Flint River GREEN
2015 Annual Report

FLINT RIVER WATERSHED COALITION
Last year, we celebrated 25 years of bringing Flint River GREEN to area classrooms. The longevity of the program speaks to the value of the program to area teachers, students, mentors, and volunteers in the program.

Getting our young people out of the classroom and to their local river or stream makes our invaluable freshwater resources a real, tangible thing. We see tremendous shifts in students' views of their natural environment, and more importantly, in their perceived ability to make a difference in protecting that resource.

GREEN volunteers all note the excitement they see on students' faces when they don that pair of waders, the determination as they work through a complex chemical test of the water, and the nervous excitement of getting up in front of their peers to discuss their results. This program impacts students on such a wide variety of measures, all while bringing them real world experiences they can carry with them throughout the rest of their middle, high school, and college educations.

As always, we simply couldn't bring this fantastic program to the students of the Flint River Watershed without the broad volunteer and financial support of our community. This report is distributed with our immense gratitude to everyone mentioned throughout its pages, who help ensure that year after year, our area students have access to an experience unlike any other.

Here's to many more years of Flint River GREEN! Rebecca
GREEN: An Overview and History

The Global Rivers Environmental Education Network (GREEN) is a nationally replicated program that offers a unique and hands-on experience for students in the field of water quality testing. It was created in 1989 by University of Michigan professor, Dr. William Stapp, and assistant Mark Mitchell.

Students and their teachers collaborate with mentors from environmental professions to perform water quality tests on bodies of water within their watershed. They use their findings to develop action plans to improve or maintain the water in their area. They then share this information with their peers and community officials at the annual student summit. Teachers participate in a Professional Development Day to learn about GREEN and performing the various field tests.

Beginning in 1989, GREEN worked with Flint schools, and later expanded to include many high schools and middle schools within Genesee County. The success and value of GREEN later led to the inclusion of schools in Saginaw, Lapeer, and Oakland counties. GREEN continues to grow and is now incorporated into many teachers’ annual curriculum.

The Flint River Watershed

The Flint River Watershed covers approximately 1,400 square miles across 7 counties, including Genesee, Lapeer, Saginaw, and Oakland. All of the land and tributaries that flow into the Flint River make up the Flint River Watershed that GREEN students learn about and protect.
The GREEN Planning Committee meets monthly to prepare and plan for the upcoming GREEN season. This dedicated group brings together expertise, resources, and enthusiasm to the GREEN program. The planning committee oversees the preparations for the Student Summit and professional development days for teachers. They also introduce mentor and teacher pairings, seek funding sources and work with community partners to increase the scope of GREEN. This year there were two professional development days, one of which was graciously hosted by the Genesee Intermediate School District. The first training was held in Flint for new teachers, giving an overview of the program and going step by step over each test performed. A month later a professional development training was held for all GREEN teachers, reviewing testing techniques and procedures, as well as taking a tour of the waste water treatment plant. The planning committee collaborates to improve and expand the program year to year. Its efforts ensure that GREEN continuously provides the best experience possible to teachers and students.

“During Project GREEN I learned that we have the power and control to help stop spreading pollution and make a difference.”

– 8th Grade Swartz Creek Student
Participating GREEN Schools

Atherton High School
Teacher: Matt Hyslop

Bendale High School
Teacher: Todd Barden

Brandon Middle School
Teacher: Dave Green

Carman-Ainsworth Middle School
Teacher: Melissa Warburton

Carter Middle School
Teachers: Chip McCallum, Ryan Niemi

Chatfield School—Lapeer
Teachers: Tracy Boyle, Lori Raymond, Annette Young

Davison Middle School
Teachers: Jody Kosiara,

Grand Blanc East Middle School
Teachers: Deb Lacki, Debra Wilson, Crystal Sobeck, Patricia Nelson

Grand Blanc West Middle School
Teachers: Elizabeth Lemerond, Victoria Skrisson

Grand Blanc High School
Teacher: Suzanne Powers

Hill-McClary High School
Teacher: Jennifer Kahn

LakeVille Middle School
Teachers: Matt Chapin, Josh Henley

Lapeer High School
Teacher: Cheryl Butterfield

Linden Middle School
Teacher: Charlene Nester, Cori Mason

Marshall-Greene Middle School
Teachers: Tammy Daenzer, Roger Rothe

Mt. Morris Junior High School
Teachers: Nick Carr, Bekah D’Haene, Kim McCormick, Zack Freeman

North Branch High School
Teacher: Carrie Wenta

North Branch Middle School
Teacher: Julie Tumblin, Kaitlyn Wildey

Powers High School
Teacher: Julie Lawerence

St. John Vianney Catholic School
Teacher: Janice Matlon

Swartz Creek Middle School
Teachers: Brandolyn Forbes, Paul Speck

Westwood Heights—Hamady High School
Teachers: Arletha Bryant

Zemmer Middle School
Teachers: Anne Prill, Wyatt Stevens, Kelly Gartell, Chris Ewald
GREEN mentors offer assistance in both the classroom and at the testing site. Working closely with teachers, mentors speak with students about GREEN and introduce them to the tests they will perform. Mentors share knowledge about the test, the proper way to perform the tests, safety procedures and how to interpret results. These volunteers offer insight as to what may cause a result to be high or low, as well as help students develop action plans. Mentors are key to the success of GREEN. The knowledge they bring from their respective fields, as well as the hands-on assistance at the testing sites, further expose the students to the value of environmental stewardship and potential career paths in a science, technology, engineering, or mathematics field.

During Project GREEN I learned that I can have fun and still help the environment.
– 8th Grade Linden Student
GREEN Testing Parameters and Watershed Facts

GREEN Students test for the Water Quality Index ratings (WQI). The WQI is the overall score the body of water receives after the field tests have been performed and the results have been tabulated.

**Water Quality Field Tests**
- Biochemical Oxygen Demand
- Dissolved Oxygen
- Fecal Coliform
- Nitrates
- pH
- Temperature
- Total Phosphates
- Total Solids
- Turbidity

**Water Quality Index Ratings**
- 100-90: Excellent Water Quality
- 89-70: Good Water Quality
- 69-50: Average Water Quality
- 49-25: Marginal Water Quality
- 24-0: Poor Water Quality

I learned that I can make a difference in my health and others around me by helping clean up pollution – 7th Grade Zemmer Student

A * in the WQI value denotes that the complete testing results were not available due to inclement weather on the testing day, calculation errors, or testing errors. Trial and error is part of the scientific process and allows students to learn about what may have contributed to these results. Flint River GREEN is a valuable and ongoing learning experience.
<table>
<thead>
<tr>
<th>School</th>
<th>Site Location</th>
<th>Total WQI Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atherton HS</td>
<td>Pierson Drain at Atherton HS</td>
<td>77.41</td>
</tr>
<tr>
<td>Bendle HS</td>
<td>Thread Creek</td>
<td>84.71</td>
</tr>
<tr>
<td>Brandon MS</td>
<td>Unknown Location</td>
<td>*</td>
</tr>
<tr>
<td>Carman Ainsworth HS</td>
<td>Kearsley Creek - North of For-Mar</td>
<td>76.07</td>
</tr>
<tr>
<td>Carter MS</td>
<td>Pine Run - Clio City Park</td>
<td>83</td>
</tr>
<tr>
<td>Chatfield School</td>
<td>Farmers Creek</td>
<td>66.90</td>
</tr>
<tr>
<td>Davison MS</td>
<td>Kearsley Creek – Davison</td>
<td>61.82</td>
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<tr>
<td>Grand Blanc East MS</td>
<td>Thread Creek at Perry Rd</td>
<td>73.10</td>
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<tr>
<td>Grand Blanc West MS</td>
<td>Swartz Creek at Frost Gardens</td>
<td>62.64</td>
</tr>
<tr>
<td>Grand Blanc HS</td>
<td>Swartz Creek at Thompson Rd</td>
<td>*</td>
</tr>
<tr>
<td>Hill-McCloy HS</td>
<td>Flint River at Barber Memorial Park</td>
<td>76.16</td>
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<tr>
<td>LakeVille MS</td>
<td>Unknown Location</td>
<td>*</td>
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<tr>
<td>Lapeer HS</td>
<td>Hunters Creek Lapeer</td>
<td>71.08</td>
</tr>
<tr>
<td>Linden MS</td>
<td>Linden Mill Pond (Shiawassee River)</td>
<td>69.65</td>
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<tr>
<td>Marshall-Greene MS</td>
<td>Silver Creek Site # 17</td>
<td>75.12</td>
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<tr>
<td>Mt. Morris Jr. HS</td>
<td>Flint River near Stepping Stone Falls</td>
<td>55.39</td>
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<tr>
<td>North Branch HS</td>
<td>Unknown Location</td>
<td>*</td>
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<tr>
<td>North Branch MS</td>
<td>Gravel Creek at McNees Meats</td>
<td>78.4</td>
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<tr>
<td>Powers Catholic HS</td>
<td>Unknown Location</td>
<td>*</td>
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<tr>
<td>St. John Vianney Catholic School</td>
<td>Flint River at Mott Park Golf Course</td>
<td>71.69</td>
</tr>
<tr>
<td>Swartz Creek MS</td>
<td>West Branch of Swartz Creek - between Swartz Creek MS and HS</td>
<td>75.58</td>
</tr>
<tr>
<td>Westwood Heights</td>
<td><strong>Drain at Randy Wise</strong></td>
<td>49.44</td>
</tr>
<tr>
<td>Hamady MS</td>
<td><strong>Drain at Randy Wise</strong></td>
<td>87.26</td>
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<tr>
<td>Zemmer MS</td>
<td><strong>White Drain behind Zemmer MS</strong></td>
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</table>
GREEN Student Summit

On May 15, 2015 GREEN mentors, community members, students, teachers, and volunteers gathered together at Kettering University for the annual Student Summit – the pinnacle of the GREEN season. Kettering University once again generously hosted the Flint River GREEN Student Summit for the 2015 season. This was all made possible with the assistance of Julie Simmons at Kettering University.

Students presented their water testing results, action plans, and other information they gathered from their field testing and study days. Presentations and follow up inquiries from the audience were facilitated by emcee Tom Jones with the Genesee County Drain Commission.

When students were not presenting, they took part in a variety of breakout sessions led by community members and environmental professions eager to share their knowledge with GREEN students.

Summit Breakout Sessions

Catching Big Fish on Little Bugs
Chip McCallum: Blackboard Outfitters

Chevy Commons: A Walking Tour
Ryan Londrigan: AKT Peerless Environmental

Creek Critters
Mike Haley, Lisa VanOchten: FRWC Monitoring Volunteers

Environmental Dumpster Diving
Shane Kelley, Carl Thompson: Genesee County Metropolitan Planning Commission

Go Green, Help Keep Our Water Clean!
Laura Young: MSU Institute of Water Research

Incredible Edible Plants
Peter McCready: Ecology Director, Chatfield School

Kettering Bioethics, Biology, and Biochemistry Sessions
Dr. Michelle ammerman, Dr. Jim Cohen, Dr. Veronica Moorman,
Dr. Cheryl Samaniego: Kettering University

Rats in Your Drinking Water
Darren Bagley: 4-H Youth Development Educator, MSU Extension

The Scientist in Your Backyard
Heather Griffin: For-Mar Nature Preserve & Arboretum

Sewer CSI
Eric Brubaker, Thad Domick, Tom Hutchings: Water Pollution Control Specialists, City of Flint

Watershed in Jeopardy
Jeff Johnson, Brittney Ellis: Genesee Conservation District
### Before Project GREEN

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>1 (Strongly Disagree)</th>
<th>2 (Disagree)</th>
<th>3 (Agree)</th>
<th>4 (Strongly Agree)</th>
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<tr>
<td>The Flint River is clean and healthy.</td>
<td>41</td>
<td>44</td>
<td>42</td>
<td>6</td>
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<tr>
<td>I can make a difference in the health of the Flint River</td>
<td>7</td>
<td>36</td>
<td>60</td>
<td>30</td>
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<tr>
<td>I understand how a river may become polluted.</td>
<td>6</td>
<td>23</td>
<td>54</td>
<td>47</td>
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<tr>
<td>I want to do things to help the environment.</td>
<td>2</td>
<td>27</td>
<td>54</td>
<td>50</td>
</tr>
<tr>
<td>I know about jobs in the environment field.</td>
<td>30</td>
<td>39</td>
<td>46</td>
<td>34</td>
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</table>

### After Project GREEN

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>1 (Strongly Disagree)</th>
<th>2 (Disagree)</th>
<th>3 (Agree)</th>
<th>4 (Strongly Agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Flint River is clean and healthy.</td>
<td>11</td>
<td>25</td>
<td>74</td>
<td>28</td>
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<tr>
<td>I can make a difference in the health of the Flint River</td>
<td>4</td>
<td>4</td>
<td>49</td>
<td>79</td>
</tr>
<tr>
<td>I understand how a river may become polluted.</td>
<td>4</td>
<td>3</td>
<td>45</td>
<td>83</td>
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<tr>
<td>I want to do things to help the environment.</td>
<td>1</td>
<td>4</td>
<td>35</td>
<td>95</td>
</tr>
<tr>
<td>I know about jobs in the environment field.</td>
<td>3</td>
<td>20</td>
<td>58</td>
<td>54</td>
</tr>
</tbody>
</table>

During Project GREEN I learned there were a lot more thing to the environment than I thought there were – 8th Grade Linden MS Student
The Flint River Watershed Coalition is very thankful for the many financial and in-kind supporters of Flint River GREEN. Such generosity makes it possible for GREEN to continue its mission to educate our young people about their watershed and their environment. Your support will have a lasting impact for generations to come. Thank You!

City of Flint, Water Pollution Control Department
Earth Force
Flint River Watershed Coalition
Genesee County Drain Commissioner’s Office, Surface Water Management
Genesee County Drain Commissioner’s Office, Our Water Program
Genesee County Parks and Recreation Commission
Genesee Intermediate School District
Genesee Intermediate School District, Office of Education and Learning
General Motors Company
General Motors Foundation
Kettering University
Lapeer Intermediate School District
Michigan State University 4-H Youth Development