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	Abstract
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Related Resources 1	

Related Resource Name	Nutrient Exports in the Swan Lake Watershed
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Data and Resources

URL	https://mspace.lib.umanitoba.ca/server/api/core/bitstreams/bd118a48-0331-47d2-96de-db4516c2ecbe/content
Name	The effects of climate change on nutrient loading and river discharge
Description	This study was conducted to identify temporal changes in nutrient and sediment concentrations and loads (total phosphorus, particulate phosphorus, total dissolved phosphorus, total nitrogen, and total suspended solids) in Swan River and Woody River of the Swan Lake watershed, Manitoba. Temporal changes in physical hydrology (river discharge and precipitation) were also investigated to determine if these parameters influenced the changes in water quality concentrations and loads across the Swan Lake watershed. Annual and seasonal totals of water quality variables, river discharge, and average watershed total precipitation were examined for change over 30 years. The results showed a statistically significant increase in nutrients and total suspended solids (TSS), and river discharge, particularly in Swan River. Both rivers experienced statistically significant increases during the spring season with changes in median values as high as 450% in TSS between 1989 – 2000 and 2010 – 2018. Annual river discharge in Swan River and Woody River increased by 182% and 103%, respectively, with Swan River experiencing a statistically significant increase over the 30-year period. Seasonally, both rivers increased statistically significantly in the spring season with an 80% increase. Total precipitation across the watershed increased 3% annually, including a 6% increase in the spring, and summer and fall seasons, and 8% decrease in the winter season between 1995 – 2001 and 2009 – 2015. There were correlations between water quality variables and river discharge, and between river discharge and precipitation. Precipitation in this area influences river discharge and since nutrients and sediments are strongly correlated with river discharge, precipitation indirectly influences nutrient and sediment exports.
Format	HTML
Resource Category	documents