

## 1.0 PROJECT SUMMARY SHEET

### PROJECT TITLE:

East Dakota Riparian Area Restoration and Protection Project

### NAME, ADDRESS, PHONE AND E-MAIL OF LEAD PROJECT SPONSOR/SUBGRANTEE:

East Dakota Water Development District

132B Airport Avenue

Brookings, South Dakota 57006

605-688-6741/-6744 FAX

Contact - Jay Gilbertson, Manager                      [edwdd@brookings.net](mailto:edwdd@brookings.net)

**STATE CONTACT PERSON:**     Jeremy Schelhaas

**PHONE:**     605-362-3548                      **FAX:** 605-362-2768                      **E-MAIL:**     [Jeremy.Schelhaas@state.sd.us](mailto:Jeremy.Schelhaas@state.sd.us)

**STATE:**     South Dakota

**HYDROLOGIC UNIT CODE:**     10170202 & 10170203

**HIGH PRIORITY WATERSHED:**     Yes - 303(d) List

**TMDL Development** \_\_\_ **and /or Implementation**  X

### PROJECT TYPES

Staffing & Support

Watershed

Groundwater

I & E

### WATERBODY TYPES

Groundwater

Lakes/Reservoirs

Rivers

Streams

Wetlands

Other

### NPS CATEGORY

Agriculture                       Hydro Modification

Urban Runoff                       Other

Silviculture

Construction

Resource Extraction

Stowage/Land Disposal

**PROJECT LOCATION:**     Latitude North 44° 00' 00"     Longitude West 096° 45' 00"

### SUMMARIZATION OF MAJOR GOALS:

Restore and protect the beneficial uses of impaired water bodies within the Minnesota, Big Sioux, and Vermillion River basins in the East Dakota Water Development District in eastern South Dakota by promoting and implementing riparian conservation easements to reduce sediment loading and prevent bacterial contamination. Attaining the goal will reduce the total suspended solids and/or bacteria levels and support TMDLs developed for impaired river segments.

### PROJECT DESCRIPTION:

The East Dakota Riparian Area Restoration and Protection Project is a 2-year strategy that expands on prior efforts to establish riparian conservation easements in the central Big Sioux River. The Project will help restore and/or maintain the water quality of impaired segments of water bodies within the Minnesota, Big Sioux, and Vermillion River watersheds within the eleven counties in the East Dakota Water Development District to meet the designated beneficial uses. Various watershed assessment studies have identified numerous impaired river and stream segments as failing to meet designated uses due to impairments from total suspended solids, dissolved oxygen and/or bacteria. Activities to improve and/or maintain current sediment and bacterial loadings will target sub-watersheds within the project area. Water quality sampling will be used to monitor and assess project impacts on impaired water bodies.

**319 Funds Requested:**     \$ 397,250                      **Local and State Match:**     \$ 267,250

**Other Federal Funds:**     \$ 0                                      **Total Project Cost:**     \$ 664,500

**319 Funded Full Time Personnel:**     0.1

2.0 STATEMENT OF NEED

2.1 The East Dakota Riparian Area Restoration and Protection Project is a 2-year TMDL implementation strategy designed to restore and/or maintain water quality in the Minnesota, Big Sioux and Vermillion River basins within the East Dakota water Development District in eastern South Dakota. Through the application of best management practices (BMPs) targeting sediment erosion and animal waste management, specifically riparian conservation easements and public education, this project will seek to protect and restore the water quality of area water resources. The project will address needs identified in several watershed assessments conducted on water bodies throughout EDWDD. In some instances total maximum daily load (TMDL) reports have been developed. In other cases TMDLs remain in development or have not begun. This proposal is a continuation of efforts to establish riparian conservation easements as part of the Central Big Sioux River Watershed Project (Part 1), which was completed in September 2010. This project is expected to be the first of several successive implementation projects using riparian conservation easements to achieve the ultimate Project goal. Impairments to the beneficial uses of the water bodies within the East Dakota Riparian Area Restoration and Protection Projects are shown on Table 2-1.

**Table 2-1. Beneficial Use Impairments Identified within the East Dakota Riparian Area Restoration and Protection Program Watersheds\***

<u>Impaired Water Body</u>	<u>Impaired beneficial use</u>	<u>Cause</u>
Beaver Creek	LCR	FCB
Big Sioux River**	IR, LCR, WWFL	FCB & EC, TSS, DO
Flandreau Creek	LCR	FCB
Hidewood Creek	LCR	FCB
North Deer Creek	LCR	DO
Peg Munky Run	LCR	FCB
Pipestone Creek	IR, LCR	FCB & EC
Six Mile Creek	LCR	FCB
Split Rock Creek	IR, LCR	FCB
Spring Creek	LCR	FCB
Stray Horse Creek	LCR	FCB
East Fork of Vermillion River	LCR	FCB
South Fork Whetstone River	WWFL, LCR	DO
Willow Creek	LCR	FCB

\* - 2010 South Dakota Integrated Report for Surface Water Quality Assessment.

\*\* - A composite of several impaired segments.

DO	dissolved oxygen (deficit)	EC	<i>E. coli</i> bacteria (excess)
FCB	fecal coliform bacteria (excess)	IR	immersion recreation
LRC	limited contact recreation	TSS	total suspended solids (excess)
WWFL	warm-water fish life		

In addition to the segments specifically noted in Table 2-1, additional sub-watersheds were found to be contributing impairments to downstream water bodies. In some instance, correction of problems in areas

not technically impaired (due to a lack of a defined beneficial use or uses) may be necessary to meet TMDLs. A list of river and stream segments in the project area which have TMDLs that have been finalized or in development is given in Table 2-2.

**Table 2-2. River segments and streams with total maximum daily load (TMDL) reports finalized or in development within the East Dakota Riparian Area Restoration and Protection Program Watersheds\***

Impaired Water Body	Impairment(s)	Status
Beaver Creek	FCB, TSS	Approved
Big Sioux River - Ortley to Kampeska	DO, EC	Not initiated
Big Sioux River - Kampeska to Willow Ck	FCB	Not initiated
Big Sioux River - Willow Ck to Stray Horse Ck	FCB	Approved
Big Sioux River - Brookings to I-29	TSS	In development
Big Sioux River - I-29 to Dell Rapids	TSS	Approved
Big Sioux River - Dell Rapids to below Baltic	FCB	Approved
Big Sioux River - Dell Rapids to below Baltic	EC, TSS	In development
Big Sioux River - Below Baltic to Skunk Ck	EC, FCB, TSS	In development
Big Sioux River - Skunk Ck to diversion return	EC, FCB, TSS	In development
Big Sioux River - Diversion return to SF WWTF	EC, FCB, TSS	In development
Big Sioux River - SF WWTF to above Brandon	EC, FCB, TSS	In development
Flandreau Creek	FCB	Approved
Hidewood Creek	FCB	Approved
Jack Moore Creek	FCB	Approved
North Deer Creek	FCB	Approved
Peg Munky Run	FCB	Not initiated
Pipestone Creek	FCB	Approved
Pipestone Creek	EC	Not initiated
Six Mile Creek	FCB	Not initiated
Skunk Creek	FCB	Approved
Split Rock Creek	FCB, TSS	Approved
Spring Creek	FCB	Approved
Stray Horse Creek	FCB	Approved
South Fork of Whetstone River	DO	In development
East Fork of Vermillion River	EC, FCB	In development
West Fork of Vermillion River	EC	Not initiated
Willow Creek	FCB	Approved

\* - SD DENR website (<http://denr.sd.gov/dfta/wp/tmdlpage.aspx>)

DO	dissolved oxygen	EC	<i>E. coli</i> bacteria
FCB	fecal coliform bacteria	TSS	total suspended solids

As noted above, a wide range of water bodies, covering a substantial geographic area, are impaired within the Minnesota River, Big Sioux River and Vermillion River watersheds in the East Dakota Water Development District. The impairments impact the use of the rivers and tributary streams for boating,

fishing, swimming and other recreational uses. Further, while the impairments have not yet affected use of the river as a domestic water supply, the current water quality problems may eventually result in an impairment in that regard. As the City of Sioux Falls current extracts about 65% of it's drinking water from the Big Sioux River, correcting these problems will have an impact well beyond the current recreational and aesthetic problems.

Numerous watershed assessment studies in the area have identified several sources for both the total suspended solids (TSS) and fecal coliform bacteria that constitute the primary impairments in the area. Excessive total suspended solids, i.e. fine sediment suspended in the waters of the river and it's tributaries, are found primarily in the Big Sioux River. Segments not technically exceeding the applicable standard still have levels that contribute to impairments downstream. TSS levels in most tributaries are mostly below impairment standards, suggesting that current land-use practices within these areas need not be altered to reduce sediment loading. The exception is found in southern Minnehaha County, where natural conditions may also be a factor contributing to a TSS problems. Consequently, project activities aimed at sediment reduction will focus on the immediate river corridor and the lower Skunk Creek, Pipestone/Split Rock Creek and Beaver Creek sub-basins. Restoration of riparian buffer zones, in both rural and urban settings, were identified as principle BMPs in all watershed assessments.

Impairments as the result of excess fecal coliform bacteria were encountered throughout the project area, although the highest levels were detected in the southern end of the Big Sioux River watershed. The primary source of the bacteria is believed to be domestic livestock, although human and wildlife sources do contribute a small portion of the total load encountered. Fecal coliform bacteria levels have been analyzed at a variety of river/stream flow conditions in an effort to determine the timing of major loadings. The most significant loadings were measured during high flow events, which were coincident with either major storms or spring snow melt. The bacteria encountered here are presumed to have been carried into the receiving waters by runoff, most likely from animal feeding operations with limited ability to contain animal wastes impacted by precipitation. Addressing these particular impairments is beyond the scope of this project, and is being addressed by other efforts.

Elevated levels of fecal coliform bacteria were also encountered during periods of low flow, often many weeks after a runoff event. Under these conditions, feedlots would not be expected to contribute, and the source is likely to be animals grazing in, or in close proximity to, the rivers and or tributary streams. To address the bacteria impairments, restricting access to the water bodies by grazing animals through the establishment of riparian buffer areas is planned.

2.2 The East Dakota Riparian Area Restoration and Protection Project encompasses the watersheds of the Big Sioux, Minnesota and Vermillion Rivers within EDWDD. EDWDD encompasses all of Brookings, Codington, Deuel, Grant, Hamlin, Kingsbury, Lake, Minnehaha and Moody Counties, and the eastern halves of Day and Miner Counties.

The surface area for the central Big Sioux River (BSR) watershed is approximately 1,282,560 acres (519,255 hectares) in size. The BSR and major tributaries are permanent water courses within the project area. There are also numerous intermittent tributaries which carry water only during spring snow melt or rainfall events. The BSR ultimately drains to the Missouri River at Sioux City, Iowa. The river also receives storm sewer discharges or otherwise enhanced runoff from several communities along it's course, including the cities of Brookings, Flandreau and Sioux Falls. Sections of the stream have been impacted by channelization

(straightening and/or artificial stabilization) and there are numerous road crossings of the river and tributaries.

Many segments of the river do not fully support the designated uses, particularly with regard to limited contact or immersion recreation. The 1998 South Dakota 303(d) Waterbody List, and subsequent versions in 2002 and 2004, identified this portion of the BSR watershed as impaired and a priority for development of TMDL reports. 11 impairments were known at the start of the study, 6 for total suspended solids (TSS) and 5 for fecal coliform bacteria. With the completion of the Central Big Sioux River Watershed Assessment Project, 13 additional impairments were identified (10 additional segments for fecal coliform bacteria, 2 more for TSS, and 1 water body impaired by low dissolved oxygen). A total of 24 separate TMDL reports have been prepared as a result of the assessment project, and they form the basis for the proposed Central Big Sioux River Watershed Project.

2.3 Map of the project area. See Figure 2-1.

2.4 Land use in the watershed is primarily agricultural. Row crops, such as corn and soybeans, dominate, but significant tracts are also in grass and/or pasture land. Various watershed assessment studies have identified over 1,500 animal feeding operations located within the confines of the project area. Significant residential development has taken place around the cities of Watertown, Brookings, Madison, Sioux falls and Brandon, along with several area lakes.

The average annual precipitation in the Project area is 23.2 inches, of which 75% typically falls from April through September. Tornadoes and severe thunderstorms strike occasionally. These storms are often of only local extent and duration, and occasionally produce heavy rainfall events. The average seasonal snowfall is 36.5 inches per year.

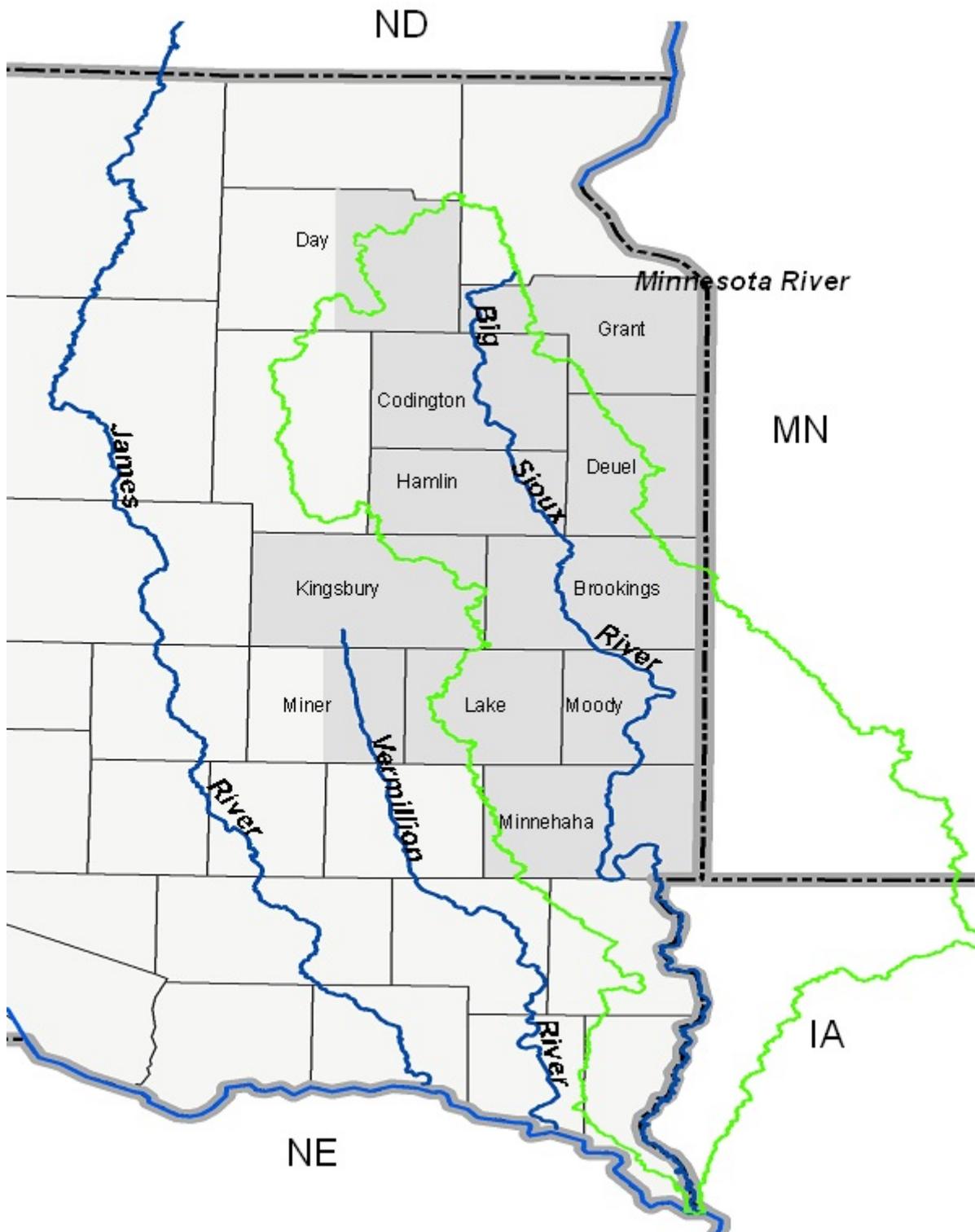
The surficial character of the watershed can be divided into two parts, relating to the relative age of the landscape. Along the valleys of the Big Sioux River and its eastern tributaries, as well as the East Fork of the Vermillion River and the Whetstone River, drainage is well developed and undrained depressions are rare. In the balance of the area, drainage is poor, and there are many potholes, sloughs, and lakes. The relief in the area is moderate. Land elevation ranges from nearly 2,000 feet above mean sea level in the northern part of the area dropping to about 1,265 feet in the southern edge of the project area. However, in the Minnesota River watershed portion of the area (eastern Grant and Deuel Counties), the relief is more severe, falling from over 2,000 to less than 970 feet.

Soils within the watershed area are derived from a variety of parent materials. Uplands soils are relatively fine-grained, and have developed over glacial till or thin eolian (loess) deposits. Coarse-grained soils are found along present or former water courses, and are derived from glacial outwash or alluvial sediments. In central and eastern Minnehaha County, in the southern part of the project area, the loess deposits are quite thick and the resulting soils are highly erodible. When combined with the relatively high local relief, these areas are quite susceptible to erosion, regardless of land-use practices. Relief along the eastern flank of the Coteau des Prairies upland in Deuel and Grant Counties exceeds 1,000 feet, but heavy soils and limited cultivation has held erosional losses to a minimum.

2.5 The East Dakota Riparian Area Restoration and Protection Project was initiated on behalf of the citizens of the East Dakota Water Development District by the District Board of Directors. The primary

**Figure 2-1. Location of the East Dakota Riparian Area Restoration and Protection Project.**

Project area (East Dakota Water Development District) shaded in gray.



water quality concerns are high suspended sediment loads that adversely impact fish populations (both numbers and diversity) and high bacterial loads that limit water use for swimming and boating in the Minnesota, Big Sioux and Vermillion River basins.

The numerous watershed assessments that have been completed in the watersheds have included:

- River and tributary water sampling;
- Quality assurance/quality control measures for water quality samples;
- River and tributary stage and discharge measurements;
- Biological monitoring (fish and insects);
- Inventories and assessments of animal feeding operations;
- Watershed modeling using a sediment delivery models; and
- Review of previous water quality data collected in the watershed.

These assessment projects have confirmed that many segments of the Big Sioux River, many of its tributaries and portions of the Minnesota and Vermillion River drainage are/were impaired due to high levels of bacteria (fecal coliform and *E. coli*). The limited contact standards, which is applicable to all river and stream segments, was most often exceeded during high flow events, suggesting runoff from feed lots as a source. However, bacterial counts at times of low flow rates suggest that animal grazing in or near the river and its tributaries are a significant influence. Given that “low flow” conditions are most common, addressing these particular impairments sources is critical. The bacterial problem becomes particularly acute in the Big Sioux River below the community of Dell Rapids, when the more stringent immersion recreation standard is also applicable. For most of the watershed below this point, reductions in excess of 75% to 95% are needed to meet the beneficial use standards. In this area, both feedlots and in-stream grazing are known problems.

TSS impairments are largely limited to the Big Sioux River in the project area. Excessive TSS levels in the tributaries only occur in the lower part of Skunk Creek and the Pipestone Creek/Split Rock Creek system. Degraded riparian areas and bank erosion are believed to be the primary source of sediment, along with remobilization of in-stream sediment. Low sediment inputs from most tributaries indicates current land-use practices are successfully limiting erosion. High sediment levels found in the tributaries that span eastern and central Minnehaha County are attributed to the relatively high erosion potential of the soils in the area.

In several instances, sub-watersheds assessed during the assessment studies had no applicable water quality standard. However, the loadings resulting from these sub-watersheds will need to be addressed if subsequent, down-stream water bodies are to be brought into compliance.

Several stream segments in the study area were found to be impaired with regard to dissolved oxygen (see Tables 2-1 and 2-2). Low dissolved oxygen is detrimental to fish and other aquatic life.





A project coordination team will be assembled from project stakeholders to oversee long-term project activities and to establish priorities for BMP implementation and application.

3.6 Responsibilities for the operation and/or maintenance of 319-funded BMPs will be provided through contracts between the landowner and EDWDD, or EDWDD-designated subcontractors such as the Northern Prairies Land Trust. Easement agreements will specify operation and maintenance needs, procedures for addressing failure or abandonment, and the time period the easements will be maintained for the terms agreed upon in the agreements.

#### 4.0 COORDINATION PLAN

4.1 The lead sponsor for this project is the East Dakota Water Development District (EDWDD). EDWDD will document cash and in-kind match to this project and is responsible for completion of this project's goal, objectives, and tasks.

Several other partners have been involved in previous watershed projects within the Project area. Their assistance will be requested as appropriate to each project activity. Organizations expected to participate and support the project requested include:

Northern Prairies Land Trust - Technical assistance applied to promoting and implementing best management practices (BMPs) targeting total suspended solids and bacterial reductions through riparian area easements.

Conservation Districts within the EDWDD - Technical assistance for implementation of rural easements targeting total suspended solids and bacterial reductions through riparian area restorations.

South Dakota Department of Environment and Natural Resources - Technical assistance for water quality issues, sampling, and project management.

A project coordination team will be assembled from project stakeholders to oversee long-term project activities and to establish priorities for BMP implementation and application.

4.2 The many and varied rivers and streams within EDWDD are important economic and social assets to the communities in the project area, as well as rural residents and landowners. EDWDD and the Northern Prairies Land Trust have provided leadership for this project.

Numerous community efforts to address water quality issues within the project area have been undertaken within the past 40 years. Assessment and implementation projects have been targeted at a number of watershed segments in the Minnesota River (Lake Hendricks, Fish Lake, Lake Cochrane, Lake Oliver, Lake Alice, Lake LaBolt, Big Stone Lake), Big Sioux River ( ), and Vermillion River (Kingsbury Lakes, East Fork Vermillion River) watersheds. Riparian conservation easements have only recently been considered as a viable best management practice to address water quality impairments. This 319 project proposal was developed to address growing interest in a number of existing implementation projects, as well as areas not yet involved in formal projects, in this particular activity. The East Dakota Riparian Area Restoration and Protection Project will be managed by a project coordination team made up of available local, state, and

federal partners to maximize technical assistance and funding for successful project implementation.

4.3 The East Dakota Riparian Area Restoration and Protection Project will be coordinated with other available local, state and federal programs to maximize technical assistance and funding for successful project implementation.

In addition, this project will utilize training and other technical assistance available such as:

Annual 319 project coordinators training workshops;  
Technical and administrative training provided by the SDACD, SD DENR, and NRCS; and  
Technical assistance from the SD Streams and Lakes Association.

4.4 This project will be implemented through coordination with, and in partnerships with, other organization programs to create complementary activities. Key activities by programs that are similar for this project are as follows:

SDACD Technical Assistance Project - The South Dakota Association of Conservation Districts has an ongoing program, funded in part with 319 funds, to provide technical assistance to area landowners to identify appropriate BMPs to reduce adverse water quality impacts. The proposed project includes some funds that would be available to willing landowners in critical areas who have utilized the SDACD project for other technical assistance.

On-going Implementation Projects - Segments of the Big Sioux, and Vermillion River watersheds have ongoing implementation projects. These areas were assessed as part of earlier TMDL studies, and have been in the implementation phase for several years.

The riparian easement programs to be offered through this project are not currently available through any of the ongoing efforts. EDWDD will work with the sponsors of the other efforts to provide assistance within the entire project area.

## **5.0 EVALUATION AND MONITORING**

5.1 Monitoring and evaluation efforts will involve:

Monitoring all project proposed tasks relative to meeting project milestones.  
Evaluating quality and effectiveness of riparian easements utilizing available tools.

Table 5-1 lists water quality monitoring sites currently being monitored, or for which monitoring is planned starting in 2011, within the project area. At a minimum, samples collected at these locations monitor the primary sources of impairment (total suspended solids, bacteria, temperature, pH and dissolved oxygen) for impacted water bodies in the East Dakota Riparian Area Restoration and Protection Project. It is believed that this network of sampling sites will provide sufficient information by which to assess the impact and effectiveness of the proposed riparian easement activities. No additional water quality sampling will be conducted through this project.

**Table 5-1. Existing Water Quality Monitoring Sites within the East Dakota Riparian Area Restoration and Protection Project .**

<b>Site Name</b>	<b>Site Location</b>	<b>Additional Information</b>
R16	BSR at 20 <sup>th</sup> Avenue	
R17	BSR below Watertown USGS Gage	DENR - WQM 1
R18	BSR at Castlewood	
R19	BSR near Estelline	DENR - WQM BS08
R20	BSR near Bruce USGS Gage	
R01	BSR near Brookings	DENR - WQM 62
R04	BSR at Brookings USGS Gage	
R06	BSR at Egan	
R08	BSR below Dell Rapids	DENR - WQM 3
R09	BSR at Highway 38A	DENR - BS 23
R10	BSR at Western Ave.	
R11	BSR at Cliff Avenue	DENR - BS 29
R12	BSR above Brandon	DENR - WQM 31
R13	BSR near Gitchie Manitou	
UMR 4	S.F. Whetstone River above Milbank WWTF	DENR- WQM 90
UMR 5	S.F. Whetstone River below Milbank WWTF	DENR - WQM 91
UMR 6	Whetstone River at Big Stone City	DENR - WQM 28
UMR 8	N. F. Yellow Bank River near Big Stone City	DENR - WQM 87
UMR 12	S. F. Yellow Bank River near Albee	DENR - WQM 88

5.2 The East Dakota Water Development District will monitor project progress based on project milestones and include progress in a semi-annual project report. Progress to meet milestones will include a financial accounting of funds, and the source of funds expended on each milestone or project task.

The effectiveness of the easements in addressing water quality impairments will be evaluated using tools available from project partners. The effectiveness of educational and outreach activities will be tracked and assessed through attendance records at tours, informational meetings, and project coordinator presentations and contacts.

5.3 The East Dakota Water Development District will be responsible for collecting, storing, and managing data collected during implementation of this project. South Dakota DENR will provide technical assistance and guidance to assist EDWDD set-up the appropriate record systems and computer software for project data collected.

5.4 The East Dakota Water Development District will utilize the South Dakota DENR for technical assistance and training on which assessment models to use and how to use them.

5.5 The major activities of this project will involve agreements with landowners to acquire long-term or permanent riparian conservation easements for land along impaired or threatened water bodies. The operation and maintenance section of these agreements will specify the life span for maintenance and who is responsible for maintenance and operation.

The East Dakota Water Development District is responsible to ensure easement agreements are properly implemented. EDWDD and other stakeholders will continue to pursue efforts to identify, fund, and implement riparian area protection efforts, as well as other additional improvements, needed for the impaired water bodies within the Project area. This proposal is for the first of an anticipated multi-segment program to fully implement the necessary measures to meet the TMDL requirements.

## 6.0 BUDGET

Table 6-1. Funding By Source

<u>Activity</u>	<u>Total</u>	<u>319 Grant Share</u>	<u>EDWDD Share</u>
Objective 1/Task 1 - Riparian Area Protection			
Riparian Conservation Easements	\$625,000	\$375,000	\$250,000
Objective 2/Task 2 - Information & Education			
Public outreach & education	\$25,000	\$15,000	\$10,000
Project Staffing & Administration			
EDWDD Staff	\$12,500	\$6,250	\$6,250
Travel	\$1,000	\$1,000	\$ 0
Supplies & Materials	\$1,000	\$ 0	\$1,000
<b>TOTAL</b>	<b>\$664,500</b>	<b>\$397,250</b>	<b>\$267,250</b>
<i>Percentage of total</i>	<i>100.0</i>	<i>59.8</i>	<i>40.2</i>

Table 6-2. Funding By Year

Activity	Total	Year 1	Year 2
Objective 1/Task 1 - Riparian Area Protection			
Riparian Conservation Easements	\$625,000	\$ 312,500	\$312,500
Objective 2/Task 2 - Information & Education			
Public outreach & education	\$25,000	\$12,500	\$12,500
Project Staffing & Administration			
EDWDD Staff	\$12,500	\$6,5250	\$6,250
Travel	\$1,000	\$500	\$500
Supplies & Materials	\$1,000	\$500	\$500
<b>TOTAL</b>	<b>\$664,500</b>	<b>\$332,250</b>	<b>\$332,250</b>
<i>Percentage of total</i>	<i>100.0</i>	<i>50.0</i>	<i>50.0</i>

## 7.0 PUBLIC INVOLVEMENT

7.1 A local work group (project coordination team) will meet at least quarterly and provide input for project management and coordination of resources to the East Dakota Water Development District, and will consist of representatives from local, state, and federal stakeholder organizations.

The East Dakota Water Development District, through completion of Objective 2 (Information and Education) of this proposal, will provide information to the public through progress reports, supplemental reports to existing regional newsletters, tours, news releases, annual informational presentations and public service announcements to stakeholder groups.

## 8.0 THREATENED AND ENDANGERED SPECIES

There are several state and/or federally threatened or endangered species listed as present or potentially present in the East Dakota Riparian Area Restoration and Protection Project watersheds. They are listed below in Table 8-1.

Table 8-1. Endangered and threatened species identified in the Project watersheds.

Name	Scientific Name	Listing Status
Whooping crane	<i>Grus americana</i>	Federally endangered (FE), State endangered (SE)
Bald eagle	<i>Haliaeetus leucocephalus</i>	Federally threatened (FT), SE
Topeka shiner	<i>Notropis topeka</i>	FE
Central mudminnow	<i>Umbra limi</i>	SE
Trout perch	<i>Percopsis omiscomaycus</i>	State threatened (ST)
Northern redbelly dace	<i>Phoxinus eos</i>	ST
American burying beetle	<i>Nicrophorus americanus</i>	FE
Western prairie fringed orchid	<i>Platanthera praeclara</i>	FT
Blanding's turtle	<i>Emydoidea blandingii</i>	SE
Spiny softshell turtle	<i>Apalone spinifera</i>	ST
Northern redbelly snake	<i>Storeria occipitomaculata</i>	ST

Lined snake	<i>Tropidclonion lineatum</i>	SE
Black-footed ferret	<i>Mustela nigripes</i>	FE, SE

---

Care will be taken when implementing riparian conservation easements in Project watershed that habitats for all listed species are not disturbed.

The procedures that will be followed to ensure the project will not adversely affect threatened and endangered species are based on the following premises:

1. The best management practices to be implemented will promote the improvement of water quality which will benefit threatened and endangered species that depend on water.
2. The occurrence of migratory endangered species is expected to be transitory, and if they are present project activities will cease until they have left the area.

The precautions that will be taken with respect to selected threatened and endangered species that could be found in the area are as follows.

1. Threatened and endangered fish species

No in-stream BMPs are planned for water bodies (primarily tributary streams) in which these species have been found. No in-stream activity will be allowed during the breeding seasons for each species in river reaches near known occurrences. If the species are observed at any project work site, all mechanical activities at the site will be suspended.

2. Bald Eagle

The bald eagle can be found near water, primarily on river systems, large lakes, reservoirs, and coastal areas. Bald eagles typically prefer large trees for perching and roosting. Best management practices should avoid the destruction of large trees that may be used as bald eagle perches, particularly if an eagle is observed using a tree as a perch or roost. No project activities are planned that will disturb possible nesting sites or reduce food sources. If any actions become necessary during the project that might impact bald eagles that are in or visit the area, the sponsor or its agent will contact DENR for approval to complete the action before proceeding. If a bald eagle(s) is observed at any project work site, all mechanical activities at the site will be suspended until the bird(s) leaves the site under its own volition.