



# Crow Wing River Watershed

## Clean Water Accountability Progress Report

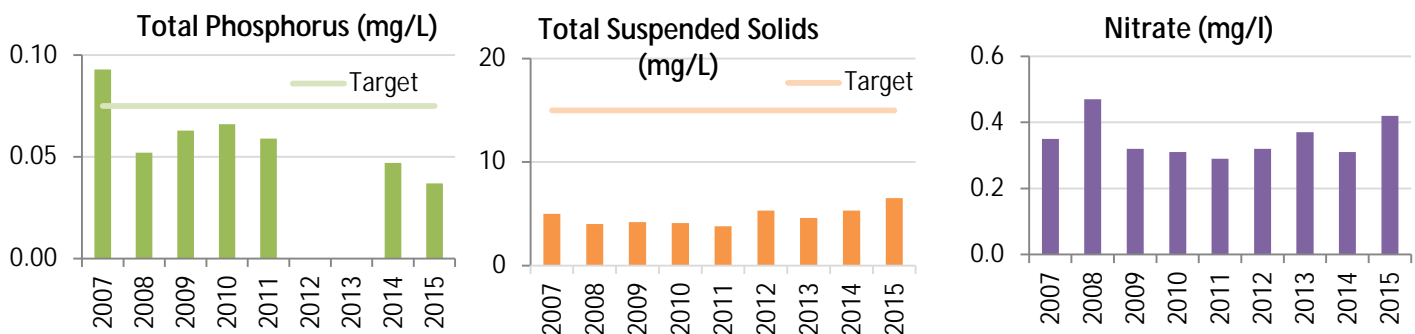
The Crow Wing River Watershed is located in the Upper Mississippi River Basin of Minnesota. The watershed covers approximately 1,245,755 acres in portions of nine counties in the north central part of the state. The watershed falls within the North Central Hardwood Forest and Northern Lakes and Forest ecoregion where the predominant land use is forest, agricultural, wetlands, row crops and open water.



The watershed is considered a “protection watershed” due to the healthy water quality found throughout the watershed. Protecting large tracts of forested land is key to keeping the lakes and streams from becoming impaired. In areas that have degraded water quality, excess phosphorous entering lakes and bacteria entering streams are the main contributors to the declining water quality. These sources can be decreased by reducing nonpoint runoff throughout the watershed. Total maximum daily loads were completed for 7 lakes and 10 stream reaches.

### Water quality measurements

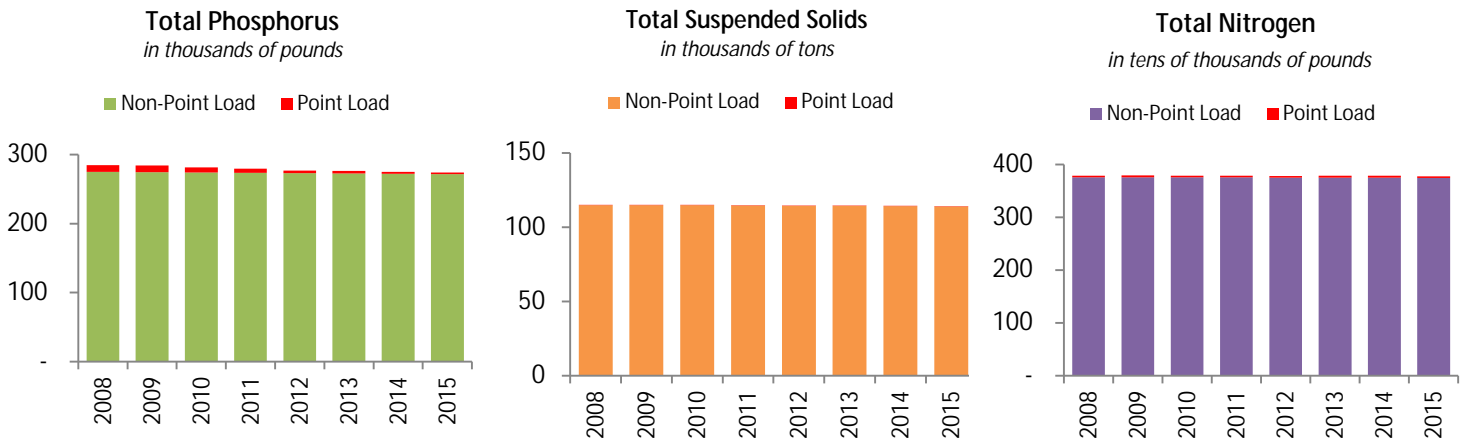
The graphs below show the annual flow weighted mean concentration (FWMC) of total phosphorus (TP), total suspended solids (TSS), and nitrate. FWMCs help to normalize pollutant loads across years with varying precipitation. The “target” identified for phosphorus and TSS is the water quality standard. 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 Crow Wing exhibits lower than average total water runoff, even when factoring in precipitation variability. Along with soil conditions that allow infiltration, the many lakes and wetlands in the watershed likely influence this by “storing” water and thus allowing for more evaporation. Water runoff is also very stable; it does not vary a great deal from year to year. For water quality, phosphorus levels near the mouth of the Crow Wing River were somewhat lower in 2014 and 2015 as compared to earlier years, and below target levels for all years except 2007. Whether these lower levels will continue is difficult to say at this time. No trend is apparent for TSS or nitrate, although the levels are well below targets, appear to be quite stable, and represent some of the best water quality in the state.

## Progress toward load reduction targets, 2008-2015

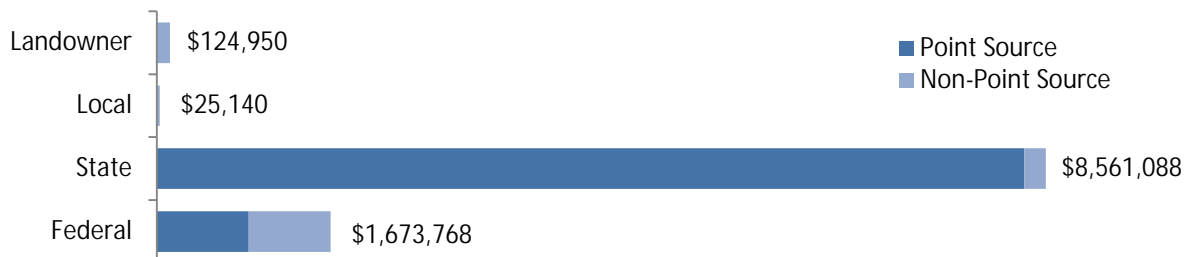
The Minnesota Nutrient Reduction Strategy and the Sediment Reduction Strategy for the Minnesota River Basin and South Metro Mississippi River call for a minimum 20% reduction in TP, a 45% reduction in sediment, and a 20% reduction in nitrogen, in order to achieve water quality goals. In the Crow Wing Watershed, these reduction goals apply only in targeted areas rather than to the overall watershed. 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 Crow Wing Watershed, 2008-2015

BMP Type	Projects	Acres	N reduced (lbs)	P reduced (lbs)	TSS reduced (tons)
Permanent Vegetative Cover	351	2,621	1,645	202	67
Nutrient Management	276	9,766	5,238	370	0
Residue and Tillage Management	73	3,488	2,059	933	193
Cropland Diversity/Seasonal Cover	38	926	1,783	114	20
Ag Waste Management	31	-	550	279	1

## Water quality improvement spending in the Crow Wing 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](http://www.pca.state.mn.us/water/clean-water-fund).