

Five years of activities to protect and preserve our water resources

Like all Watershed District's in the state of Minnesota, the Clearwater River Watershed District operates under a 10 year strategic plan known as a Watershed Management Plan (found online at: www.crwd.org). The CRWD's current ten year plan (2011-2021) lists a suite of measures to promote, protect, and preserve the District's water resources.

Halfway through the current plan cycle, the CRWD has made significant progress in implementing these measures. From large capital improvement projects such as the City of Kimball Stormwater Improvement Projects to small-scale best management practices such as stream buffer cost-share incentives, the CRWD has been hard at work protecting and improving the water resources of the District. Continue reading to learn more about the activities geared to protect and improve our water resources.

Clear Lake South Notch Weir (Priority)

Webpage: www.crwd.org/clear_southnotch.html

Location: Southern tributary to Clear Lake (SW of Watkins)

Status: Complete

Targeted impairment: Nutrients (primarily phosphorus (ph) in particulate and dissolved forms) from 1.25 inch storm runoff events

Method: 1) Temporarily impound runoff using notch weir to allow time for particulates to settle out of water flow, 2) Sand-iron filter treats portion of flow to remove dissolved ph

Results: Estimated 888 lbs. annual ph removal

Cost/ benefit ratio: ~\$76.58/lb. ph removed

Partners: Clearwater River Watershed District, Clear Lake Property Owners Association (financial contribution), Meierhofer family (land owners), Meeker County (ditch authority)



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Kingston Wetland Restoration

Webpage: www.crw.org/tmdl_targetedfertilizer.html

Location: western half of District (area around Watkins & Kimball, MN) | Status: In progress

Targeted impairment: Dissolved oxygen & nutrients (primarily sediment & phosphorus (ph) in particulate and dissolved forms)

Method: Cost-share incentive delivered via farmers cooperatives to encourage farmers to switch from standard fertilizer application rates to variable rate application based on gridded soil testing of fields

Results: Estimated 1,955 lbs. annual ph removal, improved dissolved oxygen standard violations from 59% of samples collected pre-restoration to 25% of samples post-restoration

Cost/ benefit ratio: ~\$301.42/ lb. ph removed

Partners: MN Pollution Control Agency (grant funds of \$404,000), Meeker County (ditch authority), Meeker County SWCD, MN Dept. of Natural Resources, US Army Corps of Engineers



Watkins Area Stormwater Treatment

Webpages: www.crw.org/tmdl_watkins-area-stormwater.html

Location: East of Watkins, MN | Status: In progress

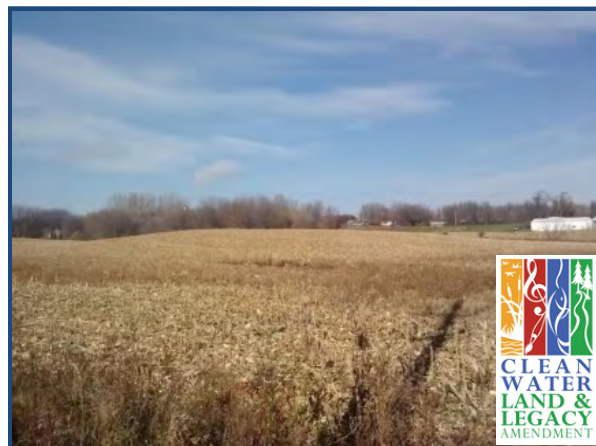
Targeted impairment: Nutrients (primarily sediment & phosphorus (ph) in particulate and dissolved forms)

Method: Sediment pre-treatment basin and limestone filter

Results: Estimated 815 lbs. annual ph removal

Cost/ benefit ratio: ~\$716.34/lb. ph removed

Partners: City of Watkins, MN Board of Water & Soil Resources (grant funds of \$351,906)



Cedar Lake Restoration & Protection

Webpages: www.crw.org/cash_061_protectandimprove.html

Location: Southeast of Annandale, MN | Status: In progress

Targeted impairment: Nutrients (primarily sediment & phosphorus (ph) in particulate and dissolved forms)

Method: Limestone & sand-iron filters

Results: Estimated 1,280 lbs. annual ph removal

Cost/ benefit ratio: ~\$432.97/lb. ph removed LIFE EXPECTANT

Partners: MN Board of Water & Soil Resources (grant funds of \$277,900), MN Dept. of Natural Resources (land owner), Cedar Lake Conservation Club (financial contribution), Wright County SWCD



City of Kimball Stormwater Improvements (Priority)

Webpages: www.crw.org/tmdl_kimball-stormwater-PHII.html;
www.crw.org/tmdl_willowcreek.html

Location: Multiple locations in City of Kimball, MN

Status: Complete

Targeted impairment: Nutrients (primarily sediment & phosphorus (ph) in particulate and dissolved forms) from 1.25 inch storm runoff events

Method: Multi-phased treatment train for urban runoff, including vegetated swale, grit chambers, rain garden, basins (infiltration/ filtration/ re-use), filtration berms, sediment pre-treatment cell, and conveyance

Results: Estimated 1,419 lbs. annual ph removal

Cost/ benefit ratio: ~\$777.31/lb. ph removed

Partners: Clearwater River Watershed District, City of Kimball, Hendricks Sand & Gravel & WIN-GO (landowners), MN Board of Water & Soil Resources (grant funds of \$809,650), MN Dept. of Natural Resources, MN Dept. of Health, Stearns County SWCD, US Army Corps of Engineers



Targeted Fertilizer Application Reduction (Priority)

Webpage: www.crw.org/tmdl_targetedfertilizer.html

Location: western half of District (area around Watkins & Kimball, MN)

Status: In progress

Targeted impairment: Nutrients (primarily phosphorus) applied to farm fields in form of fertilizer

Method: Cost-share incentive delivered via farmers cooperatives to encourage farmers to switch from standard fertilizer application rates to variable rate application based on gridded soil testing of fields

Results: Not yet determined

Cost/ benefit ratio: Not yet determined

Partners: Clearwater River Watershed District, MN Pollution Control Agency (grant funds of \$300,000), Farmer Cooperatives (Centra Sota, Consumers Coop Association, Cold Spring Coop), local farmers



Source: flickr.com/photos/graylight/240543285/

Did you know?

- ♦ The CRWD has been awarded ~\$2.6 million in grant funds in the past five years
- ♦ Four of the five priority projects listed in the CRWD's current Watershed Management Plan have either been implemented or are in progress
- ♦ The CRWD was one of the first watershed district's in the state to have an improved Total Maximum Daily Load Implementation Plan, which is part of the current Watershed Management Plan

Other activities:

Alternative Tile Intake Program: Cost-share & technical assistance to replace open intakes with alternatives that maintain existing drainage while mitigating transport of sediment and nutrients from farm field runoff

Aquatic Invasive Species: Partner with lake associations to implement treatment activities and serve in advisory roles to counties implementing AIS programs

Civic Engagement: Implement educational, outreach, and public information programming to increase capacity, build support, and empower citizens to promote, protect and preserve our water resources



Clearwater River Restoration & Protection Phase II: Prioritize and implement targeted best management activities in the western portion of the District to minimize sediment & nutrient runoff

Incentive Program: Cost-share & technical assistance to implement best management practices in agriculture and lakeshore area that result in treatment of nutrient & sediment runoff

Performance Monitoring: Conduct various water quality monitoring methodologies to establish and track trends, provide data for improvement efforts and track progress to meet goals

Rough Fish Management: Control rough fish populations in various District lakes to minimize negative water quality effects using removal and migration blocking techniques

Streambank Stabilization: Use various methods to stabilize streambanks, limiting erosion of banks



Board of Managers

Robert Schiefelbein, Chair

Meeker County
320.398.8400
rgaaab@juno.com

Christopher Uecker, Vice-Chair

Wright County
612.240.7962
ccuecker@lakedalelink.net

Robert Rocheleau, PR

Stearns County
320.398.2041
brochel2009@gmail.com

Kathy Jonsrud, Treasurer

Wright County
320.274.2166
kjonsrud@yahoo.com

Paul DeGree, Secretary

Stearns County
320.398.4886
degree.paul@yahoo.com

District Staff

Administrator

Cole Loewen
320.274.3935
cole.loewen@crwd.org

Assistant Administrator

Dennis Loewen
320.274.3935
loewen.dennis@yahoo.com

Advisor

Merle Anderson
507.736.2413
pacma@frontiernet.net

District Attorney

Smith Partners, PLLP
Louis Smith
612.344.1400

smith@smithpartners.com

District Engineer

Rebecca Kluckhohn, PE, Wenck
Associates, Inc.
763-.252.6824
rcarlson@wenck.com

Fast Facts

Natural shorelines provide as much as 500% more diversity of plant & animals species as compared to upland areas

Female Zebra Mussels can produce 100,000-500,000 eggs per year

Stormwater runoff from urban areas can have a variety of pollution present– from bacteria to nutrients to hydrocarbons and heavy metals

Simple steps can be taken to protect our water resources– for ideas, go online and search “ways to improve water quality” to get started