

Contaminants/CEC Water Resources Appropriations Funded Through LCCMR Process – 2010-2017

M.L. 2017 - Recommended

03h	\$400,000	Groundwater Contamination Mapping	spills and leaks of hazardous chemicals	Minnesota Pollution Control Agency	Hans Neve	To be completed: 06/30/2020	
03m	\$258,000	Mapping Taxonomy and Environmental Toxicology of Minnesota Freshwater Sponges	polyaromatic hydrocarbons or PAHs	U of MN	Venugopal Mukku	To be completed: 06/30/2020	X
04a	\$236,000	Assessment of Household Chemicals and Herbicides in Rivers and Lakes	household and herbicides	U of MN	William Arnold	To be completed: 06/30/2019	X
04b	\$450,000	Wastewater Nitrogen Removal Technology to Protect Water Quality	excess nitrates	U of MN	Paige Novak	To be completed: 06/30/2020	X
04e	\$300,000	Reassessing Toxicity of Petroleum Spills on Groundwater and Surface Water	petroleum based	St. Thomas University	Dalma Martinovic-Weigelt	To be completed: 06/30/2021	X
04g	\$400,000	Identification of Chemicals of Emerging Concern in Minnesota Fish	CECs, metals, various from leaky septic system, micropollutants	Grand Portage Band of Lake Superior Chippewa	Seth Moore	To be completed: 06/30/2020	X
04i	\$300,000	Assessing Release of Mercury and Sulfur on Aquatic Communities	mercury, sulfur	U of MN	Ed Nater	To be completed: 06/30/2020	

M.L. 2016, Chp. 186, Sec. 2

04a	\$500,000	Tracking and Preventing Harmful Algal Blooms	HABs, blue green algae, Cyanobacteria, microcystins	Science Museum of Minnesota	Daniel Engstrom	To be completed: 06/30/2019	X
04b	\$270,000	Assessing the Increasing Harmful Algal Blooms in Minnesota Lakes	HABs, blue green algae, Cyanobacteria, microcystins	U of MN - St. Anthony Falls Laboratory	Miki Hondzo	To be completed: 06/30/2019	X
04d	\$287,000	Assessing Techniques for Eliminating Contaminants to Protect Native Fish and Mussels	endocrine disrupting compounds (EDCs), tonalide and galaxolide	St. Thomas University	Kristine Wammer	To be completed: 06/30/2019	X
04e	\$400,000	Assessing Neonicotinoid Insecticide Effects on Aquatic and Soil Communities	neonicotinoid Insecticide	U of MN	William Arnold	To be completed: 06/30/2019	X
04f	\$299,000	Bacterial Assessment of Groundwater Supplies Used for Drinking Water	harmful bacteria	U of MN	Raymond Hozalski	To be completed: 06/30/2019	X
04n	\$497,000	Understanding Impacts of Salt Usage on Minnesota Lakes, Rivers, and Groundwater	salts	U of MN	John Gulliver	To be completed: 06/30/2019	X
04o	\$596,000	Microbes for Salt and Metal Removal	salts, metals	U of MN	Daniel Bond	To be completed: 06/30/2019	X
04p	\$440,000	Engineered Biofilter for Sulfate and Metal Removal from Mine Waters	sulfate, metals	U of MN	Sebastian Behrens	To be completed: 06/30/2019	X
04q	\$198,000	Developing Biosponge Technology for Removal of Nitrates from Minnesota Waters	excess nitrates	U of MN	Lawrence Wackett	To be completed: 06/30/2019	
04s	\$110,000	Agricultural and Urban Runoff Water Quality Treatment Analysis - Phase II	excess nitrates and phosphorus and pesticides	Blue Earth County Drainage Authority	Craig Austinson	To be completed: 06/30/2021	
04t	\$500,000	Surface Water Bacterial Treatment System Pilot Project	harmful bacteria	Vadnais Lake Area Water Management Organization	Brian Corcoran	To be completed: 06/30/2021	
06b	\$151,000	Developing Membrane Filtration System to Treat Lake Superior Ballast Water	invasive species, harmful microbes	U of MN	Santiago RomeroVargas Castrillón	To be completed: 06/30/2019	X
06c	\$368,000	Advancing Microbial Invasive Species Monitoring from Ballast Discharge	invasive species, harmful microbes	U of MN - Duluth	Randall Hicks	To be completed: 06/30/2019	X
07d	\$475,000	Utilization of Dairy Farm Wastewater for Sustainable Production	animal waste, pharmaceuticals,	U of MN - West Central Research and Outreach Center in Morris	Bradley Heins	To be completed: 06/30/2019	

M.L. 2015, M.L. 2015, Chp. 76, Sec. 2

04b	\$281,000	Biofilm Technology for Water Nutrient Removal	stormwater, nitrates, phosphorus, heavy metals ions (lead, zinc, copper, arsenic etc.) & pesticides.	U of MN	Bo Hu	To be completed: 06/30/2018	X
04c	\$364,000	Biological Consequences of Septic Pollution in Minnesota Lakes	human sanitary wastes, Pharmaceuticals,	St. Cloud State University	Heiko Schoenfuss	To be completed: 06/30/2018	X
04d	\$505,000	Preventing Phosphorous from Entering Water Resources through Drain Tiles	excess phosphorus, pesticides	U of MN	Kenneth Valentas	To be completed: 06/30/2017	X
04g	\$455,000	Using Hydroacoustics to Monitor Sediment in Minnesota Rivers	sediments and cominants that bind to them	U.S. Geological Survey	Christopher Ellison has new PM	To be completed: 06/30/2019	X

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M.L. 2014, Chp. 226, Sec. 2

03a	\$291,000	Solar Driven Destruction of Pesticides, Pharmaceuticals, and Contaminants in Water	pesticides, pharmaceuticals	U of MN	William Arnold	To be completed: 06/30/2017	X
03b	\$279,000	Methods to Protect Beneficial Bacteria from Contaminants to Preserve Water Quality	beneficial bacteria can be harmed by ammonia, PFC and other contaminants	U of MN	Paige Novak	To be completed: 06/30/2017	X
03c	\$380,000	Triclosan Impacts on Wastewater Treatment	Triclosan, dioxins	U of MN	Timothy LaPara	To be completed: 06/30/2017	X
03d	\$500,000	Evaluation of Wastewater Nitrogen and Estrogen Treatment Options	nitrogen, estrogen	U of MN	Paige Novak	To be completed: 06/30/2017	X
03e	\$300,000	Antibiotics and Antibiotic Resistance Genes in Minnesota Lakes	antibiotics	U of MN	William Arnold	To be completed: 06/30/2017	X
03f	\$136,000	Impacts of Estrogen Exposure on Minnesota's Shallow Lake Wildlife	estrogen	University of St. Thomas	Kristine Wammer	To be completed: 06/30/2017	X
03j	\$743,000	Identifying Causes of Exceptionally High Mercury in Fish	mercury	MN Pollution Control Agency	Bruce Monson	To be completed: 06/30/2017	X
06h	\$300,000	Nutrient Capture through Water Management and Biomass Harvesting	excess nutrients	Red River Basin Commission	Jeff Lewis	To be completed: 06/30/2017	
08f	\$400,000	Clean Water and Renewable Energy from Beet Processing Wastewater and Manure	manue, beet processing waste water	U of MN - Southern Research and Outreach Center Waseca	Xiao Wu - has new PM	To be completed: 06/30/2017	X
08G	\$258,000	Next Generation Large-Scale Septic Tank Systems	human sanitary waste, pharmaceuticals	U of MN	Bo Hu	To be completed: 06/30/2017	

M.L. 2013, Chp. 52, Sec. 2

05b	\$585,000	Assessment of Natural Copper-Nickel Bedrocks on Water Quality	metals	U of MN - NRRRI	Steve Hauck	Completed: 06/30/2016	X
05g	\$246,000	Membranes for Wastewater-Generated Hydrogen and Clean Water	human sanitary waste, pharmaceuticals	U of MN	Paige Novak	Completed: 06/30/2016	X
05h	\$203,000	Antibiotics in Minnesota Waters - Phase II - Mississippi River	antibiotics, pharmaceuticals	University of St Thomas	Kristine Wammer	Completed: 06/30/2015	X

M.L. 2012, Chp. 264, Art.4, Sec. 3

FUNDED: 1 appropriation/subtotal = \$2,000,000

M.L. 2011, 1st Special Session, Chapter 2, Article 3, Section 2

FUNDED: 14 appropriations/subtotal = \$11,627,000

05c	\$557,000	Mississippi Water Quality Assessment	endocrine disruptors, pharmaceuticals	U of MN	Michael Sadowsky	Completed: 06/30/2014	X
05e	\$190,000	Assessment of Minnesota River Antibiotic Concentrations	antibiotics and antibiotic resistant bacteria from treated wastewater	University of St Thomas	Kristine Wammer	Completed: 06/30/2014	X
06a	\$250,000	Improved Detection of Harmful Microbes in Ballast Water	bacterial genera harboring human, fish or wildlife pathogens microbial antibiotic and heavy metal resistance genes	U of MN - Duluth	Randall Hicks	Completed: 06/30/2015	X

M.L. 2010, Chapter 362, Section 2

FUNDED: 17 appropriations/subtotal = \$8,270,000

05a	\$640,000	Understanding Sources of Aquatic Contaminants of Emerging Concern	pharmaceuticals, hormones, and other CEC, agricultural herbicides, prescription/non-prescription drugs, phytoestrogens, cotinine, DEET, carbamazepine, erythromycin and sulfamethoxazole, metolachlor and acetochlor	U of MN	Deborah Swackhamer	Completed: 06/30/2014	X
05b	\$270,000	Managing Mineland Sulfate Release in the Saint Louis River Basin	sulfates	MN DNR	Michael Berndt	Completed: 06/30/2013	X
05c	\$340,000	Ecological Impacts of Industrial Effluent in Surface Waters and Fish	Industrial effluents	U of MN	Paige Novak	Completed: 06/30/2013	X
05d	\$485,000	Agricultural and Urban Runoff Water Quality Treatment Analysis	sediment and nutrient loading, Suspended Solids, Total Phosphorus and Nitrates.	Blue Earth County Drainage Authority		Completed: 06/30/2015	

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05e	\$594,000	Assessing Septic System Discharge to Lakes	179 pharmaceutically active compounds (PhACs), endocrine active compounds (EACs) and other waste compounds	U.S. Geological Survey		Completed: 06/30/2014	X
05f	\$264,000	Evaluation of Dioxins in Minnesota Lakes	Triclosan, an antimicrobial agent, chlorinated triclosan derivatives. Reacts in sunlight to form a series of four polychlorinated dibenzo-p-dioxins that are toxic, carcinogenic, and endocrine disrupting	U of MN		Completed: 06/30/2012	X