# Little Minnesota River / Big Stone Lake Restoration Project

# Roberts Conservation District

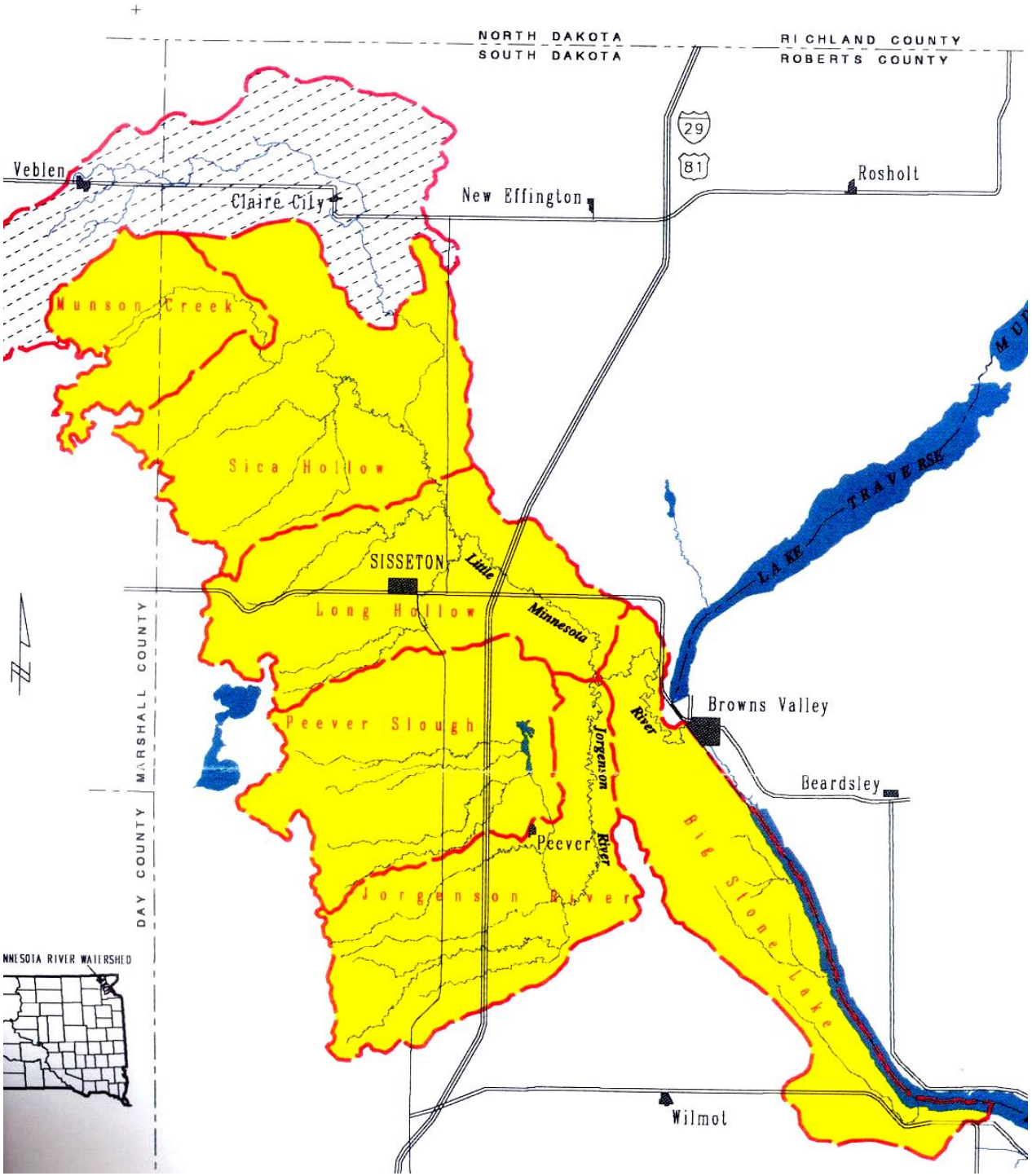
# Roberts County, SD

**Mike Jensen**

**Project Coordinator**

# Project Area

- Watershed Project Area: Approx. 247,873 acres
- Cropland: 130,176
- Rangeland: 68,489
- Hay and CRP: 26,900
- Woodland: 9,915
- Other: 12,393


NORTH DAKOTA
SOUTH DAKOTA
RICHLAND COUNTY
ROBERTS COUNTY
29
81
Veblen
Claire City
New Effington
Rosholt
Munson Creek
Sica Hollow
SISSETON
Little Minnesota River
Long Hollow
Peever Slough
Jorgenson River
Peever
Browns Valley
Beardsley
Big Stone Lake
LAKE TRAVERSE
Wilmot
DAY COUNTY
MARSHALL COUNTY
NNESOTA RIVER WATERSHED

# Big Stone Lake

- Surface area: 12360 acres
- Maximum Depth: 16 feet
- Average Depth: 8 feet
- Length 26 miles
- Shoreline: 62 miles
- Storage: 98,880 acre feet

# Little Minnesota River

- Approximately 40 miles long

  Actual river miles not calculated
- 780 feet vertical drop from headwaters to mouth
- Empties into upper end of Big Stone Lake
- 1025 ft elevation difference in project area

# BSL Water quality problems

- Hypereutrophic
- Excessive algal blooms
- Overabundant, rooted, aquatic plants
- Decreasing lake depth

# Causes

- **Primarily non-point sources**
- **Phosphorus loading and sediment from:**
- **Cropland erosion**
- **Fertilizer runoff**
- **Feedlot runoff**
- **Poor rangeland condition**
- **Lakeshore erosion**
- **Streambank erosion**

# Causes (cont.)

- Point Sources Included:
- Lake side septic systems
- Wastewater Treatment Systems at,

1) Sisseton, SD
2) Browns Valley, MN
3) Veblen, SD
4) Peever, SD

# Project Sponsors

- Roberts County Commission
- Roberts Conservation District
- Marshall County Conservation District

# Involved Agencies

- Natural Resources Conservation Service
- SD Dept. of Environment and Natural Resources
- SD Dept. of Ag; RC&F
- Farm Service Agency
- US Fish and Wildlife Service
- SD Dept. of Game, Fish and Parks

# Involved Agencies (Cont.)

- Sisseton-Wahpeton Sioux Tribe
- Bureau of Indian Affairs
- SD Association of Conservation Districts
- SD Cooperative Extension Service
- Environmental Protection Agency

# Involved Agencies (Cont.)

- City of Sisseton
- City of Peever
- Citizens for Big Stone Lake
- Upper Minnesota River Watershed District

# Water Quality Goals (Early)

- **Stated Goal from Early Project Periods 1985-1994:**

**“To increase the recreation potential and lifespan of Big Stone Lake.”**

# Water Quality Goals (Cont.)

- NRCS PL-566 Goals include:
- 36% Reduction of Phosphorus Loading
- 16% Reduction of Sediment Loading

# Water Quality Goals (Cont.)

- **Goal from Project Implementation Plans 1995-present:**

**Decrease sediment and Phosphorus loadings by 56%**

# Current Project Goals/Accomplishments

| Products | Planned | Accomplished |
|---|---|---|
| Animal Waste Management Systems | 17 | 8 |
| No-Till Acres | 8500 | 11056 |
| Multiple Use Ponds | 62 | 59 |
| Streambank / Riparian Demonstration Projects | 3 | 3 |
| Grassed Waterways | 36 | 39 |
| Nutrient Management Plans | 30 | 23 |
| Farm Show Display / Booth | 6 | 7 |
| Pasture / Hayland Seedings | 0 | 25 |
| Grazing Land Improvement Acres | 0 | 15334 |
| Buffers / Filter Strips (CCRP) | 0 | 910.1 |

# Total Accomplishments

- **AWMS: 51**
- **Grassed Waterways: 59**
- **No-till:  36,515 acres**
- **Ponds/Dams:  115**
- **Grazing system cross fences:  71,100 lf**

# AWMS

# POND

# Grassed Waterway

# Stream Bank Erosion Control

# Riparian Forest Buffer

# No-till: Soybeans in wheat stubble

# Accomplishments (Cont.)

- **Pasture/hayland planting:  2078 acres**
- **Numerous, alternative water sources for grazing management including: wells, pipelines, tanks, spring developments**
- **Exclusion fences**
- **Grazing Management Plans on approximately 16,360 acres**

# Alternative Water Source and Cross-fence for Grazing Management

# Cross-fence for Grazing Management

# Public Awareness Signs

# Load Reductions

- **Current Project Period:**

  - **Sediment Reduction approx. 21,435 T/yr**

  - **P Reduction approx. 57,360 lb/yr**

# Load Reductions Total

- **Calculated Reductions Since Mid 1980's**

  - **116,235 lb/yr Phosphorus**
    **29.6% Reduction**

  - **45,836 Tons/yr Sediment**
    **32% Reduction**

# Other Land Treatments, Not Calculated

- Increases in acreage of General Sign-up and some Continuous Sign-up CRP: CP's 1 – 2 – 10 – 23 etc.
- WRP and Flood Plain Easement acres in the watershed

# Cost Share Funding Sources

- EPA 319
- NRCS  PL-83-566, Small Watershed
- EQIP
- USFWS
- SD Game, Fish and Parks
- FSA Continuous sign-up Conservation Reserve Program (CCRP)
- CDBG
- Agricultural Conservation Program (ACP)

# Technical Assistance

- EPA
- Conservation District
- SD DENR
- SD Ag Waste Team
- NRCS Engineers
- NRCS FO Personnel
- USFWS

# Current Project Funds Expended

- **EPA 319: $349,945**
- **Local and Producer Match: $375,671**
- **Other Federal Funds: Approx: $588,767 (PL-566, EQIP)**

# Total Known Expenditures Roberts County (Ag)

- **EPA: $982,616**
- **State, Local, Producer: $1,010,518**
- **Other Federal Funds: $993,066**
- **Total Expenditures Approximately $2,986,200**

# Point Source Expenditures

- **Browns Valley Wastewater Facility: $2,400,000, 55% Federal, 20% State, 25% Local**

- **Sisseton Wastewater Facility: $1,695,404 $1,238,615 Federal, $456,790 Bond Issue**

# Grant County, SD

- AWMS $93,274  CDBG & Local

- Lake Farley Restoration: About $307,000

# Grant County, SD

- **Lake Level and Whetstone River Flow Management: $12,300,000**
  - **$227,000 of this was nonfederal**
  - **Diverts about 1460 cfs away from lake at normal elevation.**

# Wrap Up

- Remaining PL-566 and EQIP Construction Projects
- According to 2006 Integrated Report: BSL is listed as “Water impaired but has an approved TMDL”
- There is still work to be done in the watershed.

# Future projects

- Roberts Conservation District remains committed to assisting local producers and residents in reducing soil erosion and improving water quality.
- Lake Traverse TMDL has been initiated.
- Moving to implementation with the Northeast Glacial Lakes Watershed Improvement and Protection Project.
- Still working with NRCS on a Small Watershed Project for Whetstone River.

# Comments/Questions

- Thank you