



Lesser duckweed, Big Marine Lake area wetland

This section will give the reader an understanding of the Carnelian-Marine-St. Croix Watershed District (CMSCWD) and purpose of the 2010 Watershed Management Plan.

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Big Carnelian Flooding prior to 1985 outlet project.

A. Introduction

This fourth Carnelian-Marine-St. Croix Watershed District (CMSCWD) watershed management Plan contains the goals, policies and management plans of the Carnelian-Marine-St. Croix Watershed District and shall serve as the official operational guide until the year 2020. In this Plan, the reader will find the objectives and policies of the District, a description of operations and programs including a 10-year master plan budget and an activities calendar with a list of projects. The Plan also includes individual management plans for 31 lakes and 22 streams; resource management plans for district wetlands and groundwater; physical and societal characteristics; an overall watershed assessment; a list of priorities; future resource goals; and a comprehensive land and natural resource inventory.

B. History

The Carnelian-Marine-St. Croix Watershed District is operated under the authority of Minnesota Statutes Chapter 103B and Chapter 103D to protect and improve the water resources, natural habitat, and personal property within its boundaries; to educate property owners and the community on the value of water resources; and to promote progressive public relationships and interagency consistency. The District is a government agency created in 2007 from the enlargement of the Carnelian-Marine Watershed District to encompass the Marine Watershed Management Organization.

The Carnelian-Marine Watershed District was formed in 1981 to address specific flooding problems in the Big Marine Lake drainage area which were alleviated by the installation of a 3 mile gravity pipe which outlets this large, landlocked sub-watershed.

The Marine Watershed Management Organization was formed during the same time period to satisfy the requirements of Minnesota Statute 103D which required all the land within the seven county metropolitan area to be covered by a water management organization. Addressing local concerns at the time, the founders of the organization chose to omit the northeasterly portion of the county, thereby creating an “orphan area” not covered by watershed management.

In 1999, Washington County began a comprehensive study of water management governance within its jurisdiction. From this two-year exercise came several recommendations endorsed by the County Board of Commissioners. One suggested that the 11 watershed organizations in the county should begin to explore ways of merging to achieve economies of scale and combined tax base to support professional administration.



Small group breakout session at community TMDL meeting

The Managers of both predecessor organizations began talks and a series of public meetings shortly after the release of “The Washington County Water Governance Report” and achieved consensus in 2006 to begin the formal combination process. The County petitioned the Board of Water and Soil Resources for the expansion of Carnelian Marine Watershed District to include the area of the Marine WMO and the “orphan area” in the northeast corner of the county. In addition, it requested that the Board of Managers be increased from 5 to 7 and the name be changed to Carnelian-Marine-St. Croix Watershed District.

The current Managers of the Watershed District are:

Dave DeVault	President
Kristin Tuenge	Secretary
Wade Johnson	Treasurer
Andy Weaver	Manager
Eric Lindberg	Manager
Tom Polasik	Manager
Joel Stedman	Manager

A listing of all past managers can be found in Appendix C.

C. Assessment

The lakes, streams and wetlands of the District are generally in good condition. The four largest lakes, Big Marine, Big Carnelian, Little Carnelian, and Square Lake have an “A” water quality. Five of the District’s lakes were ranked in the top ten lakes in the Minneapolis St. Paul metro area (MPCA, 2006). However, the Minnesota Pollution Control Agency, in conjunction with the Environmental Protection Agency and the Clean Water Act of 1971, has deemed eleven of the District’s shallow lakes as impaired for nutrients and aquatic recreation. These lakes are identified in Section III. In addition, the St. Croix River on the District’s eastern boundary feeds Lake St. Croix downstream which is also listed as impaired for nutrients.

The EPA mandates a process to monitor and allocate the sources of the nutrients which are causing impairments. The process prescribes the “Total Maximum Daily Load” (TMDL) of these nutrients that can be contributed to water resources to achieve the required water quality. This information can be used to implement projects which will lead to a reduction in nutrients and the “de-listing” of impaired waters when the water quality meets the state standard. In 2012, the District completed the “Carnelian-Marine-St. Croix Watershed District Multi-Lakes TMDL” which resulted in strategies for improving water quality in all of the impaired lakes with the exception of Barker Lake which was listed as impaired after completion of the study.



Ozark Trail north BMP

The St. Croix Basin team has completed a TMDL strategy for the impairment of the St. Croix River. The St. Croix Basin team is an interagency and multi-state group consists of the Minnesota Pollution Control Agency, the Departments of Natural Resources from both Minnesota and Wisconsin, the National Park Service and other agencies and private organizations. The District participated in the development of this strategy and will continue its involvement through implementation of programs to lower nutrient contributions to improve this valuable Wild and Scenic river.

D. Strategic Plan

The Board of Managers prepared a Strategic Plan in the summer of 2008 in preparation for the development of this Watershed Management Plan. Through the strategic planning process, the Board of Managers defined the mission statement for the District. The District's mission is to:

Protect and improve water resources within the jurisdiction of the Carnelian–Marine–St. Croix Watershed District through coordination with local units of government, citizens, and other government agencies.

The Strategic Plan lists seven objectives with underlying strategies that advance this mission for all the water resources of the District. The plan not only defines these objectives but addresses the manner in which they will be achieved, using open communications and operations while keeping the public informed and involved in the process. The Strategic Plan is an organic document which will be reviewed by the Board on an annual basis and will provide a general framework to guide and evaluate the District's progress in achieving its mission.

E. Objectives and Policies

This Watershed Management Plan takes the philosophies expressed in the Strategic Plan and translates them into the objectives and policies of the District in five functional areas of operations and management. These areas reflect all aspects of Minnesota State Statutes governing Watershed Districts, their obligations and powers. *A detailed discussion of these objectives and policies is found in Plan Section II.*

F. Focused Watershed Management

At the intersection of this plan and the Strategic Plan is the District's concept of Focused Watershed Management which allows the Board of Managers to prioritize its activities and expenditures to protect and improve the water resources of the District.



Silver Creek Corridor survey

Similar to the TMDL process described above, it establishes a framework to monitor conditions to identify problem areas; to notify and involve citizens and agencies in defining solutions to the problems; to design, finance, and implement projects to solve these problems; and to evaluate the success of projects.

The Board recognizes the potential of the TMDL process and designed Focused Watershed Management to be proactive in the management of water resources and the acknowledgement of the Board's responsibility to preserve outstanding water quality as well as improve degraded water resources. The concept also recognizes the limited financial resources of the District and provides a flexible framework to effectively direct the funding of all District programs and projects to improving and preserving water quality and to take advantage of outside funding sources as the opportunities are presented.

The Board of Managers realizes its fiduciary responsibility to achieve measurable results in performing its obligation to improve and protect the water resources of the District. The program includes methods to monitor future efforts to protect and improve water quality and the effectiveness of the District's expenditures relating to its water quality projects, education efforts, and its rules and their enforcement. Water quality goals will be set for those water resources under the District's Focused Watershed Management with input from lake owner's associations, agencies, and area citizens. As water quality projects are initiated within the contributing subwatersheds, monitoring will be used to gauge the effectiveness of these projects as well as educational and regulatory efforts to achieve improving water quality. For more specific information on focused watershed management, see Section III.

G. Program History

The District has used several programs to achieve its goals. The activity of these programs has reflected the needs and priorities of the District as perceived by its managers:

1. Flood Prevention & Channel Maintenance

The early activities of the Carnelian Marine Watershed District involved solving the flooding issues in the Big Marine Lake sub-watershed which included Big Carnelian Lake, Little Carnelian Lake and a series of wetland systems connecting them. A period of high precipitation in the late 70's and early 80's increased water levels in this land-locked basin to unacceptable levels which flooded lake-side houses and saturated private septic systems.

2. Water Quality Monitoring

The District has monitored its lakes and streams since its inception. It participates in the Met Council's WOMP (Watershed Outlet Monitoring Program) for both Carnelian and Silver Creeks.



Shoreline BMP implementation for private residence within District.

With the inclusion of the Marine WMO, the District assumed responsibility for over 20 spring creeks tributary to the St. Croix River and now monitors a total of 31 lakes and is gradually increasing the number of streams under its monitoring program.

The trends established through monitoring become instrumental in both setting priorities and evaluating performance of its Focused Watershed Management Program. See Plan Section IV-C for more information about the District's monitoring activities.

3. Education

Environmental education has always been important to the District and with the creation of its Watershed Wisdom program in 1997 and the 2000 Watershed Management Plan, it became a priority. That Plan defined its goals to be citizens' understanding of:

- Certain watershed concepts
- Responsibilities and operations of a watershed district
- Basics of water science
- Homeowners and local governments abilities to protect and enhance water resources.

This Plan proposes using many aspects of the same program while cooperating with local partners and schools to take advantage of available expertise and assets to achieve measurable improvements in residents' knowledge of water resources and their relationships with land use and other natural resources. Details are available in Plan Section IV-B.

4. Best Management Practices

The District created a Best Management Practices program in 1999. The purpose of the project is to share the costs of projects built by private property owners and local governments which lead to improvements in water quality, reducing sediment and erosion in shoreland zones, and increasing infiltration of storm water. This program is responsible for 72 projects since its inception. This program will continue under this Plan as the District's "Cost Share Program" and will be an integral piece in the Focused Watershed Management to achieve measurable and cost effective improvements in water quality. More detail on this program is found in Plan Section IV.

The future integration and prioritization of these programs is found in Plan Section III describing the District's Resource Management Strategy.



*Prescribed burn,
Silver Creek Corridor restoration*

H. Resource Management Plans

Management plans for each of the District’s water resources and their associated sub-watersheds are a major tool for the implementation of this Plan. They are formatted to be used as separate fact and strategy sheets for each of these areas. They contain information on the resource’s water quality and environmental characteristics as well as their management status of Focused, Impaired, or Routine and the strategies this status assigns. These plans are found in Plan Section V.

I. Planning Process

This Plan is the result of a comprehensive public involvement procedure using both a technical advisory committee and a citizens’ advisory committee to gather input in all areas. It utilized the District’s website at www.cmscwd.org to minimize structured meetings and to allow comment on all aspects as it was developed. The following meeting schedule allowed further in-depth discussion with the public:

Citizens’ Advisory Committee Meeting Dates:

September 27, 2008 (Kick-off Event)

December 10, 2008

April 28, 2009

November 10, 2009

Citizens’ Advisory Committee Members:

Scott Alexander	Fran & Ann Michaud
Kate Carlsen	Gary Orlich
Rex Ewert	Jack Parcheta
Burt Fisher	Jessica Parcheta
Mark Forliti	Roeland Reyers
Maurice Grogan	Pete & Elsie Riehle
Stephen Huberty	Diane Rohan
Dave Hume	Jim Schoeller
Bob Iverson	Bruce Swensen
Harold Johnson	Dean Tharp
Larry Kennedy	Dana Vogen
Sally Leider	Larry Whitaker
Kris Levine	Mike White
Dave & Lynn Linder	



*Slender leaf false foxglove,
Big Marine Lake – surrounding wetlands*

Technical Advisory Committee Meeting Dates:

January 01, 2009

April 15, 2009

Technical Advisory Committee Members:

Jim Almendinger	St. Croix Watershed Research Station
Erik Anderson	Washington Conservation Dist.
Michael Blehert	Big Marine Lake Association
Amy Carolan	Washington Conservation Dist.
Jed Chesnut	Washington Conservation Dist.
Jessica Collin-Pilarski	Washington County
Steve Duff	City of Hugo
Dan Fabian	Emmons & Olivier Resources
Randy Ferrin	St. Croix River Assoc.
Len Ferrington	U of M
John Freitag	Washington County
Jack Frost	Metropolitan Council
Chuck Haas	City of Hugo
Kate Hanson	National Park Service
Jane Harper	Washington County
Anne Hurlburt	Scandia
David Johnson	Stillwater Township
Christopher Klucas	MPCA
Frank Kubitschek	Mill Stream Assoc.
Melissa K. Lewis	BWSR
Ron Lawrenz	Warner Nature Center
Randy Lorenzen	William O'Brien State Park
Everett Meyers	Marine-on-St. Croix
Glen Mills	Marine on St. Croix
Dennis O'Donnell	Washington County
Jay Riggs	Washington Conservation Dist.
Amanda Strommer	Washington County
	Washington Conservation Dist.
Sheila Marie Untiedt	Stillwater Township
Bill Voedisch	May Township
Craig Wills	MNDNR



Willowbrook – photo courtesy of Jim Schoeller

Meetings were recorded and comments transcribed into a master table along with those received from the website. Comments were wide-ranging with topics including, but not limited to:

- The high value residents place on the quality lake, stream and wetlands found in the District, and that their ability to actively and passively enjoy them is a major reason they live in the area.
- Allocation and prioritization of District financial resources
- Individual program expense and utilizing partnerships with citizens and other organizations
- Aquatic vegetation and invasive species
- Effects of run-off, commercial land-use and agriculture
- Coordination with the St. Croix River TMDL, and
- The integration and concentration of District programs

The Board reviewed all comments and made clarifications or revisions to the Plan which reflects the input of the CAC and the TAC. Input received during this process contributed to the development of Focused Watershed Management efforts.

J. Plan Amendment 2015

The need for a Plan amendment became evident in 2012 as the managers and administrator began to formalize an Aquatic Invasive Species Plan to address the increasing requests and concerns of its residents on this issue. The administrator and managers also sought more District involvement with ground water issues and health of our wetlands. In addition, work was being completed on several studies which required updating existing data within the plan as well as revising and adding to the implementation schedule and budget for the balance of the decade.

The concept of “Focused Watershed Management” remained valid but needed revising to remove as much of its subjective criteria as possible and to insure that high quality resources were being protected while improving degraded lakes and streams. The structure of the Implementation Program and budget was revised to correspond to the balance of Section IV, District Operations. Additional detail for “Focused/Impaired Resource Management” was included as a second level of detail within the overall Implementation Program and the new Washington County Groundwater Plan was adopted by reference. The Plan now incorporates separate Appendices D and E as Lake and Stream Diagnostic Studies protocol and an Aquatic Invasive Species Plan, respectively. This revised structure is better suited for future revisions as science and technology advance in these fields.



Tanglewood Nature Preserve

The Board of Managers approved to issue the (draft) amendment for 60-day review on (February 11th, 2015). With this amendment, the Carnelian-Marine-St. Croix Watershed District can respond to the concerns of its residents and better work toward prioritized, accountable, and measurable solutions in water resource management.

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