



Red River of the North – Sand Hill River Watershed

Clean Water Accountability Progress Report

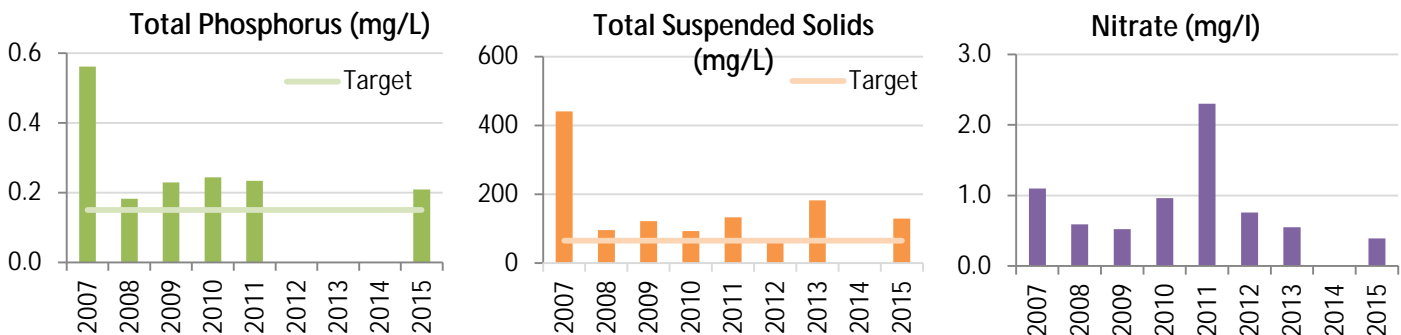
The Sand Hill River Watershed, located in northwest Minnesota, comprises over 486 square miles and includes portions of Polk, Norman, and Mahnomon counties. Land use within the watershed is predominantly agricultural. The Sand Hill River Watershed is located in the Red River of the North Basin.



The Sandhill River Watershed Restoration and Protection Strategy study identified pollution resulting from excess nutrients, E. coli bacteria, and total suspended solids (TSS). In addition to these impairments, the study identified locations where conditions make it difficult to support aquatic insects (macroinvertebrates) and fish. Protection and restoration strategies are dictated largely by the agricultural land use in the watershed of approximately 81% of the watershed. Primary strategies identified for the watershed include fertilizer and manure runoff management and field/stream erosion control. Total maximum daily load studies were completed for four lakes and four stream reaches for multiple parameters including fish/macroinvertebrate assessment, excess nutrients, TSS, and E. coli.

Water quality measurements

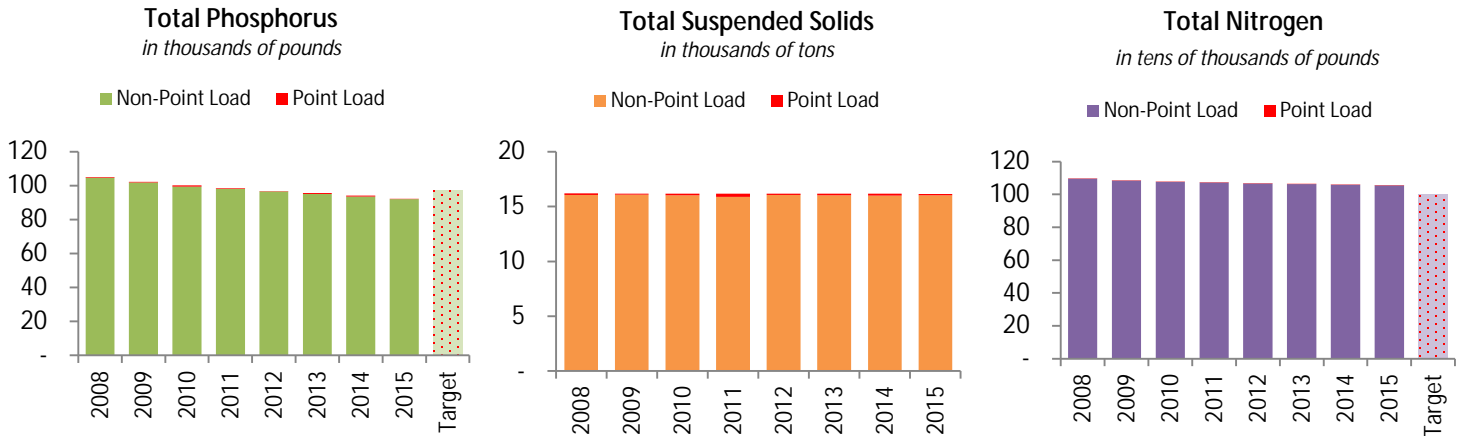
The graphs below show the annual flow weighted mean concentration (FWMC) of total phosphorus (TP), TSS, and nitrate. FWMCs help to normalize pollutant loads across years with varying precipitation. The “target” identified for phosphorus and TSS is the water quality standard. There is no surface water quality standard for nitrate. Gaps in the graph indicate years where the amount of data is insufficient for comparative purposes.



Compared to other watersheds in the state, the Sand Hill River Watershed exhibits lower than average total water runoff. For water quality, there are no clear trends for the Sandhill River near the mouth. TSS levels in particular were highly variable from year-to-year, and both TSS and phosphorus were generally above targets. Compared to other watersheds in the state with substantial agriculture, nitrate levels are reasonably low.

Progress toward load reduction targets, 2008-2015

The Minnesota Nutrient Reduction Strategy calls for a minimum 10% reduction in TP and a 10% reduction in nitrogen, in order to achieve water quality goals. These charts display the annual load reductions for nitrogen, TP and TSS estimated as a result of best management practices (BMPs) reported to U.S. Natural Resources Conservation Service and to the Minnesota Board of Soil and Water Resources, for the period of 2008-2015. These charts do not take into account factors such as land use changes, climate change, or privately funded BMPs. The modeled load for 2008 serves as the baseline load, with the estimated reductions shown relative to that baseline.



Top non-point source BMP activities in the Sand Hill River Watershed, 2008 – 2015

BMP Type	Projects	Acres	N reduced (lbs)	P reduced (lbs)	TSS reduced (tons)
Nutrient Management	599	50,028	32,086	2,158	0
Residue & Tillage Management	461	27,386	8,153	5,650	1,014
Cropland Diversity/Seasonal Cover	293	18,327	20,439	2,251	271
Water & Sediment Control Basins	257	2,630	2,415	671	137
Ag Waste Management	66	-	50	33	7

Water quality improvement spending in the Sand Hill River Watershed, 2008 – 2015



The figures in this report are based on data from several agencies. For details, see: www.pca.state.mn.us/water/clean-water-fund.