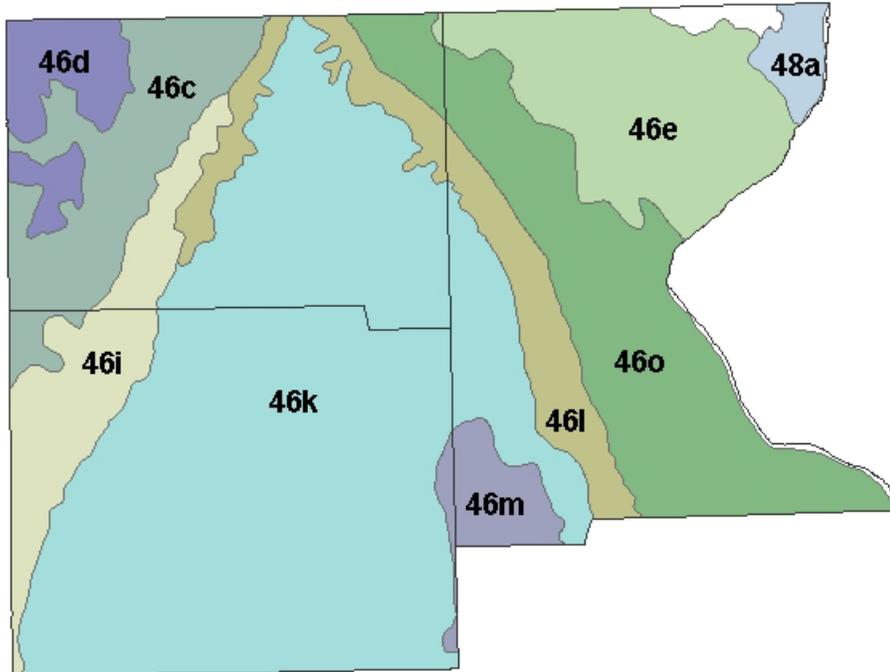


Level IV Ecoregions of the Northeast Glacial Lakes Watershed Project Area



NEGLEcoregions

ECOREGN_ID, ECO4NAMEID

11, 48a	Glacial Lake Agassiz Basin
14, 46c	Glacial Lake Basins
17, 46k	Praire Coteau
18, 46l	Praire Coteau Escarpment
19, 46o	Minnesota River Praire
23, 46i	Drift Plains
30, 46m	Big Sioux Basin
62, 46e	Tewaukon Dead Ice Moraine
64, 46d	Glacial Lake Deltas

Ecoregions are areas having similar ecosystems and environmental resources including geology, physiography, vegetation, climate, soils, land use, wildlife and hydrology. The Northeast Glacial Lakes Watershed Project is located in two Level III Ecoregions according to Bryce et al (1998). The majority of the project lies in the Northern Glaciated Plain (46), and a small portion of the Lake Agassiz Plain (48). The Northern Glaciated Plain is characterized by flat to gently rolling landscapes composed of glacial drift. Eight Level IV Ecoregions have been designated for the area of northeast South

Dakota where project watersheds are located. The following narratives describe each of the Level IV Ecoregions and some of the interesting features of these areas including land use, geological and hydrological features (Figure 1), and water quality.

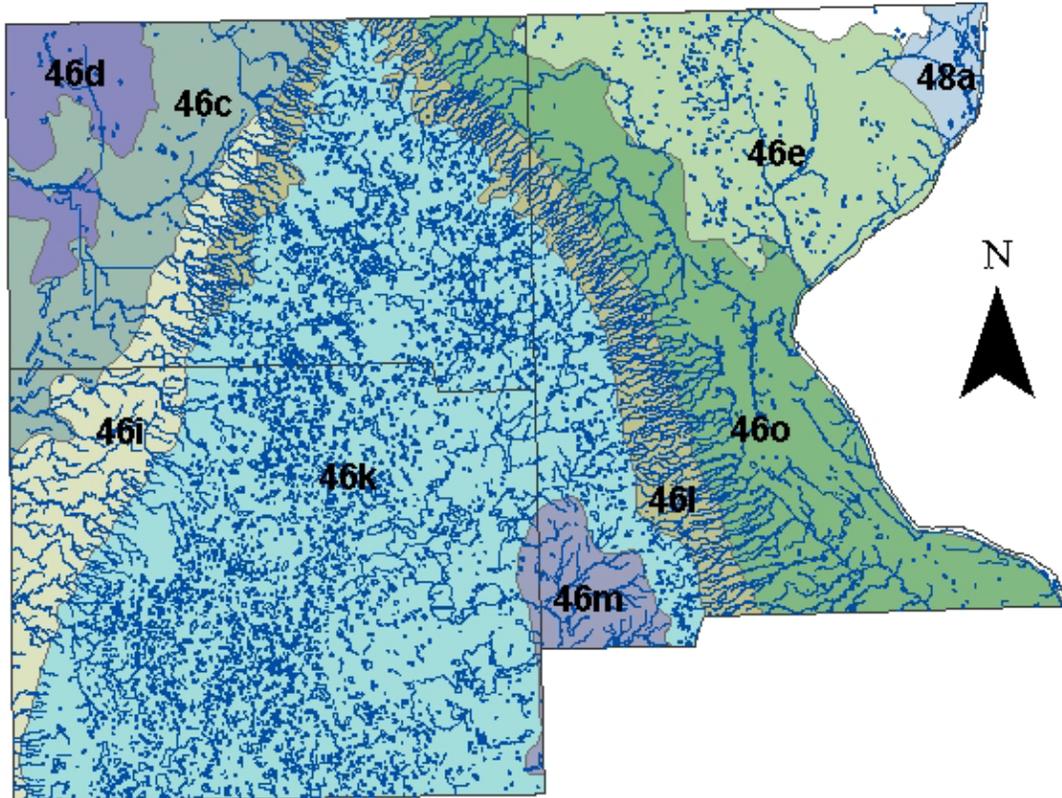


Figure 1. Hydrological Features of the Northeast Glacial Lakes Project Area

46c - Glacial Lake Basins

This ecoregion located in the northwest corner of Marshall County and extreme northwest corner of Day County was once occupied by pro-glacial Lake Dakota. The landscape is characterized by a flat topography, low wetland density, and level deep soils that are intensively cultivated. Corn and soybeans are the prevalent crops. No major lakes are located in this ecoregion which is drained by Crow Creek and several connecting ditches that flow to the James River.

46d - Glacial Lakes Deltas

Located in the extreme northwest corner of Marshall County; this ecoregion was formed by a river entering pro-glacial Lake Dakota. Sand and fine gravels formed a delta at the

rivers inlet. As Lake Dakota drained these gravels and sands were exposed and wind erosion formed areas of dunes. Today, this area is locally known as the Britton-Hecla Sandhills. The area characterized by a thin vegetative cover and prone to wind erosion and drought is utilized mainly for grazing. Remnant native tallgrass prairie in the sandhills area provides habitat for a diverse population of native grasses and forbs, grassland birds, and invertebrates. Several of these remnant prairies have been protected by U.S. Fish and Wildlife Service grassland easements.

46e - Tewaukon Dead Ice Moraine

Located in northern Roberts County; this ecoregion is a lower level extension of the Prairie Coteau (46k) located just below the Prairie Coteau Escarpment (46l). The area is characterized by a high density of semi permanent wetlands that provide important habitat for migrating and nesting waterfowl. These wetlands also provide the only known habitat for the Wood frog (*Lithobates sylvaticus*) in the state. Unfortunately, these wetlands are prone to drainage activities to provide more tillable cropland. Drier upland areas are used mainly for cultivated crops and to a lesser extent grazing. The South Dakota portion of the Lake Traverse watershed lies in this ecoregion drained by Jim Creek. Cottonwood Lake, Cottonwood Slough, and Lake Bdesaka lie in the basin of an old post glacial river bed called Dry Run. It is thought Dry Run was once connected to the Sheyenne River and for a short time drained glacial Lake Agassiz into the glacial River Warren, now known as the Minnesota River.

46i - Drift Plains

Located in western Day County and south-central Marshall County at the foot of the Prairie Coteau; this ecoregion is characterized by productive glacial tills with a level or occasional “washboard” topography. Due to these features the area is heavily cultivated. At one time the area had a high density of temporary and seasonal wetlands; however in these two counties most wetlands have been drained or are being farmed. Some areas are prone to sodium-affected subsoil’s that hamper crop production. The native grassland of the Drift Plains ecoregion is a transition between the shortgrass and tallgrass prairie. Today, a few remnant prairies exist utilized mainly for grazing or as fall hayed prairies. Two reservoirs are located in this area; Amsden Lake is located on Mud Creek and the Pierpont Reservoir located on a northern tributary of Mud Creek.

46k - Prairie Coteau

The largest ecoregion in the project area covers most of Day County, the east half of Marshall County, and the southwest corner of Roberts County. This area was formed by stagnant glacial ice that was covered by a layer of outwash and windborne sediment. As this glacier melted, lakes and wetlands formed in surface depressions left by the melting stagnant ice, or behind glacial moraines that blocked melt water drainages. Some of the

states cleanest lakes are found on the Prairie Coteau. Although major stream networks are lacking on the Prairie Coteau of Day and Marshall Counties, most lakes are located in chains connected by surface overflows of short duration and lengths that end in closed basins like Bitter Lake. The exception to this is Blue Dog Lake which is fed by Owens Creek, a lengthy coldwater spring-fed stream with several small unnamed tributaries located north and south of Ortley, South Dakota. The area is characterized by rolling rocky terrain utilized for grazing. Some of the largest remaining contiguous tracts of native tallgrass prairie are found on the Prairie Coteau. Cultivation occurs in the flatter outwash plains and on gentler slopes void of rocks. Wooded riparian areas that provide important wildlife habitat surround most lakes and larger permanent wetlands. Bur oak, green ash, and box elders dominate the drier riparian sites, while several species of willows and red-osier dogwood dominate the lower slopes. Because of the large number and types of wetlands and lakes found on the Prairie Coteau, this area provides critical nesting habitat for several species of birds that include grebes, pelicans, herons and egrets, ducks and geese, shorebirds, gulls and terns. In the near future this area may be heavily developed for wind energy.

46l - Prairie Coteau Escarpment

Located along the edge of the Prairie Coteau in northern Marshall County and western Roberts County; the Prairie Coteau Escarpment rises approximately 300 to 600 feet above the Minnesota and James River valley's in Marshall and Roberts Counties to the top of the Prairie Coteau. Several large coulees or gulches are located along the eastern escarpment. These include Sica Hollow, Munson's Gulch, Long Hollow, Big Spring, Red Iron Spring, and Big Coulee. Dozens of spring fed perennial coldwater streams are found in most of these locations forming the headwaters of the Little Minnesota River and the north fork of the Whetstone River (Figure 1). There are several calcareous fens located along the escarpment where groundwater flowing above the Pierre Shale formation escapes. These fens provide habitat for several rare plants that include Kalm's lobelia, small fringed gentian, and waxy bog-star. The remnant eastern deciduous forests of maple, basswood, green ash, and bur oak found in these coulees provides habitat for several species of wildlife found nowhere else in eastern South Dakota. Many of these coulees are grazed, altering or destroying the woody vegetative understory. Between the coulees are native tallgrass prairies, the steepest utilized for grazing. Flatter areas along the escarpment are utilized for cropland. Some areas of the Prairie Coteau Escarpment will no doubt be developed for wind energy in the near future.

46m - Big Sioux Basin

Beginning in the extreme southwest corner of Roberts County, the Big Sioux Basin ecoregion forms a trough that drains a majority of the Prairie Coteau's eastern half. The headwaters of the Big Sioux River begin in this area between the towns of Summit and Ortley, South Dakota just south of Highway 12. In the watershed project area, this ecoregion is characterized by relatively flat topography and fewer wetlands than the

surrounding landscapes. A majority of land in the northern portion of this ecoregion is drained by Owens Creek, the major tributary of Blue Dog Lake. Cropland is the major land use in this ecoregion. Steeper slopes are utilized for grazing, and in recent years have been intensively mined for gravel.

460 - Minnesota River Prairie

The Minnesota River Prairie ecoregion begins in the northwest corner of Robert County continuing south along the Prairie Coteau Escarpment. The area is characterized by a level to gently rolling topography and moderate wetland density. The major land use is cropland. Bullhead Lake, Peever and Eastman Sloughs are the largest water bodies lying within this ecoregion in Roberts County which borders Big Stone Lake to the east. The area is drained by the Jorgenson, Little Minnesota, and Whetstone Rivers. These small river systems support a diverse population of freshwater clams and small fish. Water quality along these rivers and streams would be greatly improved by implementing riparian buffers along their banks.

Reference Cited

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