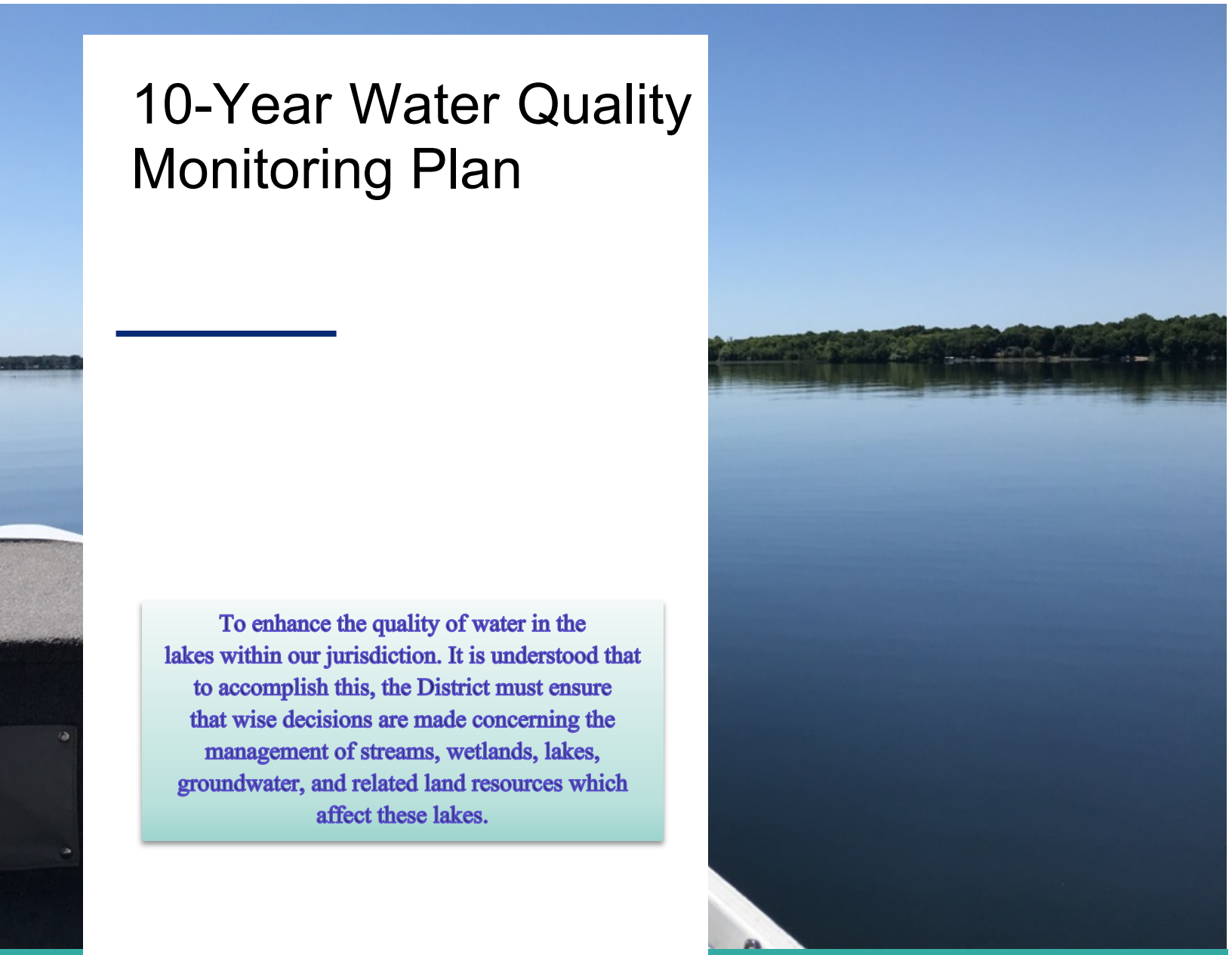
10-Year Water Quality Monitoring Plan



To enhance the quality of water in the lakes within our jurisdiction. It is understood that to accomplish this, the District must ensure that wise decisions are made concerning the management of streams, wetlands, lakes, groundwater, and related land resources which affect these lakes.

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PELICAN RIVER
watershed district

Table of Contents

List of Tables

List of Figures

1. Summary

1.1.Program Background

The Pelican River Watershed District (PRWD) performs an extensive monitoring operation to track trends and anomalies in the quality of District Waters. It is the intent of this program to maintain consistent and accurate water quality data to guide District practices and programs. This program was initiated in 1995 and has continued to the present date. The District has evaluated this program each year to stay current with new technology and new issues in the District.

1.2.Program Summary and Goals

This program will continue to maintain an emphasis on tracking phosphorous as it travels through the watershed. Additional water quality metrics (water clarity, chlorophyll-a, total suspended solids etc.) will be captured at sample points to maintain a robust data set. This program will also track changes to upland and riparian development through shoreline surveys and land use tracking. In the interest in maintaining healthy ecosystems within District waters, the District monitors the composition of aquatic vegetative communities and treats curly-leaf pondweed and flowering rush to control the spread of these aquatic invasive species (AIS). Investigation of invertebrate AIS and any new vegetative AIS remains ever important to the District. The District will follow Standard Operating Procedures (SOP's) in all data collection (Appendix C; Adopted from Minnesota Pollution Control Agency and Red Lake Watershed District).

With the hire of a new Water Resource Coordinator in the fall of 2019 and the adoption of the Revised Watershed Management Plan in early 2020, the District's monitoring program will experience some changes over the next few years. Changes will range from addition and subtraction of monitoring locations to adding new metrics in the interest of a more robust data set. It is the intent of this plan to maintain historically significant monitoring points to allow for the capture of long-term trends of the District's main lakes while expanding data on smaller lakes to allow analysis for impairment by the Minnesota Pollution Control Agency (MPCA).

This plan will outline goals and objectives for each waterbody. While all District waters are important, time and budget constraints limit the ability to sample all waters. Because this Plan is evaluated annually, we are able to adaptively manage District waters according to data collected. This program will work to achieve the goals of the District's Lake Water Quality Management Areas (LWQMA) and the Mission of the District. These LWQMA's were established in the 2004 Revised Watershed Management Plan as distinct planning areas with distinct characteristics and issues (Figure 1.1). A physical description and general goals of each LWQMA is available in Appendix D. Table 1.1 Lists out the Goal and Strategies for each LWQMA.

2. Stream Sampling

The District focuses its stream monitoring program on Campbell Creek/Ditch 11-12, Pelican River/Ditch 13, St. Clair Lake Drainage area (Ditch 14), and Sucker Creek (Figure 2.1). Segments of Campbell Creek and the Pelican River have been channelized to be used as county drainage ditches, while Sucker Creek has been protected from development through the creation of the Sucker Creek Preserve. Channelization occurred in the early 1900's to enhance agricultural land usage and control mosquito populations. Becker County transferred management authority of these systems to the

District in 1997. These modifications changed the natural flow regime which contributes to present-day nutrient and water quality issues.

Sucker Creek is a natural system located within the Greater Sucker Creek Preserve on the Southeast side of Detroit Lake (Figure 2.1). Although sampling has not occurred in recent years, historically limited sampling has occurred on Sucker Creek at the outlet to Detroit Lake. This plan will continue sampling on Sucker Creek to ensure water quality remains pristine. Overall, the District has 24 stream monitoring locations from which staff take samples throughout the year (Figure 2.2, 2.3, and 2.4). Table 2.1 summarizes the stream sampling site changes for this plan period, including abandonment of four monitoring sites, addition of five new sites, and changes to sampling parameters at one site.

The District's monitoring program has identified excessive sediment loading from Campbell Creek, elevated phosphorus loading from the Rice Lake Wetland and urban areas on the Pelican River, and elevated phosphorus loading and low dissolved oxygen on Ditch 14/St. Clair Lake. From 2017-2019, the MPCA conducted a Watershed Restoration and Protection Strategy assessment for the Otter Tail Watershed (including the Pelican River). The results of the study confirmed there are impairments to Campbell Creek (between Campbell Lake and Floyd Lake) and found new impairments to the Pelican River (HWY 10 to Detroit Lake). A reach of Campbell Creek is impaired for excessive TSS, and a reach of the Pelican River is impaired for low dissolved oxygen, high E. coli, and reduced communities of fishes and benthic macroinvertebrates.

Table 2.1. Changes to stream monitoring sites.

Site	Status	Description	Reason
PR6a	Abandon	Pelican River between Muskrat and Detroit	Redundant, Multiple samples upstream
PR0	Abandon	Between North Floyd and Little Floyd	Redundant, Sample North Floyd and Little Floyd Every Year
PR7a	Abandon	Bottom of Dutton Locks	No Change from PR7
PR4b	New	Pelican River at Lori Ave	Track E-coli and nutrients through the City of Detroit Lakes
PUB	New	Detroit Lakes Public Beach	Capture Stormwater Discharge to Detrioit Lake
ESW	New	Storm Sewer Discharge to Ditch 14 Wetlands	Capture Stormwater Discharge to Ditch 14
SU1	New	Sucker Creek at Outlet to Detroit Lake	Show Ideal Prestine Stream Condition
SC3b	Change	Ditch 14 Between Lake St. Clair and Pelican River	HOBO Meter is Being Moved to Sucker Creek

Table 2.2. Stream monitoring metrics and schedule. An "X" indicates sampling of given metric. Markers "A" and "B" indicate sampling during the first or second week of the biweekly schedule respectively. The "*" signifies sites were TSS is not sampled for chemical analysis.

Site	New or Current Site	Description	Weekly Visit		Bi Weekly		Monthly		Event/Storm	
			Staff Guage	HOBO	Chemical	E-Coli	Chlorides	Chemical	Chemical	E-Colli
CC2	Current	Campbell Creek at 230th St	X	X	B				X	
CC2a	Current	Campbell Creek 1/4mi Downstream of 230th St	X		A					
CC1	Current	Campbell Creek at CR-149	X	X	B				X	
CC1a	Current	Campbell Creek Outlet to North Floyd Lake	X		A					
PR1	Current	Little Floyd Outlet on Little Floyd Rd	X		A					
PR2	Current	Pelican River at Anchor Rd	X		B				X	
PR2a	Current	Pelican River at Rice Lake Outlet	X	X	B					
PR3	Current	Pelican River at State Highway 34	X	X	A	X			X	
PR4a	Current	Pelican River at Corbett Rd	X	X	A	X	X		X	X
PR4b	NEW	Pelican River at Lori Ave. (Weekly Flow Rating)	X							
PR6	Current	Pelican River at Detroit Lake Outlet	X	X			X			
PR6a	Current	Pelican River at US Highway 59	X							
PR8	Current	Pelican River at Lake Sallie Outlet	X		A*					
PR9	Current	Pelican River at Lake Melissa Outlet	X		B*					
SC3	Current	Ditch 14 at Lake St. Clair Outlet	X	X	A*					
SC3b	Current	Ditch 14 Between Lake St. Clair and Pelican River	X							
SC4	Current	Ditch 14 at Outlet to Pelican River	X		B*		X			
IP	Current	Outlet to Industrial Park Storm Sewer							X	X
PV	Current	Pavillion Storm Sewer Discharge to Detroit Lake							X	X
PUB	NEW	Detroit Lakes Public Beach							X	X
ESW	NEW	Storm Sewer Discharge to Ditch 14 Wetlands					X		X	X
SU1	NEW	Sucker Creek at Outlet to Detroit Lake	X		B*			X	X	

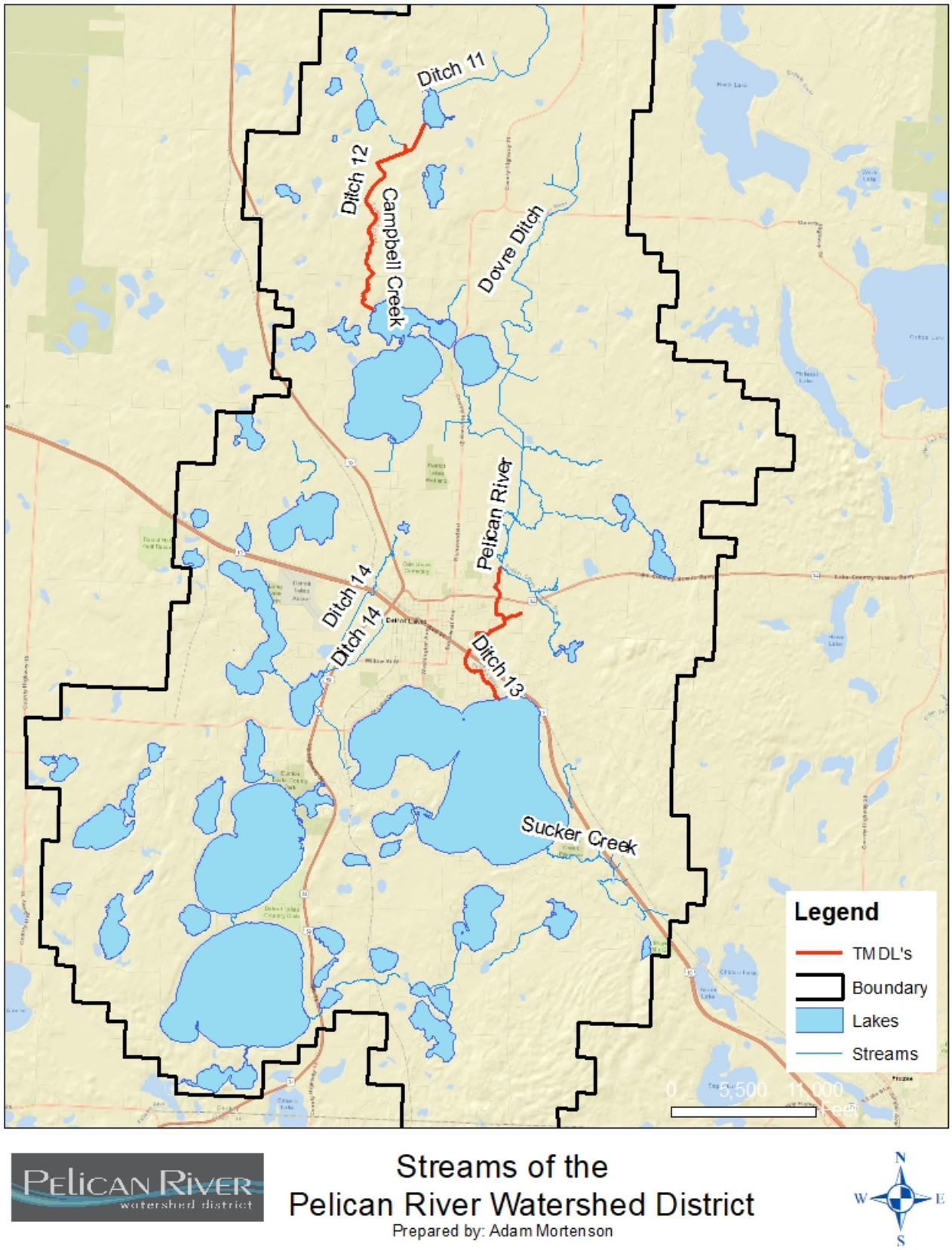

Figure 2.1. Streams in Pelican River Watershed District

2.1.Routine Stream Sampling

Routine stream sampling allows the District to develop baseline data to assess the health of the stream. To acquire this baseline data, routine samples are taken to create a consistent and robust dataset. To accommodate the sample sites proposed with a limited staff, sites will be placed on a two-week rotation for routine sampling (Table 2.2). This rotation will begin the week of June 1st and continue until the week of September 30th. Sampling before June 1st will begin as soon as ice off and will continue on an as needed based on funding.

Routine sampling of these streams will record stream stage (water level), stream discharge (flow), Total Phosphorous (TP) Orthophosphate (OP), Total Suspended Solids (TSS), Dissolved Oxygen (DO), pH, Specific Conductance (SC), E-coli, transparency, chlorides, and water temperature. Not all sites will capture each metric, and some will capture all metrics (Table 2.2). In addition to these metrics, other conditions are recorded such rainfall, beaver dams, tree snags, and instream vegetation.

2.1.1. Methods

Stream stage will be sampled on a weekly basis throughout the sampling season using staff gauges. Staff gauges will be set each spring after ice has cleared. When gauges are set, elevations will be recorded and compared to a historical benchmark nearby to maintain consistency. This data will be combined with information obtained using HOBO water level loggers. The HOBO units are automatic samplers (made by the company Onset) set to record water level and temperature data at set intervals (every 30 minutes). In addition to water levels and temperature, stream discharge is measured several times during the summer season under various stream stages using an AquaCalc 5000 meter. Stream stage and discharge are used to develop stream rating curves. These rating curves estimate the discharge at a given stream stage. Using this information, nutrient loadings and energy exerted on streambank (causing erosion) can be calculated. Stream rating curves will be constructed and checked for every location with a HOBO water level logger.

Climate data will be collected with automated rain gauges at CC2, PR9, and the District's office. To prevent damage to equipment, gauges will be placed after the final frost of the spring and pulled before the first frost of the fall. Precipitation data from a local radio station (KDLM), the Minnesota Department of Natural Resources (MN DNR), and the National Oceanic Atmospheric Administration (NOAA) will supplement this data to track long-term trends in precipitation.

Water quality samples will be taken on a bi-weekly schedule. These samples will capture TP, OP, TSS DO, pH, SC, and water temperature. TP, OP, and TSS samples will be taken from the thalweg of the stream using a sampling cup on an extendable pole. Samples will then be taken to RMB Environmental Laboratory for analysis. DO, pH, SC, and water temperature will be taken using the District's multi-parameter Sonde unit. Staff will attempt to get the sensor in the thalweg of the stream. If unable to, a clean bucket will be used to capture water for the sample. The District will also purchase an automatic DO logger from Onset to capture fluctuations in DO. This logger will be placed in the Industrial Park in Detroit Lakes. Chlorides, E. coli and TSS will be taken from select locations (Table 2.2) utilizing proper SOP's. District staff will also take transparency readings using a secchi tube from all Campbell Creek locations on a weekly basis. Through the a newly acquired continuous DO logger, District staff will track fluctuations in DO throughout the day for set periods of time. Because this logger can be moved, several locations my be checked each year, and will be sampled on an as needed basis.

During routine visits, District staff will also inspect stream reaches for blockages. As the Drainage Authority, the District is required to clear obstructions such as beaver dams and debris to maintain the flow of water through the ditches. Any debris or blockages observed will be noted on sampling forms and reported to the Administrator.

To prevent the spread of AIS, District staff will sanitize sampling equipment between sites. Use of a hot water pressure washer, chlorine, or a Virkon solution will be used to sanitize all non-sensitive sampling equipment such as secchi disks. For the Sonde, sterilization will be achieved through use of pH 4 solution. As an extra precaution, staff will sample infested sites last to help prevent the spread of AIS.

2.2. Non-Routine Stream Sampling

In addition to routine sampling, the District collects data during anomaly events to capture extremes not captured by routine sampling. Examples may include rainfall events >1-inch in a 24-hour period, erosion, blockages, or other anomalies reported by stakeholders or other professional organizations.

Special projects may require collection of additional metrics and data outside of the routine sampling schedule. This would include effectiveness monitoring for projects implemented by the District. Examples of special sampling projects include stream cross-section surveys, stream reconnaissance surveys, and others as opportunity arises. SOP's for these projects will be developed on a per project basis. District will use its partnerships to ensure proper sampling using unfamiliar techniques.

Educational events may include a data collection component. The District is involved with an education event every spring with students from the Detroit Lakes Public School District. These students learn the basics of evaluating water quality and biotic communities in a stream. Monitoring workshops will be conducted from time-to-time with Becker County Coalition of Lake Associations and other local stakeholder groups to improve involvement in Citizen Monitoring.

2.2.1. Methods

Storm samples will be taken promptly after storm events to ensure accuracy of data. Storm samples will be taken at key stream monitoring locations as well as other select locations in the City of Detroit Lakes (Table 2.1). These samples will be analyzed for TP, OP, and TSS, and for E-Coli in select locations. The grab-sample method will be used to capture these samples. The collection of data will follow SOP to ensure proper methods and safety precautions are followed.

For the Sucker Creek Outreach Event, District staff will demonstrate sampling techniques to local students. These sampling techniques will be performed in the same way staff collect routine stream samples.

As other opportunities arise to capture more specialized data, District staff will develop specialized monitoring protocols, such as for stream reconnaissance surveys or stream cross-section surveys. District Staff will consult with experts and establish standard methods and locations for these surveys during this planning period.

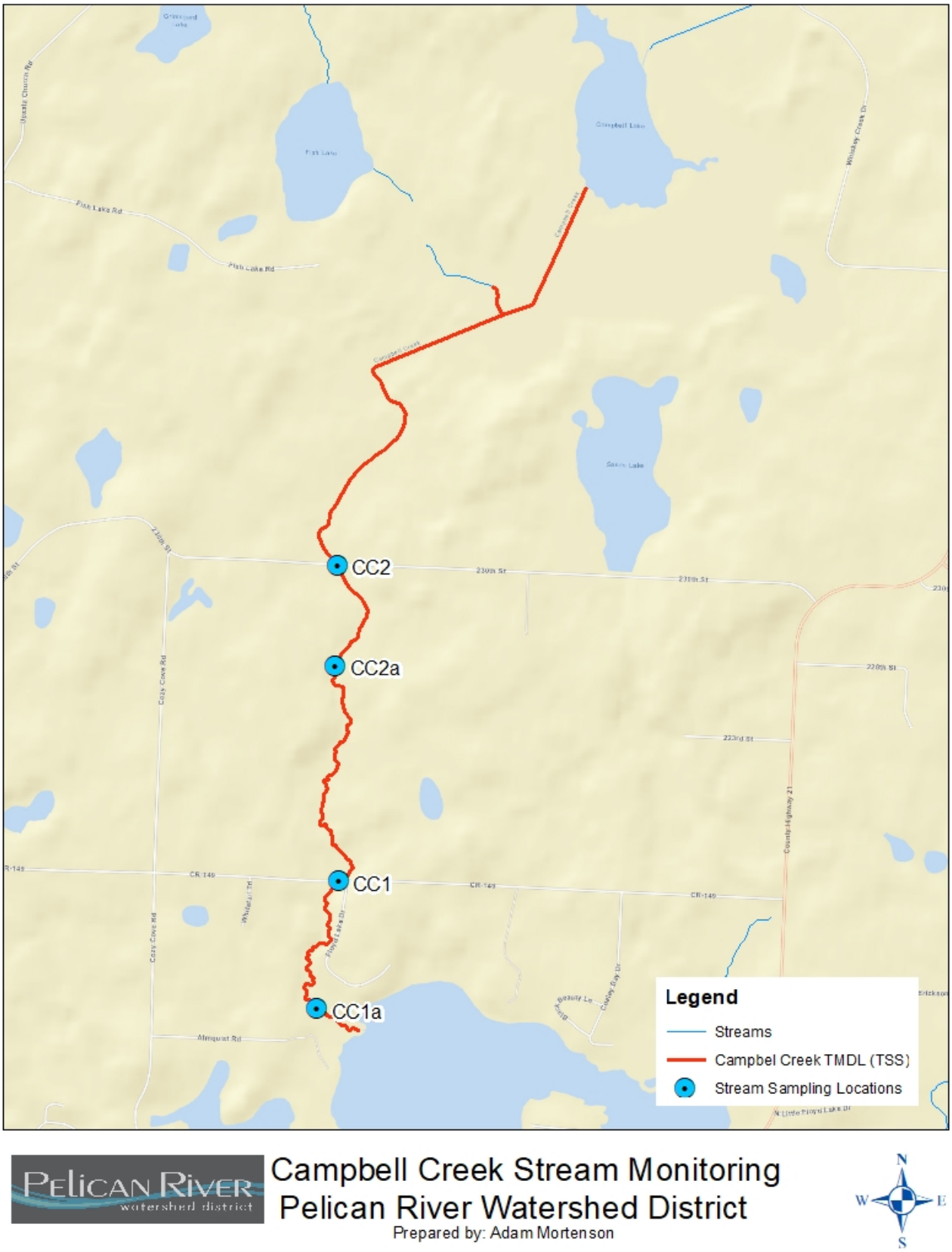

Figure 2.2. Stream Monitoring Points (Map 1 of 3)

Figure 2.3. Stream Monitoring Points (Map 2 of 3)

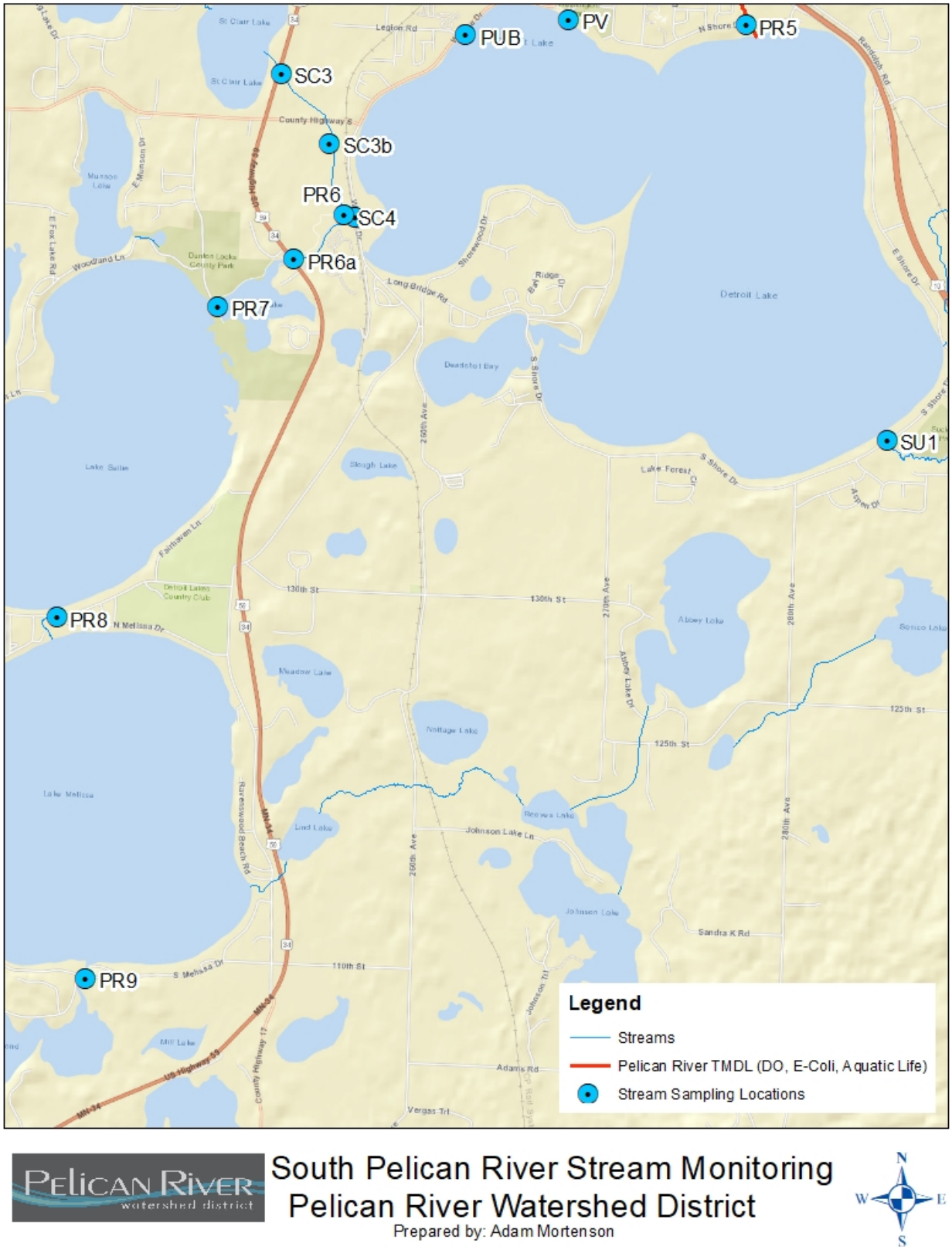

Figure 2.4. Stream Monitoring Points (Map 3 of 3)

3. Lake Sampling

The District's lake monitoring program acts as the eyes of the District, recording changes in water quality and nearshore conditions, as well as tracking District progress in protecting and enhancing water quality. The District collects a robust dataset including TP, OP, Chlorophyll-A (Chl-A), Temperature, DO, pH, SC, secchi depth, shoreline development, aquatic vegetative community composition, and phytoplankton and zooplankton community composition.

There are 52 basins the District classifies as "Lakes" (Figure 3.1). Of these basins, the District may sample up to 15 lakes annually. To ensure as many lakes as possible are sampled, the District prioritizes these 52 basins into 3 sampling categories: Major (8), Minor (29), and "As Opportunity Arises" (16) (Appendix B). Major Lakes are sampled on an annual basis and Minor lakes (29 basins) are sampled two years within a ten-year period following MPCA guidelines for impairment analysis (Table 3.1).

Major lakes are the larger and more heavily developed lakes the District considers more susceptible to disturbance. These lakes share a significant connection to other waters in the District and experience extensive use throughout the year. Minor lakes tend to be less developed than major lakes but maintain connection to other District waters. While these lakes are frequently used throughout the year, impacts to these systems are less than major lakes. Due to time and funding constraints, smaller lakes in the "As opportunity arises" category will be monitored on an "as needed" basis. These lakes tend to have healthy naturalized lakeshores and little development, or little to no connection to other District Waters. Therefore, these lakes are considered more resilient from degradation.

District staff and seasonal interns collect the District's data. Seasonal interns are hired from May to August and perform the majority of the data collection during this timeframe. The Water Resource Coordinator is responsible for oversight and training of these interns.

The data collected will be used to produce Lake Management Plans for each individual lake. Each year, District staff will use available data to review the water quality and stressors for one or two lakes. A detailed description of the biotic and abiotic characteristics of the lake will be listed along with the stressors to lake health and goals to mitigate these stressors. These plans will be produces as opportunity arises, and as circumstance requires.

Table 3.1. Long term schedule for water quality sampling. The "*" signifies major lakes which are sampled every year.

Lake Name	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Big Floyd Lake	X	X	X	X	X	X	X	X	X	X
North Floyd Lake	X	X	X	X	X	X	X	X	X	X
Little Floyd Lake	X	X	X	X	X	X	X	X	X	X
Big Detroit Lake	X	X	X	X	X	X	X	X	X	X
Little Detroit Lake	X	X	X	X	X	X	X	X	X	X
Long Lake	X	X	X	X	X	X	X	X	X	X
St. Clair Lake	X	X	X	X	X	X	X	X	X	X
Lake Sallie	X	X	X	X	X	X	X	X	X	X
Lake Melissa	X	X	X	X	X	X	X	X	X	X
Long Lake		X	X	X	X	X	X	X	X	X
Glawe	X					X				
Loon Lake	X					X				
Oak Lake	X					X				
Spear Lake	X					X				
Meadow Lake	X					X				
Curfman Lake	X					X				
Dart Lake		X					X			
Campbell Lake		X					X			
Cottage		X					X			
Muskrat Lake		X					X			
Pearl Lake		X					X			
Brandy Lake			X					X		
Fish Lake			X					X		
Kennedy Lake			X					X		
Saint Patrick Lake			X					X		
Sands Lake			X					X		
Lind Lake				X					X	
Schultz Lake				X					X	
Tamarack Lake				X					X	
Wine Lake				X					X	
Mill Pond				X					X	
Abbey Lake					X					X
Johnson Lake					X					X
Reeves Lake					X					X
Fox Lake					X					X
Munson Lake					X					X

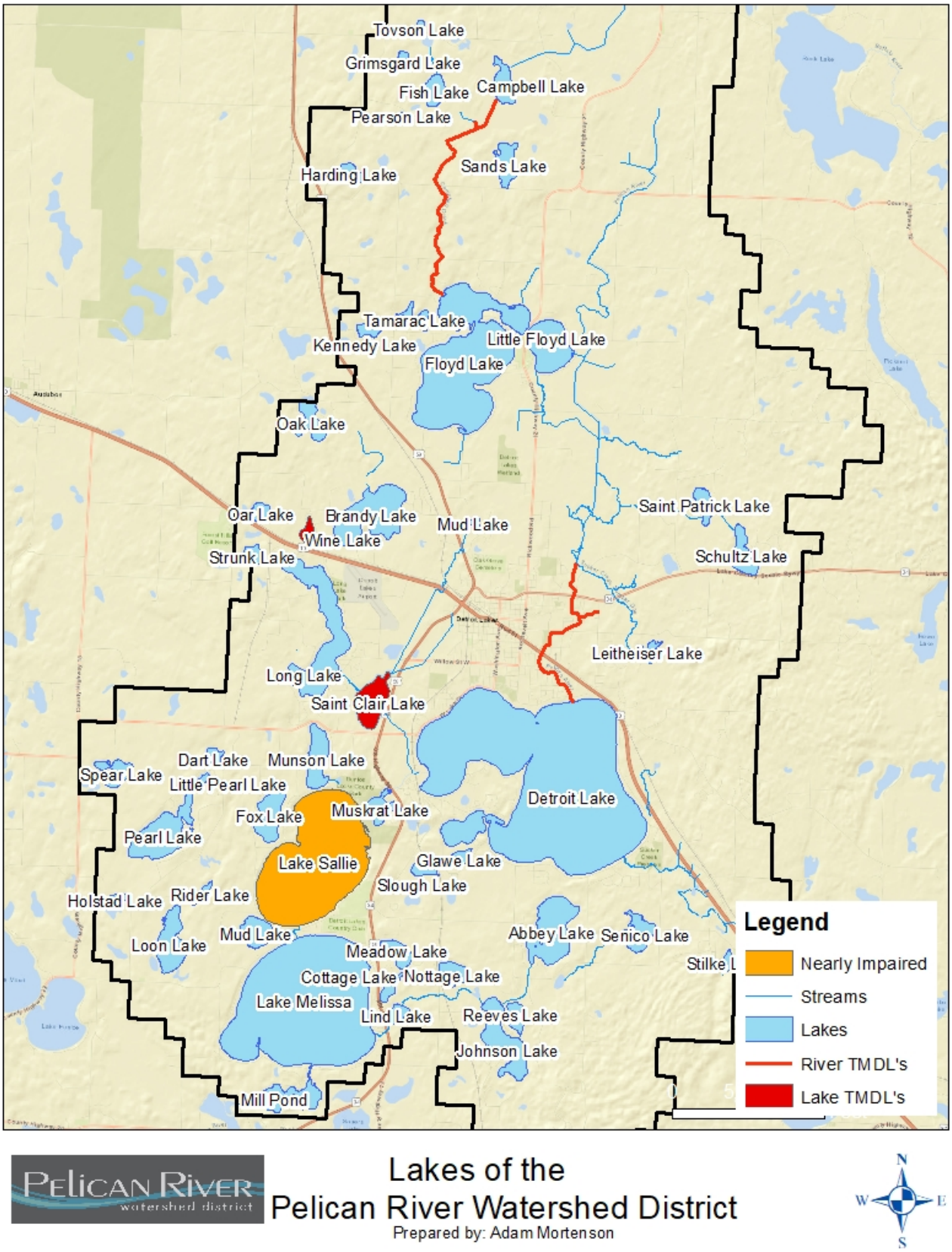

Figure 3.1. All Lakes in the Pelican River Watershed District

3.1. Water Quality

Water quality metrics will be used to track lake eutrophication from phosphorous loading. This data will be reported to the public and analyzed to predict any trends in water quality. Spikes in phosphorous combined with warm temperatures may trigger algal blooms which may be toxic or inhibit recreation. These trends will also help to track effects of certain AIS such as zebra mussels (*Dreissena polymorpha).* These samples will be taken from pre-determined locations to ensure sample consistency and accuracy (Appendix B). Any anomalies in water quality will be investigated in hopes to determine cause and possible remedies.

3.1.1. Methods

Lake water quality sampling will follow a routine bi-weekly schedule to collect a minimum of eight samples from June through September. Additional sampling may occur October through May, depending upon lake physical conditions such as an algae or diatom bloom.

Staff will collect samples at set points per GPS data. Sampling points will remain consistent with historic sample points with one notable change: on St. Clair lake, the north sampling point will be abandoned, however the District will continue to sample the South location. Water quality samples will be collected using a 2-meter integrated sampler to obtain samples for chemical analysis. Water clarity will be measured using a secchi disk, and water temperature, DO, pH, and SC will be measured using a multi-parameter sonde.

After sampling in the lake is complete and before entering into a new waterbody, equipment is cleaned/sanitized. A mobile equipment sanitizer will be used at the public boat launch to remove any possible AIS from the boat, trailer, and equipment. The equipment shall also be thoroughly cleaned each week to ensure it remains in good condition. Use of a hot-water pressure washer, chlorine, or a Virkon solution will be used to sanitize all non-sensitive sampling equipment such as secchi disks or the boat. For the Sonde, sterilization will be achieved through use of pH 4 solution. As an extra precaution, staff will sample infested sites last to help prevent the spread of AIS.

3.2. Aquatic Vegetation

The District monitors the composition of the aquatic vegetation community within District lakes. This data is useful to track the ecological integrity of the lake. A diverse plant community more efficiently utilizes the available nutrients in the lake, preventing excess growth of algae. The diversity of the plant community also makes the lake more resilient to disturbance such as excessive wave action caused by strong winds or aquatic recreation. Vegetation anchors sediments, preventing them from being disturbed and entering the water column. Sediments suspended in the water column can shade vegetation and release phosphorous, increasing algae growth. In this way, a diverse plant community can help to decrease the likelihood of algae blooms in lakes. Aquatic vegetation also increases DO in the water column, increasing the health of fish populations.

Due to time and funding constraints, only select lakes can be sampled each year. This sampling schedule follows a separate schedule from water quality sampling (Table 3.2). This data will be used to track changes in the aquatic vegetation community and any new or current AIS infestations.

Table 3.2. Vegetation survey schedule

Lake Name	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Big Floyd Lake	X					X				
Little Floyd Lake	X					X				
North Floyd Lake	X					X				
Lake Melissa		X					X			
Lake Sallie		X					X			
Fox Lake			X					X		
Meadow Lake			X					X		
Mill Pond			X					X		
Muskrat Lake			X					X		
Long Lake				X					X	
Munson Lake				X					X	
Pearl Lake				X					X	
Big Detroit Lake					X					X
Little Detroit Lake					X					X
Curfman Lake					X					X

3.2.1. Methods

Aquatic vegetation surveys will be conducted using a point-intercept method as described by Madsen (1999) (Appendix C). Points will be placed at regular intervals throughout the littoral zone (≤15ft depth) according to the MN DNR (Figure 3.3). At each sample point a "double-headed garden rake" will be tossed ~5m away from the boat and retrieved to the surface via an attached rope. The vegetation present on the rake will be ranked according to the amount of the rake covered with each species: Less than 1/3 coverage is 1, between 1/3 and 2/3 is 2, from 2/3 to completely covered is 3.

3.3.Shoreline Survey and Methods

Shoreline surveys are conducted on District lakes to capture the rate of conversion from naturalized shoreline to a more heavily modified shoreline. Each parcel is rated either natural/minimally modified, moderately modified, or heavily modified (Table 3.3) The number of boats, boat lifts, and docks will be counted for each parcel as well. Due to time constraints of District staff, only select lakes will be surveyed each year (Table 3.4). If opportunity allows, District Staff will strive to perform surveys on minimally developed lakes within the District to establish a baseline pre-development. This data will be reported in the Annual Report and compared to previous surveys to show trends in development on District Lakes.

Table 3.3. Rankings used for shoreline survey.

Category	Description
Natural	Natural vegetation for all of shoreline and shore-impact zone; No Modifications have been made to the shoreline except a small walkway (~4ft) and/or a dock.
Minimally Altered	Naturally vegetated for 80% of shoreline and shore-impact zone; Some modifications maybe made, a small strip of vegetation may be cleared; Only natural sand blanket and rip-rap present
Moderately Altered	20%-50% of shoreline altered from natural state; No retaining walls present; Modifications to Shore-impact zone are present, but limited to less than 50% of shoreline; property retains some trees or shrubs in shore-impact zone
Greatly Altered	More than 50% of shoreline is altered; Retaining walls or concrete patio may be present in Shore-impact Zone; Turf grass all the way to shoreline/riprap/sand blanket; upland may be clear cut

Table 3.4. Shoreline survey long term schedule

Lake Name	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Sands Lake	X					X				
Abbey Lake	X					X				
Reeves Lake	X					X				
Johnson Lake	X					X				
Meadow Lake	X					X				
Muskrat Lake	X					X				
Fox Lake	X					X				
Big Floyd Lake		X					X			
Little Floyd Lake		X					X			
North Floyd Lake		X					X			
Lind Lake			X					X		
Lake Melissa			X					X		
Lake Sallie			X					X		
Glawe Lake				X					X	
Curfman Lake				X					X	
Big Detroit Lake				X					X	
Little Detroit Lake				X					X	
Pearl Lake					X					X
Long Lake					X					X
Munson Lake					X					X

3.4.Zooplankton Community Composition and Methods

Due to the infestation of zebra mussels in District lakes, the District has started to work with the MN DNR to monitor the composition of the zooplankton communities in lakes affected by zebra mussels. Through collaboration with the MN DNR, the District staff collects samples and the MN DNR pays for the cost of analysis. Each year, the District will sample Detroit, Sallie, Melissa, and Floyd Lakes. These samples will be taken using a 90-cm x 30cm diameter 8-µm mesh plankton net. A

vertical tow method will be used to sample the water column. This method will also sample zebra mussel veliger counts to give an idea of densities on those lakes. This data will be compared to prior years to determine population trends.

3.5.AIS Monitoring

The District takes AIS seriously. The District adopted a new AIS Readiness Response Plan in 2020 which outlines reaction procedures in the event of a new vegetative AIS infestation. As staff visit lakes throughout the summer, they will be mindful of any obvious infestations. The District will also perform formal monitoring procedures to capture any possible AIS in District Lakes. Zebra mussel settlement samplers will be placed on District lakes to track new infestations. Staff will conduct vegetation surveys around public access points to monitor for possible new infestations. Staff will also investigate any reports of AIS by concerned citizens to confirm or dismiss the presences of new AIS.

3.5.1. Methods

Zebra mussel settlement samplers will be created from a series of black plexiglass plates. These plates will be mounted vertically on a pole, 4-6 inches apart. The plates will be about 12 inches square. These samplers will be suspended in the water column at each public access as well as off the private docks of district lakes. These samplers will be placed for the time docks are in the water (May through September). Plates will be inspected for zebra mussels and counted if there are any. A metric of zebra mussels/sq ft will be used to represent the density of zebra mussel populations. This data will track expansion of zebra mussel populations or possible areas with increased densities.

Public access surveys for new infestations of vegetative AIS will be performed on each public access in the District at least once per month throughout the summer. A minimum of 5 samples will be taken within 100 meters of the boat launch in the littoral zone of the lake. More samples may be merited if staff determine necessary. Sample procedure will follow procedure for point-intercept surveys.

Any new AIS infestations will be promptly reported to the Water Resource Coordinator and District Administrator to trigger immediate action. It is the intent of the District to limit the abundance and spread of AIS populations.

3.6.Citizen Monitoring Program

In 2020 the District will work to expand the network of citizen scientists reporting their findings to the District. The goal of the District is to have at least one citizen on every lake, with a focus on lake not annually monitored by the District. To encourage participation, the District will provide monitoring secchi disks, training, and give special presentations of yearly results to the District wide group of citizen scientists. Facebook posts, newspaper articles, mailings, advertisements on Hodge Podge, and networking through local conservation groups (Lake Associations, Izaak Walton League, Angler Groups, etc.) will increase awareness of this program and inspire citizens to participate. Citizen monitoring is a cornerstone of the District's Monitoring Program.

Citizen scientists will also be asked to make observations of lake ice data, physical characteristics of water, and report other anomalies. Forms will be created and provided to citizens to record these observations.

4. Annual Budget and Workplan

The funds needed to implement this 10-year plan is projected to be $690,000 (Table 4.1). Costs may vary as to the amount of administrative time spent on this project as well as changes to cost of analysis. Plan implementation funding sources include some combination from the Survey and Data Acquisition Fund, Projects 1-B, 1-C, and LMP-01 funds, and other available sources. An annual workplan and budget will be prepared each year for Board approval.

Table 4.1. Projected Yearly Budget.

Routine Sampling				
Metric	**# of Sites**	**# of Samples**	**RMBEL Cost**	**Total Budget**
Total Phosphorous	29	232	$ 12.00	$ 2,784.00
Orthophosphate	29	232	$ 10.00	$ 2,320.00
Chlorophyll-a	14	112	$ 19.00	$ 2,128.00
Chlorides	4	20	$ 10.00	$ 200.00
Total Suspended Solids	10	80	$ 10.00	$ 800.00
E-Coli	4	32	$ 17.00	$ 544.00
			Total	$ 8,776.00
Storm Event Sampling				
Metric	**# of Sites**	**# of Samples**	**RMBEL Cost**	**Total Budget**
Total Phosphorous	12	60	$ 12.00	$ 720.00
Orthophosphate	12	60	$ 10.00	$ 600.00
Chlorophyll-a	12	60	$ 19.00	$ 1,140.00
Chlorides	12	60	$ 10.00	$ 600.00
Total Suspended Solids	12	60	$ 10.00	$ 600.00
E-Coli	6	60	$ 17.00	$ 510.00
			Total	$ 4,170.00
			Total Sampling Expected Cost:	$ 12,946.00
			Total Budgeted in 2020 Budget:	$ 14,000.00
Administrative				
Line Item				**Budget**
Seasonal Staff				$ 15,700.00
Administrative Staff				$ ~30,000.00
Vehicle and Maintenance				$ 1,200.00
Equipment Purchase/Repair				$ 3,200.00
Misc. Supplies				$ 1,500.00
			Total Budgeted	$ 51,600.00