

Appendix A

BCWMC Monitoring Plan

BCWMC Monitoring Plan

A.1. Bassett Creek Monitoring Programs

This section describes the different types of monitoring performed by the BCWMC. The planned performance of each type of monitoring in each BCWMC priority waterbody over the next 10-years is outlined in Table MP-5. The types of monitoring performed by the BCWMC (and the respective abbreviations in Table MP-5) include:

- Detailed water quality monitoring (BC-WQ)
- Zooplankton and phytoplankton monitoring (ZOO)
- Aquatic plant (macrophyte) monitoring (PLANT)
- Stream biotic (invertebrate) monitoring (BIO)
- Stream water quality monitoring (SWQ)

A.1.1. Detailed Chemical Water Quality Monitoring

Monitoring Plan ID: BC-WQ

Planned Interval: 3 years (Priority 1 management classification)
5 years (Priority 2 management classification)

Description:

Samples shall be collected from one or two (depending on the lake) lake sampling stations representing the deepest location(s). Lakes shall be monitored on six occasions from April through September. Details follow:

1. One sample shall be collected within two weeks after ice out
2. One sample shall be collected in mid-June
3. One sample shall be collected in mid-July
4. Two samples shall be collected in August, biweekly, during 1st and 3rd weeks
5. One sample shall be collected during the first week of September

To insure the safety of staff collecting the samples, two individuals must be present in the boat and collect the samples during each sample event.

Table MP-1 Parameters measured and depth interval

Parameter	Sample Depth (Meters)	Sampled or Measured During Each Sample Event
Dissolved Oxygen	Surface to bottom (1-meter intervals)	X
Temperature	Surface to bottom (1-meter intervals)	X

Table MP-1 Parameters measured and depth interval

Parameter	Sample Depth (Meters)	Sampled or Measured During Each Sample Event
Specific Conductance	Surface to bottom (1-meter intervals)	X
pH	Surface to bottom (1-meter intervals)	X
Oxidation Reduction Potential (ORP)	Surface to bottom (1-meter intervals)	X
Secchi Disc	Measured from surface	X
Total Phosphorus	0-2 meter composite sample; Above thermocline sample; Below thermocline sample; 0.5 meters above bottom	X
Soluble Reactive Phosphorus	0-2 meter composite sample	X
Total Nitrogen	0-2 meter composite sample	X
Chlorophyll <i>a</i>	0-2 meter composite sample	X
Chloride	0-2 meter composite sample; 0.5 meters above bottom	X

Dissolved oxygen, temperature, specific conductance, pH, oxidation reduction potential (ORP), and Secchi disc transparency shall be measured in the field at depths shown in Table 1. Water samples will be collected for laboratory analysis for total phosphorus, soluble reactive phosphorus, total nitrogen, chlorophyll *a*, and chloride at depths as specified in Table MP-1. Analytical details for phosphorus, nitrogen, and chlorophyll *a* analyses are presented in Table MP-2. All analyses shall attain the MDL, MRL, DUP RPD, Matrix Spike %R and RPD, and Blank Spike %R and RPD shown in Table MP-2.

Table MP-2 Analytical Method Details

Method	Analyte	MDL	MRL	Units	DUP	Matrix Spike		Blank Spike	
					RPD	%R	RPD	%R	RPD
EPA 351.2	Total Kjeldahl Nitrogen	0.17	0.50	mg/L	20	90-110	20	90-110	20
EPA 365.3	Orthophosphate as P	0.0005	0.0060	mg/L	20	75-125	20	80-120	20
EPA 365.3	Phosphorus, Total as P	0.0007	0.010	mg/L	20	75-125	20	80-120	20
SM 10200H	Chlorophyll <i>a</i> - Pheophytin	0.50	0.50	µg/L	20	75-125	20	80-120	20
SM4500 NO3F	Nitrate + Nitrite as N	0.0069	0.020	mg/L	20	75-125	20	80-120	20
16887-00-6	Chloride	0.465	1.0	mg/L	20	90-110	20	80-120	20

A.1.2. Zooplankton and Phytoplankton Monitoring

Monitoring Plan ID: ZOO

Planned Interval: 3 years (Priority 1 management classification)
5 years (Priority 2 management classification)

Description:

Lakes shall be monitored on six occasions from April through September concurrent with water quality sampling events. Phytoplankton will be sampled as a single 0-2 meter composite sample at the location of water quality sampling. Zooplankton will be sampled using a bottom to surface tow with a zooplankton net at the location of water quality sampling.

Phytoplankton analyses shall be completed using the inverted microscope procedure of Utermohl as described by Lund et al. (1958). Subsamples shall be settled in a 5 milliliter inverted microscope settling chamber for approximately 24 hours prior to counting. Replicate fields of view located in a transect across the center of the counting chamber shall be enumerated at a magnification of at least 500 times until the entire transect has been enumerated or at least 500 algal units have been counted. An algal unit is 1 single cell, 1 colony, or 1 filament. Results shall be expressed as units per milliliter. Algal units shown in Table MP-3 shall be identified to the species level and other algal units in the samples shall be identified to the genus level.

Table MP-3 Algal Units Identified to the Species Level

Chlorophyta (Green Algae)	Cyanophyta (Blue-Green Algae)	Bacillariophyta (Diatoms)	Other Algae
<i>Actinastrum Hantzschii</i>	<i>Anabaena affinis</i>	<i>Asterionella formosa</i>	<i>Dinobryon sociale</i>
<i>Ankistrodesmus Brauni</i>	<i>Anabaena flos-aquae</i>	<i>Cocconeis placentula</i>	<i>Cryptomonas erosa</i>
<i>Ankistrodesmus falcatus</i>	<i>Anabaena spiroides v. crassa</i>	<i>Fragilaria capucina</i>	<i>Ceratium hirundinella</i>
<i>Chlamydomonas globosa</i>	<i>Aphanizomenon flos-aquae</i>	<i>Fragilaria crotonensis</i>	<i>Peridinium cinctum</i>
<i>Chlamydomonas pseudopertyi</i>	<i>Coelosphaerium Naegelianum</i>	<i>Gomphonema olivaceum</i>	
<i>Coelastrum microporum</i>	<i>Cylindrospermopsis raciborski</i>	<i>Melosira granulata</i>	
<i>Crucigenia quadrata</i>	<i>Lyngbya limnetica</i>	<i>Stephanodiscus Hantzschii</i>	
<i>Dictyosphaerium Ehrenbergianum</i>	<i>Merismopedia tenuissima</i>	<i>Synedra acus</i>	
<i>Elakatothrix gelatinosa</i>	<i>Microcystis aeruginosa</i>	<i>Synedra ulna</i>	
<i>Oocystis parva</i>	<i>Microcystis incerta</i>		
<i>Pandorina morum</i>	<i>Oscillatoria Agardhii</i>		
<i>Pediastrum Boryanum</i>	<i>Oscillatoria limnetica</i>		
<i>Pediastrum duplex v. clathratum</i>	<i>Phormidium mucicola</i>		

Table MP-3 Algal Units Identified to the Species Level

Chlorophyta (Green Algae)	Cyanophyta (Blue-Green Algae)	Bacillariophyta (Diatoms)	Other Algae
<i>Rhizoclonium hieroglyphicum</i>			
<i>Scenedesmus dimorphus</i>			
<i>Scenedesmus quadricauda</i>			
<i>Selenastrum minimum</i>			
<i>Schroederia Judayi</i>			
<i>Sphaerocystis Schroeteri</i>			
<i>Tetraedron minimum</i>			
<i>Tetraedron muticum</i>			
<i>Treubaria setigerum</i>			

Zooplankton analyses shall be completed using the Sedgwick Rafter procedure described in Standard Methods. Zooplankton shown in Table MP-4 shall be identified to the species level and other zooplankton shall be identified to the genus level. Results shall be expressed as number of zooplankton per square meter.

Table MP-4 Zooplankton Identified to the Species Level

Cladocera	Rotifera
<i>Bosmina longirostris</i>	<i>Asplanchna priodonta</i>
<i>Chydorus sphaericus</i>	<i>Keratella cochlearis</i>
<i>Daphnia galeata mendotae</i>	<i>Keratella quadrata</i>
<i>Daphnia pulex</i>	<i>Kellicottia bostoniensis</i>
<i>Daphnia retrocurva</i>	<i>Polyarthra vulgaris</i>
<i>Diaphanosoma leuchtenbergianum</i>	<i>Trichocerca cylindrica</i>
	<i>Trichocerca multicornis</i>

A.1.3. Aquatic Plant (Macrophyte) Monitoring

Monitoring Plan ID: PLANT

Planned Interval: 3 years (Priority 1 management classification)
5 years (Priority 2 management classification)

Description:

The BCWMC will perform qualitative macrophyte surveys of lakes classified as Priority 1 every 3 years and lake classified as Priority 2 every 5 years (in the same year as detailed BCWMC water quality monitoring). Each lake shall be surveyed twice, in June and August.

Plant surveys will assess the distribution and growth density of all plants. All sampling and data analysis will be conducted according to the methodologies described in the MNDNR protocol for aquatic vegetation surveys. This methodology is based upon the point intercept survey method developed by John Madsen in Aquatic Plant Control Technical Note MI-02, 1999. This method consists of the following:

- A grid of evenly spaced points across the entire lake will be determined and mapped. The minimum number of sample points will be 125. Point spacing will range from 20 meters to 100 meters, depending upon lake size.
- staff will navigate to each point using a global positioning system (GPS) where a double-sided rake attached to a pole or rope will be tossed from a predesignated side of the boat and retrieved to obtain a sample of aquatic vegetation
- All species of aquatic vegetation will be identified and an abundance ranking from 1 to 4 will be assigned to each species based on the method referenced in Aquatic Plant Control Technical Note MI-02, 1999.
- Water depth will be recorded at each sampling location to the nearest tenth of a foot.
- Dominant sediment type will be recorded at each sampling location.

All data will be recorded. In addition to basic parameters and species statistics, the following indices will be reported:

- **Simpson Diversity Index Value**—index used to measure plant diversity, which assesses the overall health of the lake’s plant communities. The index, with scores ranging from 0 to 1, considers both the number of species present and the evenness of species distribution. A high score indicates a more diverse plant community.
- **C value**—scale of values used to measure the average tolerance of the plant community to degraded conditions. Plant species are assigned C values on a scale of 0 to 10, with increasing values indicating plants are less tolerant of degraded conditions and, hence, are of better quality. An average of the C values for individual species within a lake’s plant community indicates the average tolerance of the community to degraded conditions.
- **Floristic Quality Index (FQI) value**—FQI will be used to assess the quality of the plant communities. FQI considers both the quality of the individual native species found in the lake (C value) and the number of native species collected on the rake. Although Minnesota has not kept a record of FQI values, recorded Wisconsin FQI values range from 3 (degraded plant communities) to 49 (diverse native plant communities). The median FQI for Wisconsin is 22.

June and August data from each lake will be analyzed using Chi Squared analyses to identify any significant changes in species frequency of occurrence between June and August.

A.1.4. Stream Biotic Monitoring (Invertebrate Monitoring)

Monitoring Plan ID: BIO

Planned Interval: 3 years (Priority streams)

Description:

Benthic macroinvertebrate samples have been collected from Plymouth Creek and Bassett Creek (North Branch, Main Stem, and Sweeney Lake Branch). The sampling locations are identified as follows (see Figure 2-11 of the Plan):

- Plymouth Creek at Industrial Park Boulevard in Plymouth
- North Branch of Bassett Creek at 32nd Avenue North and Adair Avenue in Crystal
- Main Stem of Bassett Creek at Rhode Island Avenue in Golden Valley
- Main Stem of Bassett Creek east of Zane Avenue in Golden Valley
- Main Stem of Bassett Creek at Irving Avenue in Minneapolis
- Sweeney Lake Branch of Bassett Creek at Turner's Crossroad in Golden Valley

Minnesota Pollution Control Agency Invertebrate Sampling Procedures (EMAP-SOP4, Rev. 0) will be used to collect macroinvertebrate samples. The MPCA multihabitat method will be used to collect a composite sample from up to five different habitat types to get a sample representative of the invertebrate community at each sample location. The habitats to be sampled may include:

- Hard bottom (riffle/cobble/boulder)
- Aquatic macrophytes (submerged/emergent vegetation)
- Undercut banks (undercut banks/overhanging vegetation)
- Snags (snags/rootwads)
- Leaf Packs

Sampling will consist of dividing 20 sampling efforts equally among the dominant, productive habitats present in each reach. If the 20 sampling efforts are not equally divisible by the number of habitats present, the least dominant of the habitats will receive the lower number of sampling efforts (i.e., th remainder).

A sample effort is defined as taking a single dip or sweep in a habitat (e.g., hard bottom). A sweep is taken by placing the D-net on the substrate and disturbing an area directly in front of the net opening equal to the net width (1 ft²) and allowing dislodged invertebrates to drift into the D-net positioned downstream from the disturbed area. Each sample effort should cover approximately 1 ft² (0.09 m²) of substrate. The 20 sampling efforts will sample a total area of 20 ft² (1.8 m²).

The sampling will proceed from downstream to upstream, sampling the various habitats present. All samples will be preserved in 100 percent reagent alcohol and later identified in the laboratory.

Flow and water quality parameters will be sampled after completion of the macroinvertebrate monitoring. The following parameters will be measured using field instruments: discharge (flow), temperature, dissolved oxygen, specific conductance, turbidity, and pH.

Physical habitat will be assessed using the MPCA method (i.e., Physical habitat and water chemistry assessment protocol for wade-able stream monitoring sites). Habitat will be sampled using the transect point method. Thirteen transects will be established within each sample reach. The sample reach is determined by mean stream width (MSW) and is generally from 150 to 500 meters in length. For the locations in Bassett Creek, the sample reach will be 150 meters in length at sites that allow this length and would be shorter on sites that require a shorter length. The reach segment that is sampled will be documented with global positioning system (GPS) measurements. Four equally spaced points, plus the thalweg (or deepest point along the transect line), will be established along each transect; measurements or visual estimates will be made at each sample point to characterize key components of the physical habitat structure. Variables measured include water depth, depth of fine sediment and water, embeddedness, substrate, percent algae, and percent macrophytes. In addition, visual estimates of the following will be made:

- The amount of cover for fish determined from the percent of transect occupied by undercut banks, overhanging vegetation, woody debris, boulders, submergent macrophytes, emergent macrophytes, and other debris
- The amount of the stream bank that is actively eroding through break down, soil sloughing, or false banks
- The predominant riparian land use within the riparian zone (within 30 meters of the water's edge)
- Riparian buffer width which is the amount of contiguous undisturbed land use within a 10 meter area adjacent to the stream
- Canopy/Shading which is a measure of overhead canopy cover that is shading the stream channel

A complete habitat survey per MPCA methods will occur during 2015. Subsequent habitat surveys will be a modified version of the MPCA methods that only survey parameters that have changed since the 2015 survey. For example, parameters such as predominant land use, riparian buffer width, and canopy/shading will probably not change much over time. However, parameters such as depth of fine sediment, embeddedness, and substrate types are expected to change and should be assessed during each monitoring event.

When the MPCA releases the analysis tools required for calculation of the Macroinvertebrate Index of Biological Integrity (MIBI), the MIBI calculations will be performed. Due to the use of the Hilsenhoff Biotic Index (HBI) and Invertebrate Community Index (ICI) during past monitoring events (prior to the development of the MIBI), HBI and ICI will continue to be calculated after it becomes possible to calculate the MIBI for comparison with the historical record. Until the MIBI can be calculated, HBI and ICI will be calculated to assess the macroinvertebrate community. A trend analysis will be performed on the HBI and ICI data to identify significant changes over time.

A.1.5. Stream Water Quality Monitoring

Monitoring Plan ID: SWQ

Planned Interval: 2 consecutive years of monitoring initiated every 6 years (Priority streams)

Description:

The BCWMC will initiate a stream water quality monitoring program to monitor the chemical water quality of its priority streams. The exact monitoring locations will be determined based on the feasibility of installing automated samplers, but will be consistent with biotic monitoring locations, where possible.

Automated samplers will be installed and operated for two consecutive years (from snowmelt of year 1 through ice-in of year 2). Continuously monitored parameters will include temperature, conductivity, and stage (and may include dissolved oxygen and pH). Automated samplers will collect water quality samples in periods of high flow (i.e., snowmelt and after storm events) and during periods of baseflow. Parameters analyzed will include chloride, fecal coliform, total suspended solids, total phosphorus, and chlorophyll *a*.

A.2. Other Monitoring Programs

A.2.1 Three Rivers Park District Medicine Lake Water Quality

Monitoring Plan ID: TRPD

Planned Interval: Annually in Medicine Lake – Main Basin
3 year intervals in Medicine Lake – Southwest Basin (per BCWMC request)

Description:

The Three Rivers Park District (TRPD) performs chemical water quality monitoring in the main basin of Medicine Lake annually. Sampling is performed approximately every two weeks beginning in early May and extending through September. Profiles of dissolved oxygen, temperature, specific conductance, and pH are measured at 1 meter increments. Total nitrogen, chlorophyll *a*, and Secchi disc transparency are measured from the surface. Total phosphorus and soluble reactive phosphorus are measured at the surface and at depths of 6 meters and 12 meters.

At three year intervals, the BCWMC will request that the TRPD perform additional sampling and analysis in the southwest basin of Medicine Lake. This sampling and analysis will be performed consistent with the TRPD's protocol for monitoring the main basin.

A.2.2 Metropolitan Council Citizen Assisted Monitoring Program (CAMP)

Monitoring Plan ID: CAMP

Planned Interval: Annually in Priority 1 and Priority 2 waterbodies between detailed monitoring events

To be determined in non-Priority waterbodies (as requested by the member cities and approved by the Commission)

Description:

The Metropolitan Council's Citizen Assisted Monitoring Program (CAMP) has been collecting water quality data on a number of Twin Cities metropolitan area lakes since 1980. On a bi weekly basis (April - October), citizen volunteers collect a surface water sample for laboratory analysis of total phosphorus, total Kjeldahl-nitrogen, and chlorophyll-a, obtain a Secchi transparency measurement, and provide some user perception information about each lake's physical and recreational condition. Laboratory analysis of collected samples will be performed consistent with CAMP protocols, as determined by the Metropolitan Council Environmental Services.

The BCWMC will fund the inclusion of Priority 1 and Priority 2 waterbodies in CAMP during years when detailed water quality monitoring performed by the BCWMC is not planned.

A.2.3 Metropolitan Council Watershed Outlet Monitoring Program

Monitoring Plan ID: WOMP

Planned Interval: Annually on the Main Stem of Bassett Creek

Description:

The Watershed Outlet Monitoring Program (WOMP) is coordinated by the Metropolitan Council Environmental Services (MCES) and consists of a network of monitoring stations located throughout the Metro Area. The Bassett Creek WOMP site is located at Irving Avenue, one-fourth mile upstream of the storm sewer tunnel that runs beneath downtown Minneapolis to the Mississippi River.

The Bassett Creek station shelter is equipped with electricity, heat, and telephone modem. The station measures stage using a bubbler and pressure transducer which is connected to a Campbell data logger. The data logger records and calculates the conversion of stage readings into discharge using a rating curve polynomial. The data are averaged over 15-minute intervals and are downloaded via modem.

The Bassett Creek station also uses an ultrasonic transducer, mounted under a bridge to measure stage. The station is equipped with a non-heated tipping bucket rain gauge. An automatic sampler equipped with 1L sample bottles is also housed at the station. When stream stage increases to a chosen trigger depth the data logger controls and activates flow pacing to the sampler. The sampler collects up to 96 flow-weighted samples per storm. Conductivity and temperature are continually recorded

During runoff events the individual flow paced samples are collected and combined into one large sample. Grab samples were taken monthly all year during baseflow conditions. To comply with holding times water quality parameters were selected for analysis based on the elapsed time since the end of sample collection. The samples are analyzed in the MCES laboratory for water quality parameters including total suspended solids, total phosphorus, chloride, and other parameters.

The BCWMC will fund the continued operation of the Bassett Creek WOMP station.

A.2.4 Minneapolis Parks and Recreational Board (Wirth Lake Monitoring)

Monitoring Plan ID: MPRB

Planned Interval: Annually in Wirth Lake

Description:

The Minneapolis Parks and Recreational Board (MPRB) monitors Wirth Lake annually. Monitoring includes one winter sample, one sample in March or April, two samples per month from May through September, and one sample in October. Total Phosphorus, nitrogen, and Secchi depth are measured during all monitoring events. Additional chemical parameters are assessed with less frequency.

All physical measurements and water samples for chemical analyses are obtained from a point directly over the deepest point in Wirth Lake. A multiprobe is used to record temperature, pH, conductivity, and dissolved oxygen profiles at 1 meter intervals. Secchi disk transparency is determined with a black and white 20-cm diameter disk on the shady side of the boat.

Composite surface water samples are collected using a stoppered 2-m long, 2-inch diameter white PVC tube and combined in a white plastic bucket. Water from this mixed sample is decanted into appropriate bottles for analysis. Chlorophyll-*a* samples are stored in opaque bottles for analysis. Total phosphorus, soluble reactive phosphorus, total nitrogen, and chlorophyll-*a* concentrations are determined from the surface composite sample for all sampling trips.

Phytoplankton samples are collected each sampling trip April through October for Wirth Lake.

Phytoplankton are collected from the 0-2 m surface composite sample and stored in an opaque plastic container with a 25% glutaraldehyde preservative solution. Vertical zooplankton tow samples are taken at the sampling station for each lake once per month during the growing season. Zooplankton are collected using a Wisconsin vertical tow net. Samples are preserved 90% denatured histological ethanol to a mix of approximately 50% sample 50% ethanol.

Table MP-5 BCWMC 10-year Monitoring Plan

Water- body Type	BCWMC Management Classification	Waterbody Name	Year										
			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Lake	Priority 1 Deep	Medicine Lake	TRPD	TRPD PLANT ZOO	TRPD	TRPD	TRPD PLANT ZOO	TRPD	TRPD	TRPD PLANT ZOO	TRPD	TRPD	TRPD PLANT ZOO
		Parkers Lake	CAMP	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP
		Sweeney Lake	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP
		Twin Lake	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP
		Wirth Lake	MPRB	MPRB	MPRB	MPRB PLANT	MPRB	MPRB	MPRB PLANT	MPRB	MPRB	MPRB PLANT	MPRB
	Priority 1 Shallow	Northwood Lake	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO
		Westwood Lake	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP
	Priority 2 Shallow	Crane Lake	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	CAMP	BC-WQ PLANT ZOO
		Lost Lake	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	CAMP
		Cavanaugh Pond	CAMP	CAMP	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP	CAMP	CAMP	CAMP	BC-WQ/CAMP PLANT ZOO	CAMP
Stream	Priority Stream	Main Stem Bassett Creek	BIO WOMP	WOMP	WOMP	BIO SWQ WOMP	SWQ WOMP	WOMP	BIO WOMP	WOMP	WOMP	BIO SWQ WOMP	SWQ WOMP
		North Branch Bassett Creek	BIO	--	--	BIO SWQ	SWQ	--	BIO	--	--	BIO SWQ	SWQ
		Plymouth Creek	BIO	--	--	BIO SWQ	SWQ	--	BIO	--	--	BIO SWQ	SWQ
		Sweeney Branch Bassett Creek	BIO	--	--	BIO SWQ	SWQ	--	BIO	--	--	BIO SWQ	SWQ

Notes:

- TRPD Detailed water quality monitoring performed by Three Rivers Park District of Medicine Lake
- BC-WQ Detailed water quality monitoring performed by BCWMC (or contracted party)
- CAMP Surface water quality monitoring by Metropolitan Council's Citizen Assisted Monitoring Program (CAMP), or equivalent program
- MPRB Detailed water quality and phytoplankton/zooplankton monitoring performed by Minneapolis Park and Recreation Board
- ZOO Zooplankton/phytoplankton monitoring performed by BCWMC
- PLANT Aquatic plant survey performed by BCWMC twice per monitoring season (June and August)
- BIO Invertebrate monitoring and biotic index analysis performed by the BCWMC
- SWQ Automated water quality monitoring of stream locations performed by BCWMC (or contracted party)
- WOMP Watershed Outlet Monitoring Program facilitated by Metropolitan Council Environmental Services