

Red River Valley Tile Drainage Water Quality Assessment

Abstract

The number of tile drains installed in eastern North Dakota has increased in recent years due to higher than normal precipitation, resulting in higher water tables and subsequent salinity concerns. A monitoring project was initiated in 2008 to address surface water quality in Cass County, which contributes to the Red River of the North and ultimately Lake Winnipeg in Canada.

Partners

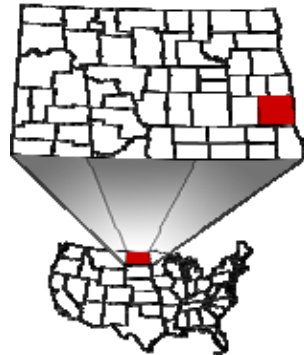
Landowners
 North Dakota Department of Health
 Lake Agassiz RC&D
 Cass County Soil Conservation District
 National Weather Service, Grand Forks, ND
 North Dakota State University

Funding

EPA 319 Nonpoint Source Pollution
 CSREES



Phase I - 2008



Cass County in North Dakota



Preliminary Findings:

Conductivity 449 - 12,220 umhos/cm
 N(Total) .795 - 41.2 mg/L
 NO₃+NO₂ 0.5 - 38 mg/L
 TKN .09 - 41.2 mg/L



Weekly Testing

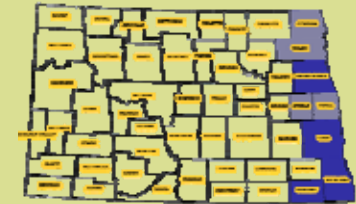
April 30, 2008 to December 5, 2008

19 sites
 10 producers

Anions, cations, general chemistry panel, trace metals



Phase II 2009-2013



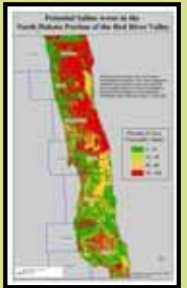
8 SCD's
 1 site/SCD
 32 wks/yr
 5 years

4 sites*

- Surface runoff
- Drain outlet
- Downstream
- Comparable un-drained field

4 sites*

- Grab samples



Areas of saline concern in eastern ND. NRCS 2007

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* saline soils