River Raisin Watershed Council
First Quarter Report Adopt-A-Stream
Jan – March 2005

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Activities

This report was written to complete requirements for the Adopt-A-Stream program agreement with the Department of Environmental Quality (DEQ). The report also serves as a technical evaluation of the existing program as contracted with Jill Kelley.

First quarter activities include:

I. Contracted hire of program coordinator
II. Evaluation of the 2004 Adopt-A-Stream Program
III. Planning activities for the 2005 Stream Search.

I. Program coordinator:

Jill Kelley was contracted to evaluate the existing Adopt-A-Stream program and provide recommendations to build a quality volunteer monitoring program. Kelley brings to the program varied experiences that can enable the River Raisin Watershed Adopt-A-Stream program to grow. Her background includes 10 years experience as an engineer with USDA, Natural Resources Conservation Service. She is currently completing a Master's Degree in aquatic ecology from the University of Michigan. Her research includes the physical and biological aspects of county drains and natural streams in Lenawee County. She has also been an active volunteer in both the Huron River and River Raisin volunteer monitoring programs.

II. Evaluation of 2004 River Raisin Adopt-A-Stream Program:

The River Raisin volunteer monitoring program was initiated by the Lenawee Conservation District in 1999 through a grant from 319 funds. Upon the natural transition of the program to a watershed wide entity, in 2004 the River Raisin Watershed Council (RRWC) has taken on the lead role and administrator of the program. Stream search was conducted in generally the same format as inherited from the Conservation District. However in February 2004 the RRWC adopted a Quality Assurance Plan (QAP) developed in cooperation and approved by the Department of Environmental Quality (DEQ).

Upon evaluation of the past year's Adopt-A-Stream performance there are many signs that the community has genuine interest in this program. The number of volunteers over the past years has continued to grow. The 2004 stream search included over 70 volunteers. Many of the Stream Captains have several years of experience. Five Stream Captains have participated since the inception of the River Raisin Stream Search. To maintain interest and develop the program into a reputable resource for both local and state governments, as well as the citizens living within its boundaries, the program needs to apply the QAP.

The QAP serves as the basis for which the RRWC will conduct the Adopt-A-Stream (AAS) program. The following is my evaluation of AAS 2004 based on the QAP.

A. Data Quality Objectives

1) Accuracy and Precision

2004 macroinvertebrate data collected at the site is not consistent with the data generated during ID day.

- 12 of the 14 sites have inconsistencies between the field data and id vials.

It is unclear whether the omissions or additions on the Instream Survey Data Sheet (ISDS) are within the QAP precision requirement of 9 points. However the number of sites with inconsistencies is critical. Several explanations are possible. Some teams are completing the ISDS on site while others are leaving it blank, to be completed during ID Day. Teams have been instructed not to collect macroinvertebrates such as crayfish and clams. It is uncertain whether they are found at the site, since they are not kept for the id samples. ***Recommendation:*** *Train volunteers on data that has to be collected on site. If they are unsure of information, notes need to be recorded on the ISDS so appropriate adjustments can be made.* *(1)*

Chironomidae was marked on one ISDS, but had no representative in the vial. Since this is one of the smaller macroinvertebrates, it is possible an inexperienced sorter could have missed it. Other macroinvertebrates were recorded on ISDS, but not found during ID day.

Some of the physical habitat measures were either recorded incorrectly, or omitted. Some sites recorded substrate as "some cobbles" instead of representative percentages of each substrate category. Several cross sections were not drafted.

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- 12 cross sections not drafted, or plan views were drafted instead
- 5 substrate entries not recorded correctly or omitted

Single Site Watershed Survey Data Sheet (SSWSDS) does not ask for exact stream measurements, rather a range of options are given. ***Recommendation:*** *Add to the Single Site Watershed Survey Data Sheet to collect pertinent information for the River Raisin stream search.* *(2)*

These inconsistencies can be addressed in future captain and volunteer training sessions. ***Recommendation:*** *Review data collected as teams return from their sites on the day of stream search for accuracy.*(3) *Develop training protocols to bring volunteer data collecting within QAP accuracy and precision.*(4)

2) Comparability

Stream search is currently using the prescribed standard data forms, Single Site Watershed Survey Data Sheet, Instream Survey Data Sheet, and Macroinvertebrate Count List. Hard copies of these have been supplied to DEQ. There should be an ongoing process to work with DEQ on data acquisition and format. ***Recommendation:*** *Develop data format with DEQ and MiCorps that will meet both the RRWC and DEQ objectives.* *(5)*

3) Completeness

May 1, 2004 all 14 sites were sampled and evaluated. To ensure that all sites are sampled it is critical to keep volunteer interest high.

4) Training Requirements and Certification

The captain training was conducted by DEQ Gary Kohlhepp for 11 volunteers. As stated above, the data collected during stream search demonstrates the need for additional training. A progressive training program will ensure qualified captains. This will not only increase the quality of information, but add value to the volunteers experience during the stream search. ***Recommendation:*** *Develop a tiered training program to produce accurate assessments from volunteers.* *(6)*

B. Documentation and Records – Field Sheets/ Database

Data is currently stored on the field data sheets and macroinvertebrate data is also stored in an Excel spreadsheet, RR macros.xls.

C. Sampling Process

Sampling was carried out as prescribed. It is unclear if local landowners were notified of the stream search date. ***Recommendation:*** *Create site folders with the appropriate landowners contact information for future communication.* *(7)*

D. Sampling Method Requirements

Methods were mostly carried our as prescribed. The denatured alcohol used has some formaldehyde in it that tends to make the macroinvertebrates bodies brittle. Also the individual names of each volunteer were not listed on the site data forms. ***Recommendation:*** *Use 90% ethanol to store macroinvertebrates.* *(8)*
Record all volunteers at each search site. *(9)*

E. Sample Handling and Custody Requirement

Macroinvertebrate collection jars have incomplete labels on them. No labels were placed inside the jars. 2000 through 2003 macroinvertebrates are being stored at the Conservation District. 2004 is stored at the RRWC. ***Recommendation:*** *Acquire all samples and designate appropriate storage and inventory.* *(10)* A reference macroinvertebrate collection will be a valuable tool in ensuring quality and provide an excellent teaching tool. ***Recommendation:*** *Create a macroinvertebrate reference collection.* *(11)*

F. Analytical Methods Requirements
The prescribed habitat and macroinvertebrate assessments are being utilized.

G. Quality Control Requirements
Data collected on the SSWSDS and ISDS is variable, see noted discrepancies in I.A. ***Recommendation:*** *Incorporate identified training needs into the training program.* *(12)*

H. Equipment Testing, Inspection, and Maintenance Requirements
This is being carried out as prescribed. However equipment is a combination of borrowing from partners and owned. Inventory of all equipment needs to be completed to properly manage program equipment. Informal agreements with partners would improve the efficiency of prep work for stream search and ID day. ***Recommendation:*** *Initial equipment needs for the program include: microscope, sorting trays and specimen vials.* *(13)* *Inventory existing and identify needed equipment.* *(14)*

In planning and developing the program, information needs include recent and historic macroinvertebrate data from DEQ and University of Michigan. Plat book from each county should be acquired to locate potential sites and locate key landowners. This enables the RRWC to develop cooperative relationships with landowners that may need to be contacted for parking or merely a courtesy call. ***Recommendation:*** *Acquire historic River Raisin biological and physical data and appropriate maps.* *(15)*

Currently equipment is borrowed from the Lenawee Conservation District. They have offered to donate such items as squirt bottles, forceps, 5-gal buckets, tarps, ropes, tape measures, etc. However, current office arrangements have not been identified for storage. ***Recommendation:*** *Identify storage space for equipment and historic macroinvertebrate collections.* *(16)*

I. Instrument Calibration and Frequency
Thermometers need to be checked each year for accuracy.

J. Data Management
Data from 2004 was not reviewed by a qualified biologist for accuracy and completeness. The discrepancies are noted in I.A. ***Recommendation:*** *Setup a database, e.g. Access, for storage and analyses of site data.* *(17)*

K. Reports
Communication is currently carried out by phone, mail, email and newspaper releases. Stream search results and updates posted on the RRWC website will provide an easily accessed communication format. ***Recommendation:*** *Post Stream Search reports on RRWC Website.* *(18)* In order to improve the quality of volunteer data collected, follow-up reports will provide an opportunity for the

volunteers to learn and improve assessment abilities. ***Recommendation:*** *Report back to volunteers on stream search and ID discrepancies.* *(19)* The volunteer database needs to be revisited. Information such as years served, capacity in which the volunteer serves and sites they work on should be included. This enables efficient communication between volunteers, citizens, government agencies and RRWC. ***Recommendation:*** *Develop a comprehensive database, e.g. Access, to hold pertinent volunteer information.* *(20)*

L. Data Review, Validation, and Verification Requirements
Technical review was completed 11 months after 2004 stream search day and ID day. Some discrepancies that were not caught after search day may have affected data from ID day, compounding the error (see I.A.) ***Recommendation:*** *Keep the 2004 data with a note that the information is not validated and not verified.* *(21)*

M. Validation and Verification Methods
The best time to more corrections on the data sheets would be on the day of stream search. This will also serve as a great training opportunity between the teams and the AAS Director. ***Recommendation:*** *Program director to check site data for completeness and accuracy as the search teams check back in.* *(22)* *All data discrepancies need be identified and reported.* *(23)* *Site ID vials need to be verified by a qualified taxonomist.* *(24)*

These recommendations have varying levels of time commitment. Some can be implemented for Stream Search 2005 while others may take several stream search cycles to fully implement. I would like to commend the RRWC for their interest in their stream search program. Their acknowledgement to address QAP requirements demonstrates commitment to develop the River Raisin's Adopt-A-Stream program into a quality volunteer monitoring program.

III. 2005 Adopt-A-Stream planning activities:

A. Adopt-A-Stream 2005

- 2005 AAS activities were submitted to local and area newspapers
- past volunteers were mailed AAS 2005 fliers
- Email notice of AAS activities went out to both potential and past volunteers

B. School Monitoring Efforts

There are several educational stream monitoring programs being administered at area school. This list is not complete but includes:

- Monroe Community College
- Blissfield High School
- River Raisin Institute
- Morenci High School
- Adrian High School
- Ida High School.

These programs are in various stages of development. The goals of the programs are also varied. Contact with these groups should be encouraged. The Adopt-A-Stream program may be able to supplement their database with these other monitoring efforts. Communication will also eliminate duplicate sampling efforts. The role of the Watershed Council has not been defined in these efforts. Potential roles for the RRWC may be:

- Teacher training
- River Raisin literature
- Maintain database of search results
- Maintain database of search sites and frequency
- Review and recommendations for program development

DEQ reported their findings when working with school monitoring programs. The following except is from DEQ, SWQ, The Use of Michigan Volunteer Monitoring Data – Benefits and Constraints, March 2001. It can be viewed at http://www.deq.state.mi.us/documents/deq-swq-gleas-volunteerbenefits.pdf

1. Schools are not as Reliable as Adult Volunteers in Providing Reliable, High-quality Data.

Based on volunteer participation to date, we have observed that working with adult volunteers is preferable to working with schools. A number of reasons may contribute to this observation. Training logistics are more difficult with schools. All adult volunteers are trained, whereas only teachers are trained and not the students. Unless the teacher is very knowledgeable and dedicated to water quality monitoring, it is difficult to make sure that the students do a thorough job of collecting benthic invertebrates.

Overall goals of the groups are different as well. Adults tend to be very interested in water quality issues and want to make something happen, whereas schools focus on education. Data quality seems to be a secondary consideration for schools. For example, the Friends of the St. Joe received a volunteer grant in Fiscal Year 1998 (FY98), and are working through teachers and schools to collect data in the watershed. Most classes did not begin sample collection until fall 1999

or even spring 2000. Some of the classes have not submitted data forms or specimen jars. Likewise, the Northern Tittabawassee River Task Force worked through schools to sample locations on the Cedar River in Gladwin and Beaverton. These schools did not collect data until spring 2000, one year after receiving training and grant funds. Few data forms have been received, and it is difficult to contact teachers.

In contrast, most groups with primarily adult volunteers have collected samples within weeks of training and generally submit their data forms immediately. Therefore, we recommend that SWQD focus limited staff time and funding on adult volunteers. These adults can encourage children/students to participate in the surveys to generate additional interest.

This report is respectfully submitted May 27, 2005 by Jill Kelley, RRWC Adopt-A-Stream Coordinator.

Summary of Program Recommendations:

1. Train volunteers on data that has to be collected on site. If they are unsure of information, notes need to be recorded on the ISDS so appropriate adjustments can be made.

2. Add to the Single Site Watershed Survey Data Sheet to collect pertinent information for the River Raisin stream search.

3. Review data collected as teams return from their sites on the day of stream search for accuracy.

4. Develop training protocols to bring volunteer data collecting within QAP accuracy and precision.

5. Develop data format with DEQ and MiCorps that will meet both the RRWC and DEQ objectives.

6. Develop a tiered training program to produce accurate assessments from volunteers.

7. Create site folders with the appropriate landowners contact information for future communication.

8. Use 90% ethanol to store macroinvertebrates.

9. Record all volunteers at each search site.

10. Acquire all historic samples and designate appropriate storage and inventory.

11. Create a macroinvertebrate reference collection.

12. Incorporate identified training needs into the training program.

13. Initial equipment needs for the program include: microscope, sorting trays and specimen vials.

14. Inventory existing and identify needed equipment.

15. Acquire historic River Raisin biological and physical data and appropriate maps.

16. Identify storage space for equipment and historic macroinvertebrate collections.

17. Setup a database, e.g. Access, for storage and analyses of site data.

18. Post stream search results on RRWC Website.

19. Report back to volunteers on stream search and ID discrepancies.

20. Develop a comprehensive database, e.g. Access, to hold pertinent volunteer information.

21. Keep the 2004 data with a note that the information is not validated and not verified.

22. Program director to check site data for completeness and accuracy as the search teams check back in.

23. All data discrepancies need be identified and reported.

24. Site ID vials need to be verified by a qualified taxonomist.