

Lake Allegan/Kalamazoo River Watershed TMDL Implementation Strategic Plan for 2012 and Beyond

Issues	Solutions	Actions	Progress							
			2013	2014	2015	2016	2017	2018	2019	
Overall TMDL Issues										
A	Water quality monitoring is needed to address fate and transport processes of P in the river system.	Fund new analyses and continue monitoring throughout the watershed. Continue to compile all available analysis conducted within the Kalamazoo River Watershed	1) Continue to obtain funding sources for data analysis and water quality monitoring.	Funding obtained (CMI #2013-0511)	---	Funding obtained (#2015-0519)	---	---	---	
			2) Conduct water quality monitoring and data analysis (Morrow Lake study by K&A), DEQ/Allegan WWTP & KWRP monthly; Lake Allegan monitoring from Apr-Sept, Allegan WWTP & KWRP instream monitoring- 1x/2wk April to September.	Ongoing	Completed weekly river sampling entire 2014, increased monitoring frequency in lake during TMDL months	Regular bi-weekly sampling completed for river stations; monthly in-lake sampling completed; intensive year-long sampling in Morrow Lake completed	Ongoing	WWTP and MDEQ regular sampling conducted April - September 2017	---	WWTP regular sampling conducted April-September 2029
B	Acquire more comprehensive river data from throughout the watershed by multiple sources	TMDL Implementation Committee compile, analyze, and distribute data from multiple sources	1) Work to obtain data relevant to the Kalamazoo River and the TMDL		Organizing for 2015	Finalized for 2016	Additional samples collected above/below Albion, Marshall, Olivet, Battle Creek	MS4s submitted sampling plans as part of new permit(s)		
			2) Inquire into the status of (or develop strategies for) funding of USGS gaging stations in the watershed		DEQ basin sampling completed	Funded by City of Kalamazoo, USGS	Ongoing	---		Initiating partnership with Georgia Pacific to collaborate on data collection/sharing
C	Determine innovative actions to meet TMDL goals, such as wetland restoration projects, Lake Allegan rough fish removal, dam removal, and conservation easements	Research solutions from other watersheds for applicability in the Kalamazoo River Watershed	1) Determine ecological benefits towards TMDL goals			---	---	Superfund PRP interest in rough fish removal	Georgia Pacific carp removal from Lake Allegan	
			2) Landscape Level Wetland Functional Analysis for the entire watershed	Ongoing	LLWFA done for more subwatersheds	LLWFA presentation at July TMDL mtg	Complete; funding obtained for further watershed education	Van Dalsen Foundation funded Allegan local govt outreach by KRWC		
			3) Seek funding for implementation projects		Conservation priorities determined by grad student team	319 grant proposals submitted in Oct (3-4 total)	Battle Creek River land conservation project and Portage-Arcadia Green Infrastructure granted	KVCC 319 for green infrastructure, I&E SWMLC 319 for land conservation, I&E		Completed KVCC 319 project, Proposed Calhoun County MRG project - not ranked high enough to pursue
D	Lack of understanding by the general public of the inputs of phosphorus into the Kalamazoo River Watershed.	Education plan for school-age students and the general public.	1) Continue with overall TMDL public events: Kanoë the Kazoo, Super Soils Test Saturday, and the Carp Derby	Ongoing	Kanoë the Kazoo and Krazy for the Kazoo held	13 Kanoë the Kazoo paddle events; 8 communities hosted Krazy for Kazoo cleanups	14 Kanoë the Kazoo paddle events; 7 community hosted Krazy for Kazoo cleanups	6 Kanoë the Kazoo paddle events; 8 river cleanup events held throughout watershed	7 Kanoë the Kazoo paddle events, 2 river cleanup events held throughout watershed	
			2) Implement public education plans developed by MS4 permittees and point sources (per the Cooperative Agreement, 4.)	Under development	Public education plan implementation by smaller TMDL communities		Ongoing; see individual signatory reports and Attachment 7	Ongoing; see individual signatory reports and Attachment 7	Ongoing; see individual signatory reports	Working with Kzoo County MS4 group to form cooperative
			3) Seek additional partnerships and opportunities to educate the public and school-age students.	Under development	Discussions underway with MS4 communities and other partners	Kalamazoo and Battle Creek worked with other partners to host community rain barrel sale, over 100 new rain barrels reducing TP	Kalamazoo and Battle Creek worked with other partners to host community rain barrel sale; over 80 new rain barrels reducing TP	Engaged MS4 permittees from Kzoo County in potential partnership with TMDL		Presented to 11 different groups during 2019 to discuss watersheds, stormwater impacts
Point Source Issues										
A	Address stormwater footprint and impact due to growth and development	Develop and implement pollution prevention and good housekeeping per the cooperative agreement language for each municipality	1) WWTP facilities to maintain and implement stormwater assessments and BMPs	Ongoing	Stormwater performance standards adopted by 7 TMDL communities	Stormwater standards adopted, revised by 11 TMDL communities	---	Industrial stormwater permits in place		
			2) Other municipal departments/operations develop (yr1) and implement pollution prevention and good housekeeping plan (yr2)	Ongoing	PP/GH activities implemented by smaller TMDL communities	PP/GH activities ongoing; employee training done at 7 communities	PP/GH activities ongoing; employee training done at 3 communities	Ongoing; see individual signatory reports		
B	Impacts of drinking water system pipe treatment and iron suppression additives & P concentrations	Compile data and analyze impacts of treatments and additives	1) Research and compile data of current practices by municipalities and others		Reviewed Kalamazoo's P additives	---	---	---		
			2) List appropriate and cost-effective alternative pipe treatments and share with TMDL group			---	---	---		
C	Stay up-to-date on new technologies for P removal	Share treatment process information	Tours, presentations, and discussions at PS meetings	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	
Non-Point Source Issues										
A	NPS P from urban and urbanizing areas	Utilize NPS loading analysis and build-out analysis to prioritize P reductions	1) Zoning ordinances or programs that emphasize stormwater management and Green Infrastructure (GI)	Ongoing	Ongoing	Education for municipal leaders ongoing	Funding obtained for Green Infrastructure tour in 2017	Held green infrastructure tours (August 2017)		
			2) Use resulting data from watershed build-out analysis to educate public/municipalities about P loading	Ongoing	Meetings and presentations at 8 TMDL communities, other local municipalities	Meetings and presentations at 5 TMDL communities (including 4 townships in Gun River area)	Complete	TMDL annual meeting October 2017, other communities and public participated	TMDL quarterly meetings	

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			3) Identify areas excluded from MS4s and areas with high stormwater contribution (using NPS loading analysis results)	Ongoing		---	---	---		
			4) Determine strategy to best provide data, TMDL info, loadings, BMPs and stormwater policy to these entities	Ongoing	Ongoing	Ongoing	Complete			
			5) Track and support policy and BMP implementation			See table in Attachment 1	Complete			
			6) Address TMDL P reductions in MS4 permit required plans and similar plans required by the Cooperative Agreement (eg. PEP, IDEP prioritization, Post Construction Controls. Pollution Prevention and Good Housekeeping)	Ongoing		Ongoing; See Attachment 1	Complete			
			7) Look for stormwater retrofit opportunities				Ongoing	K&A analysis for stormwater footprint in City of Galesburg	K&A analysis for stormwater footprint in City of Portage	
B	What are the P and sediment loading reductions associated with Superfund site remediation projects?	Pursue data from EPA/PRPs for streambank restoration/remediation; determine if EPA/PRPs are racking reductions	Analyze streambank restoration and resulting P and sediment loading reductions	Obtained	---	---	Ongoing	---		
C	Quantify P loading from Agricultural areas to identify hot spots	Identify priority agricultural BMP implementation areas for highest TMDL benefits	Develop implementation strategies to prioritize and address hot spots	Funding obtained	---	---	---	---		
D	Permanent Agricultural BMPs for P reductions	Implementation of Healthy Water Rural Pride and conservation programs	Obtain funding and staff	Pursuing funding	Lead organization identified	HWWF continues to seek funding; work ongoing to pass farmland pres. ordinance in Kzoo Co	Ongoing effort to pass farmland pres ordinance in Kzoo Co	Farmland Preservation - presentation made to Kzoo County Commissioners		

S = Short-term (<3 years) planning and/or implementation

L = Long-term (>3 years) planning and implementation

1, 2, 3 refer to the highest to lowest potential for phosphorus reductions with implementation