



Attachment A - FY15 SWAG Work Plan

Surface Water Assessment Grant (SWAG)

SWIFT Contract No. 87851 CR Doc Type: Grant Work Plan

I. Project Information

Project title: (8 word maximum)

Project title: Lac qui Parle/Minnesota River Headwaters Monitoring

Your affiliation? LGU Non-profit Tribal Education Other: _____

Contact information:

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***Full time equivalents:** .46

Name of State-certified laboratory: RMB Environmental Laboratories, Inc.

Project location:

Major Watershed: Lac qui Parle River and Minnesota River-Headwaters Hydrologic unit code: 07020003 and 07020001

***Major watershed(s):**

- | | | | | |
|---|---|---|--|---|
| <input type="checkbox"/> Statewide | <input type="checkbox"/> Kettle River | <input type="checkbox"/> Miss Rvr – GrandRpd | <input type="checkbox"/> Rainy Rvr – Baudette | <input type="checkbox"/> So Fork Crow River |
| <input type="checkbox"/> Big Fork River | <input checked="" type="checkbox"/> X Lac Qui Parle River | <input type="checkbox"/> Miss Rvr –Headwaters | <input type="checkbox"/> Rainy Rvr – Black Rvr | <input type="checkbox"/> Lower St. Croix Rvr |
| <input type="checkbox"/> Upper Big Sioux Rvr | <input type="checkbox"/> Lake of the Woods | <input type="checkbox"/> Miss Rvr –LaCrescent | <input type="checkbox"/> Rainy Rvr – Rainy Rvr | <input type="checkbox"/> Upper St. Croix Rvr |
| <input type="checkbox"/> Lower Big Sioux Rvr | <input type="checkbox"/> Lake Superior – North | <input type="checkbox"/> Miss Rvr – Reno | <input type="checkbox"/> Rapid River | <input type="checkbox"/> St. Louis River |
| <input type="checkbox"/> Blue Earth River | <input type="checkbox"/> Lake Superior – South | <input type="checkbox"/> Miss Rvr – Sartell | <input type="checkbox"/> Red Lake River | <input type="checkbox"/> Red Rvr of the North Tamarac River |
| <input type="checkbox"/> Bois de Sioux River | <input type="checkbox"/> Le Sueur River | <input type="checkbox"/> Miss Rvr – St. Cloud | <input type="checkbox"/> Upper Red Rvr | <input type="checkbox"/> Thief River |
| <input type="checkbox"/> Buffalo River | <input type="checkbox"/> Leech Lake River | <input type="checkbox"/> Miss Rvr – Twin Cities | <input type="checkbox"/> Redeye River | <input type="checkbox"/> Two Rivers |
| <input type="checkbox"/> Cannon River | <input type="checkbox"/> Little Fork River | <input type="checkbox"/> Miss Rvr – Winona | <input type="checkbox"/> Redwood River | <input type="checkbox"/> Upper/Lower Red Lk |
| <input type="checkbox"/> Cedar River | <input type="checkbox"/> Little Sioux River | <input type="checkbox"/> Miss Rvr – Lake Pepin | <input type="checkbox"/> Rock River | <input type="checkbox"/> Upper Iowa River |
| <input type="checkbox"/> Chippewa River | <input type="checkbox"/> Long Prairie River | <input type="checkbox"/> Mustinka River | <input type="checkbox"/> Root River | <input type="checkbox"/> Vermillion River |
| <input type="checkbox"/> Clearwater River | <input type="checkbox"/> Red Rvr of the North Marsh River | <input type="checkbox"/> Nemadji River | <input type="checkbox"/> Roseau River | <input type="checkbox"/> Upper Wapsipicon River |
| <input type="checkbox"/> Cloquet River | <input type="checkbox"/> MN Rvr – Yellow Medicine River | <input type="checkbox"/> No Fork Crow River | <input type="checkbox"/> Rum River | <input type="checkbox"/> Watonwan River |
| <input type="checkbox"/> Cottonwood River | <input checked="" type="checkbox"/> X MN Rvr – Headwaters | <input type="checkbox"/> Otter Tail River | <input type="checkbox"/> Red Rvr of the North Sandhill River | <input type="checkbox"/> DesMoines Rvr Hdwrts |
| <input type="checkbox"/> Crow Wing River | <input type="checkbox"/> MN Rvr – Mankato | <input type="checkbox"/> Pine River | <input type="checkbox"/> Sauk River | <input type="checkbox"/> Lower DesMoines Rvr |
| <input type="checkbox"/> E Fork DesMoines Rvr | <input type="checkbox"/> Lower MN River | <input type="checkbox"/> Pomme de Terre Rvr | <input type="checkbox"/> Shell Rock River | <input type="checkbox"/> Wild Rice River |
| <input type="checkbox"/> Red Rvr of the North | <input type="checkbox"/> Miss Rvr – Brainerd | <input type="checkbox"/> Rainy Rvr – Hdwtrs | <input type="checkbox"/> Snake River | <input type="checkbox"/> Winnebago River |

- *Organization type:** Federal government Local/Regional government
 For-profit Private college/university
 Individual Public college/university
 Non-profit State government

- *Project type:** Analysis/Interpretation Modeling Research
 Assessment/Evaluation Monitoring Restoration/Enhancement
 Demo/Pilot project Planning Technical assistance
 Education/Outreach/Engagement

MPCA Use Only

Project budget projection:

Start date: 3/16/15 End date: 3/15/17 Grant amount: \$ 101,916.37
(mm/dd/yyyy) (mm/dd/yyyy)

II. Project Summary

Lac qui Parle-Yellow Bank Watershed District will collect water chemistry samples from the three lakes and twenty-nine stream sites in the Lac qui Parle and Minnesota Headwaters watersheds following the IWM SOPs for lakes and streams in 2015 and 2016. Eleven samples will be collected at each lake from May through September during 2015 and 2016. Eleven samples will be collected at each of the twenty-nine stream sites following the Basic regime in 2015, sixteen samples at each stream site will be collected in 2015 and 2016 following the E. coli monitoring regime and two stream sites will be monitored following river nutrient sampling regime. All QA/QC procedures will be adhered during collection of water chemistry samples. Volunteer citizen monitors will be recruited for additional monitoring data. Data collected will be entered into EQulS, interim reports and final report will be submitted as due.

III. Project Work Plan

Objectives and Tasks:

Objective 1 Lake and Stream Monitoring

Task A: Prepare for lake water quality monitoring

Sub-task 1: Determine appropriate site locations for monitoring.

Sub-task 2: Determine if previous monitoring has occurred at selected lakes.

Sub-task 3: If no previous sites were monitored, deep centrally located sites for water monitoring will be selected for monitoring and marked with GPS.

Timeframe: 3/16/15-5/1/15

Person(s) responsible: Program Coordinator, Lac qui Parle-Yellow Bank Watershed District; Administrative Assistant, Upper Minnesota River Watershed District

Task B: Prepare for Stream Water Quality Monitoring

Sub-task 1: Coordinate stream reconnaissance to selected stream monitoring locations with MPCA.

Sub-task 2: Familiarize monitoring staff with selected stream monitoring locations.

Timeframe: 3/16/15-5/1/15

Person(s) responsible: Program Coordinator, Lac qui Parle-Yellow Bank Watershed District; Administrator Assistant, Upper Minnesota River Watershed District

Task C: Complete required documents prior to sampling

Sub-task 1: Complete and submit draft QAPP to MPCA for approval before monitoring.

Sub-task 2: Complete Project, Laboratory and Station Establishment forms and submit to MPCA by 6/1/15.

Timeframe: 3/16/15-6/1/15

Person(s) responsible: Program Coordinator, Lac qui Parle-Yellow Bank Watershed District

Task D: Acquire supplies and training for Lake and Stream monitoring

Sub-task 1: Purchase necessary monitoring equipment and supplies.

Sub-task 2: Reviewed detailed stream site maps with MPCA.

Sub-task 3: Coordinate site specific training with MPCA and review training materials with all monitoring staff and volunteers.

Timeframe: 3/16/2015- 5/15/15

Person(s) responsible: Program Coordinator, Lac qui Parle-Yellow Bank Watershed District, Administrative Assistant, Upper Minnesota River Watershed District

Follow sample collection protocols as defined in the IWM Lakes SOPs. Submit samples to RMB Environmental Laboratories, Inc. for water chemistry analyses for lakes. Collect Secchi Disk and profile measurements (dissolved

Task E: oxygen, specific conductance, temperature and pH) for lakes.

Sub-task 1: Conduct monitoring once per month from May-September of 2015 and 2016.

Sub-task 2: Conduct one set of field duplicates per lake in July 2015.

Sub-task 3: Conduct field meter calibration and maintenance per manufactures specifications and the IWM Lakes SOP.

Sub-task 4: Complete field and lab sheets.

Timeframe: 5/1/15-9/30/16

Person(s) responsible: Program Coordinator, Lac qui Parle-Yellow Bank Watershed District, Volunteers monitors

Follow sample collection protocols as defined in the IWM Streams SOPs. Submit samples to RMB Environmental Laboratories, Inc. for water chemistry and E. coli analyses. Collect Secchi tube, field measurements (dissolved oxygen, specific conductance, temperature, and pH), upstream photograph, and recreational suitability documentation

Task F: for all stream monitoring events.

Sub-task 1: Conduct monitoring twice per month from May-September of 2015 for basic regime.

Sub-task 2: Conduct E. coli monitoring three times per month from June-August of 2015 and twice per month from June-August of 2016. Ensure E. coli samples are analyzed by RMB Environmental Laboratories, Inc. within 24 hours of collection.

Sub-task 3: Conduct River Nutrient monitoring at designated sites twice per month from June-August of 2015 and 2016 and once in September 2015.

Sub-task 4: Collect one set of field duplicates per site in July 2015 for basic and E. coli regimes.

Sub-task 5: Collect one set of sampler blanks at one stream site in July 2015.

Sub-task 6: Conduct field meter calibration and maintenance per manufactures specifications and the IWM Streams SOP

Sub-task 7: Complete field and lab sheets.

Timeframe: 5/1/15-9/30/16

Person(s) responsible: Program Coordinator, Lac qui Parle-Yellow Bank Watershed District and volunteer interns, MN Conservation Corp

Objective 2 Data Management

Task A: Prepare and submit data for EQUIS entry.

Sub-task 1: Review laboratory results and field measurements regularly for analytical and/or transcription errors.

Sub-task 2: Enter data into EQUIS template provided by MPCA and submit by November 2, 2015 and November 1, 2016.

Sub-task 3: Complete final EQUIS data review using MPCA provided data review tables.

Timeframe: 10/1/15-10/31/15 and 10/1/16-10/31/16

Person(s) responsible: Program Coordinator, Lac qui Parle-Yellow Bank Watershed District

Task B: Prepare stream site photographs and submit to MPCA project manager.

Sub-task 1: Name photo files as described in the IWM Streams SOP.

Sub-task 2: Send to MPCA project manager.

Timeframe: Due November 2, 2015 and November 1, 2016.

Person(s) responsible: Program Coordinator, Lac qui Parle-Yellow Bank Watershed District

Objective 3: Project Management

Task A: Track project expenditures and submit invoices.

Sub-task 1: Develop budget tracking spreadsheet and track expenditures.

Sub-task 2: Compile and submit invoices on a monthly or quarterly basis.

Timeframe: On-going

Person(s) responsible: Project Coordinator, Lac qui Parle-Yellow Bank Watershed District

Task B: Complete and submit reporting requirements using MPCA provided forms.

Sub-task 1: Complete and submit interim and final progress reports.

Sub-task 2: Post Progress Reports on website using CWF logo.

Sub-task 3: Complete and submit calibration log.

Sub-task 4: Post approved Final Progress Report on website.

Timeframe: Interim reports by 12/31/15 and 12/31/16. Final report by 3/15/17.

Person(s) responsible: Program Coordinator, Lac qui Parle-Yellow Bank Watershed District

Task C: Obtain grant administrative training as arranged by MPCA

Sub-task 1: Participate in site visit with MPCA Project Manager

Timeframe: 4/1/15 – 4/30/15

Person(s) responsible: Program Coordinator, Lac qui Parle-Yellow Bank Watershed District

Objective 4: Volunteer Recruitment

Task A: Develop a local volunteer recruitment outreach program in coordination with MPCA CMP staff.

Sub-task 1: Develop and distribute press release to local media outlets calling for volunteers.

Sub-task 2: Develop and distribute promotional posters/flyers online and /or print.

Sub-task 3: Work with CMP staff to submit a promotional CMP article to newsletters of local partnering agencies.

Timeframe: 3/15/15-3/15/17

Person(s) responsible: Project Coordinator, Lac qui Parle-Yellow Bank Watershed District

Task B: Identify and attend local events for CMP promotional opportunities.

Sub-task 1: Distribute CMP information to prospective volunteers.

Sub-task 2: Plan and execute 4 community meetings to provide CMP information to prospective volunteers.

Sub-task 3: Plan and promote CMP volunteer program through local radio stations.

Timeframe: 3/15/15-3/15/17

Person(s) responsible: Project Coordinator, Lac qui Parle-Yellow Bank Watershed District

IV. Evaluation Plan

Measures for success:

Measures and Methods

Complete the required data collection at Del Clark Lake in Yellow Medicine County, Shible Lake in Swift County and an unnamed lake in Big Stone County.

Complete the required data collection as sixteen stream sites in the Lac qui Parle watershed and thirteen stream sites in the Minnesota Headwaters watershed.

Accepted Quality Assurance (QA)/Quality Control (QC) sampling and field monitoring procedures will be implemented for all sampling. The QAPP will be completed before monitoring begins.

Sonde calibration will be completed according to SOP's for Lakes and Streams monitoring.

All monitoring data collected through this project will meet the requirements of and be entered into EQUIS.

Customized templates and stream photos will be submitted by November 2, 2015 and November 1, 2016.

Volunteer citizen monitoring program will be developed.

Final Report will be submitted by 3/15/17.

Methods:

Monitoring staff will be trained in QAQC for sampling and field monitoring procedures by MPCA staff.

The selected lake sites will be monitored by volunteers ten times from May through September in 2015 and 2016 with a QAQC field duplicate collected in July of 2015.

The twenty-nine stream sites will be monitored for the basic regime by trained staff ten times from May through September 2015 including a QAQC field duplicate in 2015. One sample blank will be collected at the first location during July 2015 sampling. These sites will also be monitored by trained staff for E. coli sixteen times from June through August in 2015 and 2016 with QAQC being collected in July 2015. Two sites will be monitored according to the River nutrient sampling regime in 2015 and 2016.

Recruitment of volunteer citizen monitors will be coordinated with MPCA CMP staff and will include news releases, radio programs and community events to recruit citizen monitors

V. Monitoring Site Table

Watershed	County	Lake name	Lake ID#
Minnesota Headwaters	Big Stone	Unnamed	06-0060-00
Minnesota Headwaters	Swift	Shible	76-0141-00
Lac Qui Parle	Yellow Medicine	Del Clark	87-0180-00

Watershed	County	Stream name	Site ID#	Site location	Latitude	Longitude
Lac qui Parle	Yellow Medicine	Trib. to Lac qui Parle River	TBE	Downstream of 170th St., 1.5 mi S of CR 36, 4 mi S of Canby	44.64053	-96.31443
Lac qui Parle	Yellow Medicine	Florida Creek	TBE	Upstream of 120th St, 7.5 mi. W of Canby	44.73674	-96.42132
Lac qui Parle	Lincoln	Lac qui Parle River	TBE	At CR 101, 2.5 mi. NE of Hendricks	44.53609	-96.38375
Lac qui Parle	Yellow Medicine	Lac qui Parle River S. Branch	S003-085	At Hwy 67, 3 mi. S of Providence	44.79036	-96.15150
Lac qui Parle	Yellow Medicine	Lazarus Creek	S004-552	At 245th St.,0.5 mi N of Hwy 67, 6 mi NE of Canby	44.79736	-96.16502
Lac qui Parle	Lac Qui Parle	Judicial Ditch 4	S003-381	Downstream of 1st St. in Dawson	44.93124	-96.04578
Lac qui Parle	Lac Qui Parle	Lost Creek	TBE	At 141st Ave., 1.5 mi SE of Hwy 212, 1 mi. E of Mehurin	44.92918	-96.37425
Lac qui Parle	Lac Qui Parle	Florida Creek	S003-088	At Hwy 212, 4.5 mi. E of Mehurin	44.93585	-96.32362
Lac qui Parle	Lac Qui Parle	Lac qui Parle River W. Branch	S003-086	At Hwy 212, 3 mi. E of Mehurin	44.93576	-96.35423
Lac qui Parle	Lac Qui Parle	Trib. to Lac qui Parle River	TBE	At US Hwy 212, 4 mi. W of Dawson	44.93584	-96.14165
Lac qui Parle	Lac Qui Parle	Ten Mile Creek	TBE	At CR 20, 1 mi E of Lac qui Parle	44.99304	-95.88555
Lac qui Parle	Lac Qui Parle	County Ditch 4	S001-841	At ints of CR 27 / 73 (331st Ave) and CR 20, 4 mi. W of Lac qui Parle	45.00769	-95.98106
Lac qui Parle	Lac Qui Parle	Lac qui Parle River*	S000-143	At CR 33, 1 mi. NE of Lac Qui Parle	45.01653	-95.88655
Lac qui Parle	Lac Qui Parle	County Ditch 5	TBE	At 200th St, 6 mi. SW of Marietta	44.95029	-96.33713
Lac qui Parle	Lac Qui Parle	Lac Qui Parle River W. Branch	S004-554	Downstream of CSAH 37, near Dawson	44.93017	-96.04270
Lac qui Parle	Lac Qui Parle	Lac Qui Parle River W. Branch	TBE	At CR 74, 3 mi. SW of Manfred	44.83458	-96.44908
Minnesota Headwaters	Lac Qui Parle	Yellow Bank River N. Fork	S000-158	Upstream of CSAH 7, 6.5 mi. SW of Odessa	45.19008	-96.41740
Minnesota Headwaters	Lac Qui Parle	Yellow Bank River*	TBE	At CSAH 40, 2.5 mi. SW of Odessa	45.22470	-96.35010
Minnesota Headwaters	Traverse	Little Minnesota River	S000-732	At CSAH 4/4th St, in Browns Valley	45.59083	-96.83388
Minnesota Headwaters	Big Stone	Trib. to Big Stone Lake	S006-557	At 250th St, 2 mi. W of Beardsley	45.54565	-96.76162
Minnesota Headwaters	Big Stone	Fish Creek	S002-881	At CSAH 33, 3 mi. S of Beardsley	45.51025	-96.71981
Minnesota Headwaters	Big Stone	Meadowbrook Creek	TBE	At CSAH 9, 6 mi. SW of Clinton	45.39103	-96.51337
Minnesota Headwaters	Big Stone	Stony Run Creek	TBE	At 430th St, 1 mi. NW of Odessa	45.28353	-96.34878
Minnesota Headwaters	Big Stone	Five Mile Creek	TBE	At 580th Ave, 5 mi. NW of Appleton	45.21973	-96.12421
Minnesota Headwaters	Lac Qui Parle	Yellow Bank River S. Fork	S003-090	At 356th St, 4 mi. NW of Bellingham	45.17520	-96.35400
Minnesota Headwaters	Lac Qui Parle	Trib. to Yellow Bank River S. Fork	TBE	At 290th St, 1 mi. N of Nassau	45.08079	-96.43008

Minnesota Headwaters	Lac Qui Parle	Trib. to Marsh Lake	TBE	At 370th St, 4 mi. NE of Bellingham	45.19694	-96.23935
Minnesota Headwaters	Lac Qui Parle	Emily Creek	TBE	At 300th St, 5 mi. SW of Milan	45.09452	-96.02733
Minnesota Headwaters	Lac Qui Parle	Yellow Bank River S. Fork	TBE	Upstream of 111th Ave, 1.5 mi. S of Nassau	45.04622	-96.43517

VI. Monitoring Parameters, Sampling Regime, and Sampling Frequency

Lake Monitoring Parameters and Frequency

Total sampling events for the duration of the grant: 11 (including QA/QC field duplicate)

2015	May	June	July ¹	Aug	Sept
Total phosphorus ¹	x	x	x	x	x
Chlorophyll-a ¹	x	x	x	x	x
Secchi	x	x	x	x	x
Temperature ²	x	x	x	x	x
Conductivity ²	x	x	x	x	x
DO ²	x	x	x	x	x
pH ²	x	x	x	x	x

2016	May	June	July	August	Sept
Total phosphorus	x	x	x	x	x
Chlorophyll-a	x	x	x	x	x
Secchi	x	x	x	x	x
Temperature ²	x	x	x	x	x
Conductivity ²	x	x	x	x	x
DO ²	x	x	x	x	x
pH ²	x	x	x	x	x

1. Collect one additional set of bottles during the July 2015 sampling trip for QA/QC field duplicate.
2. Optional profile measurement based on applicants equipment capabilities

Stream Monitoring Parameters and Frequency - Basic Regime

Total sampling events for duration of grant: *E. coli*: 16; all other parameters: 11 (including QA/QC)

2015 ¹	May		June			July			August			Sept	
	Early	Late	Early	Mid	Late	Early	Mid	Late	Early	Mid	Late	Early	Late
TSVS	x	x	x		x	x		x	x		x	x	x
TSS	x	x	x		x	x		x	x		x	x	x
Total P	x	x	x		x	x		x	x		x	x	x
Ammonia-N	x	x	x		x	x		x	x		x	x	x
TKN	x	x	x		x	x		x	x		x	x	x
NO ₂ +NO ₃	x	x	x		x	x		x	x		x	x	x
Sulfate	x	x	x		x	x		x	x		x	x	x
Chloride	x	x	x		x	x		x	x		x	x	x
Hardness as CaCO ₃	x	x	x		x	x		x	x		x	x	x
<i>E. coli</i>			x	x	x	x	x	x	x	x	x		
Secchi tube	x	x	x	x	x	x	x	x	x	x	x	x	x
Specific conductance	x	x	x	x	x	x	x	x	x	x	x	x	x
Temperature	x	x	x	x	x	x	x	x	x	x	x	x	x
pH	x	x	x	x	x	x	x	x	x	x	x	x	x
DO	x	x	x	x	x	x	x	x	x	x	x	x	x
One upstream photograph	x	x	x	x	x	x	x	x	x	x	x	x	x
Rec. suitability, appearance, stage estimate	x	x	x	x	x	x	x	x	x	x	x	x	x

2016	June		July		August	
	Early	Late	Early	Late	Early	Late
<i>E. coli</i>	x	x	x	x	x	x
Secchi tube	x	x	x	x	x	x
Specific conductance	x	x	x	x	x	x
Temperature	x	x	x	x	x	x
pH	x	x	x	x	x	x
DO	x	x	x	x	x	x
One upstream photograph	x	x	x	x	x	x
Rec. suitability, appearance, stage estimate	x	x	x	x	x	x

1. Collect one additional set of bottles during a July sampling trip for QA/QC field duplicate.
2. Collect one sampler blank if sampling with a weighted bucket, Kemmerer Sampler, or extendable rod. One sampler blank set must be collected at the first monitoring location of July sampling.

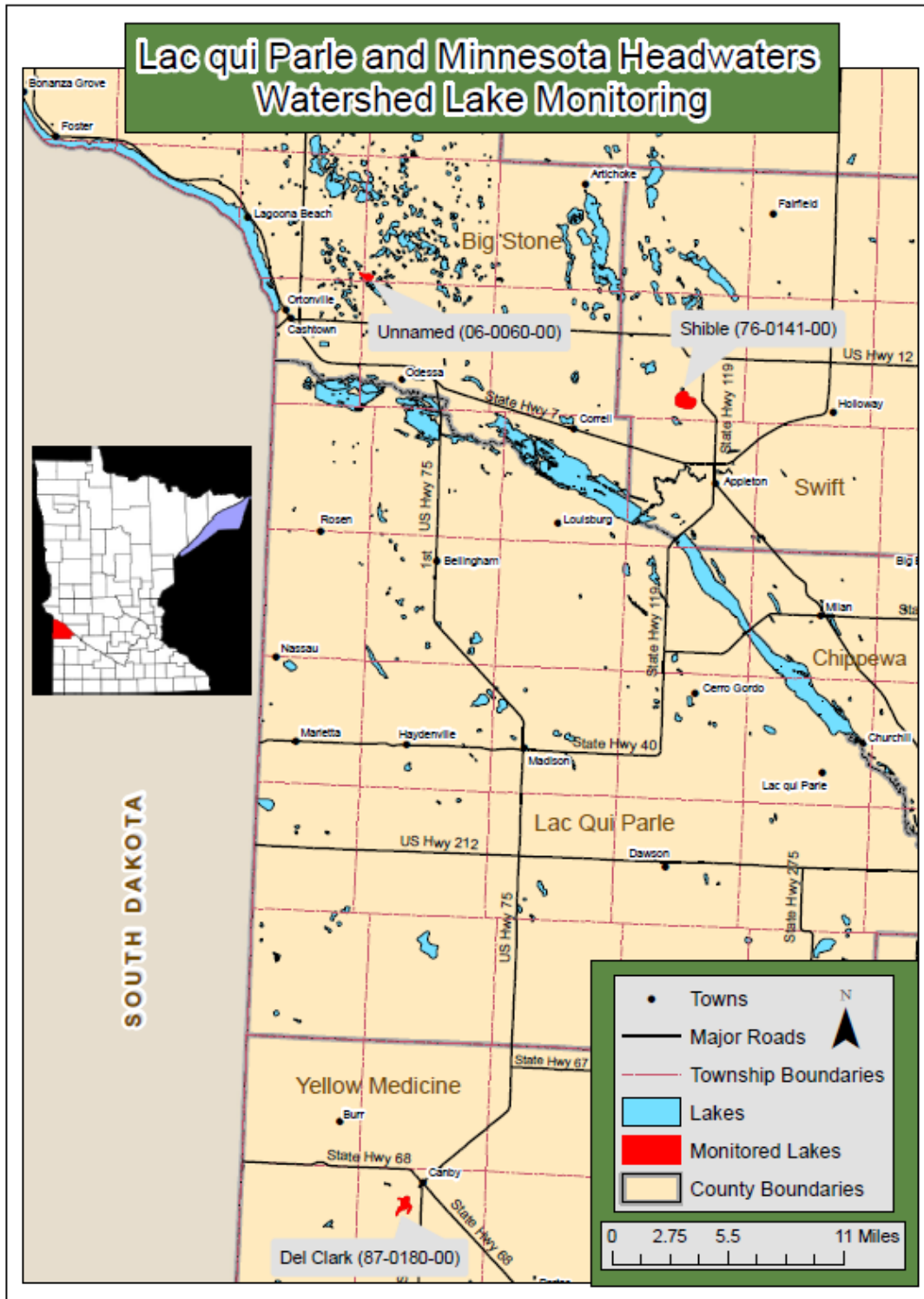
Stream Monitoring Parameters and Frequency - River nutrient sampling regime

2015	June			July			August			Sept	
	Early	Mid	Late	Early	Mid	Late	Early	Mid	Late	Early	Late
Chlorophyll corrected for pheophytin ¹	x		x	x		x	x		x	x	

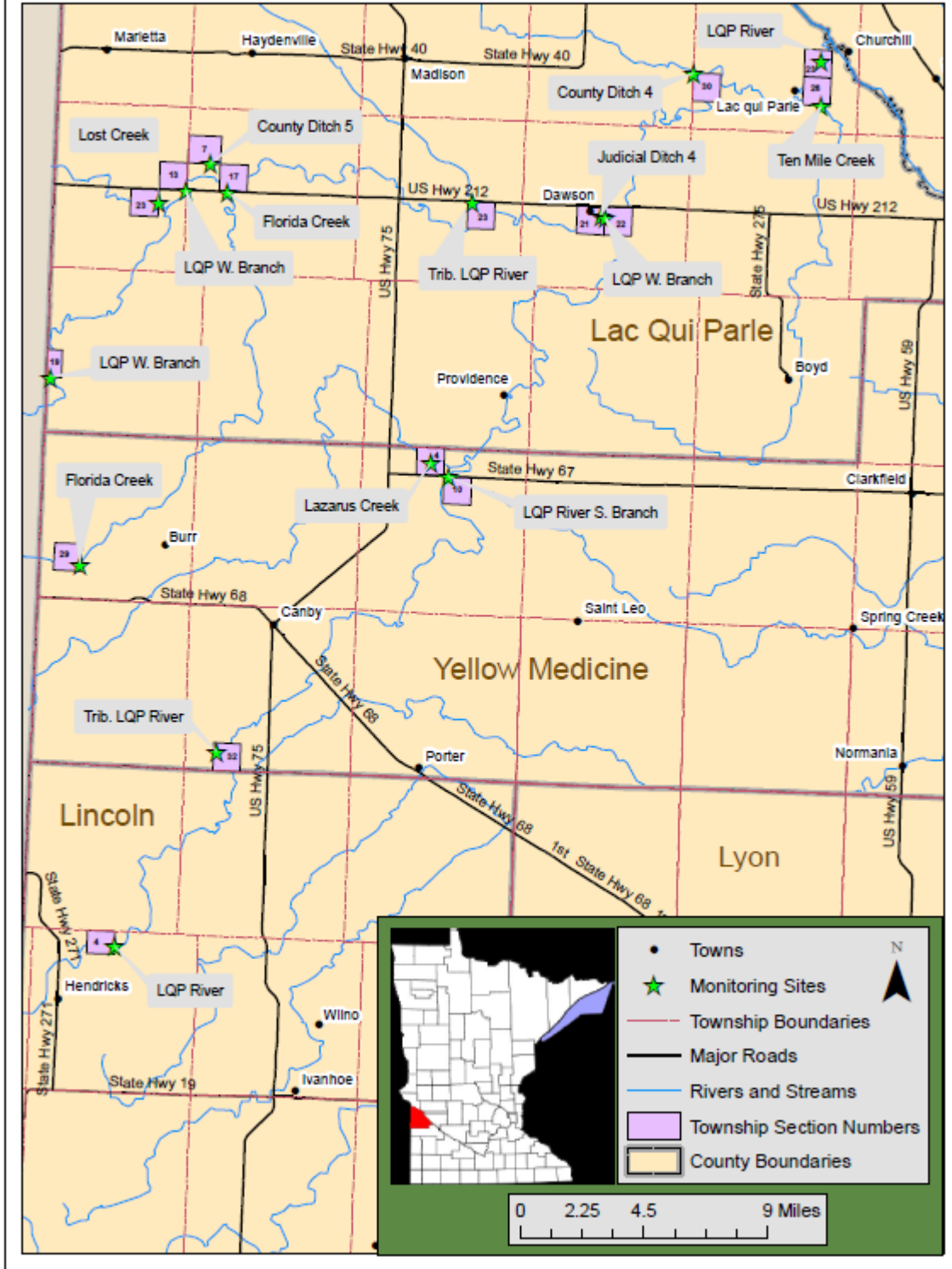
2016	June		July		August	
	Early	Late	Early	Late	Early	Late
Total P	x	x	x	x	x	x
TKN	x	x	x	x	x	x
NO ₂ +NO ₃	x	x	x	x	x	x
Chlorophyll corrected for pheophytin ¹	x	x	x	x	x	x

1. Chlorophyll must be corrected for pheophytin, and both chlorophyll-a and pheophytin fractions must be reported to MPCA

VII. Project Area Map



Lac qui Parle Watershed Monitoring Sites



Minnesota Headwaters Watershed Monitoring Sites

