

Contamination of Prairie Pothole Region wetlands and streams by petroleum-field brines: potential impacts to water chemistry and aquatic biota

The Williston Basin, which includes portions of Montana, North Dakota, and South Dakota, has been a leading domestic oil and natural gas producing region for more than half a century. The region currently is in the midst of a major oil boom associated with the Bakken Formation. Superimposed over the Williston Basin is the Prairie Pothole Region, an area known for its critical wetland habitats of importance for migratory waterfowl and other wildlife. The substantial increase in petroleum-field activities has raised concerns over impacts to sensitive environmental resources that are associated with the release of highly saline coproduced waters (brines). Williston Basin brines differ greatly from natural surface waters with regards to salinity and ionic composition; thus, contamination of wetlands and streams by brines may have significant impacts to biotic communities inhabiting these important habitats.