# Clearwater River Watershed District

# First Dedication

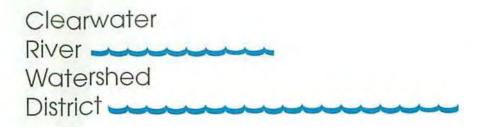
The Board of Managers of the Clearwater River Watershed District, in recognition of his contributions and sincere commitment to the restoration of the quality of the lakes and streams within our District, and in appreciation of his friendship to us and our environment, dedicate this brochure to the memory of David G. Winters, former Manager and Secretary-Treasurer.

David G. Winters died June 12, 1985.

# Second Dedication

The Board of Managers dedicates this brochure also to the memory of long-time Clearwater Lake resident and former District Administrative Assistant Stuart Steelman. His contributions and commitment to the restoration of the lakes and streams in the watershed, as well as his friendship, will be remembered.

Stuart Steelman died January 1, 1991.



# Background and Beginnings

The area encompassed by the Clearwater River Watershed District (CRWD) is rich in soil and water resources. The presence of those abundances has encouraged the growth of two economic mainstays in this Central Minnesota territory – farming and tourism. Around these basics have grown the communities that support their needs.

As population and industry grow, those priceless resources, which we often take for granted, may deteriorate.

A number of years ago, those who fished and enjoyed the waters of the Clearwater Chain of Lakes began to notice a decrease in the clarity of those waters, an increase in the number of rough fish (bullheads and carp), and an increase in the growth of algae on the surface of the water. Studies showed that the lakes were nutrient-rich – they were polluted with phosphorus in amounts many times higher than the norm.

The lakes through which the Clearwater River flowed were aging much too quickly. That process, which is a natural phenomenon called "eutrophication," was being helped along at an alarming rate via runoff from cities, farmland, private septic systems, and industry.

The Clearwater River Watershed District was established as a unit of local government on April 9, 1975, by order of the Minnesota Water Resources Board, acting under authority of Chapter 112, MSA (the Minnesota Watershed Act).

The waters of Clearwater Lake were first tested in 1946. In the late 1960s and early 1970s, because water clarity seemed to be diminishing, property owners sought new tests from scientists interested in water quality. Those tests revealed that the nutrient content of the water had increased substantially since 1946 – phosphorus was coming into the lake at a rate almost double the rate considered damaging. Further reports concluded that the rate of phosphorus input could be reduced by as much as fifty percent if the cities of Watkins, Kimball, and Annandale, and the Modern Craftsmen's Milk Association of Watkins installed on-land waste treatment systems instead of discharging sewage and industrial effluents into the Clearwater River and Warner Creek. If, in addition, the phosphorus input from all nonpoint sources, such as septic tanks, agricultural wastes, storm water runoff, and soil erosion could be significantly reduced, the water quality in the watershed could be restored to an acceptable level.

After a lengthy series of meetings and legal research, those concerned came to the conclusion that only a watershed district, with its powers of enforcement and its abilities to assess and to obtain federal and state funding, could tackle the pollution problem in the Chain of Lakes. The Clearwater River Watershed District was the culmination of years of hard work, and the beginning of many more years of work aimed at undoing some of the damage done over a long period of time to one of our most important resources – our lakes and streams.

Though the original thrust of the CRWD and its five-member Board of Managers was the improvement of water quality in the Clearwater River and Chain of Lakes, its scope has grown into a complete program of water management within its boundaries.

As you read the following pages, we hope a picture of the operations and the nature and range of projects undertaken by the watershed district on behalf of the environment and its inhabitants will become clear to you.

#### The Board of Managers

The Clearwater River Watershed District is governed by a five-member Board of Managers. The Managers serve three-year terms on a staggered basis. Two are appointed by the Wright County Board of Commissioners, two by the Stearns County Board, and one by the Meeker County Board. (The largest portion of the District lies in Wright and Stearns Counties, with a smaller portion in Meeker.) The powers and duties of watershed districts and their boards of managers are set forth in Minnesota Statute 112.

Regular meetings of the CRWD Board of Managers are held on the second Wednesday of each month at 7:30 p.m. at the elementary school in Annandale, Minnesota, and are open to the public. Meeting notices and minutes are published in the Annandale, Kimball, and Watkins weekly papers.

#### **CRWD** Business Office

The Clearwater River Watershed District maintains an office at Paperwork Plus, 980 East Elm St., Annandale. The mailing address for the District is: Box 481, Annandale, MN 55302. Phone 612/274-3935. The phone is answered during normal business hours. Copies of all CRWD public documents are on file at the District's office.

# Plans, Rules, and Regulations

Two important documents underlie the conduct of CRWD business: the Overall Plan is a comprehensive statement of management philosophy, policies, and programs for the watershed pursuant to objectives stated in the enabling legislation. This plan was formally adopted by the Minnesota Water Resources Board in 1976. It is updated every five years, and a copy is on file in the CRWD office, as well as in the public libraries or city halls of Annandale, Kimball, and Watkins.

Watershed Rules and Regulations delineate specific requirements and administrative procedures for implementing the Overall Plan and for achieving the purposes of the District on a continuing basis. Copies of the current regulations may be obtained by writing or phoning the CRWD office.

### The Watershed Area

The Clearwater River Watershed District encompasses the entire drainage area of the Clearwater River – about 159 square miles. It includes portions of Meeker, Stearns, and Wright Counties in Central Minnesota, and the municipalities of Watkins, Kimball, and Annandale, as well as all or parts of various townships.

The lakes through which the Clearwater River flows are divided into an Upper and Lower Chain by the Fair Haven dam. The Upper Chain includes Lakes Betsy, Union, Scott, Louisa, Marie, and Millpond. The Lower Chain includes Lakes Caroline, Augusta, Clearwater, Grass, and Wiegand. Other major lakes in the District are: Clear Lake, Willow Lake, School Section Lake, Pleasant Lake, Cedar Lake, Bass Lake, Swart Watts Lake, Albion Lake, and Otter Lake.

The Clearwater River begins southwest of Watkins and is joined by a tributary known as County Ditch 20 as it meanders south, then east, where it enters the Upper Chain of Lakes. It flows north and under State Highway 55 between Kimball and South Haven, then the general direction of flow through the chain is east, then northeast out of Clearwater Lake, through Grass and Wiegand Lakes, and on into the mighty Mississippi at the City of Clearwater. (See map, center section of this brochure.)

#### Cooperative Efforts

Over its several years of existence, the CRWD has methodically formed working relationships, and sometimes partnerships, with other governmental units and agencies, as well as with groups of private property owners. These relationships, built on common need and a growing trust in the abilities and motives in both sectors, have been mutually gratifying and productive, accomplishing efficiently now what might have taken months or years and an abundance of red tape only a short time ago.

The Planning and Zoning Departments of Wright, Stearns, and Meeker Counties routinely screen permit applications, looking for those that could have adverse impact on water quality, and sending those to the CRWD for comments and conditions. County Sanitarians carefully check septic system plans, and cooperate with the CRWD in making sure those systems won't pollute. The counties now have Shoreland Management Ordinances to protect their lakes and streams. The County and State Highway Departments submit plans for highway and bridge maintenance to the CRWD for approval. Farmers seeking tiling permits appear before the Board of Managers for engineering advice and approval. The CRWD and the County Soil and Water Conservation Districts cooperate to plan for proper drainage of farmland to prevent erosion and excess runoff and worked together on the nonpoint source pollution abatement (Tri-County Conservation Project) phase of the Lake Restoration Project recently completed (see following pages). Various lake property owners associations have worked with the CRWD to undertake lake level and bog removal projects. And, individuals appear at CRWD meetings to ask for help, to voice opinions, state criticisms, or just to listen.

## What Can You Do?

Our water resources are vitally important to our health, to our economies, and to our senses. You can help maintain and improve the quality of our lakes, streams, and groundwater by keeping shorelines neat and free from debris, by always being aware of the consequences of your actions—simple things such as overfertilizing your lawn, removing vegetation from a slope, running crop rows in the wrong direction, picking cattails, filling a marshy spot, spilling gas and oil from an outboard motor, or taking more than your limit of game fish might seem insignificant, but, when added together, can cause damage to our precious waters.

If you are unsure if a project you intend to undertake might require a CRWD permit, please call the office—the Watershed District is not in the business of denying your rights to use your property, but it would like to help you accomplish your goals without damage to the environment or to neighboring or downstream properties!

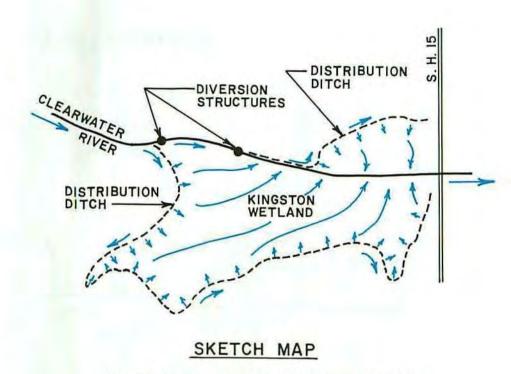
## Projects of the Clearwater River Watershed District

#### Clearwater River Chain of Lakes Restoration Project

The Clearwater River Chain of Lakes Restoration Project is a series of eight lake and watershed restoration measures undertaken to improve the water quality of the Clearwater River Chain of Lakes. The lakes which will benefit from the project include Clearwater Lake, Grass Lake, Lake Augusta, Lake Caroline, Millpond, Lake Marie, Lake Louisa, Scott Lake, and Lake Betsy. The eight projects are described briefly below and on the following pages.

Wetland Treatment Systems. Wetlands are natural traps for phosphorus and other nutrients which promote over-abundant algae in lakes. The nutrient entrapment can be increased by forcing the inflowing water to spread over the whole wetland (rather than following a channel) when flows are moderate or low. This is the principle of the three wetland treatment systems that form the backbone of the lake restoration project.

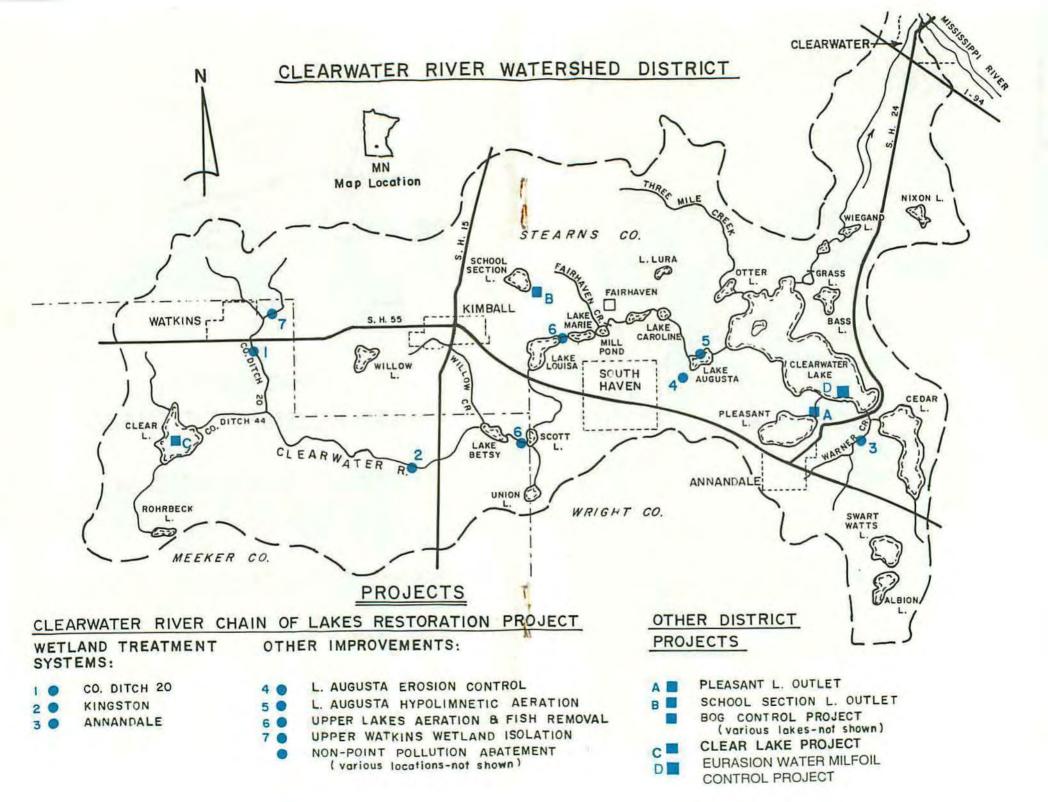
The County Ditch 20 Wetland Treatment System contains approximately 40 acres of wetlands which are served by a diversion structure and two channels. A total of approximately 7,000 feet of diversion channels distributes the contaminated runoff over the wetland. The approximate expense of this project is \$200,000 and it was completed in late 1984. This wetland system removes approximately 1,000 pounds of phosphorus annually.



#### WETLAND TREATMENT SYSTEM

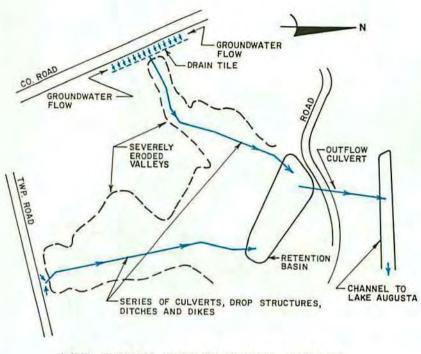
The Kingston Wetland Treatment System is the major facility of the project and contains nearly 300 acres of wetland. Over 19,000 feet of diversion channels are being constructed, with more than 150 distribution pipes installed along the length of the channel. The construction cost of this project was approximately \$394,000 and it was completed in 1985. The system removes some 5,600 pounds of phosphorus annually.

The Annandale Wetland Treatment System consists of approximately 40 acres of wetlands in two locations, with 4,600 feet of diversion ditches. The approximate construction expense of this project is \$120,000 and it was completed in late 1984, with an approximate phosphorus removal capacity of 750 pounds per year.



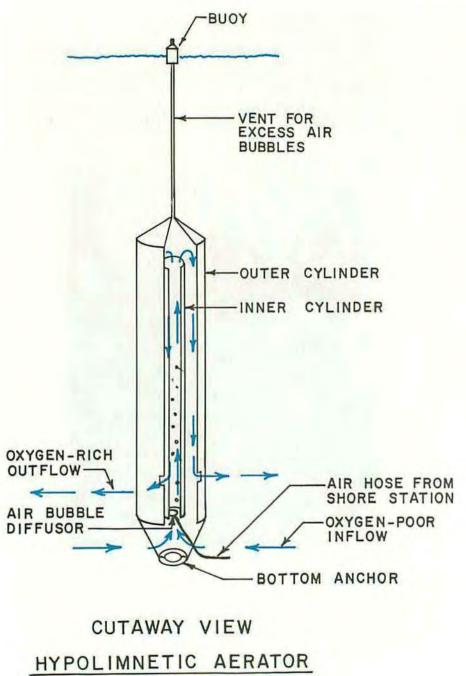
#### Other Restoration Projects

The Lake Augusta Erosion Control Project was completed in 1982 at a cost of approximately \$133,000. This project alleviates a serious erosion problem into Lake Augusta and has an estimated phosphorus removal capacity of 40 pounds per year.



LAKE AUGUSTA EROSION CONTROL PROJECT

The Lake Augusta Hypolimnetic Aeration System was installed in Lake Augusta during 1985 at an approximate cost of \$262,000. In addition to assuring increased fisheries, the system removes an estimated 280 pounds (420 pounds with the possible addition of ferric chloride) of phosphorus annually by maintaining near-bottom oxygen and thereby suppressing phosphorus release from the sediments.

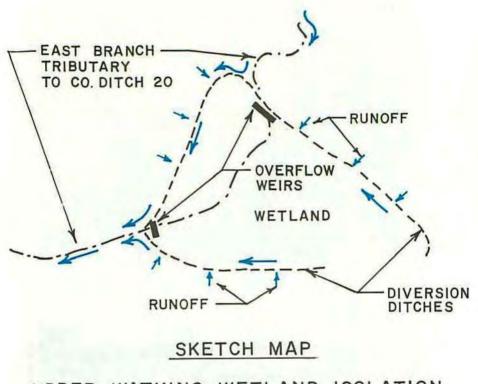


(AFTER ATLAS-COPCO)

The Upper Lakes Aeration and Mechanical Fish Removal Project includes the hypolimnetic aeration of Lakes Louisa and Marie. These aerators were installed in 1985-1986. In addition, mechanical removal of rough fish (carp, bullhead, etc.) was performed on Lake Betsy, Scott Lake, Union Lake, Lake Louisa, Millpond, and Lake Marie during the fall of 1984 and the spring and fall of 1985-1988. Being bottom feeders, rough fish mix large amounts of nutrients into the water from the sediments. The estimated cost of this project is \$285,000, and it removes an estimated 1,800 pounds of phosphorus annually.



Monitoring Program. From 1981 through 1992 a monitoring program including lake and stream water quality, stream flows, and precipitation (beginning in 1983) was a part of the lake restoration project. The monitoring program helped bring about important modifications, including the addition of the Upper Watkins Wetland Isolation and the Nonpoint Source Pollution Abatement Projects.



UPPER WATKINS WETLAND ISOLATION

(he Upper Watkins Wetland Isolation Project was added to the project in 1983. Formerly, untreated wastewater from a cheese plant discharged into the Upper Watkins Wetland. This transformed the wetland from a nutrient trap (its natural state) into a nutrient source – in fact, the largest nutrient source in the entire watershed. The project diverts runoff and channel flow around the edge of the wetland and includes more than 11,000 feet of isolation dikes and channels plus overflow structures and ditch crossings. The estimated expense of this project is \$460,000 and it was completed in late 1984. It has resulted in a phosphorus load reduction of approximately 30,000 pounds annually.

The Nonpoint Source Pollution Abatement Project was added to the Restoration in 1985 and was later extended to 1993. This project aimed to institute farming practices that will protect the public from water quality degradation while at the same time reducing soil loss, lowering farm operating costs, and increasing profits. The infrastructure developed to implement this was the Tri-County Conservation Project (TCCP), composed of the Stearns, Meeker, and Wright Soil and Water Conservation Districts, along with CRWD. To demonstrate conservation tillage practices, a no-till drill was purchased. Also, tillage demonstration plots have been used. A local farmer group was formed to provide grass-roots input on implementing conservation practices through the project. Critical erosion and nutrient export areas were identified using a computer model. Runoff and groundwater monitoring - including pesticide impacts - was conducted. The project, with a budget of some \$1.5 million, worked through cooperation among individual farmers, the agri-business community, the TCCP member districts, Minnesota Pollution Control Agency, Board of Water and Soil Resources, Agricultural Extension Service, U.S. Soil Conservation Service, Environmental Protection Agency, and others.



#### Other District Projects

**Pleasant Lake Outlet.** The outlet from Pleasant Lake was reconstructed to increase the outflow capacity in order to alleviate excessively high lake levels there. The project, initiated by local petition, was completed in early 1985 at an approximate cost of \$48,000.

**School Section Lake Outlet.** To alleviate flooding of homes and farmland, an outlet was constructed from School Section Lake in late 1984. The lake has no natural outlet, and it rose seven feet during 1983-1984, mainly as a result of a rising water table. The cost of the outlet was approximately \$155,000.

Augusta-Clearwater-Grass Lake Bog Control Project. After two years of very high water that caused severe floating bog problems in these lakes, necessitating several emergency bog removal projects, a bog control project was set up with the cooperation of the lake property owners involved. That project includes acquisition and improvement of access areas for bog removal, and the funding and process for removal of floating bogs deemed harmful. Estimated cost for the project is \$17,000. It was initiated in the summer of 1985.

**Clear Lake Restoration Project.** Accelerated reduction of water quality in Clear Lake during the past several years prompted the property owners around Clear Lake to file a petition in 1987 with the District to correct the problem. A diagnostic and feasibility study was needed to investigate causes of the lake's problems and determine appropriate remedial action. Toward this end the District applied for a Clean Water Partnership state grant in 1988, but no grant was offered. Nevertheless, a scaled-down study was undertaken by the property owners with volunteer labor and limited financial support from the District and Meeker County.

**Eurasion Water Milfoll Control Project.** Eurasion Water Milfoll (EWM) was discovered in Clearwater Lake in 1989. For several years the Clearwater Lake Property Owners chemically treated (under state permit) the identified EWM areas of the lake. In 1993 the CRWD initiated this project to help the EWM control effort through funding for chemical (2,4-D) purchase and incidental costs, with the property owners continuing to provide volunteer labor for the application. The estimated project cost is \$148,000 for the years 1994-1998.

## Milestones

- 1975 Clearwater River Watershed District formed.
- 1878 The Modern Craftsmen's Milk Association installed on-land spray irrigation equipment and holding ponds on land adjacent to its cheese making plant in Watkins, in the hope of reducing to zero the phosphorus it discharged into the Clearwater River.
- 1980 Funding was granted by the Environmental Protection Agency (EPA) and the Minnesota Pollution Control Agency (MPCA) for the Clearwater River Chain of Lakes Restoration Project, in the amount of \$2.4 million. (Funding was 50 percent federal, 25 percent state, and 25 percent from local property owners determined to directly benefit from the cleanup of the lakes.) Several projects were included in the Restoration – those projects are defined in words and diagrams in this brochure.
- 1980 Annandale municipal on-land spray irrigation sewage treatment plant went on line, effectively reducing to zero the amount of phosphorus discharged from that city's sewage.
- 1982 Lake Augusta Erosion Control Project completed.
- 1983 The City of Watkins put on line its new on-land sewage treatment plant, reducing to zero its sewage pollution of the watershed.
- 1984 Beginning of rough fish removal in-the Chain of Lakes.
- 1984 Upper Watkins Wetland Isolation Project completed.
- 1984 School Section Lake Flood Control Project completed.
- 1985 Kimball municipal on-land sewage treatment plant went on line, eliminating that city's pollution of the Clearwater River.
- 1985 Wetland Treatment Systems on line.
- 1985 Pleasant Lake Level Project completed.
- 1985 Bog Removal and Maintenance Project in effect.
- 1985 EPA and MPCA approval of additional Restoration Project funds to be used in a cooperative effort with Soil and Water Conservation Districts and other agencies to abate nonpoint source pollution. The grant was extended to 1990.
- 1985 Installation of aeration equipment in Lakes Augusta, Marie, and Louisa.
- 1986 Tri-County Conservation Project (TCCP) developed to abate nonpoint source pollution.
- 1986 No-till drill purchased and began operating under TCCP.
- 1987 Pilot implementation of conservation practices began through TCCP Farmer Project Committee.
  - 1987 Operation and maintenance budget instituted for Clearwater River Chain of Lakes Restoration Project.
  - 1989 Modifications of Wetland Treatment Systems completed.
  - 1990 EPA and MPCA approval of additional Restoration Project funds to extend TCCP to 1993. The total Restoration Project budget was finally \$4.4 million.
  - 1993 Restoration Project completed. Annual phosphorus load reduction of more than 40,000 pounds achieved.
  - 1993 Project to control Eurasian Water Milfoil in Clearwtaer Lake initiated.

## Clearwater River Watershed District Board of Managers:

Clarence Klein, President Marvin Brunsell, Vice President Doris Wynia, Secretary-Treasurer Norman Osterby Richard Eckman

Engineer: Wenck Associates, Inc. Attorney: Hall, Byers, Hanson, Steil & Weinberger, P.A.

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