



**Stream Health Evaluation Project
Citizen Volunteer Water Quality Monitoring Trainings
2008**

Evaluation Report

Prepared by Minnesota Waters



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Table of Contents

Introduction	3
Quantitative Evaluation	4
Quantitative Rankings of Level of Satisfaction	5
Qualitative Evaluation Analysis	6
Evaluation Conclusions	7
Workshop Agendas	8
Evaluation Worksheets	12

INTRODUCTION

The goals of these workshops were to promote a better understanding of stream macroinvertebrate sampling, processing, and to certify citizens to monitor streams for assessment. Citizens should be familiar with:

- Hands on experience in sampling for benthic macroinvertebrates
- Hands on experience in performing a habitat assessment
- Hands on experience in measuring stream flow
- Reasons for measuring benthic macroinvertebrates to assess stream water quality

Our partners in this workshop were Friends of the Mississippi (FMR) and the Minnesota Pollution Control Agency (MPCA). A Stream Health Evaluation Project Training Manual tailored toward the requirements of the SHEP program in the Rice Creek Watershed was produced for this program..

The trainings consisted of introducing all participants to the reasons for macroinvertebrate monitoring, SHEP program components, and the protocols that they will use to perform macroinvertebrate monitoring, habitat assessment, stream flow measurements, and macroinvertebrate identification. Trevor Russell (FMR) introduced the Rice Creek watershed sampling sites and discussed the logistics of team sampling for the chosen stream sites, as well as distributing necessary sampling equipment. The participants took part in an August 23rd field training workshop. Joel Chirhart (MPCA) trained the volunteers in macroinvertebrate monitoring protocols at Clearwater Creek and provided guidance on the development of the SHEP training manual. Minnesota Waters presented information on the process of benthic macroinvertebrate stream sampling and trained the volunteers on habitat assessment and stream flow measurements. The stream sampling sites for the 2008 sampling season were chosen to help determine the effect of stream restoration projects on the stream macroinvertebrate community.

Both qualitative and quantitative written questions were used to assess all aspects of the program's effectiveness in reaching its goals. Twenty three participants representing three SHEP sampling teams attended the August 23rd, 2008 workshop. Eighteen (78%) of the evaluations were returned.

A pre and post workshop evaluation was used to assess each workshop's effectiveness in reaching its goals. It included 3 to 4 quantitative questions in which the attendees were asked to rank their knowledge, skill and confidence in specific topic areas to be covered in the workshop before and after the workshop. Participants were also asked to rank: quality of the meeting environment (room, set-up and food), the usefulness of the presentations, the quality of the field demonstrations and stream site; laboratory demonstrations, how well the SHEP program components and requirements were explained, effectiveness of facilitators, and how the workshop met their expectations.

In the qualitative portion participants were asked to discuss the knowledge/skills areas they needed the most help with, their opinion on the length of the training, describe the least and most useful parts of the workshop, their key learning areas, how adequately prepared they feel to conduct monitoring and laboratory macroinvertebrate identification, how to improve the workshop, and what type of additional training they would like. The responses will be used to improve subsequent workshops.

The Minnesota Legislature, through the MPCA, has provided State funds through the Clean Water Legacy Act for Surface Water Assessment Grants.

QUANTITATIVE PRE AND POST EVALUATION COMPARISON

A Student T-test using Excel software was run on each paired pre and post question to determine if there was any significant increase in knowledge, skill or confidence in specific key topic areas. A probability (p) level of $p \leq 0.05$ was used. Any question pair in which the calculated T-test value was less than 0.05 was considered statistically significant. This means that there is a 95% chance of identifying an increase when there is one and a 5% chance of identifying an increase when one doesn't exist. There was a significant increase in learning during the workshop in all 3 subject areas. For a complete list of questions and the corresponding statistics, refer to Table 1 below.

TABLE 1. Statistical evaluation of pre and post questions in specific topic areas presented in the SHEP Program Workshop held at **Wargo Nature Center in Hugo, August 23, 2008.**

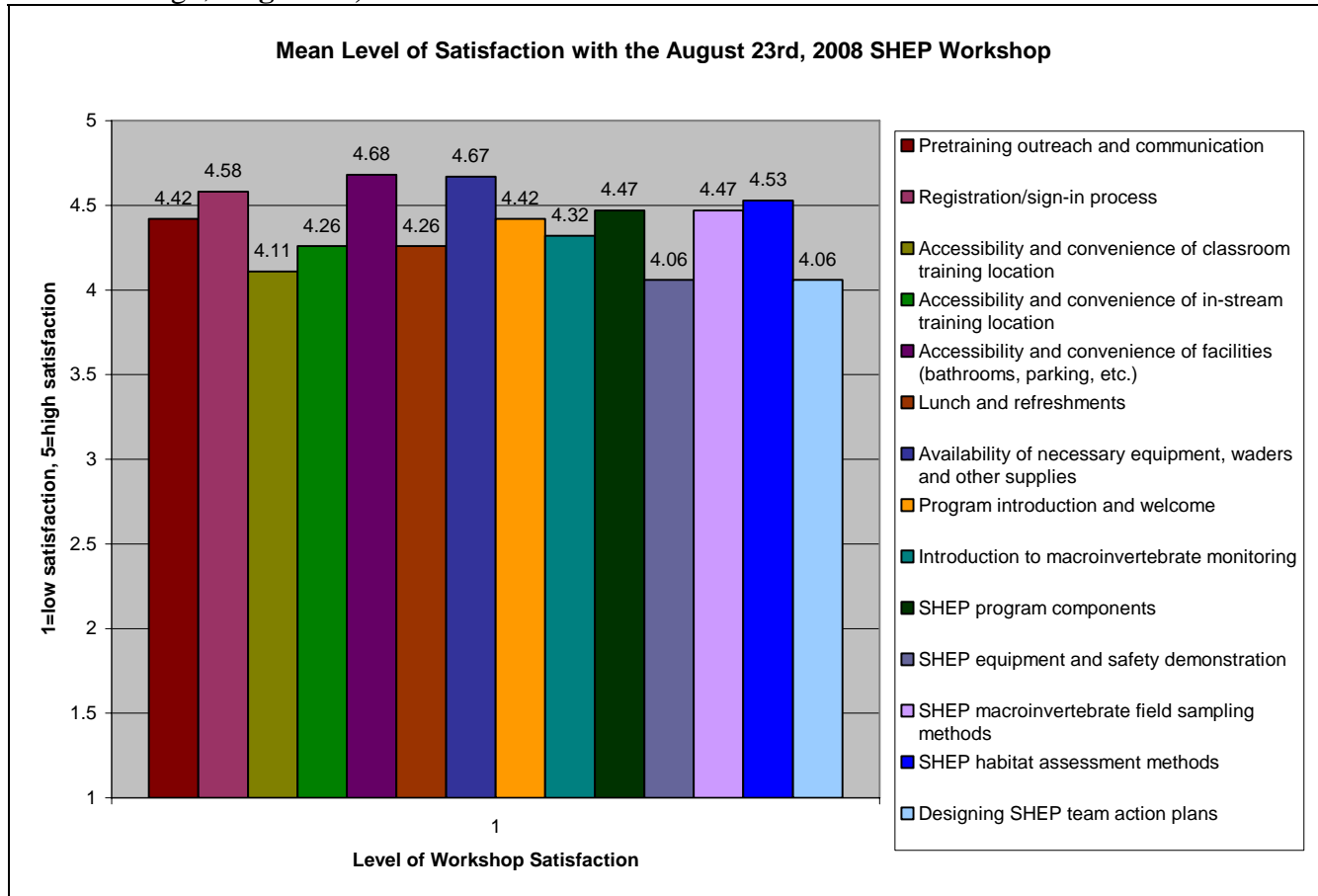
QUESTION	*PRE MEAN	*POST MEAN	T- TEST	P\leq0.05 **
Rank your skills and confidence with basic macroinvertebrate monitoring knowledge/Why monitor bugs	3.39	4.5	0.00	SIG
Rank your skills and confidence with macroinvertebrate field sampling methods	2.67	4.33	0.00	SIG
Rank your skills and confidence with habitat assessment methods	2.56	4.11	0.00	SIG

* 1 = lowest ranking 5 = highest ranking
 ** SIG = Significant NS = Not Significant

QUANTITATIVE RANKINGS OF LEVELS OF SATISFACTION

Quantitative rankings were also conducted in fourteen areas; pretraining outreach and communication, registration/sign-in process, accessibility and convenience of classroom training location, accessibility and convenience of in-stream training location, accessibility and convenience of facilities, lunch and refreshments, availability of necessary equipment, program introduction and welcome, introduction to macroinvertebrate monitoring, SHEP program components, SHEP equipment and safety demonstration, SHEP macroinvertebrate field sampling methods, SHEP habitat assessment methods, and designing SHEP team action plans. Participants were also asked to comment on each of the questions. Mean rankings are shown in Chart 1.

CHART 1. Quantitative evaluation rankings of the SHEP training workshop held at Wargo Nature Center in Hugo, August 23, 2008.



* 1 = lowest ranking 5 = highest ranking

Overall the participants gave the SHEP training workshop a B+ in all six areas of our program.

QUALITATIVE EVALUATION ANALYSIS

The following is a summary of the six qualitative evaluation questions for the **August 23rd, 2008** SHEP training workshop.

Please circle your opinion on the length of the training. Too short, Just right, Too long

One participant indicated that the length of the workshop was too short, and the rest of the participants indicated that the length of the workshop was the right length.

What aspects or sessions of the SHEP training do you feel are most valuable?

The majority of the participants found the hands-on performance of the sampling techniques the most valuable part of the training workshop. The opportunity to meet their team members was also very important to the participants.

What aspects sessions of the SHEP training are most in need in improvement?

Some participants felt that more in-depth example of habitat assessment would be helpful. One participant suggested “photos of actual sites might be helpful as an exercise (case example to go over before going into the field).”

Following this training, do you feel comfortable and confident in your ability to successfully participate in your team’s field collection and habitat assessment activities with SHEP?

The majority of participants indicated that they were comfortable performing the SHEP protocols. One participant commented “Yes, but largely because we have veterans on our teams.”

Have you been involved with MPCA's Citizen Lake Monitoring Program or Citizen River Monitoring Program? Please circle yes or no.

Two participants indicated that they have been involved with MPCA’s monitoring programs, and sixteen participants indicated that they have not been involved with MPCA’s monitoring programs.

What other (future) trainings might you be interested in?

Participants expressed interest in attending WHEP and aquatic plants identification trainings. They were also interested in MPCA’s CLMP and CRMP, and suggested a stream restoration workshop.

Other comments?

Over all participants seemed pleased with the workshop. Two suggestions that resulted from this question was changing the stream monitoring site to a more accessible location and to improve the habitat assessment. Examples of the feedback that we generated by this question included “Thank you! Great job this year.” “Well organized, friendly people.”

EVALUATION CONCLUSIONS

Positive Aspects:

- There was statistically significant learning in all goal areas
- Participants seemed satisfied with the information presented.
- Good interaction and questioning between presenters and attendees
- Most comments were positive
- Participants seemed to find this year's workshop experience an improvement over last year's workshop.

Negative Aspects and What to do About Them:

- Habitat Assessment seemed an area of concern for the volunteers. We might want to add example photos of each habitat category to the powerpoint presentation.
- The demonstration sampling site, Clearwater Creek, was difficult for some older volunteers to access. One volunteer fell down while attempting to access the creek. We might want to consider an alternative stream sampling site for the workshop next year.

The SHEP workshop was a successful training day. The volunteers gained significant knowledge and were engaged during the workshop. As seen by the comments of the participants the concerns about the SHEP workshop were relatively minor and everyone left the workshop feeling that they could successfully sample their stream sites according to SHEP protocols. Satisfaction levels with the workshop were very high and participants left the workshop enthusiastic about doing the benthic macroinvertebrate monitoring.

A quick debrief with the trainers also found a general satisfaction with the organization and execution of the SHEP workshop. Future workshops could be improved by locating an alternative sampling site with better accessibility. We might also want to explore the possibility of re-structuring the workshop for new and experienced volunteers.



SHEP Training
August 23, 2008
9:30-4:00 pm
Wargo Nature Center



Agenda

- 9:30-9:50 Registration
- 9:50-10:05 Welcome and Introductions
Macroinvertebrate Monitoring
SHEP program introduction
- 10:05-10:50 Overview of Manual and Agenda
Introduction to Macro Monitoring
Preparation for Field training and travel to sampling site
- 10:50-11:10 Break for Brunch
- 11:10-2:10 Travel to and from sampling site
Outside Training and Certification on SHEP protocols
Safety Considerations
Macroinvertebrate Sampling
Habitat Assessment methods
- 2:10-3:40 Review of Field Training
Action Plan
Sampling Scheduling and Logistics
- 3:40-4:00 Final Questions and Concerns
Evaluations
- 4:00 Adjourn!

**Thanks for
taking care of
your watershed!**



The Minnesota Legislature, through the MPCA, has provided State funds through the Clean Water Legacy Act for Surface Water Assessment Grants.

Facilitator's Agenda

SHEP FIELD TRAINING

August 23, 2008

9:00 am - 4:00 pm

Wargo Nature Center, MN

Workshop Goal:

To train, equip, and prepare volunteers to complete stream-based macroinvertebrate and habitat assessment in Rice Creek Watershed.

- Introduces sampling and equipment
- Requires competency demonstrated by volunteers?
- Requires a commitment by volunteers to monitor and complete lab work in the 2008 sampling season.
- Each monitor completes an action plan which outlines their strategy for commitment

Timeline Agenda Item Responsible Party

9:00-9:30 Set-up All
Technically, 9:00 is the earliest we can get in – if we show up 15 minutes earlier, Trevor has had luck in the past getting in. Break into groups right away.

9:30-9:50 Registration Sarah

FMR will provide

- Pre-survey from HECUA - **TREVOR** - we'll tell volunteers the event starts at 9:30am so they can fill out the pre-survey
- Name Tags
- Sign-in sheet
- Detailed Maps of sampling locations - matched to each volunteer - same locations
- Forms, and other paperwork needed for season: Photo Waiver, Overall Project Waiver, Sign-in sheet, Action Plan, Field Worksheets, Evaluations, Manuals
- Equipment (FMR & Rice Creek WD - Trevor will coordinate) - each team will have a field bucket and separate lab bucket
 - Trevor contact volunteers to ask them to bring their Field and Habitat list in manual. - this Friday confirmed
 - Alcohol
 - Sieve Buckets
 - Waders (Rice Creek Watershed District) - remind volunteers to bring their own
- Projector - Trevor will bring Mac, Joel will bring PC, MW will bring pwrpts on flash drives - MW email powerpoints to Trevor
- Refreshments/lunch

MPCA/Joel will Provide

- Waders for training day only

- Nets for training day only
- Field Sampling bottles for training and sampling

MW will provide:

- Participant Agenda
- Facilitator Agenda
- Manuals which includes all methods - MW will bring 10 additional manuals
- Action Plan
- Practice Data Sheets
- MW Training Evaluation (Erica)

9:50-10:05 Welcome / Intros / **All**

Logistics / Background of SHEP - the purpose of them going out there - what they're looking at and why, logistics, funders and partners **Trevor**
How SHEP is structured after WHEP and why it's done that way **Joel**

10:05-10:35 Overview of Manual/ Agenda **MW**

Intro to Macro Monitoring **MW**

SHEP training program components (introduce lab work, data use) **MW**

10:35-10:50 Prepare for Field Monitoring **Joel**

Brief Intro to equipment and purpose **Joel**

10:50-11:10 Lunch/Brunch

11:10-11:40 Move to Site

11:40-1:40 Field Methods **Joel; MW**

Training Assist; Time keepers **Trevor; MW**

10 minutes: Handout equipment **Trevor**

Gather as one group; Site Safety; Waders **Joel**

Divide into 2 groups

Trevor will invite Matt Koshen from Rescue Watershed District (will bring waders)

45 minutes: Demonstration of macro methods; All Practice **Joel**

Demonstration of habitat methods; All Practice **MW**

45 minutes: Switch groups and repeat

20 minutes: Return as one group

Field sample processing **Joel**

1:40-2:10 Return to Center

2:10-3:10 Questions from field; review of methods in manual **MW; Joel**

3:10-3:40 Action Plan **FMR; MW/MPCA Assist**

- Team leaders work on scheduling for field and start scheduling for lab meetings too
- Joel and Trevor will float to talk about maps and equipment, MW answer questions
- Write dates up on board/master calendar
- Hand out Sites Descriptions and Map
- Walk through Action Plan
Final Scheduling; Assign Dates

Organize next step logistics - lab meetings

Make sure all final equipment is distributed (Tub and 2 nets per group)

3:40-4:00 Wrap-up and Evaluations



**SHEP Field Training Workshop
Evaluation
August 23, 2008**

Thank you for attending the SHEP Training – Your feedback is very important to us. Please fill out the following form and return it to SHEP program staff upon completion.

Please Check One: New SHEP volunteer: Returning SHEP volunteer:

1-) Please rank your skills and confidence in the following areas:

(1= low skill/confidence, 5=high skill/confidence)

	<u>Before Training</u>					<u>After Training</u>				
Basic macro monitoring knowledge / Why monitor bugs	1	2	3	4	5	1	2	3	4	5
Macroinvertebrate field sampling methods	1	2	3	4	5	1	2	3	4	5
Habitat assessment methods	1	2	3	4	5	1	2	3	4	5

2-) Please share your level of satisfaction with the following components of the SHEP field training:

(1= low satisfaction, 5=high satisfaction)

Pre-training outreach and communication	1	2	3	4	5
Registration / sign-in process	1	2	3	4	5
Accessibility and convenience of classroom training location	1	2	3	4	5
Accessibility and convenience of in-stream training location	1	2	3	4	5
Accessibility and convenience of facilities (bathrooms, parking, etc)	1	2	3	4	5
Lunch and refreshments	1	2	3	4	5
Availability of necessary equipment, waders and other supplies	1	2	3	4	5

3-) Please comment on your satisfaction with the training session components below:

(1= low satisfaction, 5=high satisfaction)

Program introduction & welcome	1	2	3	4	5
Introduction to macroinvertebrate monitoring	1	2	3	4	5
SHEP program components	1	2	3	4	5
SHEP equipment and safety demonstration	1	2	3	4	5
SHEP macroinvertebrate field sampling methods	1	2	3	4	5
SHEP habitat assessment methods	1	2	3	4	5
Designing SHEP team action plans	1	2	3	4	5

4-) Length of Training (circle one): Too short Just Right Too Long

Comments:

Please Complete Other Side

5) What aspects or sessions of the SHEP training do you feel are most valuable?

6) What aspects sessions of the SHEP training are most in need in improvement?

7) Following this training, do you feel comfortable & confident in your ability to successfully participate in your team's field collection and habitat assessment activities with SHEP?

8) Have you been involved with MPCA's Citizen Lake Monitoring Program or Citizen River Monitoring Program?

Please check: Yes _____ No _____

9) What other (future) trainings might you be interested in?

10) Other comments?

Thanks for filling out your SHEP Field Training Workshop evaluation form. Your candid feedback helps us improve our SHEP trainings for future seasons.

Thanks for Taking Care of Your Watershed!

