

## **Final Report to USFWS for Cooperative Agreement Grant 13420-2-J244**

### **1. General Information**

**Cooperator:** Clackamas County Service District #1  
**Title:** Assessment of Macroinvertebrate Communities in 22 Urban Streams  
**Cooperative Agreement Number:** 13420-2-J244  
**Date:** May 20, 2003  
**Project Time Period:** April, 2002 to April, 2003

### **2. Project Description:**

Assessing macroinvertebrate communities has gained wide acceptance as a reliable and meaningful tool for measuring the condition of surface waters. Because these biological communities integrate the effects of multiple stressors—excess nutrients, toxic chemicals, increased temperature, excessive sediment loading, and others—they provide a reliable measure of the overall ability of a water body to support aquatic life.

We contracted with Michael Cole of ABR, Inc., to perform this invertebrate analysis. ABR, Inc. has performed all of the invertebrate community surveys for the Clean Water Services (Washington County) Healthy Streams project, which has focused on the Tualatin River. The mouth of the Tualatin River is in the Surface Water Management Agency of Clackamas County (out of the Clean Water Services district) and we feel that it is very important that the data be collected with the same methodology that is being used in the rest of the watershed. This way, data can be compared throughout the watershed, across County boundaries and other political boundary lines.

ABR conducted an assessment of macroinvertebrate communities in each of the seven streams in CCSD#1 and in the 14 streams in the Lower Tualatin River. Sampling sites were selected based on site conditions and when appropriate, ABR tried to match the sites up with the water quality sampling sites. Many of the streams will have more than one invertebrate sampling site so that ABR can get data from different reaches of the streams. ABR conducted field work using Level 3 sampling protocols, as described in the Stream Macroinvertebrate Protocol, Chapter 12, Water Quality Monitoring Guidebook, Oregon Plan for Salmon and Watersheds (WQIW 1999). At each site, ABR characterized and measured physical habitat conditions using the Rapid Stream Assessment Technique (RSAT) that is currently used by Clean Water Services to determine habitat conditions in the Tualatin River Basin. Additionally, ABR measured pH, dissolved oxygen, conductivity and water temperature at each site.

A draft report was completed and reviewed by CCSD#1 staff, and a final report was produced. The final report is attached to this document. This project was very easy to implement, as ABR, Inc. did an excellent job of invoicing the Service District on a monthly basis, and performing the duties as specified in our contract with ABR. We feel that the goals that were stated in our grant application (to collect initial macroinvertebrate data so that we can begin to monitor these aquatic communities) was completed successfully, and we look forward to using this data to implement conservation and restoration activities in these watersheds.

### **3. Actual work tasks implemented and the associated project schedule**

Sample Site Identification	May, 2002
Sample Collection	September - November, 2002
Species Identification	December, 2002 - January, 2003
Report Production	February - April, 2003

### **4. List of project staff and partners, and their roles.**

Because this project was contracted through a private company, only Karen Streeter of CCSD#1 was involved with the contract management/administration. ABR, Inc., the company that we contracted, had Mike Cole as their project manager, and a field team conducting the actual field work and sample collection. Mike did the species identification and wrote the majority of the project report. ODFW and the Friends of Kellogg/Mt. Scott Creeks

watershed helped this project by reviewing the report in its draft form and provided valuable input about the details of the project report. Both agencies are very excited about the study, and continue to be supportive of CCSD#1 collecting this type of monitoring information in these watersheds.

**5. Description of the project area and/or study location.**

Macroinvertebrate samples were collected from streams in CCSD#1 (North Clackamas County Service Area) and from streams (Rock and Richardson Creeks) immediately outside of the current district boundary, but these streams are expected to experience urban development because of the change of the Metro Urban Growth Boundary. We felt that it was important to characterize the macroinvertebrate populations now, prior to impacts by urban development. Samples were also collected from tributaries of the Lower Tualatin River within Clackamas County. Maps of the sample sites are attached within this document.

**6. Methodology**

CCSD#1 contracted ABR, Inc., a private-company, to perform the macroinvertebrate community sampling project. The methodology that ABR used is fully documented within their final report, which is the product of this project. ABR's final report is attached to this document.

**7. On-going tasks**

Completion of this report provides CCSD#1 with valuable information about the macroinvertebrate communities within each of the streams that the District manages. This study will be complimentary to the other types of biological, chemical, and flow monitoring current completed on each of these streams, and we plan to incorporate macroinvertebrate sampling into our long-term monitoring plan. We expect to repeat this study on a 5-10 year basis, depending on funding availability. Additionally, this information will be used by the District when considering land use projects that could adversely affect the watershed and streams. By knowing where high- or low-sensitivity species are located, we can try to prevent degradation of the high quality areas, and try to determine what factors are most affecting the low quality areas (and then try to fix them).

**8. Project Expenditures Table**

To date, the Service District has paid 100% of the project costs, and is requesting reimbursement of 50% (\$10,500) as per the grant agreement.

Budget Items	Matching contribution (all amounts already paid by CCSD#1)		Total Cost
	Grant Award	Match Contribution	
PROFESSIONAL SERVICES Clackamas County Service District #1		\$10,500	\$10,500
Grant Award to be Reimbursed	\$10,500		\$10,500
<b>TOTALS:</b>	\$10,500	\$10,500	\$21,000

**9. Summary and conclusions**

To summarize, the USFWS and Metro Greenspaces provided CCSD#1 with \$12,000 toward a \$24,000 study to assess macroinvertebrate communities of urban streams in Clackamas County. Each stream was sampled in fall, 2002, and a final report was released in April, 2003. CCSD#1 used the funding to hire ABR, Inc. as a contractor, and ABR implemented the project using the same methodology as used elsewhere in the region to ensure

consistency of the data within the region. Overall, the streams in the Lower Tualatin River had healthier macroinvertebrate populations than in CCSD#1, but the streams located immediately outside of CCSD#1 (streams that will be affected by urbanization in the next decade) had the highest quality macroinvertebrate populations of the entire study.

**Lessons Learned:**

Identify project sites for macroinvertebrate sampling that have glide and riffle type of stream channels. Choose sites from a variety of land uses while keeping the stream characteristics consistent--this allows easy comparison of the data that can be more easily related back to land use. ABR, Inc. did an excellent job performing this study and managing their part of the contract-- invoices were easy to read and mailed out in a timely manner. The study was performed on schedule and with no delays or change-orders to the contract.

**10. Supplemental information such as copies of data, documents, scientific papers, printed materials, or other products related to the project.** A set of color slides or prints with descriptions must accompany the report to depict project activities and, for habitat restoration and/or enhancement work, site conditions before, during, and after project implementation.

Please see the attached report titled "Assessment of Macroinvertebrate Communities in Streams of North Clackamas County, Oregon, 2002".

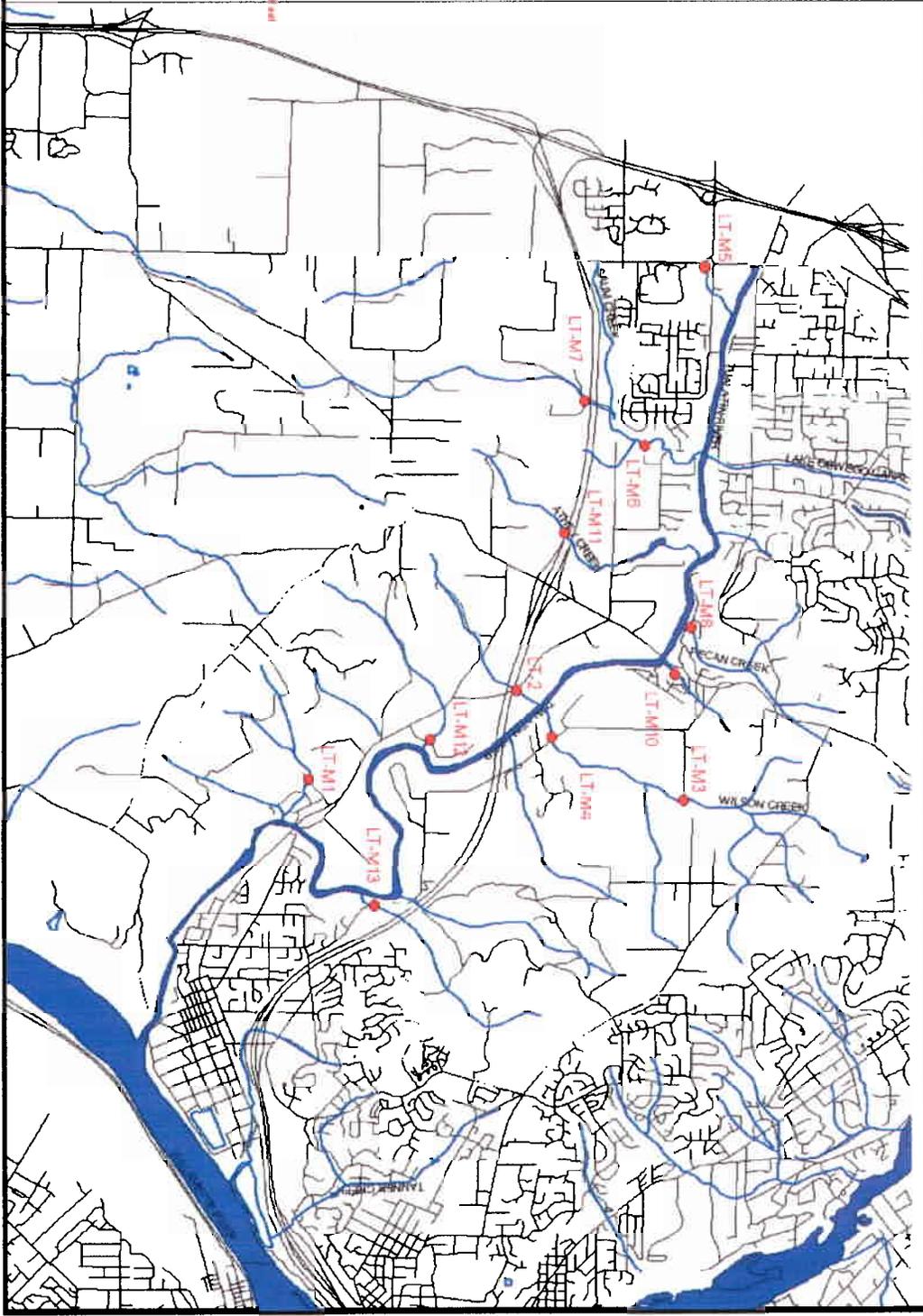


# Macroinvertebrate Survey - SWMACC Sample Sites

- Sample Sites
- Lakes/Rivers
- ▬ Streams
- ▬ WES Boundaries
- ▬ Arterial Streets
- ▬ Federal Land
- ▭ Clackamas County



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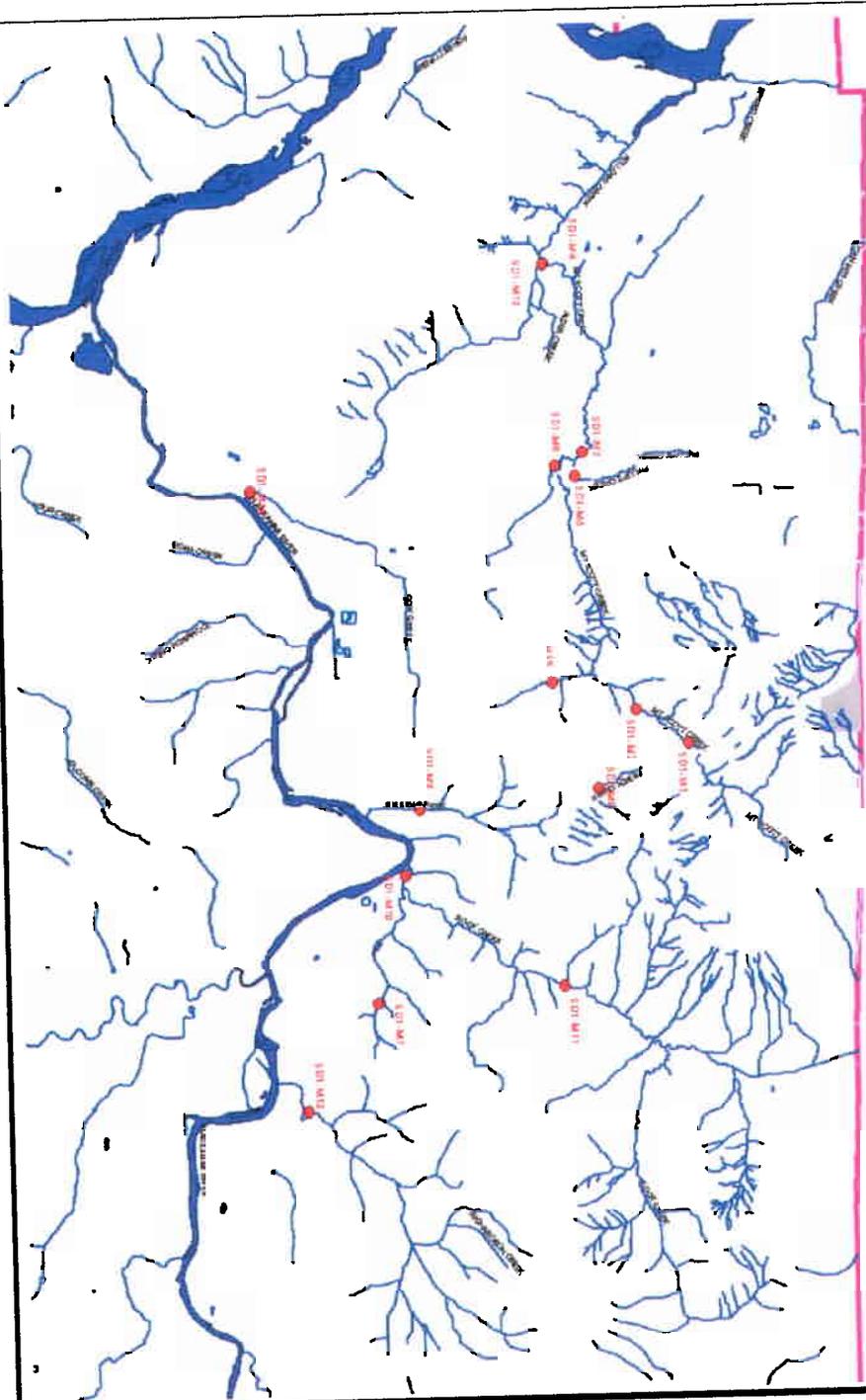


# Macroinvertebrate Study- CCSD#1 DRAFT Sample Sites, May, 2002

- Sample Sites
- Lakes/Rivers
- Streams
- MES Boundaries
- Arterial Streets
- Federal Land
- Clackamas County



WES MAP 2002 100000000



# Contract Payment Release



**Vendor Number:** Internal Number: 324  
**Vendor Name:** ABR, Inc. Budget Year: 02-03  
**Vendor Address:** P O Box 80410 Date: 12/20/02  
 Fairbanks, Alaska 99708

**Chartfield Distribution**

<b>Contract Title:</b> 2002 Macroinvertebrates Study	<b>Account</b>	<b>Fund</b>	<b>Org</b>	<b>Program</b>	<b>Project</b>
<b>WES Contract Number:</b>	431350	151/521	7	50440	W150200/W520200

**Retainage**  Yes  No  
 (Place X in appropriate box)

Project Manager: Ela Whelan

Date	Invoice Number	Check Number	Voucher Number	Description	Contract		Retainage				
					Authorized Contract	Contract Payments	Contract Balance	Amount Earned	Retention	Balance	
12/10/2002	1709 REV			Original Contract -Macroinvertebrates Studies in CCSD#1 & SWMACC	\$22,696.00		\$22,696.00				
				SWMACC Services 9-1-02 thru 9-30-02		\$2,805.75	\$19,890.25	\$2,805.75			
	1709 REV			CCSD#1 Services 9-1-02 thru 9-30-02		\$4,389.95	\$15,500.30	\$4,389.95			
12/19/2002	1829			CCSD#1 Services 10-1-02 thru 11-30-02		\$1,398.50	\$14,101.80	\$1,398.50			
	1829			SWMACC Services 10-2-02 thru 11-30-02		\$1,557.62	\$12,544.18	\$1,557.62			
02/28/2003	1955			SWMACC Services 12-1-02 thru 1-31-03		\$4,224.25	\$8,319.93	\$4,224.25			
				CCSD#1 Services 12-1-02 thru 1-31-03		\$2,827.50	\$5,492.43	\$4,013.04			
03/19/2003	1980			SWMACC Services 2-1-03 thru 2-28-03		\$2,324.25	\$3,168.18				
				CCSD#1 Services 2-1-03 thru 2-28-03		\$1,010.50	\$2,157.68				
04/22/2003	2040			CCSD#1 Services 3-1-03 thru 3-31-03		\$195.00	\$1,962.68				
				FINAL BILLING							
<b>Totals</b>					\$22,696.00	\$20,733.32	\$1,962.68	\$18,389.11			

**Project Manager:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
**Finance Manager:** \_\_\_\_\_ **Date:** \_\_\_\_\_