

Wisconsin Department of Natural Resources SWIMS Project Summary

General Project Information

Project ID:	NOR_26_CMP13B
Name:	Sampling for St Louis River TMDL - \$66,000 - NOR_26_CMP13B- Proposed_SPMD
Type:	TMDL/303d Projects
Subtype:	Determine Pollutants or Impairments
Status:	INACTIVE
Start Date:	05/01/2013
End Date:	12/31/2013
Purpose:	This project will enable a decision to be made on the need for a TMDL model for pesticide, PCBs, and dioxin in the St Louis River. Data will be collected to determine if water quality standards for toxic organic pollutants are being exceeded. SPMD data will help inform decisions about removing pollutants from the 303(d) list for the St Louis River and be useful for delisting beneficial use impairments in the St Louis River Great Lakes Area of Concern.
Objective:	<p>The St Louis River forms the state line between Minnesota and Wisconsin and contains a large fresh water estuary which doubles as the largest port on the great lakes: Duluth-Superior Harbor. Industrial activities within the harbor and other activities in the watershed lead to severe water quality impairments and listing of the St Louis River as a Great Lakes Area of Concern (AOC). The nine beneficial use impairments (BUI) in the St Louis River AOC are: fish consumption advisories, degraded fish & wildlife populations, fish tumors and deformities, degradation of benthos, restrictions on dredging, excessive loading of nutrients and sediment, beach closings and body contacts, degraded aesthetics, and loss of fish and wildlife habitat.</p> <p>The St Louis River is on also on the Wisconsin and/or Minnesota 303(d) lists for toxic pollutants (i.e. mercury, PAHs, PCBs, dieldrin, DDT, toxaphene, TCDD) and has specific fish consumption advisories for mercury and PCBs. The elected leaders of Wisconsin and Minnesota committed the two states to work together on TMDL for the St Louis River. The Wisconsin DNR, Minnesota Pollution Control Agency, and Fond du Lac Band of Lake Superior Chippewa are working cooperatively in a US EPA led/contractor supported effort to develop a TMDL model for the toxic impairments in the St Louis River. To address data gaps a field sampling plan/QAPP are currently being developed and finalized by EPA contractors with input from the states and tribe. The current plan is for EPA and MPCA to pay for the majority of the mercury analytical work with the Fond du Lac Band also contributing significantly. MPCA is contracting with USGS for sampling in the upper river. Total dollars from EPA, MPCA, and Fond du Lac for mercury analytical work to support the TMDL model are in the range of \$300,000 - \$400,000. Wisconsin is providing labor and field equipment for mercury and biota sampling in the lower river - estuary/harbor (below the Fond du Lac dam). Wisconsin has not been able to contribute funds for any analytical work associated with this TMDL project. The partners and EPA have not been able to find the \$66,000 needed to fill data gaps associated with the organic chemicals.</p>
Comments:	This project by itself is new, but is part of a longer and larger multistate project.
Outcome:	<p>A screening assessment of toxic organic chemicals (PCBs, PAHs, dieldrin, DDT, TCDD and toxaphene) is proposed, using semi-permeable membrane devices (SPMDs) to sample water column concentrations. SPMDs will be deployed at 10 stations, 9 in the lower river (combination of Wisconsin & Minnesota waters) and one in Thomson Reservoir (in Minnesota waters). SPMDs will be deployed for 30 days near (not in) the shipping channel at mid-depth at each station. A dual-anchor/submerged float deployment will be used to secure SPMDs on station so as to be undetected from the water surface. A duplicate SPMD will be deployed at one station, and another will be exposed to the ambient atmosphere during deployment and retrieval at one location, as a field blank.</p> <p>Following recovery, the SMPDs will be frozen and shipped to Environmental Sampling Technologies Laboratory (EST). EST will composite the SPMDs deployed at each location and conduct dialysis (extraction) and gel permeation chromatography (cleaning) of the investigative samples and field blank sample. EST will also conduct an assessment using permeability reference compounds to account for the potential effects of bio-fouling. EST will then deliver the investigative sample and the field blank sample, in ampule form, to the analytical laboratory (TBD), who will analyze the samples for PAHs, PCBs, organochlorine pesticides, dioxins/furans and toxaphene.</p> <p>Concentrations measured by the SMPDs will be converted to dissolved water concentrations, using mathematical models developed by the U.S. Geological Survey. These water concentrations will be compared to applicable water quality standards, and the results presented to WDNR, U.S. EPA and the other TMDL partners in a report deliverable.</p> <p>If the SPMD data suggest that water column concentrations are below applicable water quality standard we would use these data to support removal of those pollutants from the 303(d) list. In this event a TMDL model will not be needed for those parameters. In addition to the impaired waters list this project will provide information necessary for the delisting of several BUIs in the AOC.</p> <p>Portions of above adapted from the draft field sampling plan (11/08/2012) for the St Louis River by Mr. Doug Endicott of Great Lakes Environmental Center (GLEC), Traverse City, MI. The SPMD work would be contracted to GLEC, or another firm, and any subcontractors.</p>

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Deliverables for this project will include a SPMD sampling plan, analytical chemistry reports, final data package, and incorporation of results in current TMDL efforts in the St Louis River.

Study Design: A screening assessment of toxic organic chemicals (PCBs, PAHs, dieldrin, DDT, TCDD and toxaphene) is proposed, using semi-permeable membrane devices (SPMDs) to sample water column concentrations. SPMDs will be deployed at 10 stations, 9 in the lower river (combination of Wisconsin & Minnesota waters) and one in Thomson Reservoir (in Minnesota waters). SPMDs will be deployed for 30 days near (not in) the shipping channel at mid-depth at each station. A dual-anchor/submerged float deployment will be used to secure SPMDs on station so as to be undetected from the water surface. A duplicate SPMD will be deployed at one station, and another will be exposed to the ambient atmosphere during deployment and retrieval at one location, as a field blank.

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QA Measures:

People						
Name	Role	Status	Start Date	End Date	Organization	Comments
GRAHAM, JOSEPH R	COORDINATOR	ACTIVE	05/01/2013	12/31/2013	Wisconsin DNR	
Roesler, Craig P	COORDINATOR	COMPLETE	05/01/2013	12/31/2013	Wisconsin DNR	

Project Statuses			
Date	Reported By	Status	Comments
02/11/2013	RUTH PERSON	Proposed	

Project Status Detail	
Answer Set: DEFAULT	
Question	Answer
1. Number of Sample Sites (Enter the station IDs if you know them).	
2. Number of Sample Events (Indicate how many trips into the	

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Question	Answer
field you anticipate for this project).	
3. Proposed Dates for Sample Collection	
4. List applicable databases and who will enter data?	
5. Did you receive competitive projects funding during FY 2010?	
6. If yes to question 5, did you complete the projects including data entry and reports as necessary? If not, why not?	
7. Reviewer Notes: Identify questions or issues with project (use during review period)	

Actions

Action	Detailed Description	Start	End Date	Status
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Monitoring Stations

Station ID	Name	Comments
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Assessment Units

WBIC	Segment	Local Name	Official Name
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Lab Account Codes

Account Code	Description	Start Date	End Date
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Forms

Form Code	Form Name
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Methods

Method Code	Description
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Fieldwork Events

Start Date	Status	Field ID	Station ID	Station Name
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Documents

Title	Description	Author	Published	Comments
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Budget

Budget Description: Jul - Dec 2013	Start Date: 07/01/2013	End Date: 12/31/2013
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Code	Description	Quantity	Units	Unit Cost	Total Cost	Comments
FTE	FTE Hours	20	Hours	\$0.00	\$0.00	Joe Graham and Craig Roesler May assist contractor with field work
LTE SAL	LTE Salary	0	Hours	\$13.00	\$0.00	
LTE FR	LTE Fringe				\$0.00	
LTE IND	LTE Indirect				\$0.00	
LTE TOT	LTE Total Cost				\$0.00	
SUPPLY	Supplies	0			\$0.00	
EQUIP	Equipment	0			\$0.00	

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Code	Description	Quantity	Units	Unit Cost	Total Cost	Comments
MILEAGE	Mileage	0	Miles	\$0.72	\$0.00	
MEAL	Meals	0	Meals	\$9.00	\$0.00	
LODGE	Lodging				\$0.00	
TRAVEL	Travel Total				\$0.00	
BUG	Bug Contracts	0			\$0.00	
OTHER	Other Contracts	1		\$66,000.00	\$66,000.00	SPMD sampling, analysis, & report by Great Lakes Environmental Consultants
USGS	USGS Costs	0			\$0.00	
TOTAL	Total Cost (excludes SLOH)				\$66,000.00	

Test Code	Description	Test Group	# Planned	Unit Cost	Total Cost
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Total SLOH Lab Costs: \$0.00

Total Budget: \$66,000.00

Combined Budgets: \$66,000.00

Combined SLOH: \$0.00

Combined Total: \$66,000.00

Funding

Organization	Source	Type	Amount	Start Date	End Date
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