TECHNICAL MEMORANDUM

To: Kevin Rudd, Wild Rice River Watershed District
From: Tim Erickson, PE and Jeremiah Jazdzewski, PE, Houston Engineering, Inc.
CC: Tara Mercil, Minnesota Pollution Control Agency

Subject: Wild Rice River and Marsh River Watersheds Bibliography

Date: June 30, 2015

Project: 1432-362 Wild Rice River Watershed WRAPS and 1432-363 Marsh River Watershed WRAPS

INTRODUCTION

The purpose of this memorandum is to provide a bibliography of all watershed and water quality related studies and projects previously completed in the Wild Rice River Watershed (WRRW) and the Marsh River Watershed (MRW). This work was conducted as part of the Watershed Restoration and Protection Strategies (WRAPS) projects, under Objective 2 of the Work Plans (Swift #83091 for WRRW and #81576 for MRW). Each publication or report listed in this bibliography will be provided to the Wild Rice Watershed District (WRWD) as electronic PDF formatted files and will be post on the WRWD website (http://www.wildricewatershed.org/).

The bibliography includes the author(s), the year of publication, the report/publication title, the primary agency involved, a brief summary/abstract, a link to the internet location where the publication can be found (if available), the name of the PDFs accompany this memorandum, and a matrix of the topics covered by the publications. The bibliography follows in the table below.

Authors	Year	Title	Agency	Summary	Link	PDF	Hydrology/Altered Hydrology	Sediment	Water Quality	Watershed Modeling	In-stream Hydraulic Modeling	Flooding	Aquatic Invasive Species	Watershed Information
Brigham, M.E., McCullough, C.J., and Wilkinson, P.	2001	Analysis of Suspended-Sediment Concentrations and Radioisotope Levels in the Wild Rice River Basin, Northwest Minneosta, 1973-98.	USGS	Examines historical suspended-sediment dat and radioisotopes data associated with suspended sediments and source-area sediments (cultivated soils, bank materials, and reference materials) in the Wild Rice River Basin to better understand sources of suspended-sediment to the stream.	http://pubs.usgs.gov/wri/wri01-4192/pdf/wri01-4192.pdf	wri01-4192.pdf		X						
Kjelland, M.E.	2001	Quantification of Historic Flood Damage in the Maple and Wild Rice Watersheds of the Red River of the North Basin	NDSU	Between 1989 and 1998, flood damage in the Maple Watershed (MW), North Dakota, was an estimated $29.4 million and $102 million in the Wild Rice Watershed (WRW), Minnesota. This Masters Thesis investigates the current and new methodology to estimate basin-specific costs of flood damage.	https://www.ag.ndsu.edu/agecon/research-extension-centers/Kjelland-thesis.pdf	Kjelland Masters (Flood Damage in WRW).pdf						X		
Macek-Rowland, K.M. and Dressler, V.M.	2002	Statistical Summaries of Water-Quality Data for Selected Streamflow-Gaging Stations in the Red River of the North Basin	USGS	Statistical summaries of various water quality data for selected streamflow gaging stations in the Red River of the North Basin. The selected streamflow gaging stations include the Wild Rice River at Twin Valley, MN and at Hendrum, MN, and the Marsh River at Shelly, MN. The statistical summaries include sample size, maximum, minimum, mean, and values for the 95th, 75th, 50th, 25th, and 5th percentiles.	http://nd.water.usgs.gov/pubs/ofr/ofr02390/pdf/ofr02390.pdf	ofr02390.pdf	X	X	X						
Wild Rice River Watershed District	2003	Watershed Management Plan-Wild Rice Watershed District	WRRWD	The management plan is the WRWD's master plan to allocate district resources and guide the district's future planning. This plan is required by Minnesota statute 103D.405 and contains the following: watershed description, assessment of existing and emerging resource management issues, guidance of future activities, planning regions and regional assessment locations, watershed district administration, and a summary of previous district data collection and modeling.		Wild Rice Watershed District.pdf	X	X	X			X		X
Paakh, B., Goeken, W., and Halvorson, D.	2006	State of the Red River of the North-Assessment of the 2003/2004 Water Quality Data for the Red River and its Major Minnesota Tributaries.	MPCA/ RRWMB	The Red River Flood Damage Reduction/Natural Resource Enhancement Work Group established the Red River Basin Monitoring Advisory Committee to develop a condition monitoring program for the Minnesota portion of the Red River Basin. This report presents results and analysis of the first two years (2003-2004) of this program. Water quality data for sediment loads and select nutrients for 2003 and 2004 sampling seasons are reported for 6 sites on the main stem of the Red River and 11 major tributary sites including the Wild Rice River and Marsh River. Water quality constituents investigated include total suspended solids (TSS), turbidity, total phosphorus (TP), ortho phosphorus (OP), dissolved oxygen (DO), temperature, conductivity, nitrates, and fecal coliform. The results of this study suggest that the Sand Hill and Wild Rice Rivers delivered the highest yield of phosphorus and sediment to the Red River per acre of watershed.	http://www.pca.state.mn.us/index.php/view-document.html?gid=6039	2006 State of the Red River Report.pdf		X	X						
U.S. Army Corps of Engineers	2007	Wild Rice River Sediment Budget	USACE	The USACE conducted a detailed sediment budget for the Wild Rice River as part of a ecosystem restoration feasibility study. This report provides detailed information on sources and sinks of sediment in the Wild Rice River including the South Branch of the Wild Rice River and Marsh Creek.		WRR Summary Report 070307.pdf & 070307 Figures.pdf		X			X			

Authors	Year	Title	Agency	Summary	Link	PDF	Hydrology/Altered Hydrology	Sediment	Water Quality	Watershed Modeling	In-stream Hydraulic Modeling	Flooding	Aquatic Invasive Species	Watershed Information
Peterson,J.	2007	Wild Rice Watershed Analysis with SWAT (Surface Water Assessment Tool)	U of MN	Final report of the Soil and Water Assessment Tool (SWAT) watershed model developed for the Wild Rice River Watershed. The SWAT model was developed to evaluate management practices to improve water quality. The SWAT model simulates flow and sediment for the time period January 1, 1969 to August 31, 2006.		WRR_SWAT_report.pdf & WRR_SWAT_Presentation.pdf	X	X		X				
MPCA	2009	Lower Wild Rice River Turbidity Draft Total Maximum Daily Load Report	MPCA	This TMDL document addresses the turbidity impairment (listed in 2006) for the Wild Rice River, from the confluence of with the South Branch of the Wild Rice River to the Red River of the North (AUID 09020108-501). The TMDL uses a equivalent value of 38 mg/L of Suspended Sediment Concentration for the 25 NTUs of turbidity.	http://www.epa.gov/waters/tmdldocs/Lower%20Wild%20Rice%20River%20Final%20TMDL.pdf	Lower Wild Rice River Final TMDL.pdf		X		X	X			
Klimetz, L. and Simon, A.	2009	Characterization of "Reference" Suspended-Sediment Transport Rates for Level III Ecoregions of Minnesota	USDA-ARS	Used Rapid Geomorphic Assessments at current and historical USGS gauging stations across the state to estimate suspended-sediment transport yields by ecoregion for both effective and mean annual discharge rates. Data used to develop relationships in the Lake Agassiz Plain Ecoregion include stations in the Wild Rice River.		MN_Ssed Report_Final 042709.pdf		X						
Houston Engineering, Inc (HEi)	2010	Interim Hydrology Report-Norman County, MN DFIRM	FEMA	This interim hydrology report is part of the Flood Insurance Study (FIS) and county wide DFIRM for Norman County, MN. The specific purpose of this hydrology report was to establish the discharges for the detailed, limited detail and approximate study reaches. Discharges were established for the 10-, 2-, 1- and 0.2-percent chance annual exceedance flood events for detailed study reaches and the 1-percent chance flood event for limited detail and approximate study reaches.		Norman Hydrology Report Revised 7-14-2010.pdf	X				X	X	X	
Houston Engineering, Inc (HEi)	2011	Interim Hydraulics Report-Norman County, MN DFIRM	FEMA	This interim hydraulic report is part of the Flood Insurance Study (FIS) and county wide DFIRM for Norman County, MN. The hydraulic analysis includes (1) establishing water surface profiles for the 10-, 2-, 1-, and 0.2-percent chance events for detailed study reaches and the 1-percent chance event for limited detail and approximate study reaches; (2) delineate flood boundaries corresponding to the 1- and 0.2-percent chance events for detailed study reaches and the 1-percent chance event for limited detail and approximate study reaches; (3) determine the regulatory floodway based on encroachments producing a 0.5-foot rise of the 1-percent chance water surface elevation for the detailed study reaches; and (4) prepare flood profiles corresponding to the 10-, 2-, 1-, and 0.2-percent chance events for the detailed study reaches and the 1-percent chance event for the limited detail study reaches.		Hydraulic Report 11-7-2011.pdf	X					X	X	
Ellison, C.A., Savage, B.E., and Johnson, G.D.	2013	Suspended-Sediment Concentrations, Loads, Total Suspended Solids, Turbidity, and Particle-Size Fractions for Selected Rivers in Minnesota, 2007 through 2011.	USGS	The U.S. Geological Survey, in cooperation with the MPCA, established a sediment monitoring network in 2007 and began systematic sampling of suspended-sediment concentrations (SSC), total suspended solids (TSS), and turbidity in rivers across Minnesota to improve the understanding of fluvial sediment transport relations. This report summarizes sediment samples collected at 14 sites from 2007 through 2011 in selected rivers across Minnesota.	http://pubs.usgs.gov/sir/2013/5205/pdf/sir2013-5205.pdf	sir2013-5205.pdf		X						

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Houston Engineering, Inc (HEi)	2013	Wild Rice Watershed District Expanded Distributed Detention Strategy	WRRWD	This report summarizes methodology and outcomes of the Wild Rice Watershed District (WRWD) Expanded Distributed Detention Strategy. The WRWD Expanded Distributed Detention Strategy identifies flood water detention locations aimed at meeting peak flow and volume reduction goals specified in the Red River Basin Commission's (RRBC) Long Term Flood Solutions (LTFS) Basinwide Flow Reduction Strategy Report using the USACE's HEC-HMS hydrologic model and the historic 1997 spring flood event.		2013-09-23 FINAL 1782-019 WRWD RRWMB Detention Report.pdf	X				X	X	X	
Rufer, M., Courneya, J., Hauck, E., McGraw, S., and Borash, R.	2015	Wild Rice River Watershed AIS Prioritization: A planning tool developed for AIS risk management and prevention	ENRTF	Assesses the risk of Zebra mussel infestations in the Wild Rice River Watershed in order to prioritize funding and efforts to prevent the further spread of Zebra mussels. Vectors of spread, such as connectivity to other water bodies and public use, were evaluated for each lake and the suitability of Zebra mussel establishment was evaluated considering water chemistry, substrate, dissolved oxygen and temperature. A report card was developed for each water body showing the available data and assigned risk category.	http://www.redriverbasincommission.org/Projects/Aquatic_Invasive_Species/WildRice_AISPrioritization_printversion.pdf	WRW_AIS_Prioritization.pdf			X				X	
NRCS	NA	Rapid Watershed Assessment: Elm-Marsh (MN/ND) HUC: 09020107	NRCS	NRCS's description of the Elm-Marsh 8-Digit Hydrologic Code (HUC) subbasin, which includes the Marsh River, with a goal of estimating where conservation investments would best address the concerns of stakeholders in the area.		Elm-Marsh RWA.pdf								X
NRCS	NA	Rapid Watershed Assessment: Eastern Wild Rice (MN) HUC: 09020108	NRCS	NRCS's description of the Eastern Wild Rice 8-Digit Hydrologic Code (HUC) subbasin, which includes the Wild Rice River, with a goal of estimating where conservation investments would best address the concerns of stakeholders in the area.		Eastern Wild Rice RWA.pdf								X