

**PHASE IV GIS-BASED SEDIMENT QUALITY DATABASE FOR THE
ST. LOUIS RIVER AREA OF CONCERN—WISCONSIN FOCUS**

Project Team Roles and Responsibilities

Submitted to:

Kate Angel
Wisconsin Coastal Management Program
Division of Intergovernmental Relations
Department of Administration
10th Floor Administration Building
101 East Wilson Street, P.O. Box 8944
Madison, WI 53708

Submitted by:

Judy L. Crane
Environmental Analysis and Outcomes Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Through the:

St. Louis River Citizens Action Committee
394 Lake Avenue South, Suite 303B
Duluth, MN 55802

October 2005

MPCA Document Number: tdr-fg05-03

WCMP Agreement Number 86003-006.07

Financial assistance to the St. Louis River Citizens Action Committee was provided by the Wisconsin Coastal Management Program, State of Wisconsin, Department of Administration, Division of Intergovernmental Relations, and the Coastal Zone Management Act of 1972, as amended, administered by the Office of Ocean and Coastal Resources Management, National Oceanic and Atmospheric Administration.

FORWARD

The Phase IV GIS-based sediment quality database for the St. Louis River Area of Concern—Wisconsin focus represents a collaborative project between the St. Louis River Citizens Action Committee (CAC), Wisconsin Department of Natural Resources (WDNR), Minnesota Pollution Control Agency (MPCA), and Exa Data & Mapping Services, Inc. in conjunction with their subconsultants from Premier Environmental Services, Inc. and Searay Environmental. This project is being funded by the Wisconsin Coastal Management Program and the National Oceanic and Atmospheric Administration (NOAA), Office of Ocean and Coastal Resource Management under the Coastal Zone Management Act, Grant # NA05NOS4191067, through a grant agreement with the St. Louis River Citizens Action Committee (CAC). In addition, the MPCA is contributing 60% of state matching funds to this project. This project will be completed by June 30, 2006.

This report was prepared by Judy Crane (MPCA) as part of the state match to the St. Louis River Citizens Action Committee's grant under award number WCMP 86003-006.07 from NOAA, U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author and do not necessarily reflect the views of NOAA, the Department of Commerce, or the MPCA.



This report should be cited as:

Crane, J.L. 2005. Phase IV GIS-based sediment quality database for the St. Louis River Area of Concern—Wisconsin focus. Project team roles and responsibilities. Minnesota Pollution Control Agency, Environmental Analysis and Outcomes Division, St. Paul, MN. MPCA Document Number tdr-fg05-03.

This project includes sediment quality and GIS watershed data that were assembled from three earlier phases of the GIS-based sediment quality database project conducted by Dr. Crane (MPCA) and her consultants. These projects were funded as follows:

- Phase I (completed September 30, 2003): Grant number GL97536301-1 (\$81,000) from the U.S. Environmental Protection Agency's (EPA) Great Lakes National Program Office (GLNPO) plus a 5% state match from the MPCA. MacDonald Environmental Sciences Ltd. provided contractual assistance on this project.

- Phase II (completed December 22, 2004 as one component of a MPCA-Duluth grant to develop a comprehensive sediment management plan for the lower St. Louis River Area of Concern): Grant number GL97540401-2 (\$40,000 funds for Phase II project) from GLNPO plus a 5% state match from the MPCA. MacDonald Environmental Sciences Ltd. provided contractual assistance on this project.
- Phase III (database completed August 31, 2005, with remainder of project to be completed by December 31, 2005): Interagency Grant Agreement number 306-28-06 (\$50,000) from Minnesota's Lake Superior Coastal Program in cooperation with NOAA's Office of Ocean and Coastal Resource Management through the Coastal Zone Management Act. In addition, the MPCA contributed over 50% of state matching funds for this project. Exa Data & Mapping Services, Inc. provided the prime consultant services in conjunction with their subconsultants from Premier Environmental Services, Inc., Searay Environmental, and Terrastat Consulting Group.

Work products from Phases I through III are either available on the MPCA's Contaminated Sediment Web page at: <http://www.pca.state.mn.us/water/sediments/studies-stlouis.html#assessment> or by contacting Dr. Crane at:

Judy L. Crane, Ph.D.
Environmental Analysis and Outcomes Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
Phone: 651-297-4068
Fax: 651-297-7709
Email: judy.crane@pca.state.mn.us

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Forward	ii
List of Figures	v
List of Abbreviations and Acronyms	v
 PROJECT MANAGEMENT	 1
Project/Task Organization	1
Purpose/Background	1
Roles and Responsibilities	2
St. Louis River CAC Personnel	2
WCMP Personnel.....	4
MPCA Personnel	5
WDNR Personnel.....	7
Consultants.....	8
Exa Staff.....	9
Premier Staff	10
Searay Environmental Staff	11
 REFERENCES	 13

DISTRIBUTION LIST

Lynelle Hanson, St. Louis River CAC (Grant Manager)
 Kate Angel, Wisconsin Coastal Management Program (Program Liaison)
 Nancy Larson, WDNR (Project Collaborator)
 Jim Killian, WDNR (Project Collaborator)
 Duane Lahti, WDNR (Supervisor)
 John Robinson, WDNR (Supervisor)
 Judy Crane, MPCA (Project Manager)
 Lynda Nelson, MPCA (GIS Support)
 Todd Biewen, MPCA (Supervisor)
 Peggy Myre, Exa Data & Mapping Services, Inc. (Project Manager)
 Stacy Larsen, Exa Data & Mapping Services, Inc. (Administrative Support and Junior Data Translation Technician)
 Corinne Severn, Premier Environmental Services, Inc. (Senior Database Manager)
 Laurel Menoche, Premier Environmental Services, Inc. (Junior Database Manager)
 Raymond Valente, Searay Environmental (QA/QC Manager)

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
A-1	General project organization chart.....	3

LIST OF ABBREVIATIONS AND ACRONYMS

AOC	Area of Concern
AVS	Acid Volatile Sulfide
CAC	Citizen's Action Committee
FTP	File Transfer Protocol
GIS	Geographic Information System
MN	Minnesota
MPCA	Minnesota Pollution Control Agency
MS™	Microsoft™
NOAA	National Oceanic and Atmospheric Administration
PO	Post Office
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
SEM	Simultaneously Extractable Metals
WCMP	Wisconsin Coastal Management Program
WDNR	Wisconsin Department of Natural Resources
WI	Wisconsin

PROJECT MANAGEMENT

PROJECT/TASK ORGANIZATION

Purpose/Background

This project will provide an innovative tool to assemble several types of sediment quality data in a database format, coupled with the ability to plot concentration ranges of these data on maps which contain an assortment of geographic information system (GIS) watershed data (such as locations of marinas, industrial facilities, contaminated sediment areas, navigational dredging areas, and types of aquatic and near shore vegetation). The St. Louis River Area of Concern (AOC) has special significance due to its geographic boundary shared by Wisconsin and Minnesota, proximity to Lake Superior, and economic, social, and recreational importance to the area. Contaminated sediments contribute to several use impairments in this AOC, including fish consumption advisories, restrictions on dredging, and habitat impairment to bottom-feeding organisms. This project will fulfill a recommendation of the St. Louis River Remedial Action Plan (MPCA and WDNR 1995) to develop a sediment quality database. In addition, it addresses certain strategies in the St. Louis River Habitat Plan (2002) for:

- Improving the ecological restoration of areas impacted by contaminated sediments,
- Including the development and use of GIS to integrate sediment database information with site- and target-specific conservation strategies identified in the Habitat Plan,
- Assisting with efforts to develop a comprehensive port plan, and
- Assisting with efforts to develop a comprehensive dredge material management plan.

In addition, this project is critical for Wisconsin and Minnesota state agencies and their partners to further develop an updated strategy for managing contaminated sediments in the St. Louis River AOC, including prioritizing areas for sediment remediation and habitat restoration.

The Minnesota Pollution Control Agency (MPCA) prepared the previous three phases of the GIS-based sediment quality database with the contractual assistance of MacDonald Environmental Sciences Ltd. for Phases I and II and Exa Data & Mapping Services, Inc. (and their subconsultants) for Phase III (refer to the project documents at <http://www.pca.state.mn.us/water/sediments/studies-stlouis.html#assessment> . The current Phase IV project provides an exceptional collaborative opportunity between the St. Louis River Citizens Action Committee (CAC), Wisconsin Department of Natural Resources (WDNR), MPCA, and Exa Data & Mapping Services, Inc. in conjunction with their subconsultants from Premier Environmental Services, Inc. and Searay Environmental. The St. Louis River CAC received a grant from the Wisconsin Coastal Management Program (WCMP) to conduct the Phase IV project, and the MPCA is providing the 60% state match for this grant through the services of a MPCA Project Manager. The WDNR is providing no-cost collaborative assistance as part of the project team. The focus of this project is to continue populating the Microsoft™ (MS) Access 2000 sediment quality database with sediment quality data sets from the Wisconsin side of the St. Louis River AOC and to make the database more user-friendly. Other work

products include: preparing MS™ Access '97 and Query Manager-compatible database files, updating ArcMap 9 map documents with new or more current GIS watershed data, updating the Help Sections for Database Users and ArcMap Users, updating the Technical Documentation, preparing a Sediment Quality Report, and giving project presentations to members of the St. Louis River CAC, state agency staff, and stakeholders.

The Phase III Quality Assurance Project Plan (QAPP; Crane 2005) will serve as the resource by which quality assurance/quality control (QA/QC) issues will be addressed in the database component of the Phase IV project. This document was prepared to replace Section A1 of the Phase III QAPP (Crane 2005). The various quality assurance and management responsibilities of key project personnel are defined in the following section.

Roles and Responsibilities

The overall lines of authority for this specific project can be found in Figure 1. This chart includes all of the individuals discussed in the following subsections.

St. Louis River CAC Personnel

Lynelle Hanson is the Executive Director of the nonprofit St. Louis River CAC. She can be reached at:

St. Louis River CAC
394 Lake Avenue South, Suite 303B
Duluth, MN 55802
Phone: 218-733-9520
Fax: 218-723-4794
Email: slrcac@stlouisriver.org

Person:

Lynelle Hanson, Grant Manager

Responsibilities:

Correspond directly with WCMP regarding grant management tasks
Set-up project budget for St. Louis River CAC
Finalize contract for Consultant
Communicate directly with MPCA Project Manager regarding status of project
Finalize quarterly progress report to provide to WCMP Program Liaison
Finalize quarterly invoice form and match documentation to provide to Department of Administration Program Assistant
Participate in kick-off conference call with project team

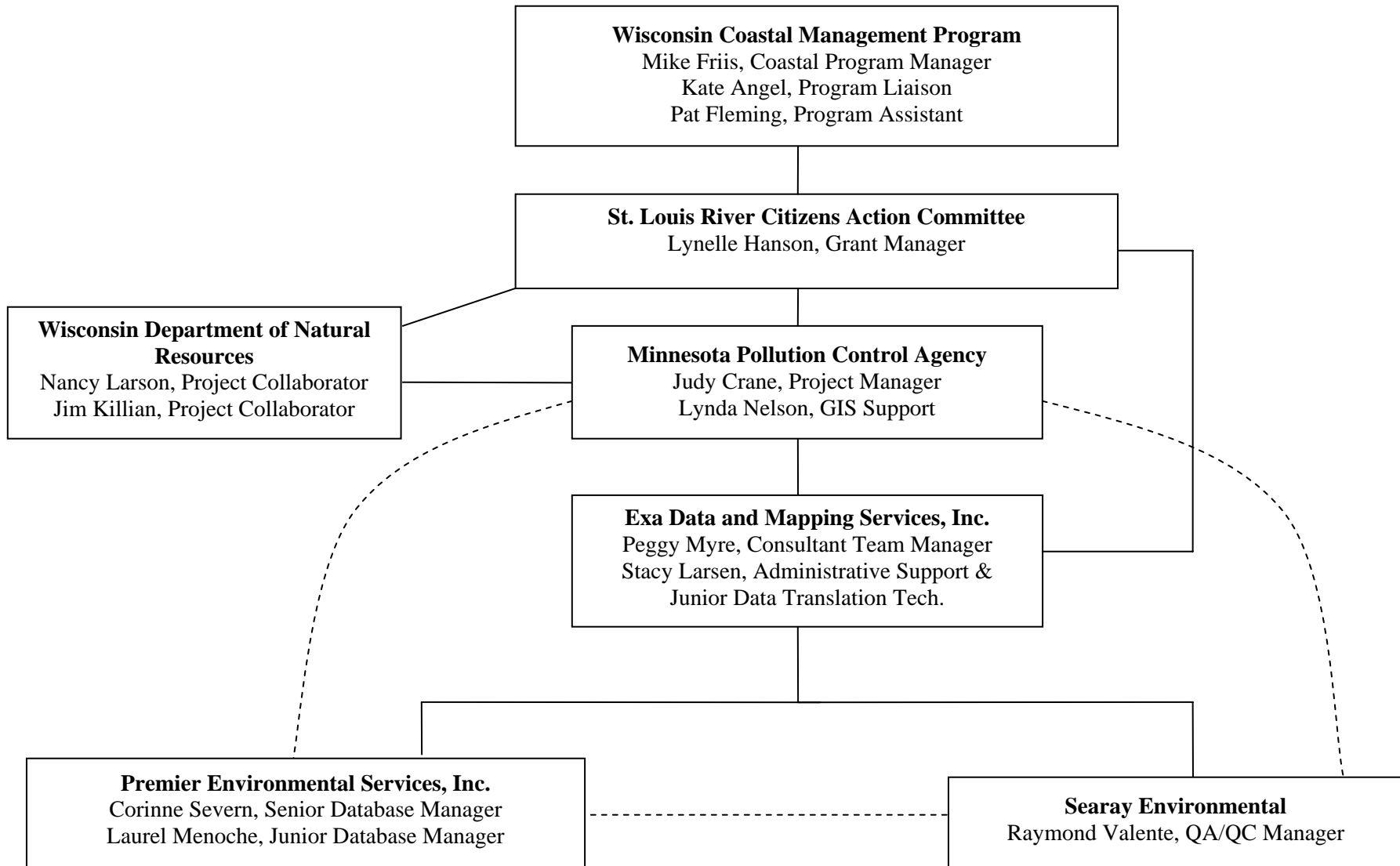


Figure 1. General project organization chart.

Person:

Lynelle Hanson, Grant Manager

Responsibilities:

Participate in public project meetings with state agency staff, CAC members, and stakeholders
Approve final Consultant and MPCA Project Manager work products
Coordinate with the St. Louis River CAC's Webmaster to post final project reports on the CAC's web site or else link to the WDNR or MPCA web sites
Organize and archive grant files
Close-out grant

WCMP Personnel

Mike Friis is the Coastal Program Manager of the Wisconsin Coastal Management Program, and he participated in the selection team meetings that reviewed and selected grant applications for funding. The primary WCMP contact for this project is Kate Angel, Program Liaison. Pat Fleming is the Program Assistant with the Wisconsin Department of Administration who processes grantee invoices for WCMP. Their responsibilities are as follows:

Person:

Kate Angel, Program Liaison
Wisconsin Coastal Management Program
Division of Intergovernmental Relations
Department of Administration
10th Floor Administration Building
101 East Wilson Street, P.O. Box 8944
Madison, WI 53708
Phone: 608-267-7988
Email: Kathleen.Angel@doa.state.wi.us

Responsibilities:

Coordinate grant requests from Grant Manager
Provide technical assistance, as needed
Review quarterly progress reports
Review draft work products
Approve final work products
Close-out Agreement Number 86003-006.07 with the St. Louis River CAC

Pat Fleming, Program Assistant
Division of Intergovernmental Relations
Department of Administration
10th Floor Administration Building
101 East Wilson Street, P.O. Box 8944
Madison, WI 53708
Phone: 608-267-2125
Fax: 608-267-6917

Process grant agreement
Process quarterly grant invoices and state match documentation

MPCA Personnel

The MPCA staff associated with this project can be reached at the following address:

Environmental Data Management Unit
Air Assessment and Environmental Data Management Section
Environmental Analysis and Outcomes Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
General Phone: 1-800-657-3864

Person:

Judy Crane, Project Manager
Phone: 651-297-4068
Fax: 651-297-7709
Email: judy.crane@pca.state.mn.us

Responsibilities:

Work with MPCA fiscal staff to set-up state match budget
Prepare draft contract for Consultant
Prepare draft quarterly progress reports, invoices, and match documentation to submit to Grant Manager
Prepare project fact sheet and team chart
Coordinate project kick-off conference call with project team and prepare summary of decisions made and action items
Prepare summary of project team roles and responsibilities
Coordinate the collection of new and updated GIS watershed data and work with GIS Support staff to update ArcMap 9 map documents
Coordinate the collection of sediment quality data from government and business sources to provide to Consultants
Prepare master MSTM Excel "Progress" spreadsheet of sediment quality data sets
Review and respond to questions and suggestions from Consultants regarding improvements to database structure
Identify additional benthic invertebrate community metrics to add to MSTM Access 2000 database
Re-analyze benthic invertebrate community data files in order to provide data to Consultants in a consistent format
Work with stakeholders to prepare a short-list

Person:

Judy Crane, Project Manager

Responsibilities:

of flexible, built-in queries to recommend adding to MSTM Access 2000 database
Work with the Consultant Team Manager and Senior Database Manager to create an interface for developing user-friendly query options in the MSTM Access 2000 sediment quality database
Oversee, review, and approve Consultant work products for database tasks
Review Consultant invoices and make recommendations for payment to St. Louis River CAC
Prepare draft and final supplements to Phase II and III Help Section for Database Users, Help Section for ArcView Users, and Technical Documentation
Update the mean PEC-Q analyses done for the Phase II database project
Prepare draft and final sediment quality report containing results and interpretation of sediment quality queries of interest to CAC members, state agency staff, and stakeholders
Provide project presentations to stakeholders and other interested groups in Minnesota and Wisconsin
Distribute Phase IV GIS-based sediment quality database, ArcMap 9 map documents, and reports to CAC members, state agency staff, and stakeholders
Communicate outcomes of project with MPCA management
Coordinate submittal of database to Jay Field and Todd Goeks of NOAA
Coordinate with MPCA Web Master to add the Phase IV reports to the MPCA's Contaminated Sediments Web page, as well as a notice of availability of the databases and ArcMap 9 map documents
Archive technical grant files and assist Grant Manager with closing out the grant
Prepare peer-reviewed manuscripts and conference presentations

Person:

Lynda Nelson, GIS Support
Phone: 651-296-7232
Fax: 651-297-7709
Email: lynda.nelson@pca.state.mn.us

Responsibilities:

Save Phase II ArcMap 8.3 map documents as ArcMap 9 map documents
Update ArcMap 9 map documents with new GIS data under the direction of the MPCA Project Manager
Assist with updating the GIS section of the project Technical Documentation

WDNR Personnel

At least two WDNR staff will provide no-cost technical assistance to this project.

Person:

Nancy Larson, Project Collaborator
Wisconsin Department of Natural Resources
2501 Golf Course Road
Ashland, WI 54806
Phone: 715-685-2926
Fax: 715-685-2909
Email: nancy.larson@dnr.state.wi.us

Responsibilities:

Participate in project kick-off conference call
Provide technical assistance, especially on coordination issues with other basin-wide or regional efforts
Participate in Duluth/Superior meetings with state agency staff, St. Louis River CAC members, and stakeholders
Solicit feedback from WDNR staff on the development of user-friendly queries in the MS™ Access 2000 sediment quality database
Provide input on development of sediment quality report
Review and comment on draft work products
Coordinate inclusion of project reports and announcement of availability of database and GIS products on WDNR web site
Communicate outcomes of project with WDNR management and staff

Jim Killian, Project Collaborator
Bureau of Watershed Management
Wisconsin Department of Natural Resources
101 South Webster Street
P.O. Box 7921
Madison, WI 53707-7921
Phone: 608-264-6123
Fax: 608-267-2800
Email: james.killian@dnr.state.wi.us

Participate in project kick-off conference call
Provide technical assistance, especially regarding watershed management applications of this project
Participate in Madison meeting with state agency staff and interested stakeholders
Solicit feedback from WDNR staff on the development of user-friendly queries in the MS™ Access 2000 sediment quality

Person:

Jim Killian, Project Collaborator

Responsibilities:

database
 Provide input on development of sediment quality report
 Review and comment on draft work products
 Coordinate incorporation of sediment quality data sets from the Wisconsin side of the AOC into the WDNR's statewide Oracle sediment quality database
 Communicate outcomes of project with WDNR management and staff

Consultants

Exa Data & Mapping Services, Inc. (hereinafter referred to as Exa or the Consultant) is the St. Louis River CAC's Consultant for this project. Exa has assembled a team of subconsultants to assist them with this project, including Premier Environmental Services, Inc. (hereinafter referred to as Premier) and Searay Environmental. Any corrective actions to the Phase IV GIS-based sediment quality database will be reported to the MPCA Project Manager. Project personnel at Exa and their subconsultants may be contacted by the MPCA Project Manager at any time to discuss QA/QC concerns.

As identified in Exa's contract with the St. Louis River CAC, they will be responsible for the following final project deliverables:

- Submission and acceptance of one electronic copy each of the Consultant's monthly progress reports to date and of electronic documentation of the project tracking MSTM Excel spreadsheet verifying the entry of the first half of sediment quality data sets designated by the MPCA Project Manager (and meeting the resources of the Consultant) into the Phase IV MSTM Access 2000 sediment quality database for the St. Louis River AOC: \$20,250.00;
- Submission and acceptance of the final electronic files of the Phase IV GIS-based sediment quality database for the St. Louis River AOC (in MSTM Access '97 and 2000 formats), which contains all the sediment quality data sets designated by the MPCA Project Manager that meet the Consultants resources for this project. The Consultant will also submit a final MSTM Access 2000 data evaluation (screening) database which documents decisions made relative to questions and issues resulting from evaluating and including sediment quality data into the Phase IV GIS-based sediment quality database. The Consultant will post these final electronic files to her ftp site, from which the Grant Manager and MPCA Project Manager can obtain them. In addition, the remainder of the Consultant's monthly progress reports will be submitted via email, as well as final updates (via email) of Table 2 and Figure 3 from the Phase III Help Section for Database Users Addendum (Crane and Myre 2005) : \$20,250.00; and,
- Submission and acceptance of one final electronic copy of the Phase IV GIS-based sediment quality database for the St. Louis River AOC converted to a format compatible with NOAA's Query Manager 2.5 software. The Consultant will post these files on her ftp site, from which the Grant Manager and MPCA Project Manager can obtain them: \$2,000.00;

Total = \$42,500.00

The Exa staff associated with this project can be reached at the following address:

Exa Data & Mapping Services, Inc.
P.O. Box 232
(211 Taylor St., Suite 32 for courier deliveries)
Port Townsend, WA 98368
Fax: 360-379-9330

Exa Staff

Person:

Peggy Myre, Consultant Team Manager
Phone: 360-379-9003
Cell: 360-774-0380
Email: peggy@exadata.net

Responsibilities:

Communicate directly with Grant Manager regarding contract and invoice issues
Maintain regular communication with MPCA Project Manager regarding project status, issues, and concerns
Oversee the development and completion of all draft and final contract deliverables
Provide monthly progress reports to MPCA Project Manager in the form of an Excel spreadsheet created by the MPCA (i.e., "WI 86003-006.07 DB Status_Oct-05.xls" with the file name updated each month)
Provide input on quarterly progress reports to the WCMP, as requested
Maintain regular project communication with team of subconsultants
Participate in project kick-off conference call
Review Phase IV team roles and responsibilities
Modify the MS™ Access 2000 sediment quality database design to identify post-dredging and/or post-remediation data, to accommodate additional benthic metrics, and to clarify or eliminate existing tables (e.g., AVS_SEM table) per guidance from MPCA Project Manager
Add electronic benthic data screening table to MS™ Access 2000 data evaluation (screening) database
Assist in screening reports, data translations, and conducting verification checks of the MS™ Access 2000 database
Conduct a mini-audit on translated data

Person:

Peggy Myre, Consultant Team Manager

Responsibilities:

Compile all of the translated data into the master Phase IV MS™ Access 2000 sediment quality database and conduct all relationship checks on the entire database
Conduct sediment chemistry calculations
Check the locations of sites plotted on the Phase IV ArcMap 9 map documents
Work with the Senior Database Manager at Premier and MPCA Project Manager to create an interface for developing user-friendly query options in the MS™ Access 2000 sediment quality database
Prepare a draft User Guide on Query Descriptions Developed for the Phase IV project
Manage the master MS™ Access 2000 database, and save it in MS™ Access '97 format
Conduct a final audit of the MS™ Access 2000 sediment quality database
Oversee data translations and preparation of Query Manager 2.5 compatible files
Update Figure 3 and Table 2 from the Phase III Help Section for Database Users Addendum (Crane and Myre 2005)
Incorporate edits on draft work deliverables assigned by MPCA Project Manager

Stacy Larsen, Administrative Support and Junior Data Translation Technician

Phone: 360-437-9467

Email: wplarsen@waypoint.com

Provide administrative support to Exa Project Manager (e.g., invoices)

Assist with conducting data translations of sediment quality data sets

Premier Staff

Person:

Corinne Severn, Senior Database Manager
Premier Environmental Services, Inc.

8445 Adams Grove St.

Las Vegas, NV 89139

Phone: 702-255-9685 ext. 103

Fax: 702-255-0856

Email: cgsevern@premiercorp-usa.com

Responsibilities:

Participate in project kick-off conference call
Review Exhibit A (Consultant's Duties) of Exa's contract
Review Phase IV team roles and responsibilities
Review data translations, data checks, edits, and auditing

Person:

Corinne Severn, Senior Database Manager

Laurel Menoche, Junior Database Manager
Premier Environmental Services, Inc.
146 North Canal St., Suite 220
Seattle, WA 98103
Phone: 206-284-5900
Cell: 206-909-7546
Fax: 206-284-5909
Email: lmenoche@premiercorp-usa.com

Searay Environmental Staff

Person:

Raymond Valente, QA/QC Manager
Searay Environmental
902 Riverview Place
St. Marys, GA 31558-8712
Phone/Fax: 912-729-1019
Email: rvalente@tds.net

Responsibilities:

Conduct data screening and translations, as needed

Work with the Consultant Team Leader and MPCA Project Manager to create an interface for developing user-friendly query options in the MS™ Access 2000 sediment quality database

Prepare a 1-2 page “guidelines” summary for state agency staff and stakeholders to use to guide archival of sediment quality data for incorporation into future updates of the database

Participate in project kick-off conference call
Review Exhibit A (Consultant’s Duties) of Exa’s contract

Review Phase IV team roles and responsibilities

Screen sediment quality data sets

Conduct preliminary checks on source data files to identify problems, data gaps, or issues requiring clarification

Identify questions to pose to the MPCA Project Manager or to the authors of the sediment quality studies to resolve questions

Document decisions relative to questions and issues, as well as the screening assessment in the data evaluation (screening) database

Direct the work of junior data translation technician

Provide support for much of the data translation and verification tasks.

Responsibilities:

Participate in project kick-off conference call
Review Exhibit A (Consultant’s Duties) of Exa’s contract

Review Phase IV team roles and responsibilities

Screen sediment quality data sets

Person:

Raymond Valente, QA/QC Manager

Responsibilities:

Conduct preliminary checks on source data files to identify problems, data gaps, or issues requiring clarification

Identify questions to pose to the MPCA Project Manager or to the authors of the sediment quality studies to resolve questions

Document decisions relative to questions and issues, as well as the screening assessment in the data evaluation (screening) database

Evaluate consistency of qualifiers, species and tissue types, and other auditing tasks

Provide support on data validation issues

REFERENCES

- Crane, J.L. 2005. Quality assurance project plan (QAPP): Phase III GIS-based sediment quality database for the St. Louis River Area of Concern. Minnesota Pollution Control Agency, Environmental Outcomes Division, St. Paul, MN.
(<http://www.pca.state.mn.us/publications/tdr-fg04-05.pdf>)
- Crane, J.L. and P.L. Myre. 2005. Phase III GIS-based sediment quality database for the St. Louis River Area of Concern (AOC)—Minnesota focus. Addendum to the Phase II help section for database users. Minnesota Pollution Control Agency, Environmental Analysis and Outcomes Division, St. Paul, MN and Exa Data & Mapping Services, Inc., Port Townsend, WA. (<http://www.pca.state.mn.us/publications/tdr-fg05-01.pdf>)
- MPCA (Minnesota Pollution Control Agency) and WDNR (Wisconsin Department of Natural Resources). 1995. The St. Louis River system remedial action plan. Progress report. Minnesota Pollution Control Agency, St. Paul, MN and Wisconsin Department of Natural Resources, Madison, WI. (http://www.stlouisriver.org/stage2/stage2_report.pdf)
- St. Louis River CAC (Citizens Action Committee). 2002. Lower St. Louis River habitat plan. St. Louis River Citizens Action Committee, Duluth, MN.
(<http://www.stlouisriver.org/IAhabitatplan/habitatplan.html>)