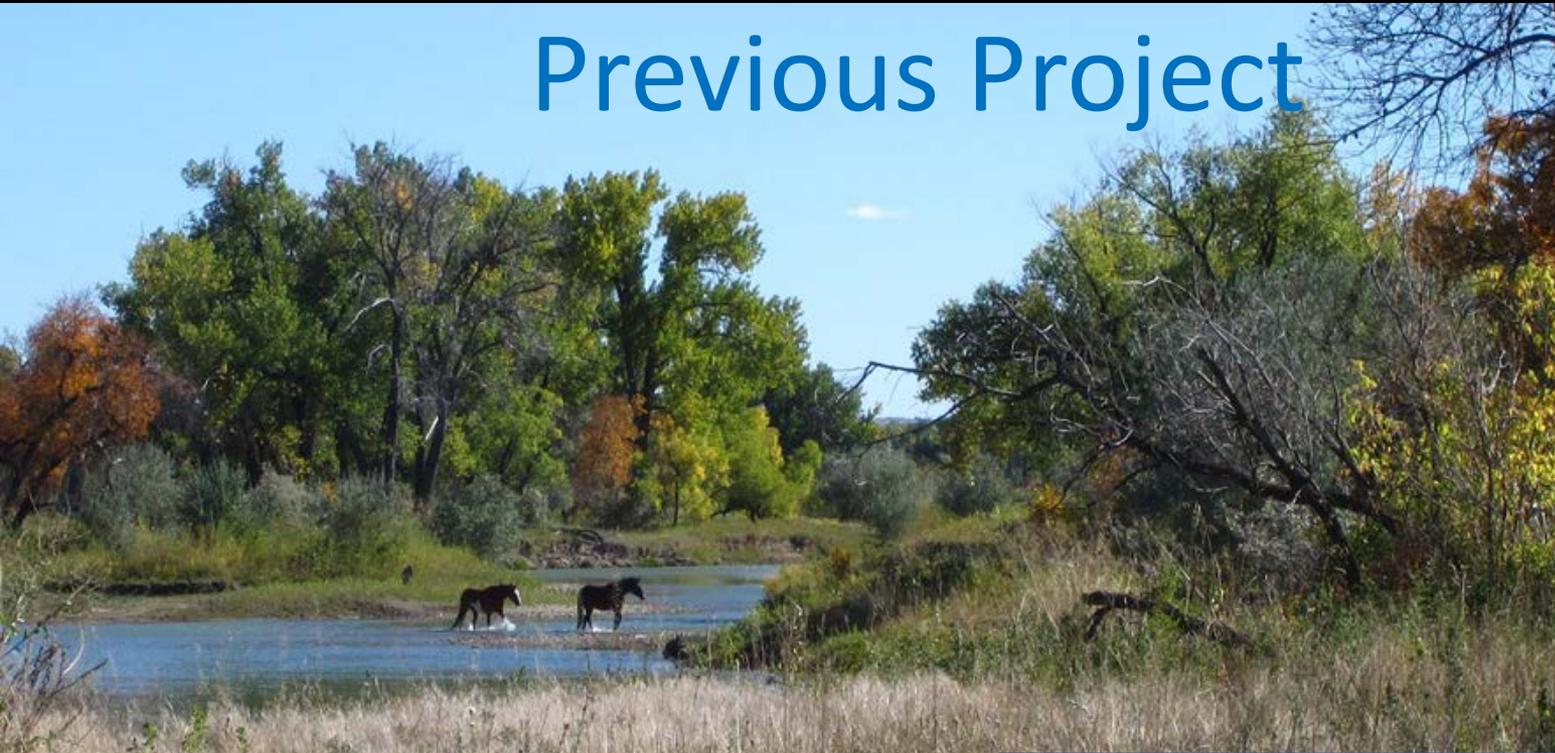


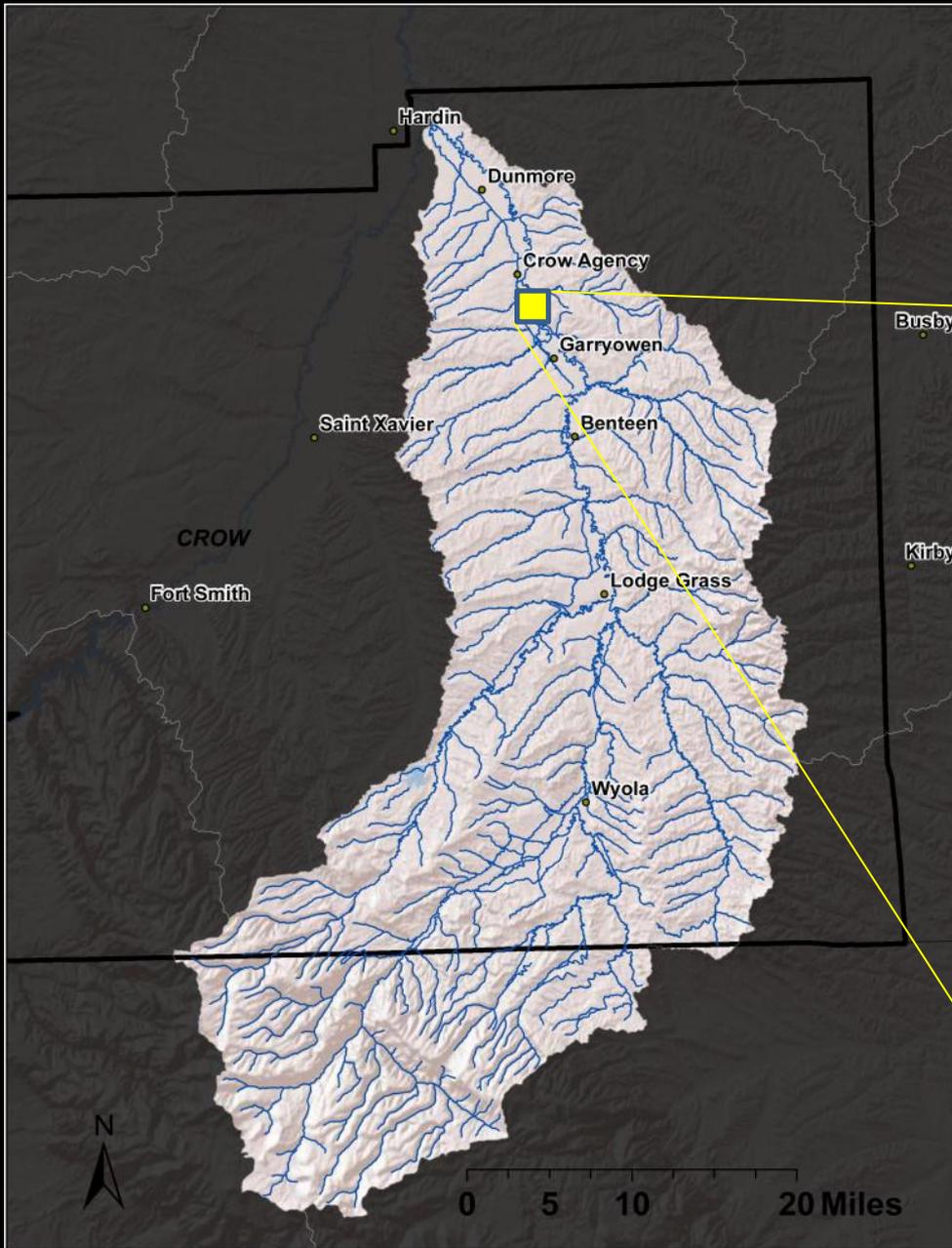
Crow 319 Project Example

Little Big Horn River

Previous Project

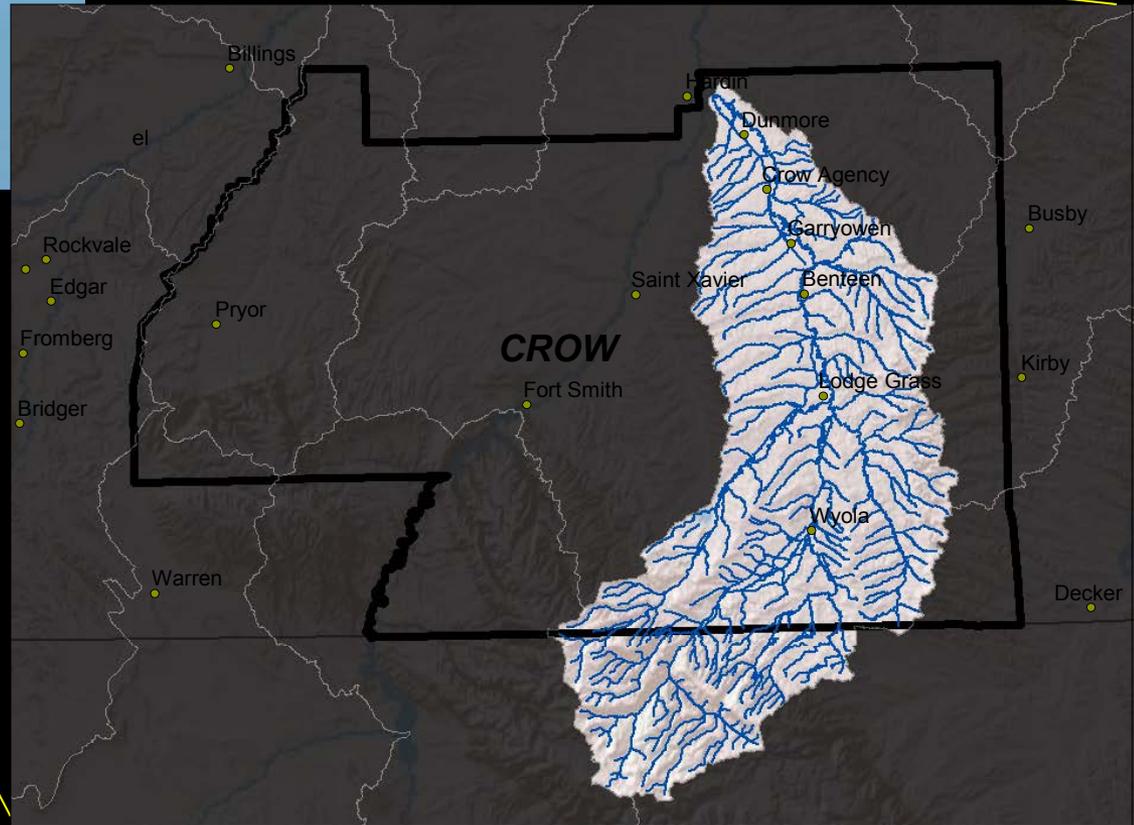
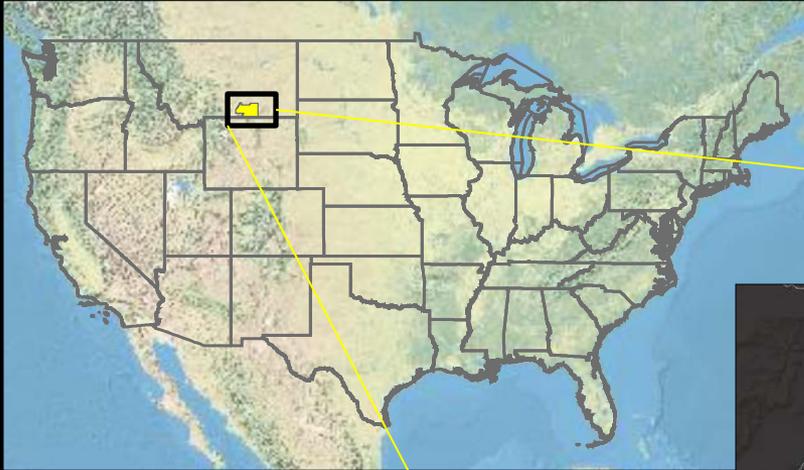


319 Project



Apsaalooke (Crow) Nation

Little Big Horn River



Eroding Bank



Horse Access Point



Defining Water Quality Monitoring Objectives

- Objective:
 - To assess effectiveness of riparian fencing and off-stream water at reducing sediment, *E. coli*, and nutrient loads to the Little Big Horn River at the Oxbow site.
- Steps to designing an effective monitoring program

Eroding Bank Sediment Calculation

- 30 feet long
- 10 feet high
- 2 feet lost each spring runoff (1 month)

(Note: 1 cubic foot of soil weighs approximately 40 kg)

$$30 \text{ ft} \times 10 \text{ ft} \times \frac{2 \text{ ft}}{\text{spring}} = 600 \text{ ft}^3 \text{ soil}$$

$$600 \text{ ft}^3 \text{ soil} \times \frac{40 \text{ kg}}{\text{ft}^3} = 24,000 \frac{\text{kg soil}}{\text{spring}}$$

$$24,000 \frac{\text{kg soil}}{\text{spring}} = 24,000,000,000 \frac{\text{mg soil}}{\text{spring}}$$

How much will we expect the concentration of sediment in the river to increase from this bank erosion?
(Assume discharge in the Little Big Horn River during runoff is 800 CFS)

1 month during spring runoff

$$\frac{8 \text{ Liters}}{1 \text{ ft}^3} = 58,060,800,000 \frac{\text{Liters}}{1 \text{ month}}$$

eroding bank

$$= \frac{0.4 \text{ mg}}{\text{L}}$$

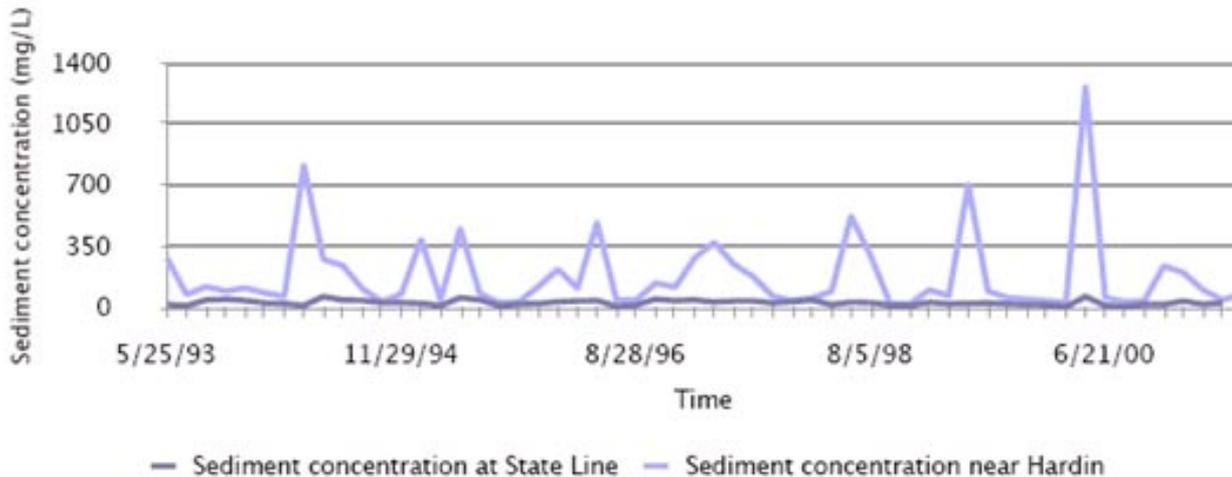


Figure 7: Sediment concentration in the Little Bighorn River from 1993 to 2001 at State Line and near Hardin

