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Adopt-A-Stream Improvement and Expansion Project Final Report

Table of Contents

<u>Section</u>	<u>Page</u>
1.0 Introduction.....	3
2.0 Project Goals and Objectives.....	4
2.1 Success Analysis.....	4
3.0 Project Benefits.....	5
4.0 Results Summary.....	5
5.0 Partners.....	6
6.0 Completed Product List.....	7
7.0 Project Sustainability.....	7

Section 1.0

Introduction

The Clinton River Watershed Council (CRWC) is a non-profit organization dedicated to protecting, enhancing and celebrating the Clinton River, its watershed and Lake St. Clair. Currently more than 40 local and county governments and numerous other public entities across the watershed that are subject to Phase II of the National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act have formed 7 sub-watershed planning groups—Upper Clinton, Clinton Main, Stony/Paint, North Branch, Red Run, Clinton River East, and Lake St. Clair Direct Drainage. As a part of this planning and permit effort, each of these 40+ communities had to complete Public Education Plan (PEP) for educating the public on how to reduce storm-water pollution and protect our local water resources. A key component of these communities' PEP's was the inclusion of a volunteer water quality monitoring program, the Clinton River Watershed Council's Adopt-a-Stream program. The Adopt-A-Stream program began in 2005 with 26 sites and has grown to include 50+ sites and 300+ volunteers for the 2009-2010 seasons.

Adopt-A-Stream empowers community members to protect local streams and rivers through water quality monitoring. Volunteers are trained on monitoring methods then assigned sites and teams. Twice a year on the first Saturday in May and the first Saturday in October volunteers are provided the appropriate equipment, data collection sheets and protocols, to gather information on streamside habitat and macroinvertebrate populations.

Both macroinvertebrate and physical survey's are a critical component to the overall assessment of a stream reach. Macroinvertebrate samples will be collected from all available in-stream habitats with a 1mm mesh D-net starting downstream and moving upstream for approximately 30 minutes with an area of no more than 300 feet maximum. At least 2 samples of each organism found will be identified and placed in a vial to be returned to the watershed council for verification. This identification protocol allows data to be used in a total stream quality score MiCorps monitoring protocols. For habitat evaluation, volunteers will note the relative proportions of substrate, riparian vegetation, and the extent of sedimentation. Observations concerning land use and potential sources/causes of stress are also recorded. For informational and educational purposes, volunteers will also record characteristics such as water odor and color.

Macroinvertebrate taxonomy validation takes place in June and November. Clinton River Watershed Council staff performs the validation. Key staff to validate identification include: Jason Davis Adopt-A-Stream Coordinator, Michele Arquette-Palermo Watershed Education and Stewardship Director, Jeremy Geist Watershed Programs Coordinator. Jason Davis is an avid fly fisherman and is the owner of a local professional guide service. He holds a great deal of in-depth knowledge about macroinvertebrate morphology and life history. Jason also attended the MiCorps fall conference 2010, and participated in the invertebrate identification workshop. Michele studied ecology at both the undergraduate and graduate level and has had several years experience in water quality monitoring and benthic macroinvertebrate ID. She had attended the MiCorps training in 2009 Jeremy is a current graduate student at Oakland University studying stream ecology, and has experience in water quality monitoring; he also attended training at the MI Corps fall conference in 2008, 2009 and 2010.

Following each assessment, all data received from the volunteers will be entered into a computer spreadsheet and analyzed. Results will be provided in summary format, at minimum, on an annual basis to interested volunteers, CRWC members, the general public, municipalities and other parties participating in the Clinton River Watershed Subwatershed Advisory Groups and MDEQ. Data will be evaluated against any baseline data already established. For example, water quality data collected by volunteers for the Clinton River Coldwater Conservation Project has been used to select locations for trout habitat restoration, and have helped identify and resolve soil erosion problems.

Section 2.0

Project Goals and Objectives

The objectives and goals of the current proposal were to:

1. Expand the program by adding 3 new locations in the North Branch subwatershed which is currently underrepresented in our monitoring program.
2. Improve the quality of data by identifying macroinvertebrates to the Family level.

Section 2.1

Success Analysis

The Adopt-A-Stream program aids in raising awareness about water quality issues that we face in southeastern Michigan. The program has proved to be a reliable and attainable avenue that communities can take to fulfill their obligations to the Phase II demands for the National Clean Water Act. Several environmental sectors of the surrounding communities have requested data from the CRWC to aid in their monitoring agenda as well as the MDNRE. The Watershed Councils' Adopt-A-Stream program initiated as a pilot program in 1990's with a small number of sites and volunteers. Since its initiation the program has grown considerably in the amount of active volunteers (300+), site locations (50+) and community awareness. Sampling events have drawn positive media attention (i.e. articles in the local press) and general public awareness and as a result, seasonal recruitment grows.

Throughout the duration of the grant the Watershed Council was able to increase the amount of data collected within the watershed. We were able to add 3 more sites for monitoring in the North Branch, and identified 7 additional sites for future monitoring once resources and funding becomes available (see table 1). Reconnaissance for new sites occurred during the summer of 2009. The purchase and assembly of additional water quality monitoring kits, and recruitment of volunteers willing to assess these newly established sites occurred after sites were identified. The Clinton River Watershed Council has established and will keep adding to reliable trend graphs for each individual site for tracking purposes. Any noticeable changes in sampling scores will be recommended for further investigation.

The Watershed Council purchased new advanced powered microscopes allowing macroinvertebrate practice and training more accessible to staff and volunteers. This accessibility has aided in raising the confidence levels of our identification skills and technique, and is opening up further analysis with our data to not only general stream monitoring, but evaluation of conservation and restoration efforts throughout the watershed.

Minor complications have arisen throughout the duration of the grant, but corrections have been made accordingly. As new sites in the North Branch subwatershed are established, recruitment of volunteers to monitor these sites poses to be a challenge. In response we are scheduling introductory presentations across the watershed (including the North Branch) to help with recruitment. Additionally, as the program and the number of sites continue to grow, difficulty in management also increases. The Watershed Council identified this potential problem and is making every effort to efficiently manage all sites, volunteers, equipment and data. Staff members largely focus on this program throughout our other duties to ensure that proper program management is occurring at all times.

Due to the nature of a volunteer based program, CRWC recognizes that trainings and refresher workshops need to be held on a consistent basis that emphasizes the protocols of the program. Communication amongst the participants is very important, and all volunteers need to be informed and updated for any program changes and events. Lack of upkeep of any of these parameters can result in unsuccessful monitoring and can ultimately result in invalid and unreliable data.

Section 3.0

Project Benefits

Expansion to the Adopt-a-Stream program aids in the development of a long term monitoring record of water quality that is based on the efforts of individual volunteers throughout the communities of the watershed. This benefits not only the local environment through the consistent assessment and monitoring of stream health, but also enhances public awareness on environmental issues and increases participation in community events.

The Adopt-a-Stream program is a favorite among CRWC volunteers, and as funding remains or increases the number of volunteers and stream sites CRWC can establish/maintain increases as well. This adds to the integrity and longevity of the program because as each passing monitoring season occurs volunteers are able to gain further experience with the technical protocols and skills the project asks for. The more experience a volunteer receives results in more reliable data collected and in turn benefits the local environment by providing local municipalities, state agencies and other community based organizations (CBO's) a creditable stream assessment record for management planning.

Taking part in a volunteer river monitoring program empowers each citizen to know they are participating in a program that helps the long standing of the community. The program also introduces community activism to younger generations. Adult volunteers will often times bring their children to monitoring events to take part in and/or observe the kind of work people in their community are involved in. The Adopt-a-Stream program has also given the CRWC the opportunity to develop a stronger relationship and a greater reciprocal affinity for the individual members of the communities within watershed.

Section 4.0

Results Summary

Data continues to be collected throughout the Clinton River watershed, and will continue to be submitted to the MiCorps database. The data is also kept in the CRWC's database, and established trend graphs (based on scores created from the MiCorps rank system) are continuously being added to and updated (see fig.1 example). Additional data was able to be collected at more sites in the North Branch subwatershed as a result of the grant.

With the addition of advanced microscopes, CRWC is able to identify macroinvertebrate samples to the family level at a few selected sites. Emphasis is made for only certain "sensitive" organisms (i.e. EPT) at the present time, and information is recorded on macroinvertebrate family level data sheets obtained from the MiCorps resource website. Family level data will help to further analyze stream health and restoration effectiveness in the watershed. All collected data will aid other agencies/organizations who wish to further investigate any specific areas within the watershed.

Conclusions are limited for the overall condition of the watershed. Certain areas (e.g. Red Run subwatershed) experience high runoff rates and issues concerning sewer overflows, which compromise the condition of the waterways. Other areas of the watershed (e.g. Stony Creek and Paint Creek subwatersheds) display the ability to support healthy populations of pollution sensitive organisms such as sensitive macroinvertebrates (Plecoptera's) and fish species (Salmonidae's). These types of noticeably different areas continue to be monitored by the Watershed Council, and are recommended to other organizations and agencies for further investigation. The available data collected by the Clinton River Watershed Council and local/state agencies suggests that the Clinton River Watershed has improved tremendously since its historic condition in the early 70's and before.

Program evaluation is conducted frequently (via paper or electronic surveys) and volunteer input is encouraged and welcomed during each event that occurs in the Adopt-a-Stream program. These evaluations help to maintain and progress the overall project and integrates public suggestions into this community program. Participants are surveyed throughout the duration of all courses and workshops and usually a final evaluation is administered at the end of an extended event. Suggestions of format, instruction and class/workshop content are acknowledged and are always taken into consideration in the next sessions.

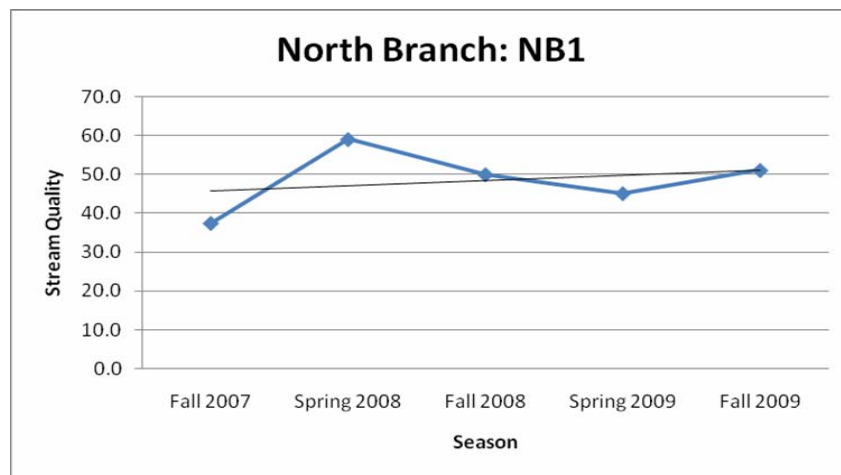


Fig. 1 Stream Quality Scores for one site in the North Branch subwatershed based on Macro-invertebrate samplings.

Section 5.0

Project Partners

Project partners that have aided the Clinton River Watershed Council with the Adopt-a-Stream Program include:

- The Michigan Clean Water Corps: provided aid in funding, guidance and technical assistance.
- Oakland University, Macomb Community College, Macomb County Health Department and other various institutions and agencies have lent their efforts by providing stream monitoring sites, volunteers, assistance with media and publicizing, and donations of room space for the many events/workshops of the AAS program.
- Several different municipalities throughout the watershed have provided room space in their libraries, nature centers, community centers etc. for our trainings.

Section 6.0

Completed Products

Final products as of this date include:

- A reliable and accurate collection of data on stream health based on physical assessment and macroinvertebrate collection throughout the watershed. This data is submitted annually into the MiCorps database and is electronically stored into the CRWC's database for record and hard copies are kept in file at the CRWC office.
- The council has created and successfully administered several training workshops relating to watershed basics, monitoring techniques, frequent refresher courses and macroinvertebrate identification courses.
- Water quality monitoring kits have been created and are distributed to each stream monitoring team. The kits include all the necessary monitoring equipment as well as safety equipment and safety manuals.
- To ensure the reliability of the data collected from the volunteers the CRWC has designed and frequently revises data collection forms in accordance with the set standards of the MiCorps field data sheets. Standard operating procedures (SOP's) have also been developed and distributed to volunteers to ensure consistency in collection technique. Shortly after a seasonal monitoring event a qualified staff member of the CRWC confirms macroinvertebrate identification of the submitted samples for verification.

Section 7.0

Project Sustainability

The Adopt-a-Stream program is an integral part of the Clinton River Watershed Council's mission and vision. The CRWC plans to continue the program and constantly promote the opportunities and benefits the project offers. Each year the program grows in the number of volunteers and monitoring sites across the watershed. The CRWC will continue to thank and appreciate the efforts of the volunteers, local municipalities and other contributors for their participation and generosity. Future funding will continue to come from local communities in the watershed that are subject to phase II of the federal stormwater regulations and the CRWC will continue to apply for similar volunteer stream monitoring grants to help aid the program.

Identified Adopt-A-Stream Sites in the Clinton River Watershed

	Site ID#	Stream Name	County	Latitude	Longitude
1	CM1	Clinton River	Oakland	42.6278	-83.3951
2	CM2	Clinton River	Oakland	42.6396	-83.3533
3	CM3	Clinton River	Oakland	42.6348	-83.2229
4	CM4	Galloway Creek	Oakland	42.6691	-83.2589
5	CM5	Clinton River	Oakland	42.6651	-83.1539
6	CM6	Clinton River	Oakland	42.6719	-83.0968
7	CM7	Clinton River	Oakland	42.6248	-83.3138
8	CM8	Clinton River	Oakland	42°39'11.61"N	83°10'25.21"W
9	CM9	Clinton River	Oakland	0	0
10	CM10	Galloway Creek	Oakland	0	0
11	CREW1	Middle Branch Clinton River	Macomb	42.6975	-83.0314
12	CREW2	Middle Branch Clinton River	Macomb	42.6285	-82.9539
13	CREW3	Middle Branch Clinton River	Macomb	42.7009	-82.9958
14	CREW4	Utica Drain	Macomb	42.6238	-82.9542
15	CREW5	Clinton River	Macomb	42.6429	-82.9333
16	CREW6	Clinton River	Macomb	42.5895	-82.9945
17	CREW7	Utica Drain	Macomb	42.6241	-82.9566
18	CREW8	Price Brook Drain	Macomb	0	0
19	CREW9	Middle Branch Clinton River	Macomb	0	0
20	LSC3	Rhorbeck Drain	Macomb	42.5354	-82.8997
21	LSC4	Cottrell Drain	Macomb	42.5401	-82.8626
22	NB1	Clinton River North Branch	Macomb	42.7683	-82.9352
23	NB2	Clinton River North Branch	Macomb	42.6191	-82.9008
24	NB3	Coon Creek	Macomb	42.8501	-82.8748
25	NB4	Tributary	Macomb	42.6971	-82.9212
26	NB5	Tupper Brook	Macomb	42.7321	-82.8826
27	NB6	Coon Creek	Macomb	42.7321	-82.8776
28	NB7	Ray-Lennox Drain	Macomb	42.7251	-82.8644
29	NB8	Coon Creek East Branch	Macomb	42.7488	-82.8431
30	NB9	Tributary	Oakland	42.8756	-83.1434
31	NB10	Tributary	Oakland	42.8763	-83.1477
32	NB11	Tributary	Oakland	42.868	-83.1614
33	NB12	Highbank Creek	Macomb	42.831	-82.846
34	RR2	Sturgis Drain	Oakland	42.5817	-83.1431
35	RR3	Nelson Drain	Oakland	42.5869	-83.0894
36	RR4	Beaver Creek	Macomb	42.5504	-83.0778
37	RR6	Plumbrook Drain	Macomb	42.6012	-83.0573
38	RR10	Plumbrook Drain	Macomb	42.6076	-83.0708
39	SP1	Paint Creek	Oakland	42.7965	-83.2918
40	SP2	Paint Creek	Oakland	42.7829	-83.2391
41	SP3	Paint Creek	Oakland	42.7676	-83.2186
42	SP4	Stony Creek	Oakland	42.7854	-83.0868
43	SP5	Stony Creek, West Branch	Oakland	42.7315	-83.1019
44	SP6	Stony Creek	Oakland	42.7817	-83.1789
45	SP7	Stony Creek	Oakland	42.7371	-83.1155
46	SP8	Paint Creek	Oakland	42.6963	-83.147
47	SP9	Paint Creek	Oakland	42.6824	-83.1295

48	SP12	Sargent Creek	Oakland	42.6854	-83.1661
49	SP13	Paint Creek	Oakland	42.7674	-83.2179
50	SP14	Paint Creek	Oakland	42.7319	-83.1614
51	SP15	Stony Creek	Oakland	42.6962	-83.1166
52	SP16	Stony Creek	Oakland	0	0
53	SP17	Paint Creek	Oakland	0	0
54	UC1	Clinton River	Oakland	42.7228	-83.4226
55	UC2	Clinton River	Oakland	42.7444	-83.4108
56	UC3	Sashabaw Creek	Oakland	42.7252	-83.3509
57	UC4	Clinton River	Oakland	42.7333	-83.4157