

**BOIS DE SIOUX WATERSHED DISTRICT**  
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# **Calendar Year 2013 Annual Report**



**BOIS DE SIOUX WATERSHED DISTRICT  
ANNUAL REPORT  
CALENDAR YEAR 2013**

**BOARD OF MANAGERS**

<b><u>NAME</u></b>	<b><u>COUNTY</u></b>	<b><u>PHONE</u></b>	<b><u>TERM EXPIRES</u></b>	
<i>Dennis Zimbrick</i>	Traverse	320-265-6252	2014	
<i>Doug Dahlen</i>	Grant	320-766-5794	2016	Replaced Dan Ellison
<i>Jerome Deal</i>	Traverse	320-563-8377	2016	President
<i>Don Davenport</i>	Otter Tail	218-739-9281	2014	
<i>Linda Vavra</i>	Stevens	320-677-2586	2016	Treasurer
<i>Scott Gillespie</i>	Big Stone	320-748-7149	2015	Secretary
<i>John Kappahn</i>	Grant	218-685-4604	2014	Vice President
<i>Jason Beyer</i>	Wilkin	218-651-0135	2015	
<i>Ron Vold</i>	Traverse	320-748-7555	2015	

**CONSULTING STAFF**

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**DISTRICT STAFF**

**Jon Roeschlein**

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Wheaton, MN 56296  
320-760-7275

**Monica Wilson**

Assistant Administrator  
901 6th Avenue North  
Wheaton, MN 56296  
320-563-4164



## **OFFICE**

### **Bois de Sioux Watershed District**

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## **Project Team Members**

The Bois de Sioux Watershed District is a subwatershed of the Red River of the North basin. In December of 1998, many agencies and organizations signed the Red River Basin Mediation Agreement which outlined how projects will be developed in the Red River Valley in Minnesota. That agreement states that the districts within the basin will attempt to balance each project design with Flood Damage Reduction (FDR) benefits and Natural Resource Enhancements (NRE). Part of that process requires that each district establish a Project Team for each project containing members from local, regional, state and federal agencies along with environmental organizations and local landowners.

The Bois de Sioux Watershed District has appointed these members to seven (7) Project Teams. Current team membership lists are located in the district office.

Project Team meetings were generally held the fourth (4<sup>th</sup>) Tuesday of each month with one team meeting in the morning and the other meeting in the afternoon. Teams only met as necessary to discuss items and issues relating to each specific project. Notes of those meetings are on file in the district office with copies distributed to each member.

## **2013 Regular Board Meetings**

*January 17, 2013*  
*February 21, 2013*  
*March 21, 2013*  
*April 18, 2013*  
*May 16, 2013*  
*June 27, 2013*

*July 18, 2013*  
*August 15, 2013*  
*September 19, 2013*  
*October 17, 2013*  
*November 21, 2013*  
*December 19, 2013*

The Bois de Sioux Watershed District Board of Managers meets regularly on the third Thursday of each month, generally for a half of a day starting at 8:00 a.m. April through October and at 9:00 a.m. November through March.

### **Background**

The Bois de Sioux Watershed District was established on May 11, 1988 by order of the Minnesota Board of Water and Soil Resources (BWSR). The district represents an area of about 1,420 square miles and includes Traverse County (38%), Grant County (27%), Wilkin County (14%), Stevens County (10%), Big Stone County (7%) and Otter Tail County (4%).

The district includes the drainage basins of Lake Traverse and the Bois de Sioux River within the State of Minnesota. The major tributaries are the Mustinka River and numerous creeks in the south and east and the Rabbit River to the north.

### **Board Activity**

The Stevens County Board of Commissioners appointed Linda Vavra of Donnelly, MN as the Stevens County board manager to a three year term, set to expire in 2016. Linda also agreed to serve on the MAWD Board of Directors.

The Traverse County Board of Commissioners appointed Jerome Deal of Wheaton, MN as the Traverse County board manager to a three year term, set to expire in 2016.

The Grant County Board of Commissioners appointed Doug Dahlen of Herman, MN as the Grant County board manager to a three year term, set to expire in 2016. Doug replaced Dan Ellison.

The board held twelve (12) regular monthly meetings in 2013. Numerous Staff meetings were also conducted for purposes of reviewing issues identified at the board meetings and to meet with landowner groups in an informal setting to discuss legal ditch repairs, permit activity, and other surface water related problems.

The board continued with their membership to the Red River Watershed Management Board. Jerome Deal was selected as the Bois de Sioux Watershed District representative with Jon Roeschlein serving as the alternate. Jerome also was co-chair of the Flood

Damage Reduction Work Group for the implementation of the Red River Basin Mediation Agreement.

Jerome Deal continued to serve as a member representing Region I for the Minnesota Association of Watershed Districts Board of Directors and was elected chairman at the Annual Meeting in December.

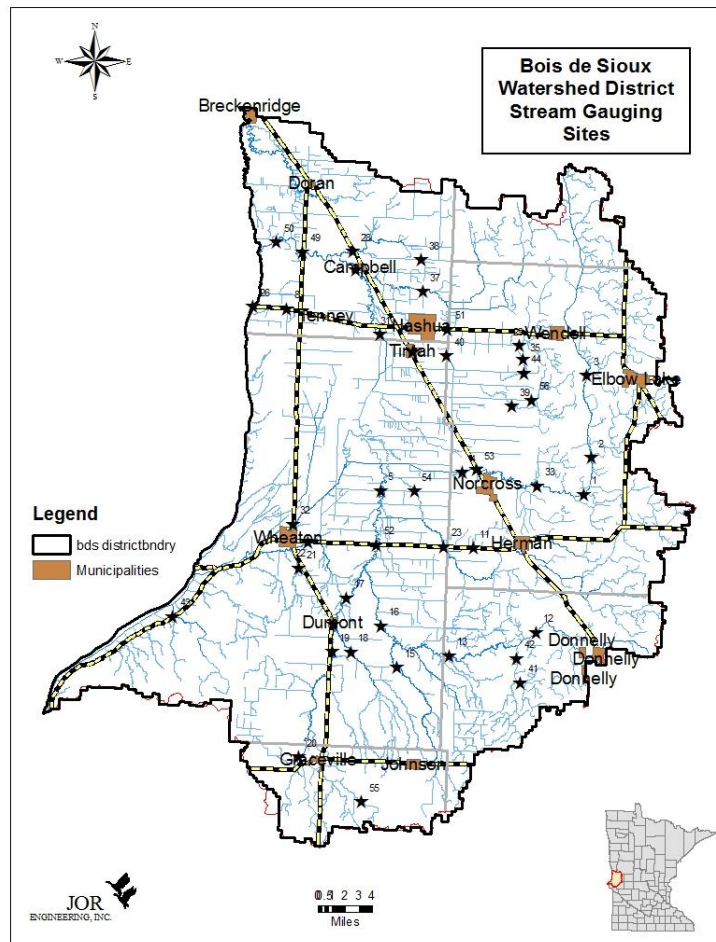
In 2010 the Red River Retention Authority (RRRA) was formed through a joint powers agreement between the Red River Watershed Management Board (RRWMB) in Minnesota and the North Dakota Joint Water Resources Board (NDJWRB). Jerome Deal was appointed as a member to the RRRA representing the RRWMB. The RRRA then established the Water Retention Committee of which Jerome was named one of the co-chairs.

## Stream Gauging

In 2013 we had fifty-four (54) gauging sites in our Stream Gage Monitor Program. Thirty-eight (38) of those sites were considered active. Two of our gage sites are in South Dakota, on the outlet of Jim Creek, into Lake Traverse. Volunteers that live within the vicinity of each gage do the actual day-to-day monitoring of the stream gage. The program is coordinated through the administrative office. Volunteer readers are compensated at a rate of Seventy-Five Dollars (\$75.00) per gage, per year, to help offset costs for accessing the gage.

Stream Gage data for 2013 has been entered into the computer data base. Data is transferred to the BdSWD Engineer for his review purposes.

Each year, gage readers are asked about the condition of their gauging site. If the gage needs work or there is a request to modify the gage, it is reviewed by the administration and assigned to an engineering technician to investigate, repair, or modify as the case may require.



## **Rules and Regulations**

The Bois de Sioux Watershed District has adopted rules to control watershed activities as required by M.S. 103D.341. These rules lay out a permit process which land owners must follow. Permits are required for any type of work related to new ditching, improved ditching, drainage from one sub-watershed to the other, construction, alteration or removal of any dike, reservoir work, land forming, wetland drainage, work within natural drainage ways, lakes, wetlands and other abutting land and drainage structures. Land owners should contact the Bois de Sioux Watershed District Office for assistance and direction in filing permits.

**FOR A COPY OF THE RULES & REGULATIONS OF THE BOIS DE SIOUX WATERSHED DISTRICT, PLEASE CONTACT THE BOIS DE SIOUX WATERSHED DISTRICT OFFICE OR GO TO:**

**[HTTP://WWW.BDSWD.COM](http://www.bdswd.com)**

**PERMIT APPLICATIONS CAN ALSO BE FOUND ONLINE AT THIS ADDRESS.**

Any land owner that proceeds to do work without a permit, when the project requires one, is subject to a minimum of \$250 After-The Fact Permit Fee plus any Engineering/Attorney Fees incurred in the processing of said permit.

**There were a total of 208 permits processed in 2013.**

Contractors and installers were directed to design any tiling projects to meet the ¼ inch Drainage Coefficient as that is the BdSWD sizing policy.

## **Projects and Programs**

### **Impoundment Inventory**

The Bois de Sioux Watershed is continuing its efforts in developing an Impoundment Inventory for the district. This project originally started out being partially funded by the Minnesota Flood Damage Reduction Program. It is intended that this particular project will continue indefinitely as new impoundment locations are identified.

In 2012, the BdSWD completed a 20% Flow Reduction Strategy for the watershed. This study focused on placing storage within the Bois de Sioux Watershed District. A total of 26 sites or potential projects were identified within the District. The storage was placed in the Lake Traverse and Rabbit River basins. Site selection was based primarily on the need for local flood control. Flooding problems are widespread in the Bois de Sioux Watershed District. The Watershed Board looks forward to partnering with regional interests to help solve its local flooding problems in ways that will also benefit the



mainstem. This strategy will promote local and regional support for the projects. A copy of the document is available upon request from the district office.

## **North Ottawa Impoundment Project**

The Flood Damage Reduction portion of the North Ottawa Project was completed in 2009 and the impoundment was fully operational for FDR in the Spring of 2010.

A full operations report is included in this annual report, and is available in the BdSWD Office.

The Board custom farmed the land in pools A and B for ag production in 2013. Farming will continue in these two pools until such time that phase 5 construction is complete and operations dictate cessation.



David T Marshall  
Charles L Anderson

## **North Ottawa Project**

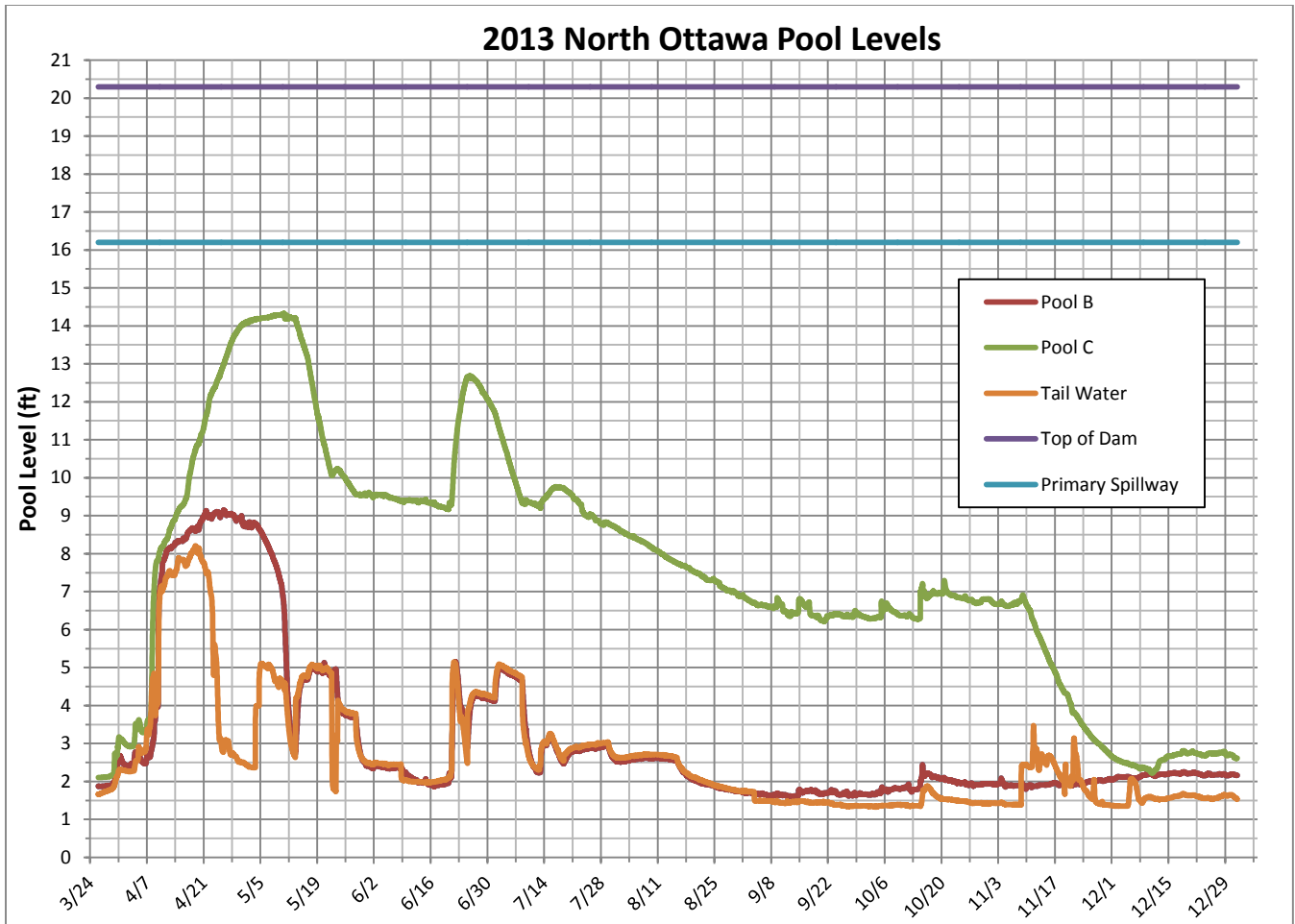
### **2013 Operation – Hydro Review**

The 2013 operating year at the North Ottawa Project began with an expectation of a major flood due to the snow pack and lateness of the melt. The runoff began slowly in early April and continued slowly until late April. Release of water began from A and B Pools on May 3<sup>rd</sup> and from C Pool on May 10<sup>th</sup>. The maximum volume in storage occurred on May 3<sup>rd</sup> when releases began was 6450 acre-feet. Inflow at this point was equivalent to about 1.66 inches of runoff from the watershed. Upstream reservoirs of Ash and Mud Lakes contributed about 600 ac ft of storage. Several rainfall events caused runoff in mid May, late June, mid July, and mid October. A significant rainfall in late June began on the 20<sup>th</sup> and dumped over 4 inches in the next three days. Total inflow for the year was about 12600 acre-feet or about 3.25 inches of runoff. The historic average annual runoff in this area is about 2.5 inches

Three pressure transducers are in place, one each in Pools B and C and the third one at the outlet for tail water levels in JD2. These sensors, along with an automatic rain gauge are attached to a data logger to record the stages and rainfall. The data logger is connected to a telemetry device to send the data to a satellite, which allows real time data retrieval from a remote instrument access. Visual readings were taken from staff gages during visits to the site. These readings were compared to the automatic logger to make sure the automatic levels were reading correctly. The pool levels are shown in the graph below. The run out level of Pool B & C outlets are 1.0 foot. The maximum gated pool level is 16.2 feet. The top of dam is at 20.3 feet.

The automatic rain gauge had a total of 17.19 inches of precipitation from the beginning of March to the end of December.

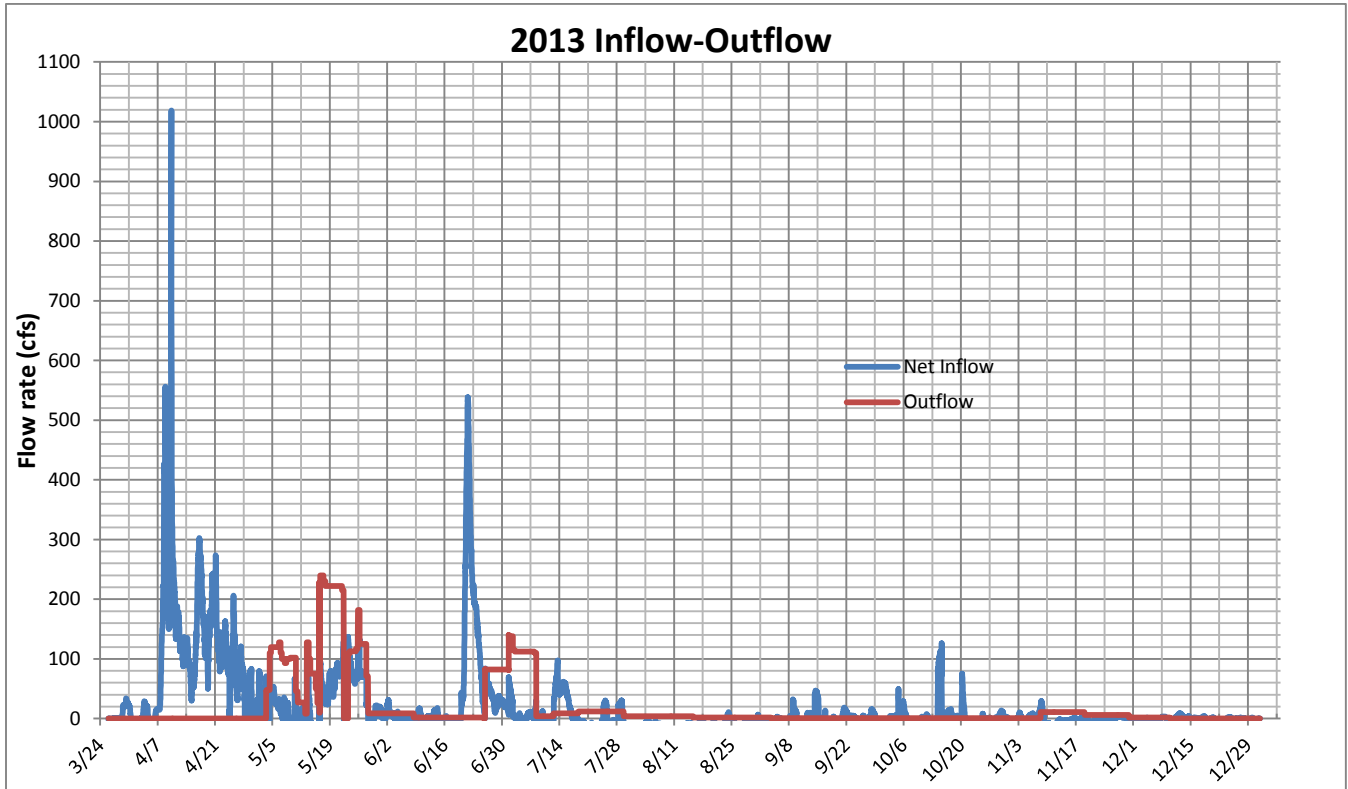
Phase V B construction which started in the fall of 2012 installed the interior control structures. They were not completed prior to the 2013 spring melt. Phase V A which added the sheet pile control structures to let water into A Pool worked well.

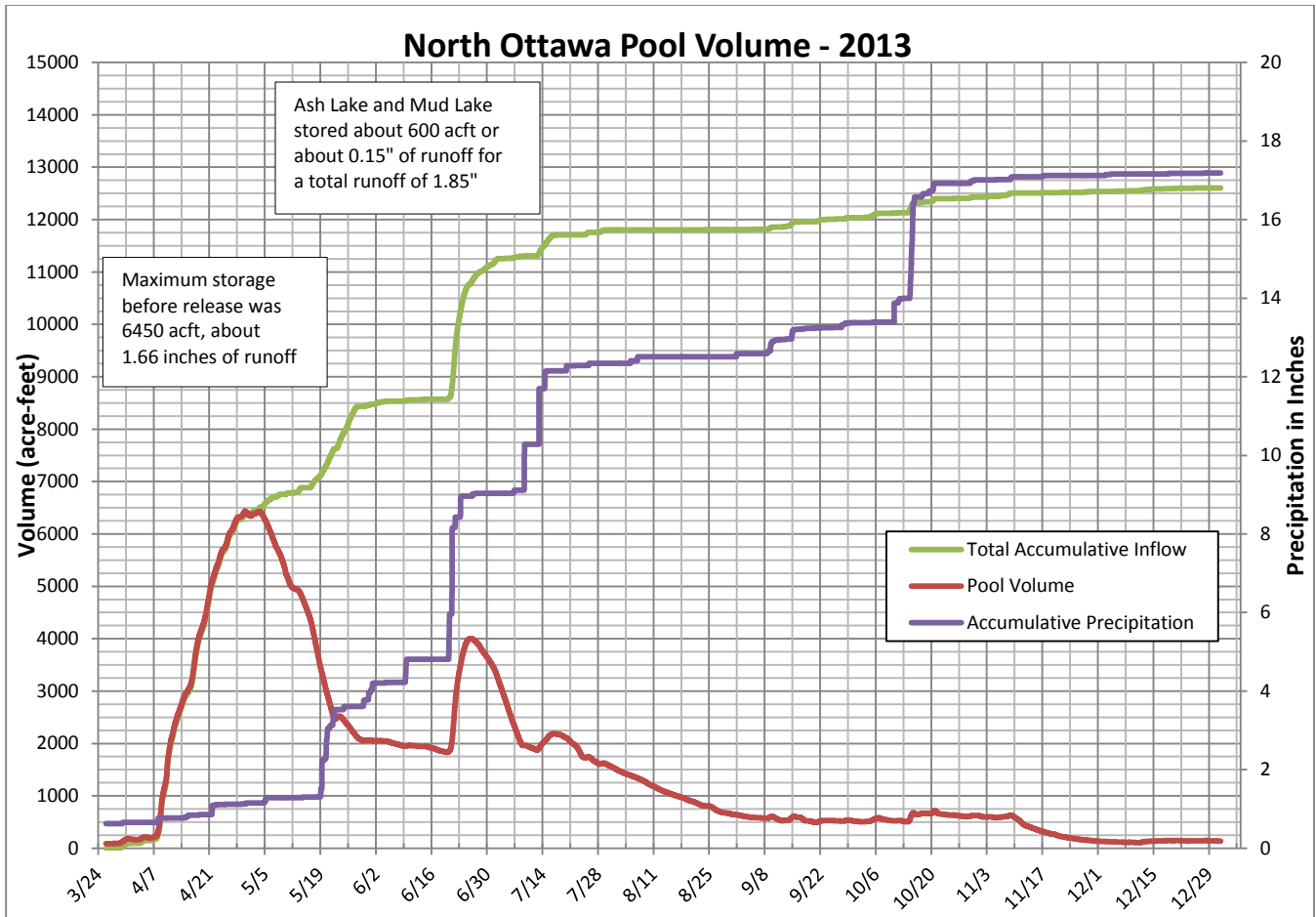


Beginning on May 10<sup>th</sup>, Pool C level was initially drawn down to a target level of 9.5 ft, then the level slowly dropped to about 9 ft before the rainfall event in late June created a runoff event great enough that the outlets were closed and pool levels rose. Pool C was then drawn down to the target level of about 9.5 ft when another rain event caused runoff and the gates were closed again. This time Pool C was drawn down and continued on a slow release to maintain flow in the Rabbit River. About mid November, drawdown began to prepare the pool for the winter. This drawdown was complete by mid December and the gates were left open for the winter.

Inflow and outflows hydrographs are shown in the chart below: Outflows are estimated based on gate openings and water level elevations. Inflows are estimated based on change in pool levels. Fluctuation in inflow rates shown may be caused by imprecise pool level measurements and wind effects. Evaporation also lowers pool levels. This results in periods of negative net inflows as shown.

A and B Pools were drawn down by May 10<sup>th</sup>, seven days after beginning, to allow agricultural production within the pools.

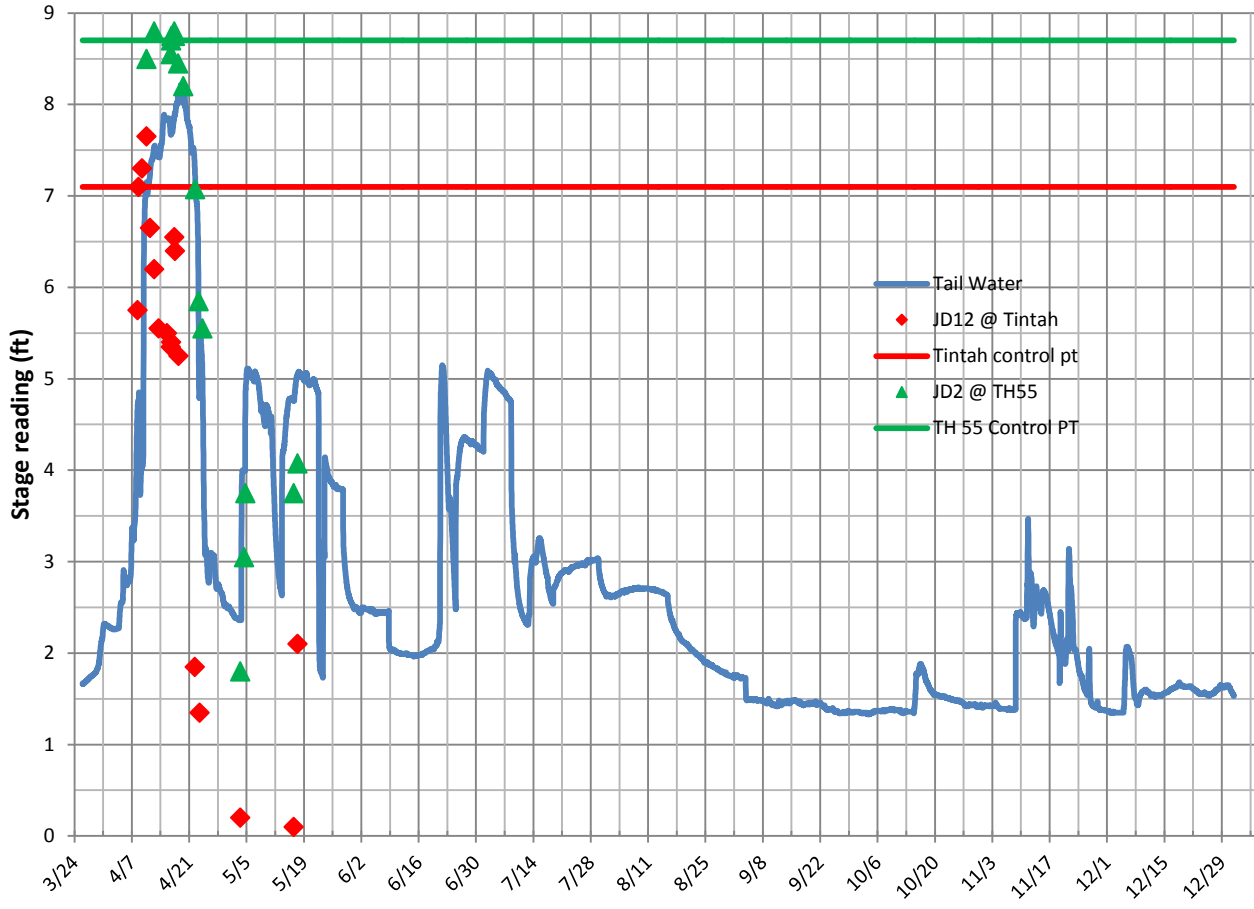




Maximum inflow rates of just over 1000 cfs occurred on April 10<sup>th</sup> and about 540 cfs occurred in June 21<sup>st</sup> after a significant rainfall event. The outlet gates remained closed until May 5<sup>th</sup>. The maximum discharge rate was about 240 cfs on May 16<sup>th</sup> during releases from Pool C.

The chart below shows the tail water stage in JD2. The target level is 5.0 during the growing season and 6.0 during other times. Flood levels during the spring melt, prior to impoundment releases, peaked at a stage of over 8 at the impoundment and nearly 9 at TH 55 due to snow blockage. Snow was removed from the channel south of TH 55 to prevent water from reaching a barn with livestock west of JD2. During the growing season the stage remained below the growing season target.

### Downstream Water Levels



### **Moonshine Lakebed Restoration Project**

The BdSWD continues to work to acquire necessary lands for this project area from willing sellers. Until such time that the necessary land rights are obtained for this project, no construction will take place. The Wetland Banking program was discussed in regard to this lakebed restoration project but decided to not utilize this system because of the way the project is being pursued.

In 2012, the land owned by the BdSWD in Moonshine Twp. was re-bid for lease for the crop year 2013. The lease was then renewed for crop year 2014.

### **Moonshine 24/13**

Land owned by the BdSWD was leased for farming again in 2013. No progress has been made to date with establishing an impoundment in this area. It is the board's intention to continue to work to establish a small impoundment on this land and land adjacent once land rights issues are worked out with the neighboring landowners. Neighboring landowners have been contacted and talks continue.

### **Elbow Lake Project**

This project is driven mainly by local landowners to try to stabilize the water level on Elbow Lake and Samantha Slough. There is consensus that an outlet can be constructed, however some of the details are to be worked out yet like size of tile, where to stop with tile, open ditch alternative, outlet elevation, automatic, manual gate, pump, etc. Discussions continue in an effort to sort out the best alternative. The Elbow Lake Association was formalized in 2010 and is operational.

A concept paper was drafted describing a potential project and the benefits it would provide. The paper is on file in the district office. Discussions revolved around an operating plan that would be agreeable to all parties involved. The group was also working on determining the best location for installing the outlet and gaining landowner permission for placement.

# **Bois de Sioux Watershed District River Watch Program and Activities (2013-2014)**

## **Introduction**

The River Watch (RW) program provides hands-on science education, promotes water resources stewardship and introduces participants to career opportunities in watershed science. The program focuses on education through water quality monitoring, macroinvertebrate sampling, snow and frost depth studies, and river geomorphology.

Campbell-Tintah, Wheaton, Herman-Norcross and Clinton-Graceville-Beardsley High Schools participate in RW with support from the Bois de Sioux Watershed District (BDSWD) and the Red River Watershed Management Board (RRWMB). River Watch students have contributed over 10 years of water quality data from 30 sampling sites in the district (Appendix A and Appendix B) to the Minnesota (MN) water quality database known as the Environmental Quality Information System (EQIS). Data gathered by the students was used by the Minnesota Pollution Control Agency (MPCA) and BDSWD for the District's overall watershed assessment in 2013.

## **Water Quality Monitoring**

Students utilize a multi-parameter Sonde to measure water temperature, conductivity, dissolved oxygen and pH. A turbidimeter and a Secchi tube are used to determine turbidity and transparency respectively. The students also take site photos and document water quality related observations.

## **Quality Control and Quality Assurance**

The MPCA, in collaboration with the International Water Institute (IWI) and Red River Basin Monitoring Advisory Committee, provides an annual training and certification for all monitoring partners in the Red River Basin, including RW students. Participants at the training learn Standard Operating Procedures (SOP) and how to calibrate and maintain their equipment. This annual training helps to ensure the collection of quality data. In situations where a RW advisor is unable to attend the annual training, IWI staff member, Evelyn Ashiamah, ensures the collection of quality data by reviewing SOPs with the teams during their first sampling trip of the season. This year, two students from Campbell-Tintah High School attended the training with their advisor, Mr. Roy Mayeda.

## **Site Visits**

A site visit refers to when a sampler or group of samplers visit the monitoring station to measure water quality parameters and document field observations. Site visits were counted even if students were unable to deploy their water quality monitoring instruments due to no flow or dry conditions as field observations were documented.

Campbell-Tintah RW team has monitored 16 sites in the 10 years of their involvement with the program; 11 sites were sampled in 2013. They have a total of 483 site visits from 2002 through 2013. The team has



been engaged in researching high conductivity at one of their sampling sites. A report for their 3 years of data is underway.

The Wheaton team currently monitors water quality at six sites on the 12 Mile Creek and its tributaries. They have a total of 219 site visits from 2002 through 2013.

Herman-Norcross monitors three sites on the Mustinka River and two on the Five Mile Creek; they have contributed data for a total of 174 site visits from 2002 through 2013.

Clinton-Graceville-Beardsley is in charge of monitoring stations at the headwaters of the 12 Mile Creek. They have contributed data from 168 site visits from 2002 through 2011.

## **Data Management**

The monitoring season concluded with each RW school entering their field data into an Excel spreadsheet, followed by quality assurance checks by the RW advisor and IWI staff. Students used the MN Designated Use Support Assessment (DUSA) criteria to rate the quality of water in their subwatersheds. The DUSA is a criterion used by the MPCA as a benchmark to evaluate streams and rivers to make sure the waters meet their beneficial use standards. Streams and rivers in the BDSWD are classified as Class 2 waters, and are monitored to ensure they meet their fishable/swimmable standards. Parameters measured for DUSA include dissolved oxygen, transparency, and pH.

The results were calculated using all available water quality data from the most recent 10 years. The data utilized includes those produced by the monitoring efforts of IWI, MPCA and RRWMB. Students summarized and reported their data using statistical analysis methods and a watershed delineation tool produced by IWI and the Red River Basin Decision Information Network. The delineation tool enabled students to define their local subwatershed boundaries and determine the contributing acres upstream of selected monitoring sites. They calculated the percentage of acreage of their subwatersheds that ultimately discharge into the Red River of the North. They shared the results of their analysis via a poster presentation at the annual River Watch (RW) Forum and a PowerPoint presentation to the Bois de Sioux Watershed District board of managers.

River Watch schools in the Bois de Sioux Watershed District have won numerous awards during the Annual RW Forums held at the University of MN, Crookston for their stewardship, outstanding performance in data interpretation, and presentation of their results.

## **State of the Watershed Report (Summary of Field Measurements)**

### *Dissolved Oxygen (Oxygen molecules dissolved in water)*

Dissolved Oxygen (DO) is a major indicator of water quality. Aquatic organisms depend on oxygen available in the water for survival. The Minnesota DO standard is 5 milligrams per liter (mg/L). Dissolved oxygen levels at most of the sites in the Mustinka River, Five Mile Creek and Twelve Mile Creek subwatersheds were sufficient to provide fully supporting or partially supporting designated use ratings. Upstream of Mustinka River (CSMP 1274) did not meet the state standard.

The Rabbit River mainstem and South Branch partially supported their designated use with the exception of an unnamed tributary (BDS28) which did not meet the standard. Two monitoring locations that represent the Doran Creek failed to meet the standard (Appendix C).

#### *Transparency (Water clarity)*

Transparency data for the Mustinka River demonstrates partial support of the designated use at the upstream sites (Appendix D), but the downstream sites, from East to West, did not meet the MN state standard ( $\geq 20$  cm). The Rabbit River (both the South Branch and Mainstem) failed to meet the standard. Five Mile Creek and its tributary fully supported the designated use. On most sampling days, the water appeared clear. It must be noted that the 2 sites monitored on this creek (BDS23 and BDS11) receive water from a chain of lakes (Niemackle Lakes, etc.) and wetlands to the southeast, and a drainage ditch that discharges water from a sub-surface drained farm. Twelve Mile Creek met the standard at the headwaters but failed to meet the standard at the downstream monitoring sites.

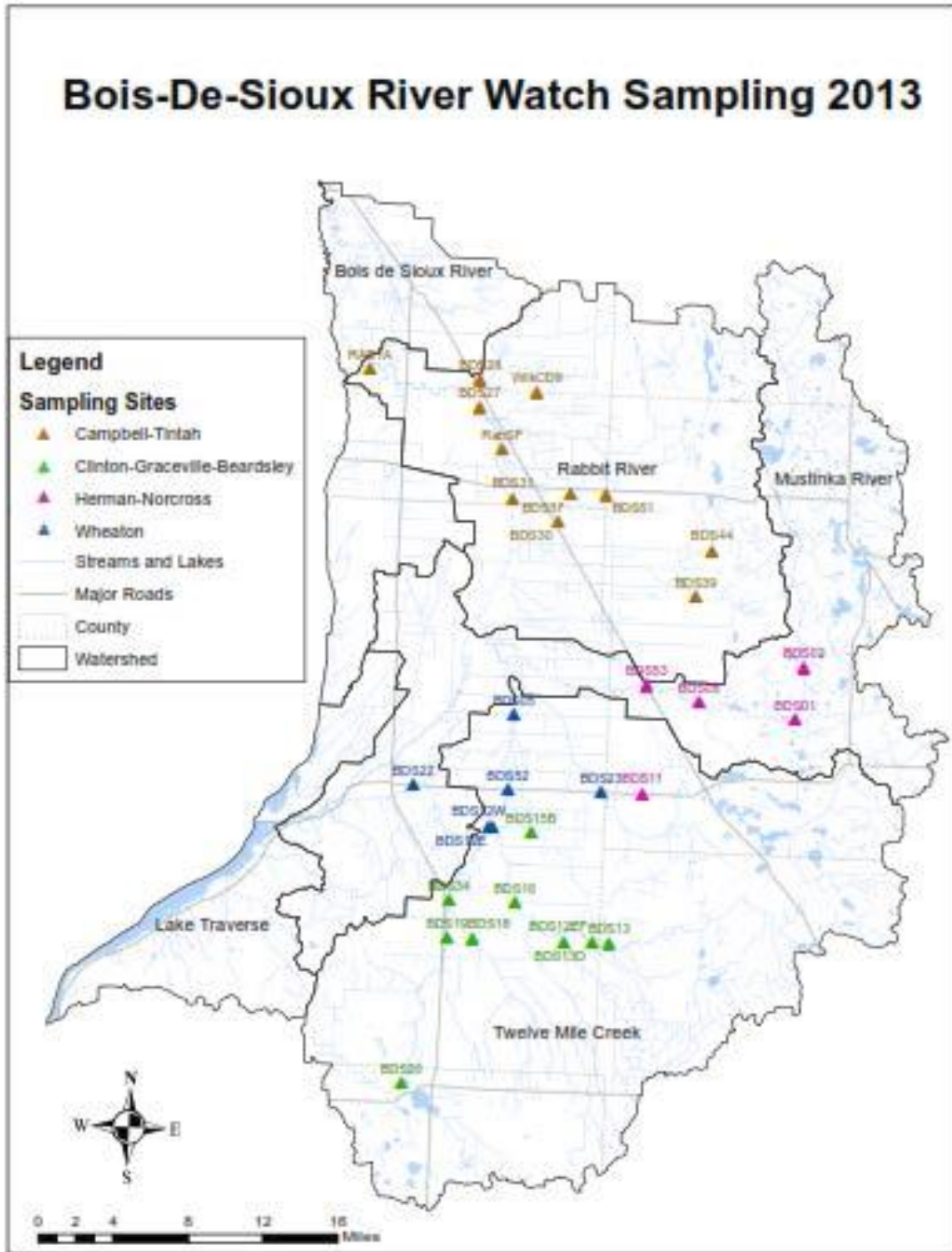
#### *Hydrogen ion Concentration or pH*

All the sites throughout the watershed with the exception of two (GCR40 Inlet and MUS300) met the MN pH standard (6.5-8.5) for their designated use (Appendix E). The GCR40 Inlet site is the collection channel for the North Ottawa Impoundment. The pH for GCR40 Inlet was mainly basic with a range of 7.70 to 8.79. The MUS300 site is the outlet of Lightning Lake. It was mostly basic, with a range of 7.89 to 9.16. The two highest values recorded occurred in June of 2009.

#### **Future Plans**

The River Watch teams in the BDSWD will continue to conduct monthly sampling runs, and are planning kayak trips on reaches of the local rivers that they monitor. Students also plan to collect macroinvertebrate samples at monitoring sites of their choice.

**Appendix A: Bois de Sioux Watershed District River Watch Water Quality Monitoring Sites.**



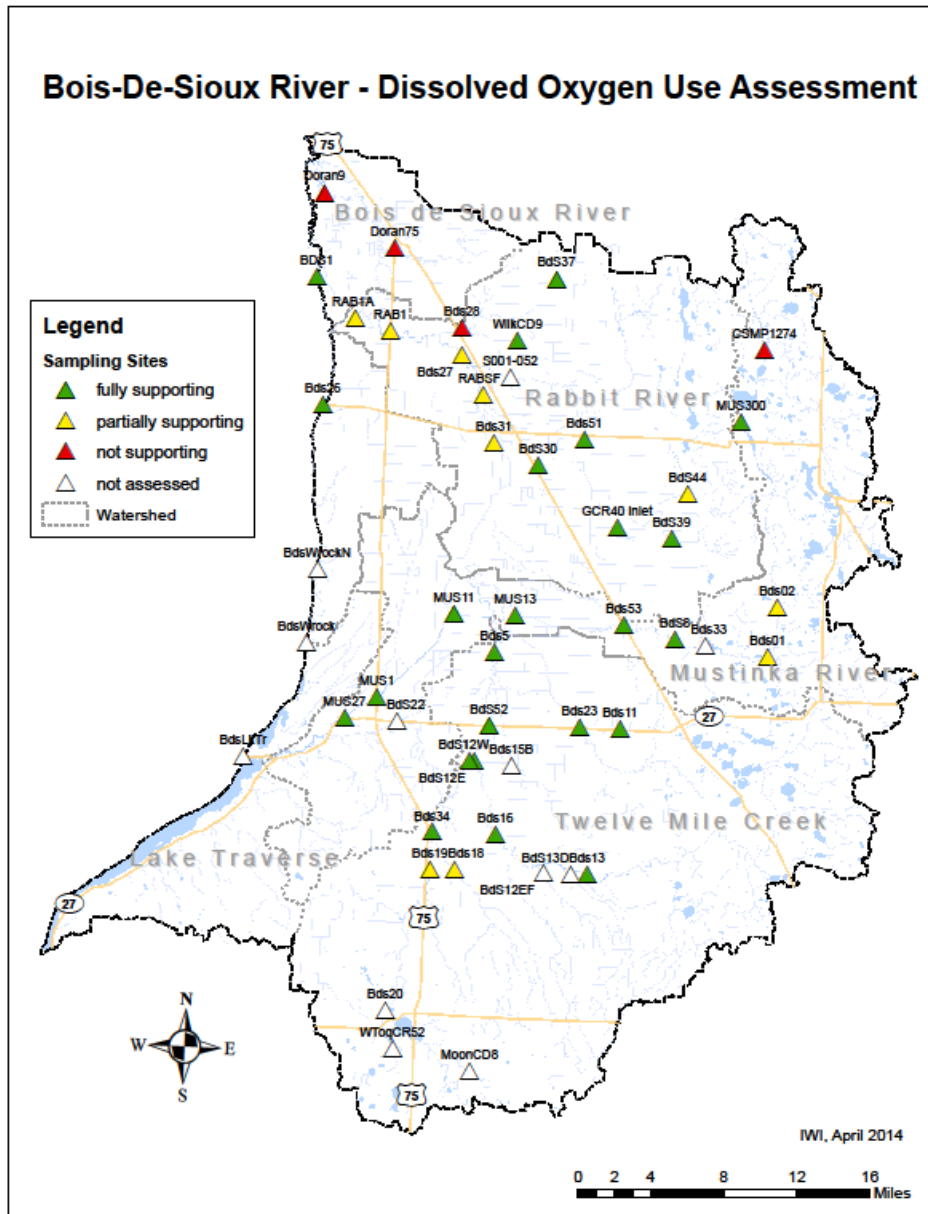
# Bois de Sioux River Watch Sampling 2013

## Appendix B: Bois de Sioux Watershed District River Watch Water Quality Monitoring Sites

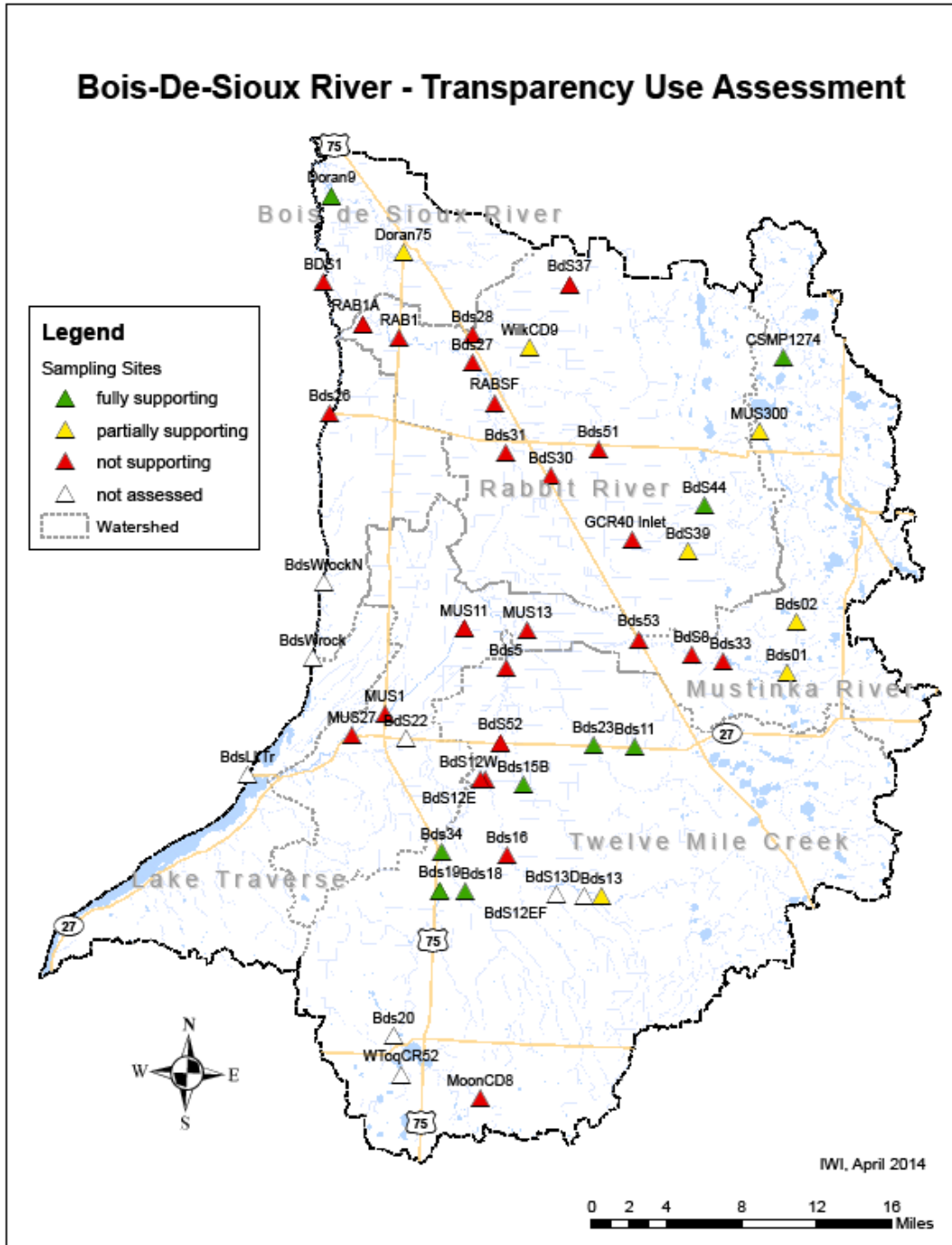
<b>RW School</b>	<b>Site ID</b>	<b>S Code</b>	<b>Water Body</b>	<b>Station Description</b>
Campbell-Tintah	Bds28	S003-120	Rabbit R	UNN TRIB TO THE RABBIT R AT MN-9, 1.5 MI NO. OF CAMPBELL
Campbell-Tintah	Bds27	S002-002	Rabbit R.	RABBIT R, AT CSAH-4 RT BANK OF BRG, .1 MI SW OF CAMPBELL
Campbell-Tintah	RabSF	S004-176	Rabbit R S Fk	RABBIT R AT CR-152, 3.1 MI SE OF CAMPBELL
Campbell-Tintah	Bds30	S003-275	JD 12	JD #12 AT 2ND STREET BRIDGE ON EAST EDGE OF TINTAH
Campbell-Tintah	Bds39	S003-272	JD 12	NORTH LATERAL ONE OF JD #12 AT CR-41, 9.8 MI SE OF TINTAH
Campbell-Tintah	Bds44	S003-273	JD 2	LATERAL THREE OF JD #2 AT CR-42, 9.1 MI ESE OF TINTAH
Campbell-Tintah	Bds51	S003-274	JD 2	JD #2 ON MN-55, 2 MI E OF NASHUA
Campbell-Tintah	Bds37	S001-053	Rabbit R	Rabbit R at Wilkin CSAH-19, 5.9 mi ESE of Campbell
Campbell-Tintah	WilkCD9	S004-177	WilkinCD9	CD-9 AT UNN RD, 3 MI NE OF CAMPBELL
Campbell-Tintah	RAB1A	S001-051	Rabbit R	Rabbit R at Campbell, W. 4miles on CR 4; CR 154; N. 1.9 miles to crossing
Campbell-Tintah	BDS31	S006-853	Rabbit R	RABBIT R, SF AT 290TH AVE (T156), 2 ½ MI NW OF TINTAH, MN
Clinton-Graceville-Beardsley	Bds16	S003-114	12 Mile Cr-EBR	TWELVE MILE CREEK E BR ON CSAH-6, 3.4 MI E OF DUMONT
Clinton-Graceville-Beardsley	Bds13	S003-112	12 Mile Cr-EFk	TWELVE MILE CREEK E BR AT CSAH-18, 9 MI SE OF DUMONT
Clinton-Graceville-Beardsley	Bds18	S003-115	12 Mile Cr-W.BrEFk	UNN TRIB (E BR 12 MILE CK TO W BR) AT CR-62, 3 MI SE DUMONT
Clinton-Graceville-Beardsley	Bds19	S003-116	12 Mile Cr-WBr	TWELVE MILE CREEK W BR AT CR-62, 2 MI SE OF DUMONT
Clinton-Graceville-Beardsley	Bds20	S003-117	12 Mile Cr-WBr	TWELVE MILE CREEK W BR AT KING AVE, 1.7 MI W OF GRACEVILLE
Clinton-Graceville-Beardsley	Bds34	S003-123	12 Mile Cr-WBr	TWELVE MILE CK W BR ON CSAH-6, .25 MI E OF DUMONT
Clinton-Graceville-Beardsley	Bds15B	S003-113	12 Mile Cr-WFk	TWELVE MILE CREEK W FK AT CR-62, 5 MI SE OF DUMONT
Clinton-Graceville-	BdS12EF	S004-189	12 Mile CkEFk	TWELVE MILE CK E FK

Beardsley				ON CR-62/CSAH-8, 8.2 MI SE OF DUMONT
Clinton-Graceville-Beardsley	Bds13D	S004-190	12 Mile Ck	TWELVE MILE CK ON CR-62/CSAH-8, 9.7 MI SE OF DUMONT
Herman-Norcross	Bds11	S003-106	Grant CD 8	CD #8 ON MN-27, 3.4 MI W OF HERMAN
Herman-Norcross	Bds01	S003-104	Mustinka R	MUSTINKA R AT CSAH-13, 6 MI NE OF HERMAN
Herman-Norcross	Bds02	S003-105	Mustinka R	MUSTINKA R AT CSAH-8, 8 MI NE OF HERMAN
Herman-Norcross	BDS08	S004-144	Mustinka R	MUSTINKA R AT CSAH-8, 1.75 MI E OF NORCROSS
Wheaton	Bds5	S003-124	12 Mile Cr-MS	TWELVE MILE CK ON CSAH-14, 7.5 MI NE OF WHEATON
Wheaton	Bds23	S003-118	5 Mile Cr	FIVE MILE CK ON MN-27, 5.7 MI W OF HERMAN
Wheaton	BDS12E	S004-194	12 Mile Ck	TWELVE MI CK ON CR-72, 7.1 MI ESE OF WHEATON
Wheaton	BDS12W	S004-195	12 Mile CkWBr	TWELVE MILE CK W BR ON CR-72, 6.8 MI ESE OF WHEATON
Wheaton	BDS22	S004-196	18 Mile Ck	EIGHTEEN MILE CK AT MN-27, 1.2 MI E OF WHEATON
Herman-Norcross	BDS53	S002-001	Mustinka R	MUSTINKA R AT CSAH-9 BRIDGE, 1.3 MI NW OF NORCROSS

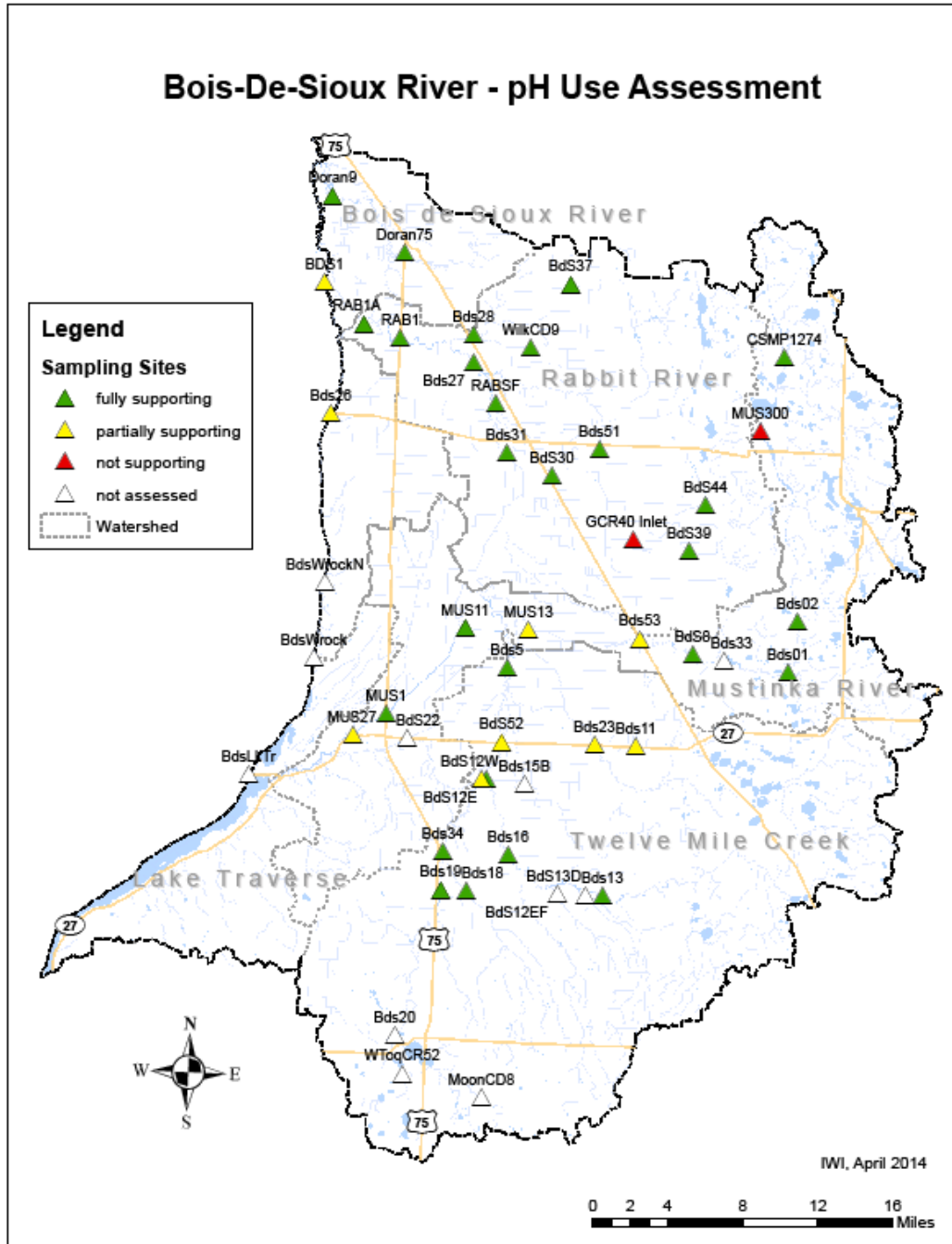
Appendix C: Designated Use Support Assessment for Dissolved Oxygen



Appendix D: Designated Use Support Assessment for Transparency



Appendix E: Designated Use Support Assessment for pH



Disclaimer: This assessment was based on data collected by River Watch students and water quality monitoring professionals and is used for educational purposes, and not intended for legal use.



### **Credits**

The Bois de Sioux Watershed District provides support for the River Watch program by covering costs of substitute teachers, laboratory analyses of water samples, students' lunch and transportation on sampling days as well as travel costs to the RW Forum held annually at the University of MN, Crookston in March.

This partnership with the watershed district and area schools contributes to the education of the students, promotes good stewardship of our water resources and provides valuable data to area water resource managers and agencies.

### **Buffer Strip and Wetland Restoration Program**

The Bois de Sioux Watershed District Overall Plan identifies wetland restoration and buffer strip/ permanent grass installation as an action item identified to reduce runoff, increase infiltration, and improve habitat. The district provided financial assistance in the amount of \$10,000 each to Wilkin, Ottertail, Grant, Traverse, Big Stone, and Stevens SWCDs to help fund a position to market the CRP and WRP programs in their portion of the district. This restoration work was identified by the East Branch 12 Mile Creek Project Team as an item needed to reduce flows in the area and provide for Natural Resource Enhancements. For each acre of permanent easement that is enrolled and approved, the district would compensate \$10 to the SWCD. In 2013 there were 966.6 acres enrolled in permanent vegetation easements in the Bois de Sioux Watershed District. The breakdown is as follows:

<b>SWCD</b>	<b>Acres</b>	<b>Payment</b>
<b>Traverse</b>	<b>805.2</b>	<b>\$8,052.00</b>
<b>Grant</b>	<b>161.4</b>	<b>\$1,614.00</b>
<b>Ottertail</b>	<b>0.0</b>	<b>\$0.00</b>
<b>Stevens</b>	<b>0.0</b>	<b>\$0.00</b>
<b>Big Stone</b>	<b>0.0</b>	<b>\$0.00</b>
<b>Wilkin</b>	<b>0.0</b>	<b>\$0.00</b>
<b>TOTAL</b>	<b>966.6</b>	<b>\$9,666.00</b>

Because of the assistance from the local SWCD offices, we were able to work together to accomplish goals for both entities. A special thanks goes out to the staff and boards of these six organizations for their assistance.

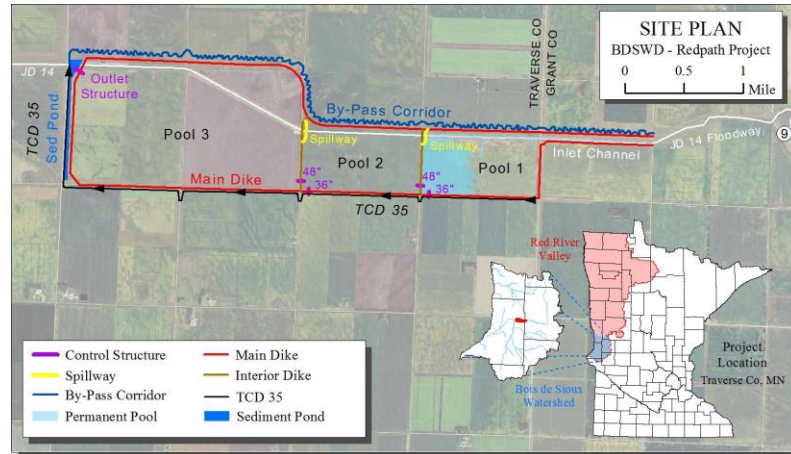
It is anticipated that this program will continue in 2014.

## Land Acquisition

No new parcels were acquired in 2013

## Redpath Project

In 2008, the Board of Managers established the Redpath Project Team and charged them with the task of identifying the problems in the area and reviewing alternative solutions. The team did their work in the first 8 months of the year and recommended a project solution to the Board in August 2008.



The impoundment dike on the south side will be constructed on the section lines. Traverse County Ditch 35 (TCD35) will be relocated south of its current location to facilitate construction of the dike. The west dike will be constructed approximately 350' east of CSAH13 to allow room for TCD35 and a sedimentation pond between the dike and road. The north dike of the impoundment will be built north of JD14 and a new By-pass Corridor will be constructed north of this dike. From the county line east one mile, dikes will be built on either side of JD14 to form a diked inlet from the inlet structure to the impoundment. A floodway will be constructed along the existing JD14 channel to provide improved conveyance from the inlet structure to the impoundment pool areas.

The impoundment is divided into 3 pools as shown in Figure 6. The inlet structure will allow Pool 1 to fluctuate at river level. As the pool rises, some of the JD14 flow will bypass the impoundment using the new channel within the By-pass Corridor. Increased flows from the upstream drainage area will be split between the By-pass Corridor floodway and the impoundment. A culvert at the entrance to the By-pass Corridor will restrict the amount of flow that takes that route. The By-pass Corridor will extend from the inlet structure, follow along the north dike and outlet back into JD14 at the northwest 10 corner of the impoundment. Flows into the impoundment will be from Pool 1 to Pool 2 to Pool 3 via overflow spillways and ultimately through the outlet structure to JD14.

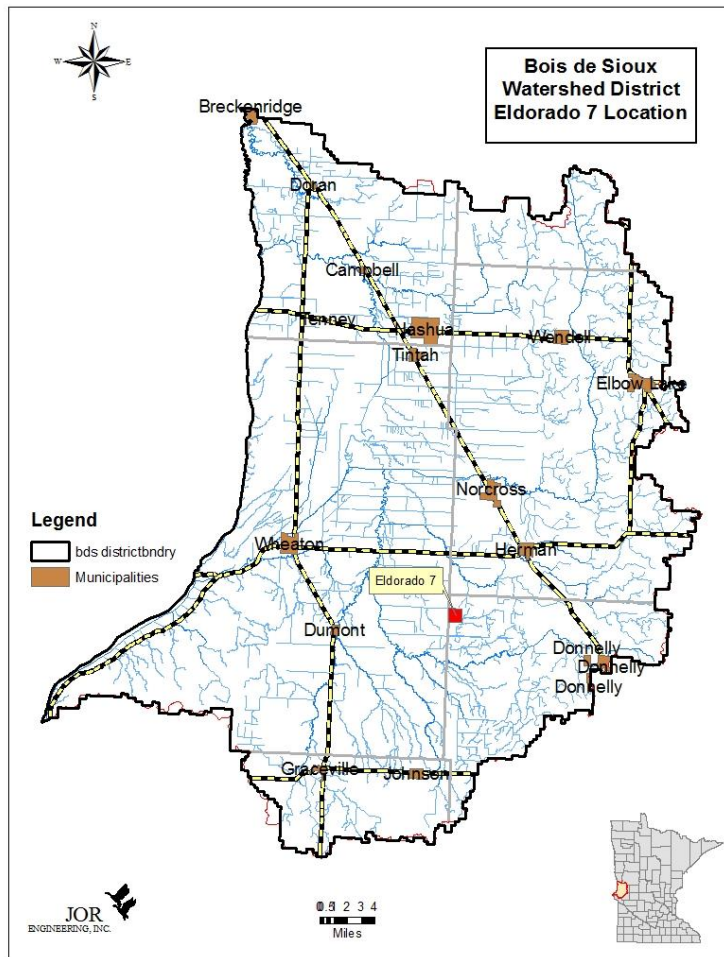
Support for this project appears to be very widespread, from local landowners to the federal agency level.

The NW corner of Section 21 is the only parcel remaining to be acquired for the impoundment footprint with additional ROW needed for the TCD #35 area and along the north side to accommodate the by-pass corridor.

In 2013, the BdSWD Board of Managers approved the final engineer's report. Staff were directed to proceed with the application for permits and work with the MnDNR to complete the Environmental Assessment Worksheet (EAW).

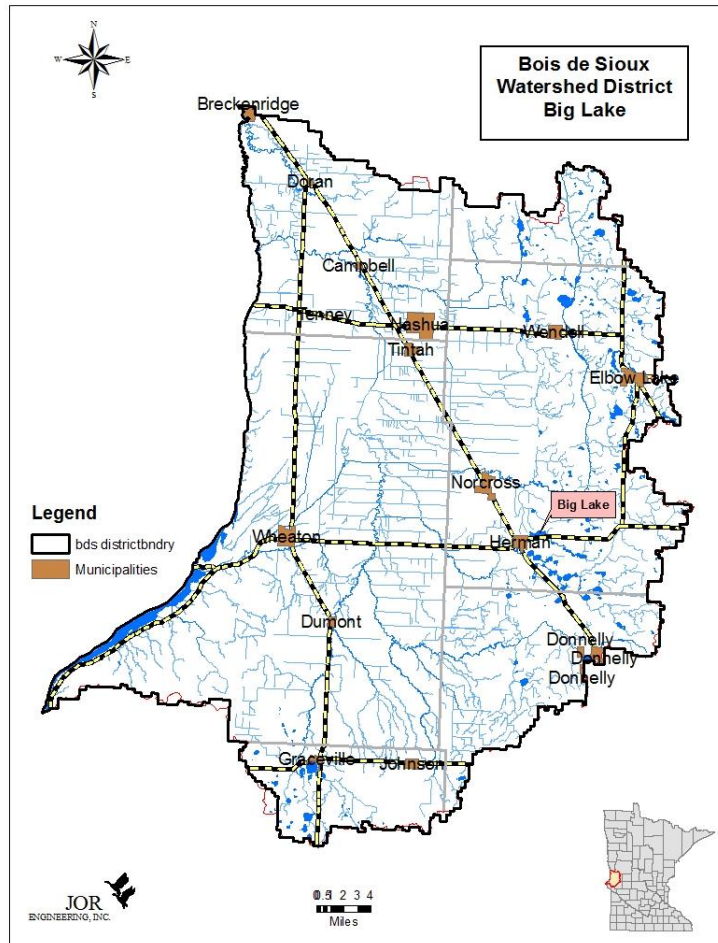
### East Branch Twelve Mile Creek Project/Eldorado 7

The East Branch Twelve Mile Creek Project Team did not meet in 2013. In December 2005, the team made a recommendation to the BdSWD Board that there needed to be about 3,300 acre feet of storage implemented in this sub-watershed. There were a few suggested locations for impoundments to provide a part of that storage.



## Big Lake

The Bois de Sioux Watershed District received a copy of a letter from the MnDNR regarding their ability to secure necessary land rights to implement water level management on Big Lake located just east of Herman, MN. Outflow from Big Lake flows through the City of Herman. This project would complete the third of three phases identified for flood damage reduction within the City of Herman. The first two phases included a re-design of the city stormwater conveyance system and the outlet channel to Pullman Slough west of the city. Water level control on Big Lake would provide additional protection to the city where flows could be metered through the system in an attempt to prevent exceeding the conveyance system's design capacity.



The City of Herman Council petitioned the BdSWD in early 2008 to establish the Big Lake Project along with two individual landowners. After careful consideration, the BdSWD suggested that they recall the petition and pass a resolution asking the BdSWD to establish the project. This was done to allow the project to fit the statutory requirements and put the City of Herman in a better position to proceed. The BdSWD did establish the Big Lake Project and has initiated contact with the landowners of the land where the outlet work would be done.

Engineer Anderson was instructed to complete the engineer report for this project so that a hearing could be held to move the project forward. Priorities for other projects put those ahead of this project but work does continue to bring this project to fruition.

In fall of 2011, a preliminary engineer report was presented to the board for their review. Staff met with MnDNR representatives to discuss the proposed operating plan. There was some concern for the draw down levels proposed as they would exceed the MnDNR

regular allowances. Staff were advised by MNDNR to apply for a permit to get their official position on the draw down proposal.

### **Other activities 2013**

- MPCA continued to provide funding for the Bois de Sioux Watershed Restoration and Protection project. An open house was held at the Campbell Community Center to provide an opportunity for the public to learn more about the program and hear about what has been learned thus far in the study. Total budget for this work is \$250,000, fully funded by MPCA.
- MPCA continued to provide funding for the Mustinka Watershed Restoration and Protection project. An open house was held at the Wheaton American Legion to provide an opportunity for the public to learn more about the program and hear about what has been learned thus far in the study. Total budget for this work is \$250,000, fully funded by MPCA.
- The East Branch 12 Mile Creek, West Branch 12 Mile Creek, and the Rabbit River Project Teams met periodically throughout the year to continue their work on addressing the problems identified in their respective subwatersheds.
- The Digital Elevation Model generated with the LiDAR data proves to be very useful and efficient. Additional modeling has been done in the district in regard to the Redpath Project Development, boundary evaluation, work on two additional project areas, and much more.
- The District, in partnership with the SWCD offices of West Ottertail, Grant, Stevens, Big Stone, and Traverse, were successful in 2012 (for the third time) in securing a Clean Water Fund Grant from the Board of Water and Soil Resources Clean Water Legacy Fund in the amount of \$330,000. These funds are being used for implementation of Best Management Practices to improve water quality in the Mustinka River system. This brings the total grant awards to \$708,000 to be used in the Mustinka Watershed.
- The BdSWD By-Laws Revision was adopted in 2013. A copy is available upon request from the District Office.
- The BdSWD has continued the culvert inventory in the district, completing the inventory on the northern boundary and continued data collection in other priority areas of the district. The Buffalo-Red River Watershed District has annexed the lower Ottertail River watershed to their district. Thus the reason to use the LiDAR and the detailed culvert inventory to properly identify the boundary between the two districts.
- The BdSWD was granted an extension for the update of their overall plan to April of 2017. This was done to accommodate the WRAP work that is going on now and to incorporate the implementation plans from those two projects into the revised overall plan.
- The BdSWD Advisory Committee was re-appointed in 2012. The membership list is shown in the Appendix to this report. The Advisory committee met 4 times throughout the year to stay informed of the BdSWD activities. It was decided that the Advisory committee will meet annually unless directed to meet for specific purpose by the board. Members were encouraged to attend the monthly board

meetings and review the meeting minutes as they become available. Each member receives the minutes upon approval by the full board.

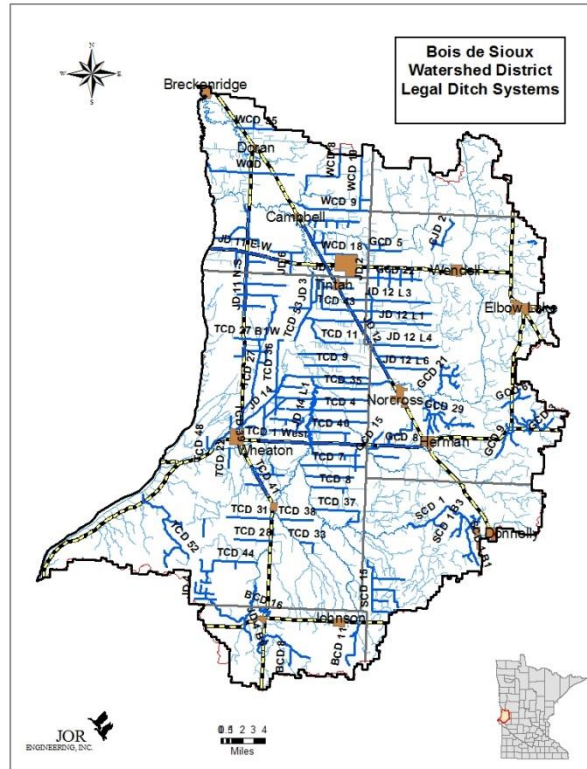
- The TCD #52 Project Team was appointed in September of 2013 to identify the problems in this specific subwatershed and begin to identify alternative solutions to those problems. Work continued into 2014.
- The BdSWD held a hearing on the preliminary engineer's report for the Brandrup 9 impoundment and established it as a project following that hearing.
- The BdSWD held a hearing on the establishment of Watershed Ditch #3 and ordered it to be established following the hearing. This ditch system is 1.25 miles in length located on the south side of sections 13 and 14 in Tintah Township, Traverse County.
- The BdSWD updated their permit application form in 2013. The new form is available on the district website or at the district office.
- A new project team named the Bois de Sioux Direct Project Team was appointed in 2013 to identify the problems in that specific subwatershed and work to identify alternative solutions to address those problems.
- The BdSWD Administrator, Jon Roeschlein, was elected at the Red River Basin Commission Annual Meeting to serve on their board.
- The BdSWD continued their work on developing the educational video as part of their public outreach program. Video consultants spent significant time filming activities in the district throughout the year.
- The BdSWD worked on an amendment to their overall plan, specifically outlining the process in which they would acquire land. A land acquisition policy was also adopted by the board. The policy and the amendment work hand in hand. The amendment was submitted to the State Board of Water and Soil Resources in early 2014 for approval.
- The Bois de Sioux Watershed District Flow Reduction Strategy was updated in 2013 to include the watershed area on the Dakota side of the state line. The FDR Strategy was approved by the board.
- As part of the BdSWD Overall Plan Amendment, the board held the first of biannual Project Hearings to provide the public with the opportunity to be informed of all projects that the BdSWD is considering, or the status of those which are moving forward.



- **Ditches**

Since 1992 sixty (60) ditch systems have been under the jurisdiction of the Bois de Sioux Watershed District, with JD#3 added in 1995. This includes approximately four hundred (400) lineal miles of ditch. Ditch funds are managed by the district office. Annual ditch inspections are completed each year and a copy of reports are kept on file.

In 2013 there were 6 requests for maintenance submitted to the BdSWD Board of Managers for work. The following table describes these requests. The process that the board has adopted includes research of the ditch records and surveying of the system as necessary.



Ditch	RFM #	Problem
TCD #36	001-13	Sediment
TCD #4	002-13	Sediment
TCD #32	003-13	Sediment
JCD #11 Lateral	004-13	Sediment
TCD #37	005-13	Sediment
TCD #52	006-13	Sediment

An annual spray program for heavy vegetation and trees in legal ditch systems is also administered by the BdSWD. After the late summer inspections are complete, the areas in need of vegetation control are identified and a contractor is hired to spray for cattails and trees within the ditch banks. See reports on file in the district office.

## **Legal Drainage Ditch Work 2013**

Contributed by Gene Berger, WSN Engineering

Winter 2012-2013 left the watershed with 3.1” to 8.5” of water equivalent in the snow pack prior to spring melt. In a typical spring, this condition would result in some problematic runoff in troublesome areas we have identified over the years. Pre-melt preparations were made to Traverse County Ditches 1E, 8, 24, and 37 as well as Judicial Ditches 12 and 14. However, with the late spring and incredibly slow warm up, no snow melt issues occurred in these areas. The 2012 maintenance that was shut down due to freezing conditions was completed in the spring.

The cattail and brush control for the 2013 season was a disappointment at best. When the ditch inspections were done in late June, significant areas of 2012 aerial application drift onto the ditch side slopes were discovered. This led me to increase the areas of cattail herbicide application to the ground contractor. Unfortunately, due to the ground contractor having a crew supervisor unavailable from a work related injury, and the untimely dropping of the aquatic liability insurance coverage, they were not able to work in this area. The aerial contractor was assigned fewer areas and as of January 24, 2014 the watershed district has not received an invoice confirming the work was completed. I have assurances from the ground applicator that the aquatic liability insurance issues have been resolved and they will be working in the BdSWD in 2014.

Ditch reports were completed and presented to the board for TCD36, WCD18 and TCD8.

Ditch maintenance activities for 2013 included the following:

### **WCD1**

Cleanout was completed on May 23<sup>rd</sup> and the spoil was spread November 20<sup>th</sup>.

### **TCD20**

Cleanout was completed May 29<sup>th</sup>. The producer worked up the minimal spoil and no spreading was needed.

### **Road ditch along west side of SW ¼ Tintah 34**

Cleanout was completed June 4<sup>th</sup> and the spoil was spread November 19<sup>th</sup>.

### **TCD36**

Cleanout of the main was completed June 10<sup>th</sup> and the spoil was spread November 18<sup>th</sup>. The culvert replacement at the low water crossing and the cleanout of the lateral is scheduled for spring 2014.

### **JD12 south of Tintah and L1, 3, 4 and 5 upstream of North Ottawa Diversion Channel**

Survey completed. I am currently researching 1947 MnDOT construction plans to establish correlations with 1970 repair plans and current maintenance survey to complete ditch maintenance reports.



**JD12 Main MnDOT control points from 1947 construction plans**

Survey completed. I am currently researching 1947 MnDOT construction plans to establish correlations with 1970 repair survey and current maintenance survey to complete ditch maintenance reports.

**JD12 Main north of Tintah to the Rabbit River outlet**

Survey scheduled for next season.

**TCD22**

Survey completed. Research and drafting underway.

**WCD18**

Stakeout for maintenance was completed November 26<sup>th</sup> and cleanout discontinued due to frozen conditions.

**JD12 L4 approach culvert relay**

Not started due to frozen conditions.

## **Projections for 2014**

- The Bois de Sioux Watershed District plans to advertise and award the contract to finish Phase V construction of the North Ottawa Impoundment project in the 2014-15 construction seasons.
- The Bois de Sioux Watershed District will conduct the necessary procedures to maintain the 400 lineal miles of legal ditch systems under their jurisdiction. This includes inspections, vegetation control, repairs, accounting, reports, etc.
- The Bois de Sioux Watershed District will continue to work towards acquisition of lands for the purpose of developing projects as these lands come available on the market from willing sellers. These lands will be added to the land account as an investment until such time the projects are developed and these lands are used for said project development.
- The Bois de Sioux Watershed District Board and staff will continue to serve on the many boards, committees, and commissions that they are currently a part of. They will also consider serving any new capacities they are asked to participate in to further the goals of the district and Red River Basin.
- The Bois de Sioux Watershed District will continue to meet with the Rabbit River, Bois de Sioux Direct, and TCD #52 Project Teams as necessary to continue development of the necessary Summary Reports and Recommendations for the full board to pursue.
- The Bois de Sioux Watershed District will continue development of the Big Lake Project near Herman, MN.
- The BdSWD will continue the support for the River Watch Program and encourage new schools to participate.
- The BdSWD will continue to promote education through the development of the educational video.
- The BdSWD will continue the Buffer Strip/Restoration incentive program with the local SWCD offices.
- The BdSWD will continue to facilitate additional project teams, as needed, to work towards resolving water problems in the watershed.
- Work on the Mustinka and Bois de Sioux WRAP projects will continue in the 2014 calendar year.
- The BdSWD will continue to partner with local SWCDs to administer the CWF grants received from the State of MN.

**BOIS DE SIOUX WATERSHED  
DISTRICT**

**ANNUAL REPORT**

**CALENDAR YEAR 2013**

**Appendix**

**Bois de Sioux Watershed District  
Stream Gage Network 2013  
Gage Readers**

Kevin	Pattison	27757 Oak Pt. Road	Elbow Lake	MN	56531	1
James	Biss	23429 County Road 8	Elbow Lake	MN	56531-9233	2
Jim	Haugen	26498 - 240th Avenue	Elbow Lake	MN	56531	3
Chadd	Berger	7382 County Road 14	Wheaton	MN	56296	5
Doug	Engelby	29348 - 340th Ave.	Nashua	MN	56565-9220	8
Tim	Backman	31499 State Hwy 27	Herman	MN	56248	11
Rollie & Jacob	Sperr	56202 130 <sup>th</sup> Street	Donnelly	MN	56235	12
Orville	Brunkow	63338 - 150th Street	Chokio	MN	56221	13
Brian	Rinke	7350 County Road 6	Wheaton	MN	56296	16
Don	Montonye	Box 1A	Dumont	MN	56236	17
John	Tritz	7159 - 570th Street	Dumont	MN	56236	18
John	Tritz	7159 - 570th Street	Dumont	MN	56236	19
Scott	Bauer	1024 Lake Avenue	Graceville	MN	56240	20
Lon	Tekrony	6744 - 630th Street	Wheaton	MN	56296	21
Lori	Doll	6807 State Hwy 27	Wheaton	MN	56296	22
Lyndon	Bruns	Box 142	Herman	MN	56248	23
Dan	Wilke	RR1, Box 326	Fairmount	ND	58030	26
DNR	Automatic	Gage Site				
						28
						29
Audrey	Johnson	101 - 4th Street West	Tintah	MN	56583	30
Videll	Ahrens	15158 290 <sup>th</sup> Ave	Tintah	MN	56583-9600	31
						32
Dale	Blume	17668 County Road #11	Norcross	MN	56274-3050	33
Don	Montonye	Box 1A	Dumont	MN	56236	34
						35
Frank	Davison	Box 157	Tintah	MN	56583	37
Larry	Schneeberger	25651 290th Avenue	Wendell	MN	56590	39
Duane	Porter	7749 CR 19	Tintah	MN	56583	40
Paul	Daly	16408 - 580th Avenue	Donnelly	MN	56235	41
Paul	Daly	16408 - 580th Avenue	Donnelly	MN	56235	42
						44
U.S.Army Corps	of Engineers	6338 County Road 10	Wheaton	MN	56296-5469	45
Douglas	Christenson	2239 - 450th Street	Campbell	MN	56522	49
Douglas	Christenson	2239 - 450th Street	Campbell	MN	56522	50
Doug	Engelby	29348 - 340th Avenue	Nashua	MN	56565-9220	51
Chadd & Paul	Berger	7382 County Road 14	Wheaton	MN	56296	54
Vicky Radel &	Steve Berger		Wheaton	MN	56296	

## **Bois de Sioux Watershed District**

### **Policies and Procedures for Public Access to Documents**

Public access to the data of public bodies is governed by the Data Practices Act (DPA), Minnesota Statutes, Chapter 13. The DPA states that data of public bodies are to be available to the public unless specifically exempted under the law in cases where individual privacy would be violated or where other valid concerns outweigh the interest in public availability. The Bois de Sioux Watershed District (BdSWD) recognizes the public interest in open access to its data as well as the public interest that requires that certain types of data not be publicly available. It is the intent of the BdSWD to comply fully with the DPA and, where the DPA allows for the exercise of judgment, to exercise that judgment consistent with the public interests underlying the law.

This policy is adopted pursuant to Section 13.03, Subdivision 2 of the DPA, which states that every public body shall establish procedures to implement the DPA.

#### **Procedure for Review of BdSWD Documents**

All requests to inspect or receive copies of BdSWD data, and all other inquiries regarding the DPA, must be in writing, signed by the requestor, and delivered by U.S. Mail, facsimile, scanned and emailed, or hand delivered during business hours, addressed to the “Data Practices Compliance Official,” at the following address:

Bois de Sioux Watershed District  
704 Highway 75 South  
Wheaton, MN 56296  
Fax #: 320-563-4987  
Email: [bdswd@frontiernet.net](mailto:bdswd@frontiernet.net)

The BdSWD Administrator is designated as the Data Practices Compliance Official.

Requests to inspect or obtain copies of BdSWD data are to be in writing. In the event an individual wishes to inspect BdSWD data, the Data Practices Compliance Official will gather the documents of interest, separate any documents to be withheld from inspection, and see to it that someone is available to assist with the inspection. BdSWD files may not be removed from its office.

The BdSWD will follow the DPA Policy of scheduling inspections within a reasonable time of the request. The response time will vary depending on the complexity of the request and the press of other BdSWD business.

If the BdSWD determines that certain data will not be made available for inspection or copying, it will inform the individual of the basis for denial of access. If requested, the BdSWD will certify in writing that the request has been denied and state the specific basis for denial.

## Costs

There is no cost to inspect documents. If document copies are requested, the requesting individual will be charged twenty five cents (\$0.25) per page for letter and legal sized black and white documents.

With respect to oversize copies, color copies, tapes, electronic data, photographs, slides and other unusual formats, the requesting individual will be responsible for the actual cost incurred by the BdSWD to make the copy itself or to use a vendor.

An individual requesting copies or the electronic transmittal of data consisting of more than 100 black and white copies of letter or legal sized paper, is responsible to pay the BdSWD the actual cost, including the cost of staff time, to search for and retrieve data and to make, certify, compile and transmit copies. Staff costs will be assessed based upon established hourly rates.

If requested, the BdSWD will advise approximate cost before making said copies. Payment may be made by cash or check. The BdSWD may require payment in advance.

The BdSWD may charge a fee for data that has commercial value and was developed with a significant expenditure by the BdSWD. The BdSWD may also require a license agreement limiting the use of said data.

**Board Approved 3-27-2014**

### BdSWD Advisory Committee

First Name	Last Name	Affiliation
Ron	Staples	Stevens County Commissioner
Drew	Mosberg	Grant County SWCD
John	Walkup	West Ottertail County SWCD
Jack	Lampert	Stevens County Citizen
Doug	Jahnke	Big Stone County Citizen
Steven	Schmidt	Ag Business
Terry	Amundson	Ag Business
Jerry	Deal	Traverse County Commissioner
Bob	Perry	Wilkin County Commissioner
Blayne	Johnson	Big Stone County SWCD
Vernyl	Fronning	Ottertail County Citizen
Robert	Marts	Traverse County Citizen
Duane	Duin	Ag Business
Scott	Bauer	Toqua Sportsman's Club



## BdSWD Project Teams

The Bois de Sioux Watershed District administers seven (8) Project Teams as follows:

1. North Ottawa
2. Redpath
3. East Branch Twelve Mile Creek
4. West Branch Twelve Mile Creek
5. Moonshine
6. Rabbit River
7. Bois de Sioux Direct
8. TCD #52

With the exception of the Moonshine PT and the TCD #52 PT, they are organized on a sub-watershed alignment as shown on the following map.

