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## **Duck Creek Volunteer Stream Monitoring Program**

# **Final Project Report**

### **GOALS & OBJECTIVES**

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The Muskegon Conservation District (MCD) developed the Duck Creek Volunteer Stream Monitoring Program to meet a multi-faceted goal. As stated in the project proposal:

In the overall pursuit to retain the high-quality status of the Duck Creek watershed, our goal for this project is to provide accurate data regarding the ecological health of Duck Creek in order to:

- monitor the effects of new development within the watershed
- encourage informed land use decisions for future development
- share valid data with other interested organizations, such as MDEQ
- increase community awareness and involvement in the protection of the natural resources within the watershed
- facilitate the solicitation of grant monies to implement projects to protect and restore the watershed

To achieve this goal, MCD outlined five objectives, as follows:

**Objective 1:** Recruit, train, and retain a core group of dedicated volunteers (at least 24 new volunteers and 8 experienced volunteer team leaders over the course of the grant period) able to complete stream monitoring tasks according to the approved MiCorps/MDEQ procedures.

**Objective 2:** Conduct four habitat assessment and benthic macroinvertebrate data collection events during the grant period, with a minimum of two additional collections to be held after the grant period.

**Objective 3:** Ensure the collection of precise, accurate, and reliable data by developing and implementing a MiCorps-approved Quality Assurance Program Plan.

**Objective 4:** Establish an effective system for storing, sharing, and interpreting stream monitoring data.

**Objective 5:** Disseminate the data for the purpose of encouraging informed land use decisions and implementation of best management practices within the watershed.

## ACCOMPLISHMENTS

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The goals and objectives were designed to be successfully completed over a two year period. This final report is being submitted after only one year, since the awarded grant funds lasted only half as long as originally projected. With that in mind, MCD and our partner organization, the Duck Creek Watershed Assembly (DCWA), have made remarkable progress toward successfully establishing a sustainable volunteer stream monitoring program to meet the goals stated above.

Specifically, the following success has been achieved for each of the five objectives:

**Obj. 1:** 26 total volunteers have been recruited so far. 4 of these volunteers have attended all events and 4 more have attended most events, making 8 volunteers that have demonstrated dedication to the program and who are becoming experienced enough to lead others in the activities according to set procedures. Two local newspapers and the township and MCD e-newsletters published articles to assist in recruiting volunteers for the program. Furthermore, a webpage has been established to provide ongoing information about the program for people interested in volunteering. A database was created to keep track of volunteer contact information and to record participation in program activities.

To train volunteers in approved MiCorps procedures, a one-day volunteer training was held before the first sampling event including classroom and in-stream components. On the day of the first sampling event, volunteers participated in a brief refresher training to remind them of proper procedures. On the day of the second sampling event, volunteers participated in an in-stream practice collection before they divided into their teams and sampled their sites. This turned out to be quite effective to familiarize new volunteers with the sampling procedures and reinforcing the finer points of macroinvertebrate collection for the returning volunteers.

**Obj. 2:** One habitat assessment and two benthic macroinvertebrate collection events have been completed at six sites in the Duck Creek watershed. A third collection event is scheduled for the same six sites this fall. Identification of the collected macroinvertebrates to the family level was conducted as a separate event the week after each collection.

**Obj. 3:** A MiCorps-approved Quality Assurance Program Plan has been written and implemented.

**Obj. 4:** A Microsoft Excel spreadsheet has been developed to store the data collected through the program. Using Excel allows us to quickly and easily create charts and graphs to analyze and display data in a way that is easy to share and understand. This data has also been entered into the MiCorps Data Exchange website for storage and public accessibility.

**Obj. 5:** After only two sampling events, any analysis of the data is still preliminary. For that reason, we are not yet actively promoting any conclusions drawn from the data, although we are providing the DCWA and volunteers participating in the data collection with the results of each sampling. Data is also available publically on the MiCorps Data Exchange website for others wishing to examine the preliminary findings. A Watershed Management Plan is currently being written for the Duck Creek watershed and will include the results from all monitoring activities that have taken place in the watershed.

## **SUMMARY OF TRAINING/MONITORING EVENTS**

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### **Fall 2009:**

- One-day training with new volunteers (11 volunteers)
- Sampling Event to collect benthic macroinvertebrates and complete habitat assessment (10 volunteers, 6 sites sampled)
- Identification Event to ID macroinvertebrates (4 volunteers)

### **Spring 2010:**

- Sampling Event to collect benthic macroinvertebrates, including 30-minute in-stream re-training of all volunteers (17 volunteers, 6 sites sampled)
- Identification Event to ID macroinvertebrates (2 volunteers)

## **CHALLENGES**

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As with any volunteer program, the initial challenge was to recruit enough volunteers to get the work done. By the second event we had almost doubled the number of volunteers and easily covered all six sites with teams of more than two people. I believe the upcoming sampling event will see as many or more volunteers as the previous event, each gaining more experience and enthusiasm for the project as it continues into the future.

Another challenge was finding appropriate sites for volunteers to work in. In the original proposal, eight sites were identified as monitoring locations. By the time the project was underway, two of the original sites were no longer accessible. Coupled with the low number of volunteers, we decided to start the program by sampling only six sites, then add sites later in the program. We are on the verge of completing our third sampling event, after which I believe we will have enough volunteers in numbers and experience to add at least one new site for the fourth sampling event.

The greatest challenge, of course, is running out of funds far earlier than expected. The low number of volunteers at the beginning of the project and their greater reliance on the project leaders (MCD staff) was a major factor in the early depletion of the funds. The program will continue to operate, but will rely heavily on volunteers for organizational responsibilities that were previously completed by paid staff. The result will be slower growth of the program, as less time will be devoted to volunteer recruitment at first while current volunteers are learning how to manage the program.

## **ENVIRONMENTAL BENEFITS**

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The major benefit of this program to the environment of Duck Creek is the increased awareness on the part of citizens about the watershed and issues facing it. This has been accomplished through newspaper articles, e-newsletters and webpages from MCD and townships. Working with students in the classroom and in the field to do replicate sampling also greatly increased awareness of the project not only by the students, but their families as well.

Moving citizens to action on behalf of the watershed is another great benefit of this program. Once aware of the issues, a growing number of citizens have volunteered their time and effort to complete monitoring tasks that will ultimately help protect the water quality of Duck Creek.

The data collected from this program will be used in the near future for even more tangible environmental benefits in Duck Creek. Not long after this project got underway, MCD was awarded a grant to write a Watershed Management Plan for Duck Creek. The monitoring data volunteers collect will be included in the plan as baseline information to help determine locations for needed restoration and implementation of Best Management Practices (BMPs). Future data from this program will be used as one way to evaluate the effectiveness of restorations and BMP implementations. Having a monitoring program in place before the Watershed Management Plan is written provides a more complete picture of the state of the watershed and a reliable method of evaluation for future projects.

## **LESSONS LEARNED**

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1. If I had it to do all over again, I would have applied for the Start-up Grant first. The main reason is that I greatly underestimated the amount of time it takes to develop a monitoring program from scratch. Had I spent a year visiting other programs and interviewing other project managers, I would have been able to more realistically predict the time commitment necessary, especially for a first time project manager such as myself. With the Start-Up Grant I could have completed much of the preparation work for time-consuming tasks, such as writing the QAPP and compiling a Volunteer Handbook. This would have helped to prevent the Implementation Grant funds from being depleted too soon and MCD could have nurtured the program for the full two-year term of the grant proposal rather than having to put so much responsibility on volunteers so soon.

2. Start small and plan to grow. I idealistically thought that the first monitoring event would be just as well-attended and enthusiastically completed as later collections. In reality, barely enough volunteers attended the first event to complete all six sites. I also found that although volunteers are willing, they are often not very confident. Combining the first macroinvertebrate collection with the first habitat assessment was too much new stuff to ask volunteers to do right off the bat, especially when each team only had two people.

I would definitely recommend to new program managers to keep the first sampling event small and simple. Plan to monitor fewer sites the first time around in case of low volunteer turnout, and don't give them too much to do at first. Let them get comfortable being out in the stream and picking bugs. Then add to their responsibilities at future collection events and expand the number of sites as your volunteer base grows. This also applies to identifying macroinvertebrates. If none of the volunteers have experience identifying macroinvertebrates, do not feel like you need to go all the way to the family level (if that is your intent) the first round or two of monitoring. Let the volunteers get comfortable with identifying to the order level before having them experiment with family level. In the meantime, you can practice with family level so that by the time they are ready, you will be able to give them guidance.

3. If you're going to do macroinvertebrate identification down to the family level, you have to have a microscope. Period. Write it into your proposal budget.

## **PARTNERS**

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**Muskegon Conservation District:** Managed entire program—organized and led training, purchased supplies, advertised events, organized monitoring and ID events, entered data into MiCorps Exchange. Also provided a total of \$3041.96 in matching funds for personnel and in-kind supplies)

**Duck Creek Watershed Assembly:** Provided volunteers for monitoring events, recruited volunteers outside of organization for monitoring events (\$997.50 of volunteer time contributed).

**Dalton Township:** Provided publicity for the sampling events by including information on their website. Township Supervisor participated in events to show support.

**Fruitland Township:** Provided publicity for the sampling events by including information in their e-newsletter. Provided meeting room for training free of charge.

**Alcoa Foundation:** Provided funds for purchase of new nets through the Outdoor Investigations Program administrated by the Muskegon Conservation District (\$513.83 donated).

## **PROJECT SUSTAINABILITY**

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Duck Creek monitoring will continue after this grant is finished. Both MCD and DCWA are committed to preserving the water quality of this watershed and monitoring for benthic macroinvertebrates is an excellent method for quickly detecting any changes and pinpointing problem areas. The program will now be run mainly by volunteers from DCWA with oversight from MCD rather than being completely managed by MCD as it has been for the first year. As funds are secured for implementation of restorations and installation of best management practices, volunteer monitoring according to MiCorps procedures will be included in the proposals as a method of project evaluation. This will help fund the program well into the future.

## **PRODUCTS COMPLETED**

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- Quality Assurance Project Plan
- Volunteer Handbook
- Excel spreadsheet to record raw data from datasheets
- Two press releases each published in four local newspapers and e-newsletters to recruit volunteers and raise public awareness
- Webpage on MCD website to promote program
- Final samples from two collections at six sites, identified to the family level
- Hardcopies of all original datasheets
- Final Project Report
- Project Fact Sheet