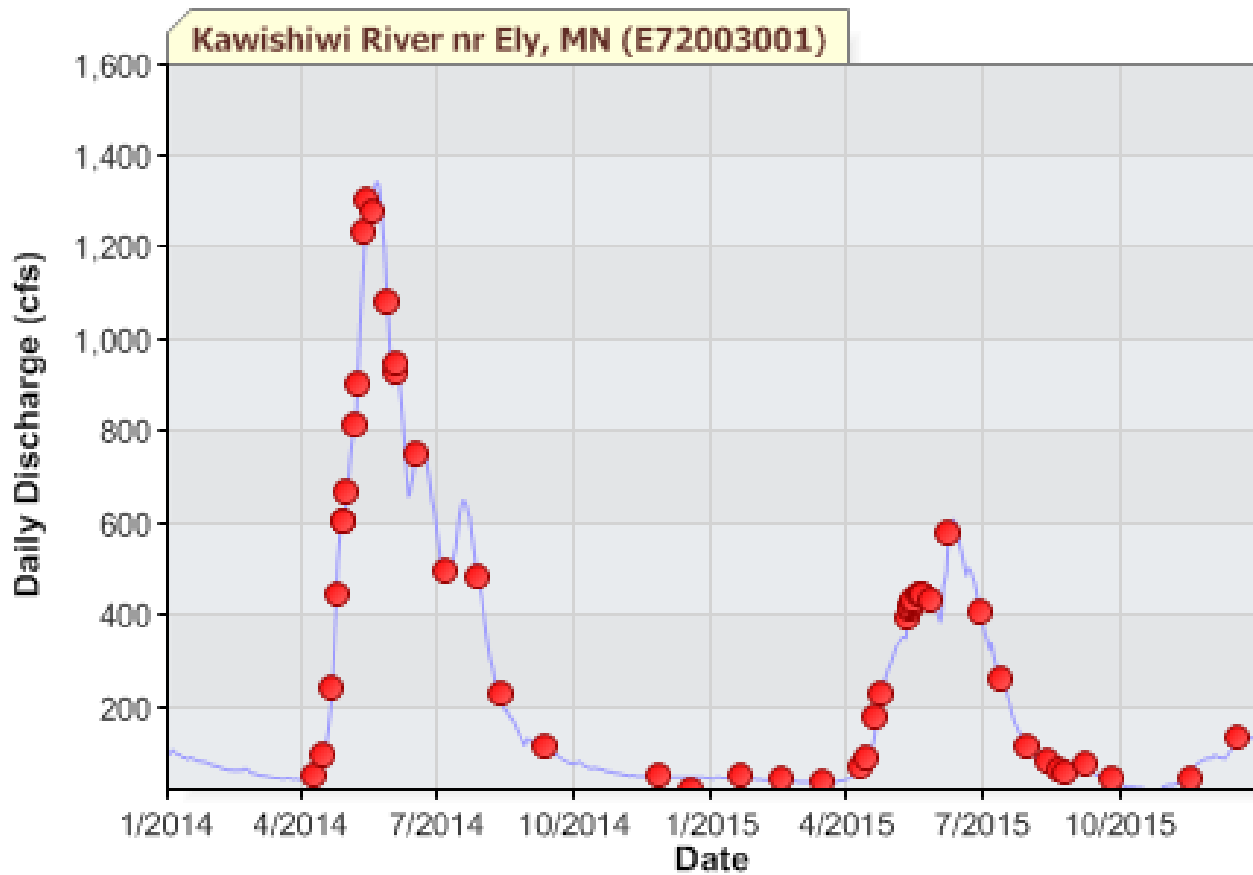
Provisional flows were used to create this hydrograph.

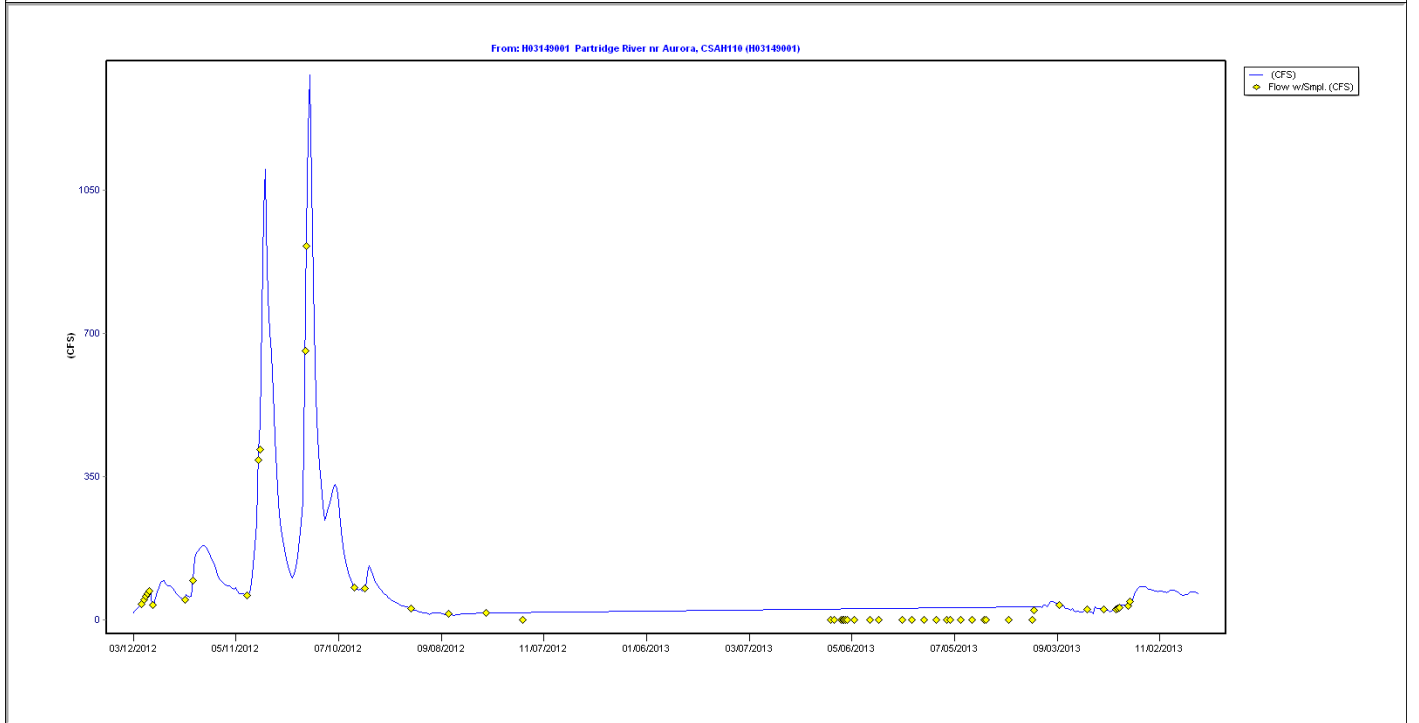
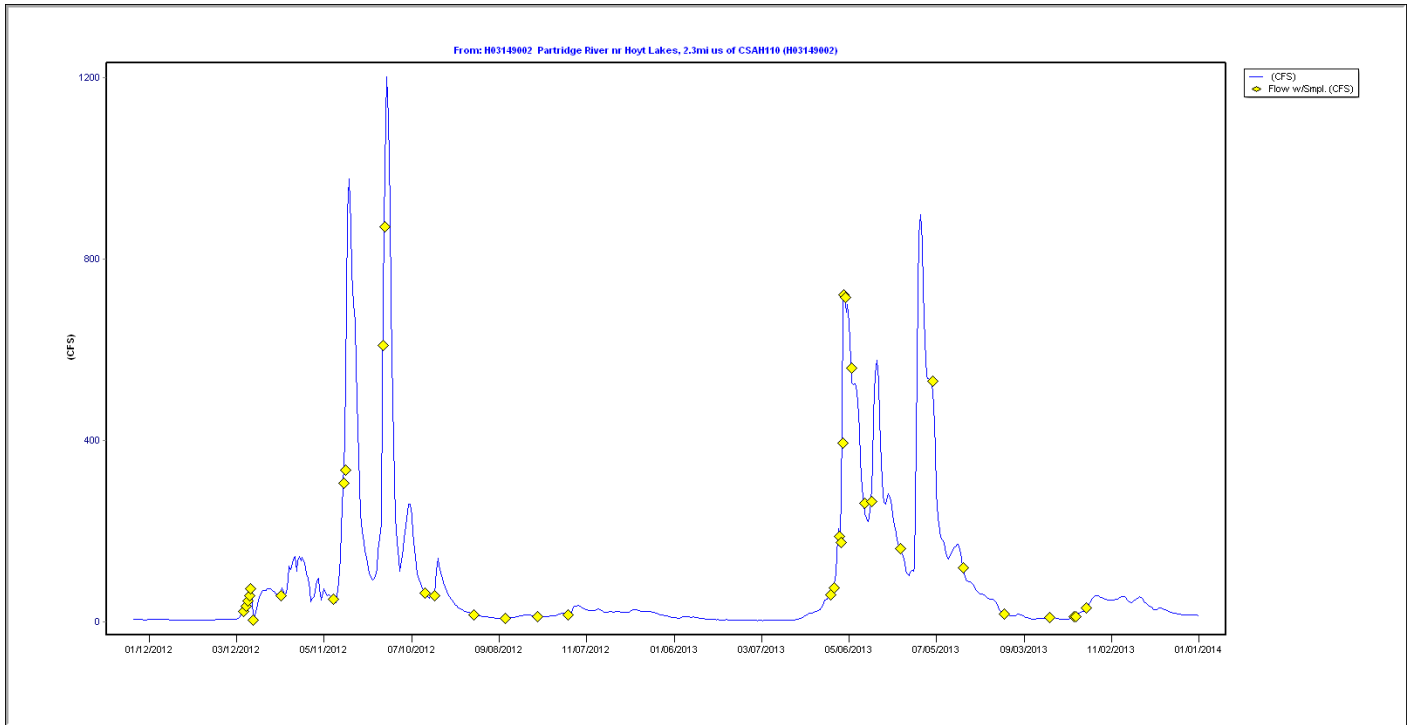


Provisional flows were used to create this hydrograph.









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