Prior Lake Spring Lake
WATERSHED DISTRICT

2010 ANNUAL REPORT

District Information

Prior Lake-Spring Lake Watershed District
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Board of Managers

Craig Gontarek, President
William Kallberg, Vice President
William Schmokel, Secretary
Larry Mueller, Treasurer
Roger Wahl, Manager (Term ended June 2010)
Greg Aamodt, Manager (Term began June 2010)

District Staff

Michael Kinney, District Administrator
Amy Tucci, Administrative Assistant
Joshua Mankowski, District Technician
Stacy Sass, Water Resources Technician

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District Auditor
Abdo, Eick & Meyers, LLP, 5201 Eden Ave, Suite 370
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Regular Board Meetings

Held at the City of Prior Lake City Hall the second Tuesday of each month at 2:30 p.m.

Official Newspaper

Prior Lake American

Cover Photo: Buffer strip adjacent to Jeffers Pond

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SECTION 1: INTRODUCTION AND BACKGROUND

INTRODUCTION

This report summarizes the activities of the Prior Lake-Spring Lake Watershed District and the financial status of the District for the year ending 2010. The report is organized into three sections:

Section 1: Introduction and Background- Provides background information on the District.

Section 2: Annual Activities- Summarizes the District's programs and activities completed in 2010 and presents a work plan for 2011.

Section 3: Financial Administration- Summarizes fund balances, budgets and levy for the fiscal year ending December 31, 2010.

BACKGROUND

The Prior Lake-Spring Lake Watershed District (PLSLWD or District) was established by order of the Minnesota Water Resources Board on March 4, 1970, for the purpose of managing and preserving the water resources of the District. It was established in response to a nominating petition filed with the Minnesota Water Resources Board by resident freeholds within the watershed on June 24, 1969.

The District encompasses approximately 42 square miles in Scott County including portions of the Cities of Prior Lake, Shakopee, and Savage; Sand Creek Township; and Spring Lake Township (see Figure 2-1). Water flow within the District is in a general northerly direction. The Spring Lake subwatershed drains through Buck Lake and County Ditch 13 flows into Spring Lake. Water from Spring Lake then drains into Upper and Lower Prior Lakes. From Lower Prior Lake, water is then carried north and out of the District to the Minnesota River via the Prior Lake Outlet Channel. The highest ground in the watershed is 1,100 feet above sea level and is found along the eastern boundary of the watershed in Section 23 of Spring Lake Township. The lowest ground in the watershed that is tributary to Prior Lake is the shoreline of Lower Prior Lake. The water level of Prior Lake varies in the range of 896 feet (Ordinary Low Water) to 904 feet (Ordinary High Water) above sea level but can go to further extremes depending on weather. The 40 year average elevation is 901.96 feet. Prior Lake was essentially a landlocked basin until an artificial outlet structure and channel were constructed in 1983.

The Board of Managers of the District is a five-member administrative board appointed for three-year terms by the Commissioners of Scott County. Board member contact information may be obtained through the District website or by request at the District office. The Board has authority to issue permits for development that affect the quantity, quality, and runoff rate of stormwater within the District and authority to undertake projects to protect and improve the water resources of the District. To fund its activities, the Board levies annual *ad valorem* taxes

on citizens who own property within the District. Historically, the District has also obtained grants from federal and state agencies to fund various special projects.

As part of their efforts to update the District's Water Resources Management Plan, on June 3, 2008, the PLSLWD Board of Managers determined to maintain the following mission statement:

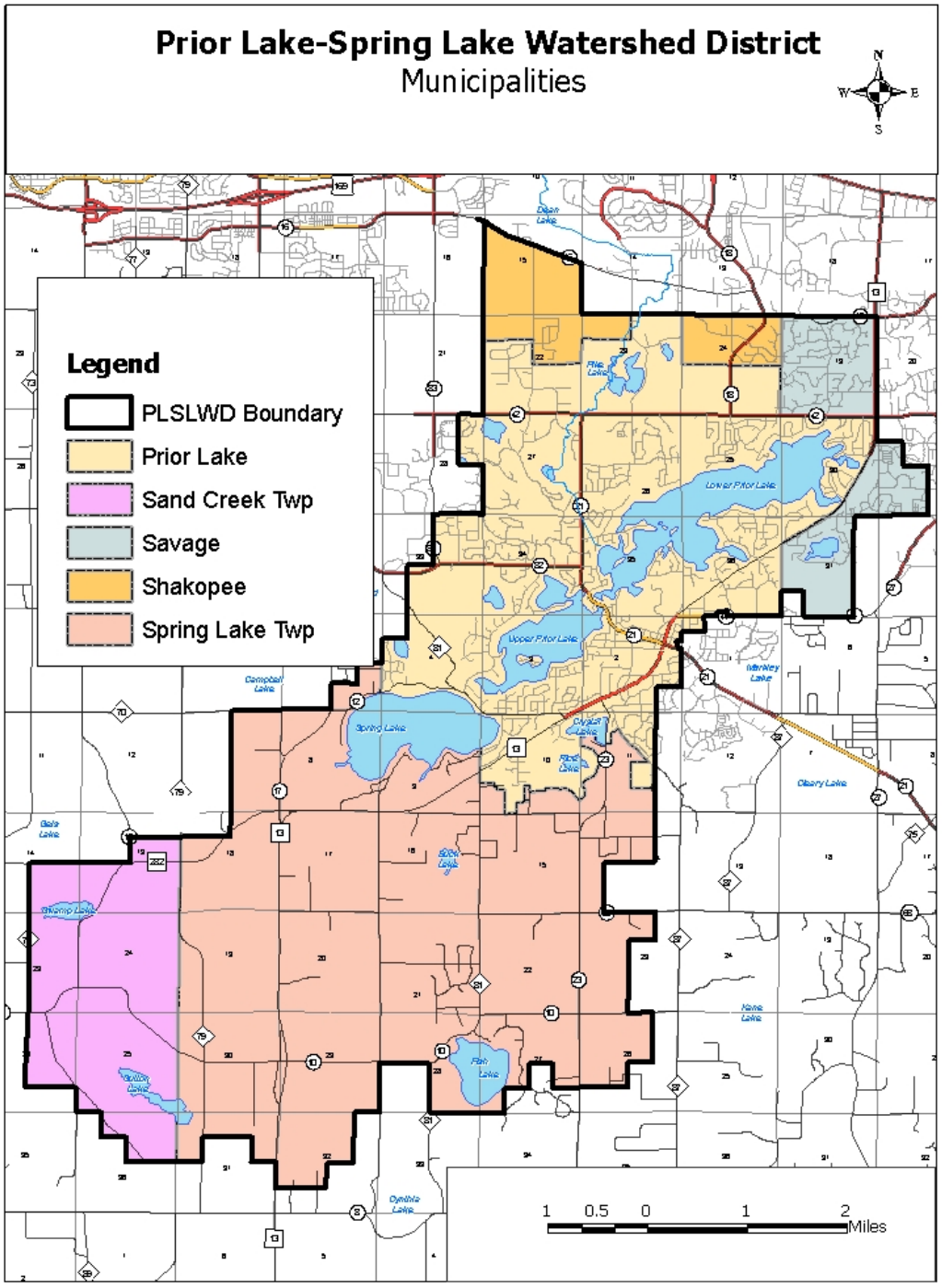
> **Our mission is to:** Manage and preserve the water resources of the Prior Lake-Spring Lake Watershed District to the best of our ability using input from our communities, sound engineering practices, and our ability to efficiently fund beneficial projects which transcend political jurisdictions.

The Minnesota Board of Water and Soil Resources (BWSR) approved the District's second Water Resources Management Plan in January 1999. The Plan was published in April 1999. The year 2010 represented the twelfth year of implementation under this Plan as amended. Work on the third generation Water Resources Management Plan began in 2008 and this updated plan was submitted to BWSR for the formal review process in 2009. Final BWSR approval was granted on June 23, 2010 and the District Board adopted the plan at its July 13, 2010 meeting. Section 2 provides a summary of implementation activities completed in 2010, as well as a work plan for 2011, which is based off the Water Resources Management Plan.

Biennial Solicitation for Consulting Services

The biennial solicitation for engineering, ecological, legal, easement/land acquisition, accounting and audit services for 2010 and 2011 was published for two consecutive weeks in October 2009 with a closing date for Letters of Interest on October 28, 2009. Submittals were reviewed and professional services were selected for the years 2010 through 2011 at a special meeting on November 18, 2009. Selected firms were Smith Partners, PLLP, for legal services; Emmons & Olivier Resources, Inc, for engineering services; Messerli, Schadow & Johnson, PLLP, for accounting services; and Abdo, Eick and Meyers, LLP, for audit services.

Figure 2-1. PLSLWD Municipalities



SECTION 2: ANNUAL ACTIVITIES

This section will provide summaries of the major activities that the District engaged in throughout 2010. A summary and evaluation of the 2010 work plan and activities is provided in Table 2-1 and the section closes with a brief work plan of anticipated activities for 2011. The District's financial administration is largely summarized in Section 3; however, grants the District has received will be presented here along with their related program or project within the work plan.

SUMMARY OF 2010 GRANTS & WORK PLAN

When available, the PLSLWD applies for and makes use of state, federal and other grant programs to leverage the financial resources of the District and its taxpayers. In 2010 the District had the following active grants:

- Spring and Upper Prior Lake TMDL

  The District received a $45,000 grant from the US EPA. Funding came from the Clean Water Act, Section 104(b) (3). Funding was awarded to complete the nutrient Total Maximum Daily Load (TMDL) studies for Spring and Upper Prior Lakes. The initial grant was received in November 2006 and assistance was extended through December 31, 2010.

- Prior Lake Outlet Channel Reconstruction and Enhancement- Segment 4B

  The District was awarded a $75,000 Clean Water Legacy grant by BWSR. The grant was for the reconstruction and enhancement of the Prior Lake Outlet Channel Segment 4b. This grant went into effect February 1, 2008 and expires June 30, 2010.

- USDA-NRCS Wetland Reserve Enhancement Program Grant

  This $2.5 million project over five years is for a watershed-based regional program with the goal of improving water quality and expanding critical wildlife habitat by permanently restoring and enhancing 400 to 500 acres of high quality wetlands and surrounding upland habitat in Sand Creek and Prior Lake/Spring Lake Watersheds in Scott County, MN. The project is designed as a joint partnership initiative with the Scott Soil and Water Conservation District (SWCD) serving as lead agency with support and financial (cash and/or in-kind) contributions from the Scott Watershed Management Organization (WMO), Prior Lake/Spring Lake Watershed District (PLSLWD), Rice SWCD, Le Sueur SWCD, and the Minnesota Department of Natural Resources (MDNR). The grant went into effect on October 1st, 2010.

Additionally, the District was notified of awards for several grants toward the end of 2010. These grants and the implementation of the projects will begin in 2011 when the grant agreements are finalized.

- Lower Prior Lake Diagnostic Study

  The District received a grant of $48,417 for a diagnostic study on Lower Prior Lake that will include an assessment of current water quality and pollutant sources and prescribe targeted protection strategies for the lake. Funding was provided through the Clean Water Partnership administered by the MPCA.

- Spring and Prior Lakes Upper Watershed Stormwater Runoff Volume Reduction

  A grant of $195,600 was received by the District from BWSR via the Clean Water Fund. The grant funding will aid in the establishment and restoration of wetlands and natural depressional areas in the upper watershed of the District, reducing both nutrient levels and water volume reaching the lakes during wet seasons.

- Upper Prior Lake Targeted Stormwater BMP Retrofits and Enhancements

  Grant funding was issued to the District in the amount of $189,511 from the Clean Water Fund administered by BWSR. The funding will be utilized to enhance and retrofit existing water quality features and install additional new practices in targeted areas that currently are untreated and drain directly into Upper Prior Lake.

Table 2-1. Work Plan Review, 2010

Subwatershed	Item	Page No.*	Status
All	Innovative Water Management and Demonstration projects	4-5	Continued implementation of shoreland/rain garden cost share program. Coordinated with local school district to plan for BMP retrofits on their sites. Provided funding for design and implementation of a large demonstration and educational rain garden.
	Information and Education Program	4-6	Participated in the Scott Clean Water Education program. Also attended local meetings and community events to provide updates on District activities.
	District Monitoring Program	4-7	Sampling completed by District (stream flows), volunteers (CAMP program) and contract services (in-depth lake monitoring) according to the annual monitoring plan.
	BMP and Easement Inventory and Inspection	4-7	All District permitted BMPs and conservation easements were inventoried and inspected.
	LGU Wetland Functions and Values assistance	4-8	Field inventory work was completed for a District initiated Comprehensive Wetland Protection and Management Plan. Data analysis and report writing will continue in 2011.
	Infiltration Enhancement Pilot Project	4-8	Methods of soil amendments were researched and demonstration locations were investigated. This effort will continue into 2011.
Outlet	Prior Lake Outlet Structure	4-9	The new outlet structure was installed and completed.
	PLOC Restoration and Maintenance	4-10	Planned work on Segment 2 was completed. Continued implementation of JPA/MOA for the PLOC and continued to seek corrected easements for channel areas.
	Outlet Channel Monitoring	4-10	Outlet channel monitoring included synoptic data gathering at 7 locations. Flow measurements and water quality sampling were completed at two locations.
	Review Jurisdictional Border	4-11	This item did not move forward in 2010.
Prior Lake	Storage and Infiltration Projects	4-11	Cost share toward two retrofit storage projects on CR 12 reconstruction that previously drained to Spring and Upper Prior Lake.
	TMDL Implementation Plan and projects	4-12	Preliminary framing of the implementation work plan. Additional work is pending TMDL plan approval.
	Prior Lake Aquatic Vegetation Management	4-13, 4-14	Completed aquatic plant surveys and provided the information to residents and lake association members.

	Shoreline Restoration Plan and Implementation	4-15	Continued implementation of shoreland/rain garden cost share program.
Spring Lake	Storage and Infiltration Projects	4-15	Cost share toward two retrofit storage projects on CR 12 reconstruction that previously drained to Spring and Upper Prior Lake.
	TMDL Implementation Plan and projects	4-16	Preliminary framing of the implementation work plan. Additional work is pending TMDL plan approval.
	Highway 13 Wetland, FeCl System, and Desiltation Basin Operation and Maintenance	4-18	FeCl system was not operated due to equipment problems. Additional analysis on system effectiveness and potential Hwy13 wetland and desiltation basin maintenance work was completed.
	Spring Lake Aquatic Vegetation Management	4-19	Completed aquatic plant surveys and provided the information to residents and lake association members.
Upper Watershed	Agricultural Outreach and Incentives	4-21	Continued partnership with the Scott SWCD in promoting agricultural incentives through a cost share docket. Completed 40 one on one landowner meetings to promote BMPs.
	Identify and Mitigate Channel Erosion	4-22	CD-13 was investigated for erosion issues north of 190th street.
	Fish Lake Aquatic Vegetation Management	4-22, 4-23	Completed aquatic plant surveys and provided the information to residents and lake association members.
District Operations	Rules and Standards Revision	4-24	Work plan has been framed and a review has been completed of current District rules for potential areas of update and incorporation of new standards.
	Permitting, Plan Review and Compliance	4-25	Issued permit for County road project and inspected past permit sites for compliance. Attended local development review committee meetings.
	Planning and Program Development	4-25	Completed approval process and formal adoption of WRMP.

*Refers to the page number in the 2010-2019 Water Resources Management Plan.
** Budgeted amounts are taken from the CIP table of the 2010-2019 Water Resources Management Plan.

LOCAL GOVERNMENTAL COORDINATION/PLANNING

Review of Local Governmental Unit (LGU) water management plans has focused on consistency with the District's Water Resources Management Plan (WRMP) and District Rules. With approval of the District's WRMP, local units of government having land use planning and regulatory responsibility are required by statute to prepare or update existing local water management plans. The content of local plans is driven primarily by M.R. 8410 and must include a capital improvement program and an implementation plan to bring the local water management plan into conformance with the District's plan. Submission of local water management plans to the District is to occur within two years of approval of the District's plan by the Board of Water and Soil Resources (BWSR).

In 2005 the District had discussions regarding local management planning with the LGUs within the District; several expressed their intent to revise their local controls to achieve equivalency with the District's rules and permitting requirements. This required an update to their Local Surface Water Management Plans. These updated Local Surface Water Management Plans were received, reviewed and adopted by PLSLWD in 2006 from the City of Prior Lake, the City of Savage and City of Shakopee in 2007 and likewise for Scott County in 2008.

City of Prior Lake	In 2006 the City revised its Comprehensive Plan to incorporate the Local Surface Water Management Plan. The PLSLWD provided comments as part of the revision process. The City adopted all but the wetland buffer portions of the plan on June 26, 2006. The PLSLWD adopted a resolution of conditional approval of the city's local surface water management plan in August 2006. A MOA stating rules equivalency was signed with the City in February 2007.
City of Savage	In 2006, the City of Savage Local Water Management Plan was updated. After review and providing comments, the District approved this plan in April 2007. In November 2007, a rules equivalency MOA between the PLSLWD and the City of Savage was approved by the District.
City of Shakopee	On June 12, 2007, the PLSLWD approved the City of Shakopee's revision of their Local Surface Water Management Plan and the PLSLWD provided comments as part of the revision process. The District received the City's nondegradation report in October 2007. A rules equivalency MOA is not in place with the City of Shakopee.
Sand Creek Township, Spring Lake Township	No plans have been drafted specific to either township; rather, the townships rely on the Scott County plan and rules. In 2006 Scott County started revisions of its plans and rules/ordinances to achieve consistency with the Scott WMO and PLSLWD plans and rules. PLSLWD reviewed and approved Scott County's Surface Water Management Plan in September 2006. In February 2007 PLSLWD reviewed and approved the Scott County Water Resources Plan.

Scott County continued work on its 2030 Comprehensive plan and PLSLWD reviewed that in September 2008. Scott County equivalency efforts were completed and the MOA was signed in January 2008 for those areas of Sand Creek and Spring Lake Townships that are within the District.

Additional Reviews

A Water Resources Management Plan has been completed for the Scott Watershed Management Organization (WMO), which includes a large portion of Sand Creek Township and part of Spring Lake Township. In 2005, the PLSLWD was active in the review process of the Scott WMO rules and in October 2010 the District provided review and comment on the proposed Scott WMO WRMP major amendment.

The District also actively participated in the technical advisory committee, plan review and providing comment for the WRMP of the adjoining Lower Minnesota River Watershed District throughout 2009 and 2010.

In addition to participating in the planning processes of other local units of government, in 2008 the PLSLWD initiated a comprehensive update to its Water Resources Management Plan. The PLSLWD solicited input from local governments, state agencies and the public through the plan formation. The District continued to solicit and respond to comment as they came in throughout the statutory comment and approval process as well. The final plan was approved by BWSR in June 2010 and it was formally adopted by the PLSLWD Board at its July 2010 board meeting. Considering the recent approval of the District's WRMP, submission and review of the LGUs Local Surface Water Management Plans will be required to occur by June 2012. At that time the District will also reevaluate its rules equivalencies with the LGUs.

The PLSLWD also spent considerable time and resources coordinating with the local governments along the Prior Lake Outlet Channel as implementation of the Outlet Channel JPA/MOA moved forward. All parties had signed the JPA/MOA in November 2007 and the initial meeting was held on December 11, 2007. In addition to the annual meetings of the JPA/MOA cooperators, regular technical meetings have been held as the Outlet Channel Restoration and Enhancement Project has proceeded and as other items have been brought forth.

PERMITS AND PROJECT REVIEWS

The District has regulatory authority and a permit program that requires property owners to obtain District approval for the following activities, if they exceed the District's area thresholds. To reduce duplicity and administrative costs, District permitting authority has been transferred to LGUs within the District that have established rule equivalency with the District. These include the Cities of Prior Lake and Savage and Scott County.

- Land Development Plans (land subdivision)
- Final Site Drainage Plans
- Bridge and/or Culvert Crossings of the Prior Lake Outlet Channel

- Public and Private Drainage Systems

In addition, projects of special concern to the District, projects within areas not covered by LGUs with equivalency, or projects sponsored by governmental units taking place within the District must be reviewed and/or permitted by the District. Preliminary plans are to be submitted for governmental projects in the above categories, as well as road, trail, or utility construction and reconstruction. Table 2-2 lists projects reviewed in 2010 and the action taken on those permit applications.

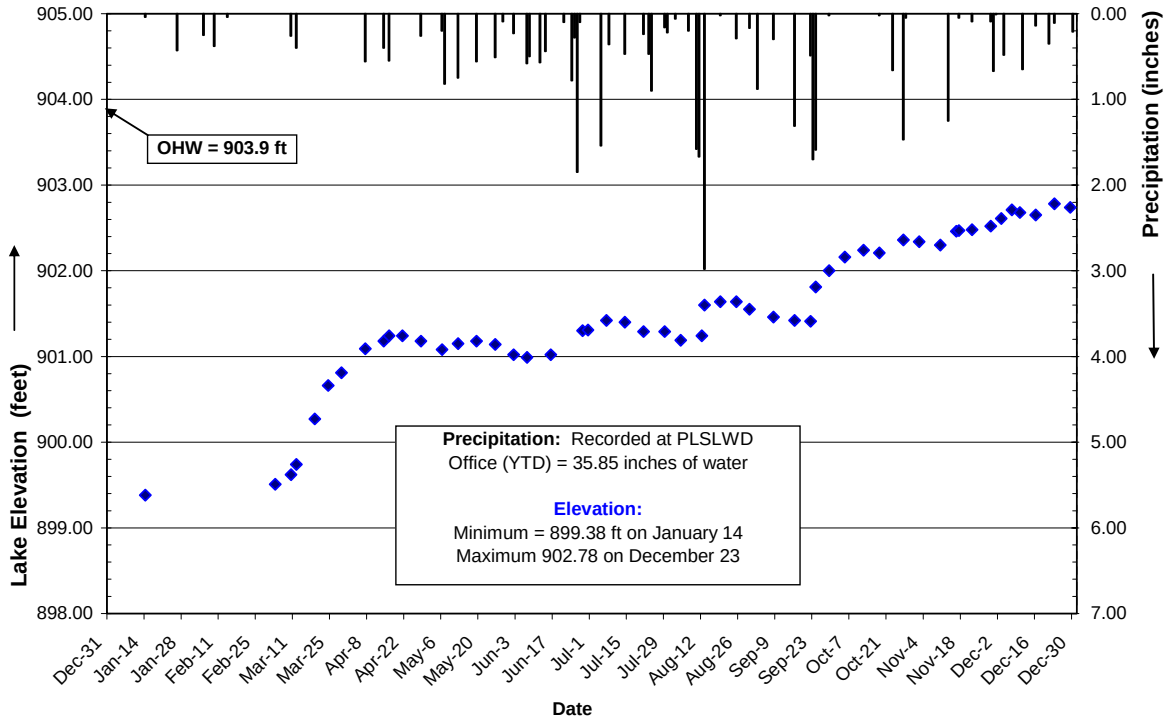
Table 2-2. Permit Activities, 2010

Application Number	Project Title	Permit Applicant	Initial Application	Board Decision	Permit Issued
2010.01	CSAH 18 Reconstruction	Scott County Highway Department	03/30/10	05/11/10	06/10/10
2010.02	Jeffers Waterfront Addition	Mattamy Homes	11/23/10	01/11/11	Pending

PRIOR LAKE OUTLET OPERATIONS

In 2010, District Staff monitored the lake elevation of Prior Lake regularly. Frequency of monitoring was greater during periods of rapid change or high water levels. Figure 2-1 below presents 2010 elevation data for Prior Lake.

Figure 2-2 Prior Lake Elevation
2010



The PLSLWD began the reconstruction of the Prior Lake Outlet Structure in early January of 2010. Following the demolition of the previous structure, a surcharge was put in place until mid April to establish a firm foundation for construction. Over the next weeks the concrete for the structure was poured, the structure was connected to the outlet pipe, plantings were installed and site restoration was completed. After a period, the inner components and weir structure were installed and the new Prior Lake Outlet Structure was fully operational prior to the lake rising to the discharge elevation in late November. The new outlet structure will increase the efficiency of discharging water by allowing the outlet pipe to reach capacity sooner. The new structure has also proven to provide safer conditions for staff during inspections and maintenance, and is self-operating, which will reduce overall operations and maintenance costs.

Before and during operations, the District is required to perform inspections of the Outlet Structure and the PLOC. Despite the Outlet Structure not being utilized at the time, the District performed a complete inspection of the outlet system during early April. It was determined that the PLOC was in acceptable condition to handle the stormwater discharges and surface flows anticipated from downstream of the Prior Lake Outlet Structure. Partial inspections were also made during monitoring visits throughout the spring and summer. Additional inspections were made as the elevation of Prior Lake neared and exceeded 902.50 feet to ensure the channel was able to handle discharge flows. As the lake elevation neared 902.50 feet in late November, a notice of likely flow of water was made to the appropriate parties per the outlet operating procedures.

The peak elevation for Prior Lake in 2010 was 902.78 feet, which occurred on December 23; the minimum elevation of 899.38 feet was observed on January 14. Ice out occurred on March 31, while both Upper and Lower Prior froze over on December 2; both dates are near the historical averages. Prior Lake elevations and outlet operation are summarized in Table 2-2. Additional details on the channel inspections are available from the PLSLWD office.

Table 2-3. Prior Lake Outlet Structure and Channel Operations, 2010

Date	Lake Elevation	Outlet Activity	Channel Activity
1/11/2010		Closed	Outlet Structure demolition began
1/14/2010	899.38	Closed	Outlet Structure demolition complete
2/1/2010		Closed	Outlet Structure coffer dam in place, surcharge placed
3/10/2010	899.62	Closed	Partial inspection- synoptic monitoring
3/17/2010	899.74	Closed	Flows and samples taken, Seg 1 and 5
3/24/2010	900.66	Closed	Partial inspection- synoptic monitoring
3/31/2010	900.81	Closed	Flows and samples taken, Seg 1 and 5
4/1/2010	900.81	Closed	Inspection- Seg 4, 5, 7, 8
4/2/2010	900.81	Closed	Inspection- Seg 1, 2, 3
4/7/2010	901.09	Closed	Partial inspection- synoptic monitoring
4/21/2010	901.24	Closed	Partial inspection- synoptic monitoring
4/29/2010	901.18	Closed	Outlet Structure surcharge removed. Beginning construction of new structure.
***Various spot checks as needed. Minimal flows in channel.*			
8/13/2010	901.60	Closed	Partial inspection due to large rain events
11/29/2010	902.52	Freely flowing	Lake reached outlet elevation on the new outlet. Outlet is fully operational.
12/10/2010	902.68	Freely flowing	Partial inspection
12/16/2010	902.65	Freely flowing	Partial inspection- portions frozen or snow covered

Date	Lake Elevation	Outlet Activity	Channel Activity
12/23/10	902.68	Freely flowing	Partial inspection- portions frozen or snow covered
12/29/10	902.65	Freely flowing	Partial inspection- portions frozen or snow covered

According to Scott SWCD records, the 30-year county wide average annual precipitation is 29.19 inches. Following the drought laden years of 2008 and 2009, where the PLSLWD only received an average of 23.88 and 27.41 inches respectively, the PLSLWD and many portions of the state saw 2010 precipitation totals well above average. Precipitation for year 2010 is summarized in Table 2-4.

Table 2-4. Precipitation, 2010

Month	30-Year Average*	2010**
January	0.76	0.54
February	0.52	0.82
March	1.62	0.89
April	2.34	1.82
May	3.40	3.05
June	4.42	6.68
July	3.86	4.32
August	4.68	5.78
September	2.97	7.15
October	2.14	2.13
November	1.71	2.15
December	0.77	2.10
Total	29.19	37.41

*30-Year Average, Scott County
**Average of data collected from four stations located in the north, central and southern portions of the watershed.

DATA COLLECTION/MONITORING

Data collection and monitoring efforts in 2010 consisted of tributary/outlet monitoring, lake elevation monitoring, precipitation monitoring and in-lake monitoring. Summaries for each of these monitoring efforts are presented below, except for lake elevation and precipitation monitoring results, which were presented in the previous section.

Tributary/Outlet Monitoring

Previous to 2009, tributary and outlet monitoring has been primarily limited to flows and grab samples as required for operation of the Ferric Chloride Treatment System ($FeCl_3$). In 2009, the District endeavored to engage a more comprehensive upper watershed, tributary and outlet monitoring system. The District contracted with Scott SWCD again in 2010 for this expanded stream monitoring effort and completed 10 weeks of synoptic monitoring for 37 sites using a multi-parameter sonde. Due to the low flows in 2009, the data collected this year was the first full year of complete data and few trends were able to be established. A comprehensive report on the data collected as part of this effort is available at the District office or on the District website.

The Ferric Chloride Treatment system ($FeCl_3$) was not operated in 2010. Grab samples were not collected and flows were not monitored at the dosing site.

Lake Monitoring

Five lakes within the District were monitored in 2010 as part of the Metropolitan Council's Citizen Assisted Monitoring Program (CAMP). The main purpose for participating in CAMP is to provide the District with water quality data that will support the District in properly managing its resources, and provide historic baseline data to help document water quality impacts. The following District lakes were enrolled in CAMP during 2010:

- Spring Lake
- Upper Prior Lake
- Lower Prior Lake
- Cates Lake
- Fish Lake

Surface samples were collected approximately every two weeks between April and October and sent to the Metropolitan Council for analysis for total phosphorus, total kjeldahl nitrogen, and chlorophyll-a. Volunteers also measured surface water temperature and Secchi disk transparency, and rated the physical condition and recreational suitability of the lake during each visit. In addition to the CAMP monitoring, Spring Lake, Upper Prior Lake and Fish Lake were sampled similarly by the Three Rivers Park District twice per month from late April through mid-October. Three Rivers, however, collected data from 9 different depths, providing a water column profile.

Summaries of the CAMP monitoring results are provided in the Metropolitan Council Environmental Services (MCES) 2010 Lake Water Quality Report available from MCES. A numerical summary of the growing season (May through September) monitoring results for total phosphorus, Secchi disk transparency and chlorophyll-*a* is presented in Table 2-5. Figure 2-3 depicts the CAMP phosphorus data graphically, and Figures 2-4, 2-5 and 2-6 present more detailed monitoring data for Fish, Spring and Upper Prior Lakes based on the Three Rivers Park District data. A brief summary of the lakes' trophic status is also provided in the following paragraphs.

Table 2-5. Growing Season (May –September) Average Lake Monitoring Results, 2006-2010.

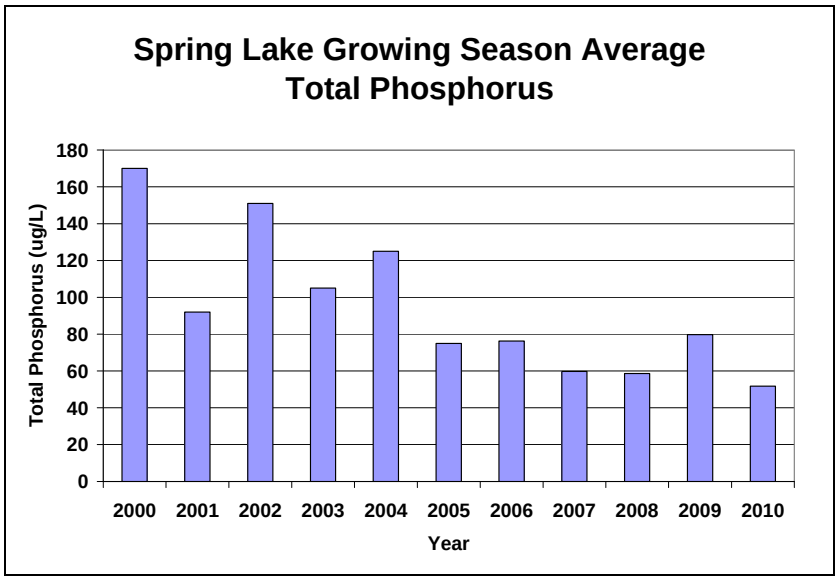
	TP (µg/L)					Secchi Disk (meters)					Chlorophyll-*a* (µg/L)				
	2006	**2007**	**2008**	**2009**	**2010**	**2006**	**2007**	**2008**	**2009**	**2010**	**2006**	**2007**	**2008**	**2009**	**2010**
Spring (A)	76.2	59.7*	58.6*	79.7	51.8*	1.4	0.90	0.94*	1.1	.94	37.9	**	59.6*	27.4	33.2
Spring (B)	118.0	108.6	105.2	97.7	92	1.4	1.0	1.6	1.2	1.1	47.2	49.4	41.8	31.3	28.9
Upper Prior (A)	66.0	56.4	58.8	45.1	42.2	1.3	1.0	1.4	2.45	1.6	57.5	60.2	57.9	18.5	39.6
Upper Prior (B)	160.9	138.7	87.4	63.0	65.6	1.5	1.1	1.2	1.9	1.5	47.5	59.7	36.9	17.0	26.1
Lower Prior (A)	40.8	23.1	20.9	25.4	26.4	2.8	2.7	2.9	3.8	2.7	13.5	17.2	11.6	9.2	8.1
Fish (A)	48.6	45.9	36.3	42.8	51.3	1.3	1.2	1.3	1.4	1.4	17.6	28.5	21.3	20.4	17.3
Fish (B)	141.8	173.9	55.4	62.0	50.5	1.5	1.2	1.1	1.6	1.8	20.8	24.0	16.9	16.7	14.9
Pike (A)	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Cates (A)	27.3	18.2	18.0	21.4	17	1.8	2.0	2.1	2.0	2.2	3.5	3.7	3.4	3.7	2.9

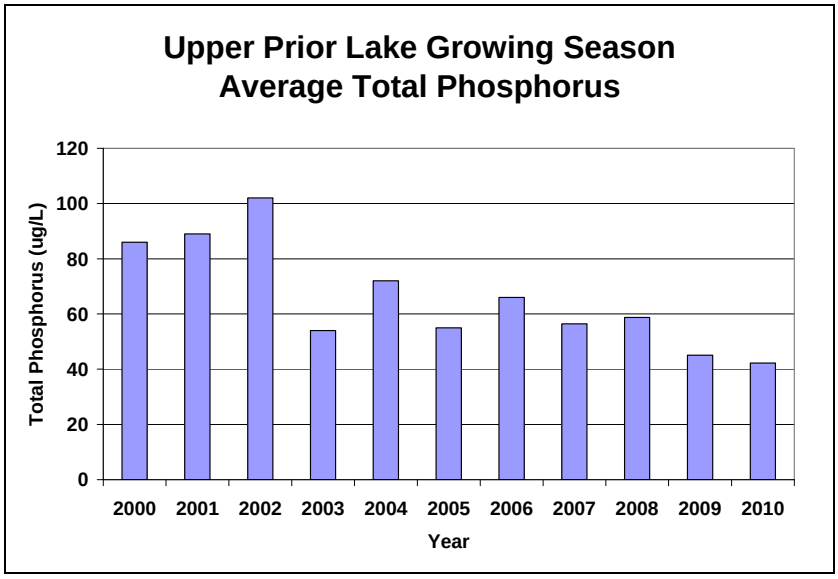
A = CAMP Volunteer Monitoring, B = Monitoring by Three Rivers Park District for PLSLWD.

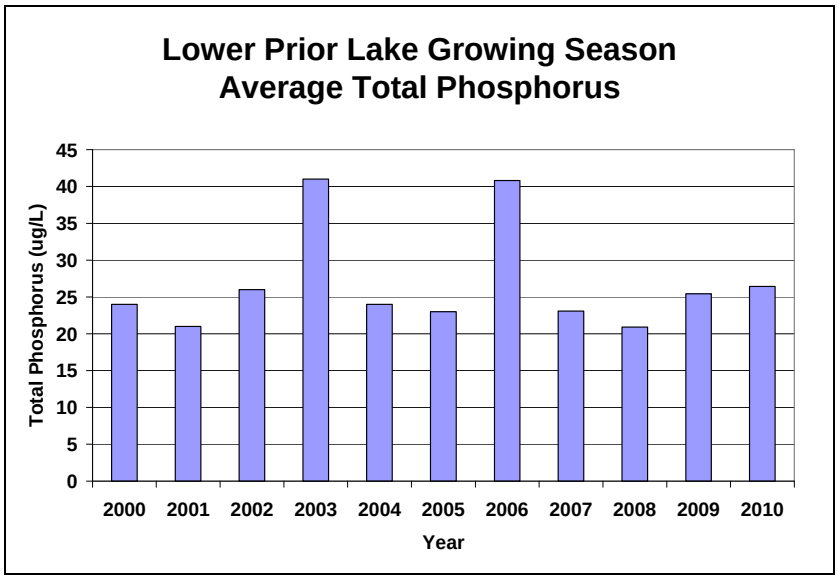
* One or more data points missing from the database.

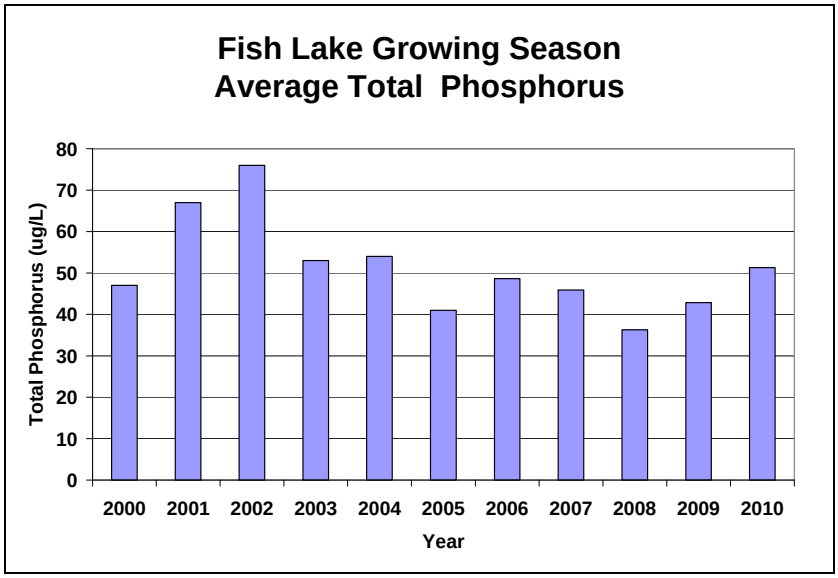
** No monitoring occurred.

Figure 2-3 (5 graphs). Growing Season Average Total Phosphorus, 2000-2010 (CAMP data).








Fish Lake Growing Season
Average Total Phosphorus
Total Phosphorus (ug/L)
80
70
60
50
40
30
20
10
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Year

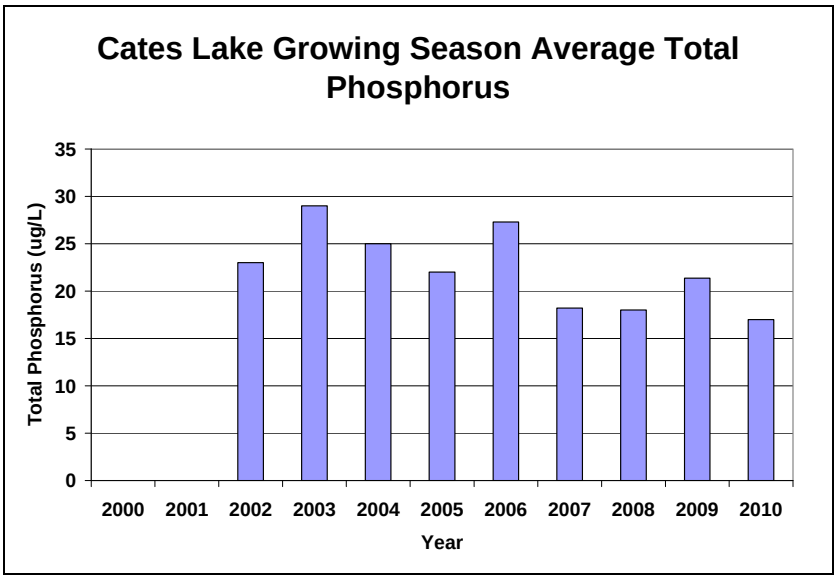

Cates Lake Growing Season Average Total
Phosphorus
Total Phosphorus (ug/L)
35
30
25
20
15
10
5
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Year

Figure 2-4. Spring Lake Total Phosphorus Sampling Results, 2010.

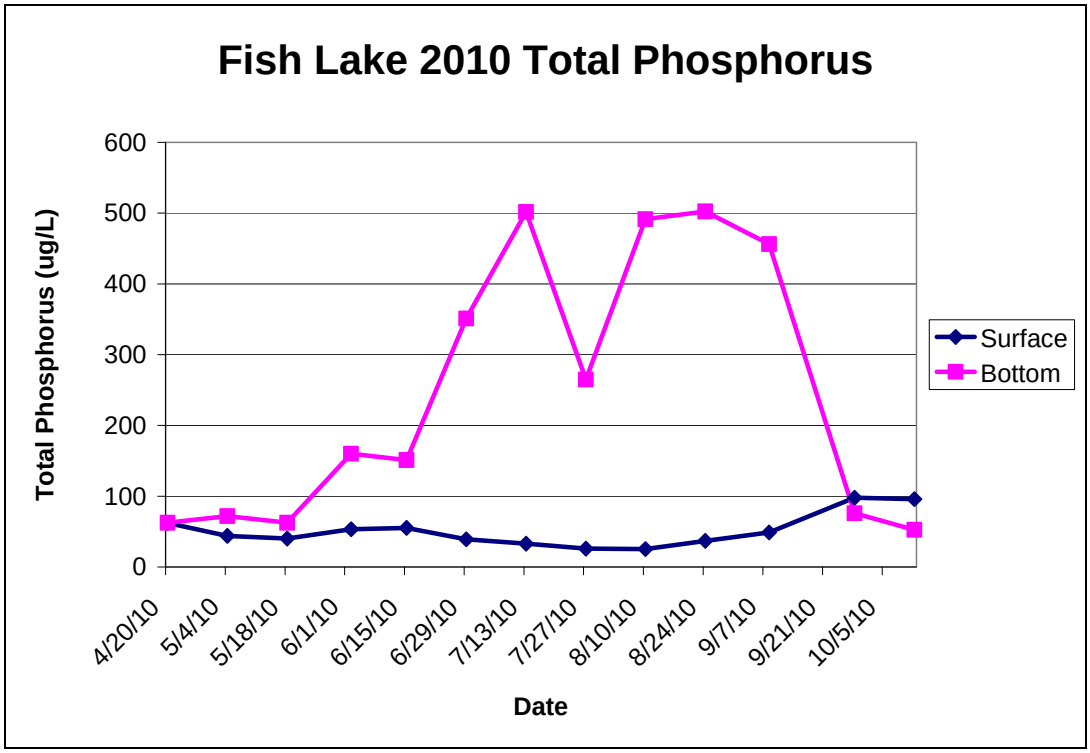


Figure 2-5. Upper Prior Lake Total Phosphorus Sampling Results, 2010.

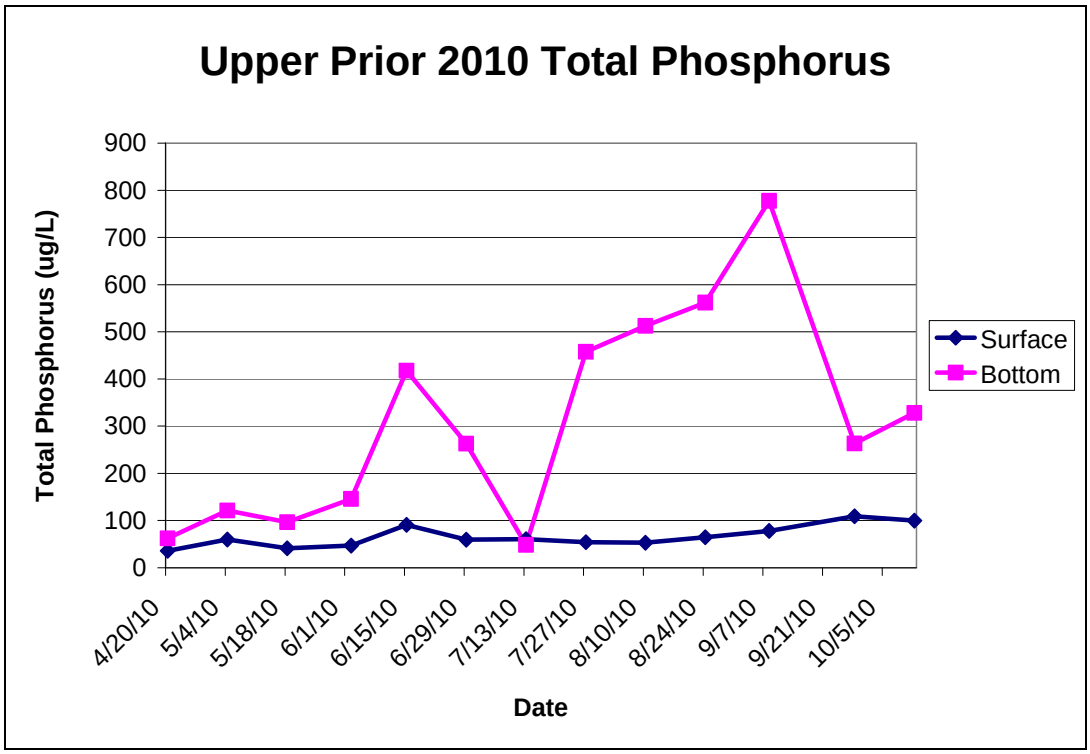
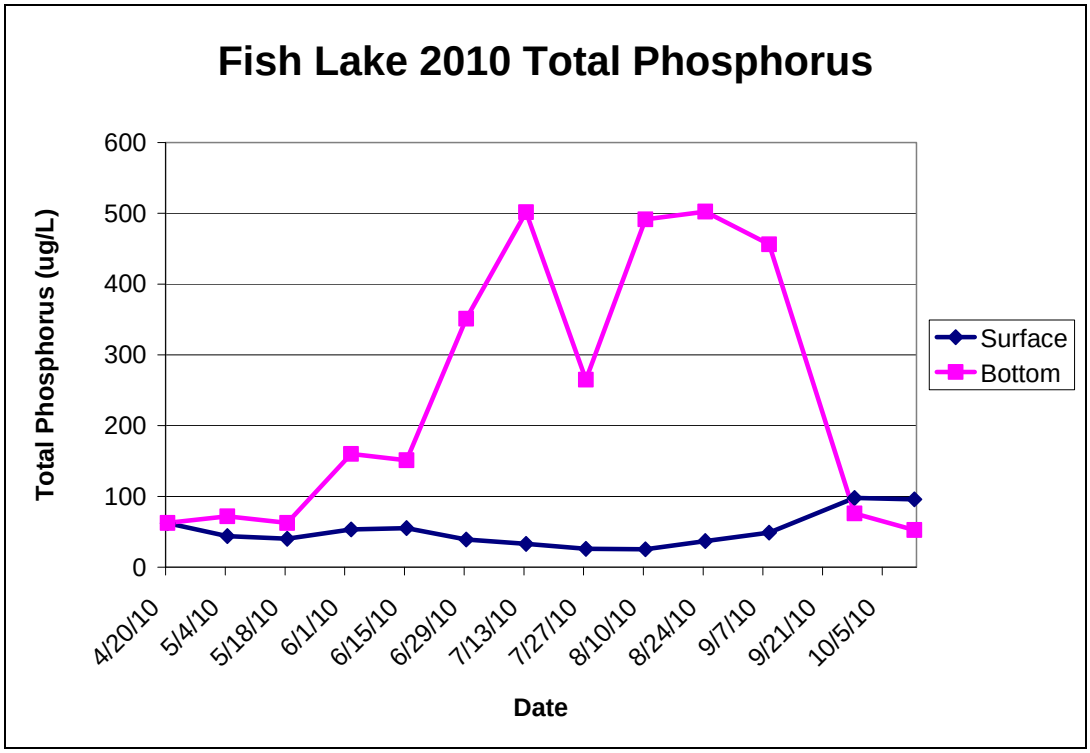


Figure 2-6. Fish Lake Total Phosphorus Sampling Results, 2010.



Lake Trophic Status: Lake water quality is often described by "trophic state" or nutrient status. For low concentrations of nutrients (oligotrophic lakes), there is little nourishment available to support aquatic life, including fish. However, oligotrophic lakes are generally considered very clean. If the nutrient levels are too high (eutrophic and hypereutrophic lakes) excessive algal growth may result. Moderate amounts of nutrients (mesotrophic lakes) are generally considered suitable for recreational purposes.

Scientists use a tool called the Carlson Trophic State Index (TSI) to determine the trophic status of a lake. TSIs are calculated based on certain water quality indicators to determine where the lake fits on this nutrient continuum. The water quality indicators include total phosphorus concentration (TP), chlorophyll-a concentration (Chl-a), and Secchi disk (SD) transparency. Phosphorus often limits plant growth in lake systems and is measured in ug/L. Additions of phosphorus (external P inputs) will therefore enhance plant growth, including algae. Chl-a is a green pigment in algae. Chl-a concentration provides an indication of how much algae are in the water body and is measured in ug/L. Secchi depth, the third trophic state indicator, is a measure of lake transparency or clarity and is measured in meters. Murky and cloudy lakes have low Secchi disk readings, which usually correspond to higher TP and Chl-a concentrations.

TSIs are calculated based on relationships between these indicators and trophic status. Higher TSIs correspond to high nutrient status. Table 2-6 explains the relationship between TSI value and lake nutrient status, while Figure 2-7 illustrates the relationship between trophic status and the Metropolitan Council Environmental Services (MCES) lake grade. The MCES lake grade is used by the CAMP program to grade lake quality. Finally, Table 2-7 presents the 2010 TSI values and MCES lake grades for monitored lakes in the District.

Table 2-6. Carlson Trophic State Index (TSI) Gradation.

TSI <30	Classic Oligotrophy; Clear water, oxygen through the year in the hypolimnion, salmonid fisheries in deep lakes.
TSI 30-40	Deeper lakes still exhibit classical oligotrophy, but some shallower lakes will become anoxic in the hypolimnion during the summer.
TSI 40-50	Water moderately clear, but increasing probability of anoxia in hypolimnion during summer.
TSI 50-60	Lower boundary of classical eutrophy; decreased transparency, anoxic hypolimnion during the summer, macrophyte problems evident, warm-water fisheries only.
TSI 60-70	Dominance of blue-green algae, algal scums probable, extensive macrophyte problems.
TSI 70-80	Heavy algal blooms possible throughout the summer, dense macrophyte beds, but extent limited by light penetration. Often would be classified as hypereutrophic.
TSI > 80	Algal scums, summer fish kills, few macrophytes, dominance of rough fish.

From: The Minnesota Pollution Control Agency (MPCA) lake data website.

Figure 2-7. Relationship of MCES Lake Grade to Trophic Status

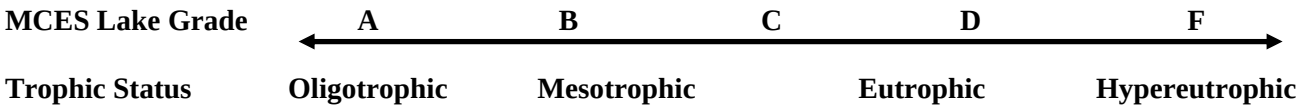


Table 2-7. Trophic Status of District Lakes, 2010 (based on CAMP data).

Lake	2010 Results						Previous MCES Grades					
	TSI TP	TSI Chl-a	TSI SD	TSI Ave	MCES Grade*	Trophic Status	2009	2008	2007	2006	2005	2004
Spring	61	65	61	62	C	Eutrophic	D	D	C	C	C	D
Upper Prior	58	67	53	59	C	Eutrophic	C	C	D	D	C	D
Lower Prior	51	51	45	49	B	Mesotrophic	A	B	B	B	A	B
Fish	61	59	55	58	C	Eutrophic	C	C	C	D	C	C
Pike	**	**	**	**	**	Hyper-eutrophic	**	**	**	D	F	F
Cates	45	41	48	45	B	Mesotrophic	B	B	B	B	B	B

*Based on preliminary data
**No monitoring occurred

All of the lakes in the District are either eutrophic or hypereutrophic except for Cates Lake and Lower Prior Lake, which are mesotrophic. Review of Table 2-6 and comparison with the TSI descriptions in Table 2-7 shows that both Cates Lake and Lower Prior Lake are somewhat close to the boundary for a eutrophic lake, and this boundary is where problems may start to become evident. The western end of Lower Prior Lake is mesotrophic/eutrophic largely because of water flowing through this end from Upper Prior Lake to the outlet. The rest of Lower Prior Lake has a limited watershed and is isolated from a majority of the inflowing water from Upper Prior Lake.

Other entries in Table 2-7 generally describe District lakes in relation to their TSI quite well. With the exception of Lower Prior Lake, lakes in the District are relatively shallow. The shallow conditions partly explain the high degree of eutrophication in District lakes. It is well documented that shallow lakes generally have higher phosphorus concentrations and they are also more sensitive to watershed changes.

Reducing algae blooms in Spring Lake and in other eutrophic-hypereutrophic lakes in the District should focus on reducing the over-abundance of phosphorus. For noticeable improvements to occur in lake water quality, TSI values need to be reduced to 55 or less. Alternatively, if these lakes are allowed to decline further, algae blooms will become worse and fish kills are probable.

Internal Nutrient Loading: Past studies have shown that a significant proportion of the phosphorus loading to Spring and Upper Prior Lakes comes from internal sources of nutrients. This observation is reinforced by the 2010 Three Rivers Park District monitoring data, which tracked

the build-up of phosphorus in the hypolimnion (i.e. bottom water) of Spring, Fish and Upper Prior Lakes through the summer months.

Efforts to control Curlyleaf pondweed and limit carp activity will help to partially reduce internal recycling of phosphorus. At some point in the future, sediment phosphorus inactivation may be required to more fully address this internal loading. However, the external (i.e. watershed) inputs of phosphorus must be further reduced to increase the potential long-term effectiveness of a sediment phosphorus inactivation effort such as an in-lake alum treatment. The District planned to begin work on a carp study with the University of Minnesota in 2009, as rough fish are a common source of internal nutrient resuspension. This was postponed, however, until an appropriate graduate student can be found to take on the project.

PUBLIC EDUCATION AND INFORMATION

Public education and information programs completed in 2010 focused on promoting and facilitating shore land restoration and buffer projects; providing technical assistance and grants to local schools engaged in water quality improvement projects and watershed education efforts; and providing District residents with information about watershed management issues, partnership opportunities, and upcoming projects.

These efforts were accomplished through attendance and presentation at local community and group events, provision of informational news briefs to the *Prior Lake American* newspaper and other local periodic news publications, partnerships with volunteer monitors, partnership and support for Metro Watershed Partners, as well as regular postings, updates, and publications of District reports to the District website.

The partnership between the Scott SWCD and PLSLWD continued in 2010, with the SWCD providing technical assistance to District residents on agriculture BMPs, runoff reduction options, wetland restoration opportunities, and other land management practices. SWCD staff also presented information on water quality and soil conservation to schools within the watershed.

The District also participated in the formation of the Scott Clean Water Education Program (SCWEP) with several other MS4 communities in Scott County. This program allows for a coordination of stormwater education efforts, and provided for a Water Resources Education Coordinator position, which began in 2010. A full detail of accomplishments of this partnership can be found in the SCWEP annual activities summary available from the Water Resources Education Coordinator.

Additionally, as soon as the 2009 Annual Report was completed, the District sent copies of it to the local governments, partner organizations and posted the report on the District website. This report provided more in depth information on the District including how the organization is financed, where the local water resource plan can be viewed, and other information relative to the implementation of the plan of the goals and policies governing the District.

PROGRAMS/PROJECTS

Summaries of District Programs and Projects are presented in Table 2-1. This subsection presents detailed descriptions of the following three programs areas:

- Water Quality
- Volume Mitigation
- Outlet System Management

Water Quality

This focus area includes a number of programs and projects, including: Curlyleaf pondweed and carp management, operation of the Ferric Chloride ($FeCl_3$) Treatment System, efforts to address TMDLs and listed impairments in the District, implementation and refinement of the *Sustainable Water Quality Management Plan for Prior and Spring Lakes* and the *Sustainable Lake Management Plan for Fish Lake*, and incentives and technical assistance for the adoption of innovative best management practices for runoff management (both quality improvement and volume control) in the watershed. The following paragraphs summarize those elements of the District's Water Quality efforts that are not highlighted or detailed elsewhere in this report.

In 2010, the District continued its Curlyleaf pondweed management efforts through sponsoring surveys on Fish, Spring, Upper Prior and Lower Prior Lakes. Spring Lake open water was not treated in 2010, for the forth year in a row, because of past years successful Curlyleaf treatment. After four years of treatment on Fish Lake, there was no indication of a need for treatment based on an early season survey and no treatment was completed. The results of aquatic plant surveys conducted in 2009 suggest that the Curlyleaf pondweed management effort is reducing the overall density of the plant found growing in Spring Lake and Fish Lake prior to treatment. The treatment has not harmed the native aquatic plants in Spring or Fish Lakes. In 2010, the District also surveyed Upper Prior and Lower Prior Lakes. The results of the survey showed treatable areas; however, due to warm water temperatures it was too late to complete an early season treatment.

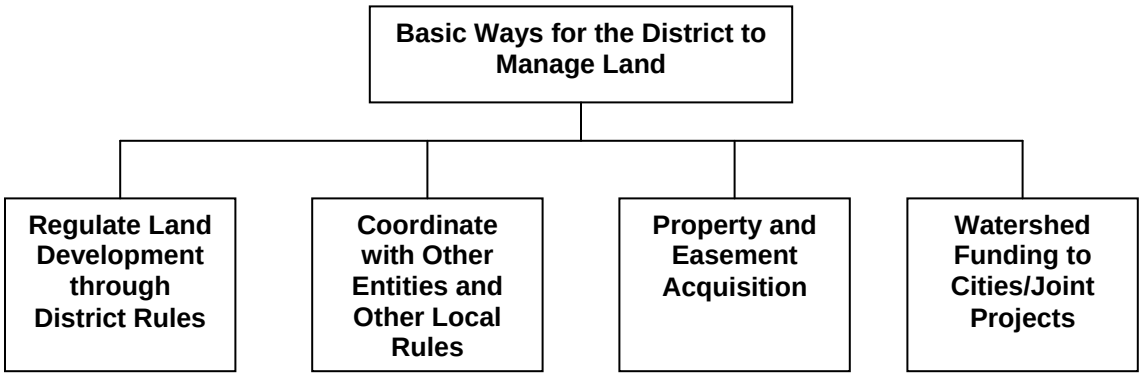
After realizing the complexities of carp management and their impacts on water quality, the District is looking to study carp habits with the assistance of the University of Minnesota, and other carp experts, as soon as a suitable graduate student is selected to take on the project.

Finally, the District promoted shore land restoration along area lakes by providing technical design assistance through a partnership with the Scott SWCD and the Metropolitan Association of Soil and Water Conservation Districts. Nine property owners were given technical assistance and five were provided with landscape designs in 2009. Two projects that began in 2008 were completed and issued cost share funds in 2009.

Volume Mitigation

The District does not have specific land use/zoning authority for setting aside open space and water storage areas. The District does however, have other means of affecting land management (Figure 2-8). The District attempts to take advantage of all four mechanisms shown in Figure 2-8 in order to help address volume mitigation and preserve critical or high value open spaces.

Figure 2-8. Watershed Authority for Land Management



District Rules: The District continued to implement its rules through its permitting program in 2010. In addition, the Board of Managers and staff continued to discuss further refinement of the District's infiltration and buffer rules, and potential changes needed when the rules are updated.

Others' Rules: Other entities within the District have land management and development rules, sometimes with broader authority than the District. To coordinate with and benefit from these other programs, the District proactively engages other entities. In particular, the District has participated in the development of the Comprehensive Water Resources Management Plan for the Scott County Watershed Management Organization, provided input on the county's 2030 Comprehensive Plan, assisted in the review of the Spring Lake Township LID plan, and engaged individual County Commissioners in the land management discussion. The District also participates periodically in the development review group for the county and more regularly with the local cities.

The District has completed rules equivalency Memorandums of Agreement (MOA) with the Cities of Prior Lake and Savage and Scott County. These MOAs were the result of District approval of the local water plans and a finding of equivalency between the District and County rules. These MOAs will be reassessed in the future as the District completes its Water Resources Management Plan and updates its rules.

Property and Easement Acquisition: In 1999, the District completed an inventory and prioritized properties for possible acquisition of wetland easements. The Board determined at that time that acquisition would only be from willing landowners. A negotiator was hired, whom made, with limited success, several contacts in finding landowners willing to participate in a restoration project with the District. In the fall of 2004, the District directed its engineers to update the 1999 inventory using the latest information available on topography, land use and soils. The initial study, completed in early 2005, identified a number of potential storage areas and wetland restorations. Work continues, in cooperation with the Scott SWCD, on the effort to prioritize potential restoration areas, and to contact landowners about potential projects on these high value land areas.

The District also discussed potential restoration projects within the City of Prior Lake boundaries with City staff. These projects include potential joint restorations with the City and County that have the possibility of occurring during future road reconstruction projects.

Joint Projects: In 1999, the District authorized supplemental payments for a filter strip program sponsored jointly with the Scott SWCD. By pooling resources, the District is able to offer incentive payments for 10-year agreements on filter strips that are competitive with rental rates for cropland. This makes conservation an economically competitive choice for farm operators in the District. In early 2000, the District also authorized a similar program with supplemental payments for the Conservation Reserve Enhancement Program (CREP). Efforts in 2010 included the promotion of these programs, coordination with the Scott SWCD, and contact by the SWCD with watershed residents. In 2008, the District renewed its authorization for supplemental incentive payments for participation in the federal Environmental Quality Incentives Program (EQIP). The District annually adopts a cost share docket with the Scott SWCD delineating the eligible programs and the cost share amounts. A copy of the docket is available at the District office or on the District website.

There is currently no wetland-banking program within the District or within Scott County, though the District continues to assess the opportunity for one in order to ensure mitigation can occur locally on District or District permitted projects. The District held 1.76 acres of wetland credits in 2010.

Outlet System Management

Efforts continued in 2010 on implementing the strategies identified in the *Prior Lake Outlet Channel and Lake Volume Management Study* (May 2003). The District continued to work with the City of Prior Lake, City of Shakopee and Shakopee Mdewakanton Sioux Community to identify changes needed in the Joint Powers Agreement/Memorandum Of Agreement (JPA/MOA) and the work plan for the Outlet System. A summary of channel activity by segment for 2010 is as follows:

- Inter-fluve completed design and engineering work for the Prior Lake Outlet Channel Restoration and Enhancement project on **Segments 2, 3, 7a, and 8.**

- Construction work is complete on a portion of **Segment 1.** The District continues to work with Minnesota Native Landscape to discuss the matter of maintenance and repairs of the work.

- Design work for **Segment 2** was completed by Inter-fluve in mid 2009 with construction beginning in late 2009. Construction was halted due to frozen ground conditions and was completed in October of 2010.

- **Segment 3** is primarily comprised of the YMCA property as well as a small private lot. The Shakopee Mdewakanton Sioux Community purchased the YMCA property in 2008, and the District is working toward finalizing a corrected easement on that property. Final design work for this segment was completed by Inter-fluve in mid 2009 with construction beginning in late 2009. Construction was halted due to frozen ground conditions and was completed in 2010.

- The District has continued to work with landowners on **Segment 4** to obtain corrected easements. Design work for this segment was started by Inter-fluve in mid 2009 and will completed once all the easements are obtained. Construction will commence once this process is finished.

- **Segment 5** did not have any significant additional construction work completed by the District. A new crossing was permitted by the District in Segment 5a as part of a housing development, which included the completion of the channel work in that segment. Segment 5b has not been designed or constructed due to litigation between the property owner and the City of Shakopee.

- There was no work completed in 2010 on **Segment 6** and no work is planned.

- Design work for **Segment 7a** was completed by Inter-fluve in mid 2009 with construction begun and completed in late 2009. Vegetation plantings were completed in early 2010.

- A culvert replacement project was the only work on **Segment 8** in 2009.

Final design plans for reconstruction of the **Prior Lake Outlet Structure** were approved and the project was bid in the fall of 2009. The project itself started in early 2010 with the reconstruction substantially completed by the end of June 2010.

YEAR 2010 WORK PLAN

The 2010 Work Plan for the District's Water Resources Management Plan implementation is presented in Table 2-8. The work plan follows the tasks and the projected budget outlined in the District's 2010-2019 Water Resources Management Plan. Copies of this Plan and additional detail regarding the work plan are available by contacting the District office. Note that the District's 2010 levy also includes $200,000 for general administrative activities, bringing the total levy for 2010 to $741,253.

Table 2-8. 2010 Work Plan and Budget

Subwatershed	Item	Page No.*	2010 Budget**
All	Innovative Water Management and Demonstration projects	4-5	$50,000
	Information and Education Program	4-6	$50,000
	District Monitoring Program	4-7	$40,000
	BMP and Easement Inventory and Inspection	4-7	$15,000
	LGU Wetland Functions and Values assistance	4-8	$35,000
	Infiltration Enhancement Pilot Project	4-8	$10,000
Outlet	Prior Lake Outlet Structure	4-9	$200,000 and JPA funding
	PLOC Restoration and Maintenance	4-10	$100,000 and JPA funding
	Outlet Channel Monitoring	4-10	$8,000
	Review Jurisdictional Border	4-11	$15,000
Prior Lake	Storage and Infiltration Projects	4-11	$25,000
	TMDL Implementation Plan and projects	4-12	$15,000
	Prior Lake Aquatic Vegetation Management	4-13, 4-14	$13,000
	Shoreline Restoration Plan and Implementation	4-15	$10,000
Spring Lake	Storage and Infiltration Projects	4-15	$35,000
	TMDL Implementation Plan and projects	4-16	$15,000
	Highway 13 Wetland, FeCl System, and Desiltation Basin Operation and Maintenance	4-18	$25,000
	Spring Lake Aquatic Vegetation Management	4-19	$8,000
Upper Watershed	Grant Match for Land or Easement Acquisition	4-20	$50,000
	Agricultural Outreach and Incentives	4-21	$30,000
	Identify and Mitigate Channel Erosion	4-22	$4,000
	Fish Lake Aquatic Vegetation Management	4-22, 4-23	$10,000
District Operations	Rules and Standards Revision	4-24	$50,000
	Permitting, Plan Review and Compliance	4-25	$50,000
	Planning and Program Development	4-25	$20,000
Total			**$883,000**

*Refers to the page number in the 2010-2019 Water Resources Management Plan.
** Budgeted amounts are taken from the CIP table of the 2010-2019 Water Resources Management Plan.

SECTION 3: FINANCIAL ADMINISTRATION

This section presents the 2010 financial information for the District. A financial statement for 2010 based on the District's revenues and expenses is presented in Table 2.9. The audited financial statements are available from the District office.

EXPENDITURES UNDER BUDGET

The following list describes reasons why some funds listed in Table 2.9 were under budget.

- General Fund: Due to the depressed economic market for commercial office space, office operations costs were less than anticipated. Additionally, a planned move of the office location was far less than estimated. .
- 509 Implementation Fund: The latter part of 2010 saw the start of some staff turnover that resulted in some project area work being reduced which in effect reduced some of the budget expended. Additionally, there was little interest in innovative water management grants and land management incentives, so these funds were not fully utilized. There were also no wetland acquisitions or restorations.
- Outlet Project: These funds include JPA/MOA funds that are administered by the Watershed District for the Prior Lake Outlet Channel.
- Outlet Maintenance: Due to the construction work on the channel, maintenance costs were covered under other fund areas.
- Debt Service: This is paid annually per a preapproved debt payment schedule.
- Construction Fund: The design and construction schedule for previously planned 2010 channel segments were modified, putting off some of the costs until future years. Grant funding has also been available to supplement District expenses on construction costs.

EXPENDITURES OVER BUDGET

There were no items that were over budget for the fiscal year ending December 31, 2010.

Table 2-9. Fiscal Year 2010 Financial Summary

Fund	Balance 1/1/10	Balance 12/31/10	Actual Expenses	Budgeted Expenses	Variance with Final Budget - Over (Under)
General	148,265	50,682.32	165,084.14	192,292	27,207.86
509 Implementation	1,944,521	255,918	948,912.37	1,188,150	239,237.63
MOA/JPA Construction	95,784	9881.25	134,699.24	513,652	378,952.76
MOA/JPA Operations	128,724	3738.20	16,908.01	269,116	252,207.99
MOA/JPA Emergency	213,158	56,190.22	0	0	0
Outlet Maintenance Trust	-39	2330.40	2637.60	6338	3700.40
Milfoil Control	13,866	402.69	0	0	0
Revolving Contingency	80,294	2331.79	0	0	0
Bond Debt Service	51,674	2843	0	139,027	139,027
Bond Construction	1,033,736	860,361.48	0	348,449	348,449
Totals	3,709,983	476,043.61	1,268,241.36	2,657,024	1,388,782.64

2010 CERTIFIED LEVY

The preliminary 2010 Levy and Budget was adopted in September 9, 2009. Prior to adoption the District held a Public Hearing at the beginning of the September Board Meeting. The final levy was certified with Scott County in December 2010.

2010 ANNUAL AUDIT

The 2010 Audit was completed by Abdo, Eick and Meyers LLP, and will include both the District's Annual Financial Report and the Independent Auditor's Report on Compliance with Minnesota Legal Compliance Guide for Local Governments for the year ended December 31, 2010. A copy of the 2010 Annual Audit is available for review at the District office.