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Groundswell Initiative Helps Students Create Real Solutions for their Communities

By Joanna Allerhand, GVSU Staff

A student carefully adds chemicals to a glass test tube, drop by drop. He watches as the water in the tube changes color. If it turns really dark, he will know there is a lot of pollution in the water.

KeSean Garmon, a ninth-grade student at CA Frost Environmental Science Academy, is analyzing water from a creek near his school. He wants to know how healthy the creek is and what needs to be done to help protect it.

Through this project, KeSean is learning that rain water picks up pollution as it flows over the ground. This type of pollution is called nonpoint source (NPS) pollution because it comes from diffuse sources—anywhere rain falls. The rain carries these pollutants, including fertilizer and pet waste, as it flows down storm drains that empty into creeks and the Grand River.

“This can affect the chemical balance of the river and affect the things that live there,” KeSean explained.

KeSean and his classmates plan to educate the community about this problem and create solutions to reduce the amount of NPS pollution entering the creek. For example,



Students from New Branches Charter Academy, a Groundswell school, work with community partners on their 2015 ArtPrize entry depicting the Grand River.

students will give their neighbors a tip for protecting the creek from car wash soap.

“You should wash your car in the grass so the grass and dirt can filter the soap,” KeSean said.

CA Frost is part of the Groundswell initiative, a place-based environmental education program housed in the College of Education’s Center for Educational Partnerships at Grand Valley State University. Groundswell supports K-12 teachers in West Michigan who want to move beyond the classroom. Teachers help students engage in learning through real-world problem solving and building connections between education and their community.



“By taking students out in the field, we nudge the door open so students ask questions, make observations, look for problems, and seek solutions,” said Nijagara Davidson, a teacher at North Park Montessori, a Groundswell school. “They start to understand they are part of this world and they indeed can make a difference.”

Supporting Place-based Education

Groundswell began in 2009 as the Kent County hub of the Great Lakes Stewardship Initiative—a place-based education initiative funded through the Great Lakes Fishery Trust. The initial mission of Groundswell came together through a collaborative effort by 29 individuals representing 23 organizations. They created Groundswell to provide K-12 teachers with support for place-based environmental education and academic service learning pedagogies.

The Groundswell model has successfully demonstrated how teachers can help guide students to become lifelong stewards of the environment and leaders in their communities. Students become empowered by identifying and solving real needs in their community.

“For me, I think place-based education is the best thing that’s happened to current education,” said Rosemary Lucchese, a teacher at City High/Middle School in Grand Rapids.

“You need hands-on learning to figure out what’s real. I don’t need to memorize facts, I need to know what pertains to what and what the connections are. Students need to go experience it,” Lucchese said.

Groundswell supports teachers by providing sustained professional development on pedagogy and content knowledge, project funding, connections with community organizations, and opportunities for collaboration with other passionate educators. The program currently works with 30 schools and more than 3,500 students in the Grand Rapids area.

“It has the biggest impact on the kids because the students who traditionally have behavior issues, it gives them an outlet so they are much more successful,” said Laura Zeichman, a teacher at Pinewood Middle School in Kentwood.

“They’re much more engaged in their work and more willing to put forth large amounts of effort. If a kid is interested in something and sees how it impacts their life they’re going to be way more likely to do well,” Zeichman said.

Groundswell is funded through grants from government entities and local foundations. Staff in the Center for Educational Partnerships maintain and expand the program by submitting innovative and compelling applications to multiple funding sources. To date, the program has been



Grand Rapids Public Museum School students participate in a Teach for the Watershed stream sampling experience at Highland Park as part of their Groundswell program.



awarded more than \$1.5 million in grant funds. Groundswell is funded through the Great Lakes Fishery Trust, U.S. Environmental Protection Agency (EPA), Michigan Department of Environmental Quality (MDEQ), Wege Foundation, and the Baldwin Foundation.

Protecting the Local Watershed

In 2014, Groundswell was awarded a three-year grant of nearly \$500,000 – the largest single award the program has received to date. This grant enabled Groundswell to expand the level of support offered to teachers and students by providing additional financial resources, technical expertise, and opportunities to engage with community organizations. The funds were granted by the EPA through the MDEQ.

Groundswell used this grant to create the Lower Grand River Education Initiative (LGREI). The LGREI program supports Groundswell’s mission to develop environmental stewards through its focus on water quality in the Lower Grand River Watershed (LGRW).

Specifically, LGREI focuses on nonpoint source (NPS) pollution impacting the Grand River—pollution carried by urban stormwater and agricultural runoff. In urban areas, stormwater runoff occurs when rain lands on sidewalks, roads, and other impervious surfaces that prevent the rain from soaking into the ground. As the rain flows over the

ground, it picks up fertilizer, pet waste, soil, and other substances. The rain then carries these substances down storm drains that empty into local water bodies. NPS pollution is one of the leading causes of water quality impairments in rivers and lakes, according to the U.S. EPA. Pathogens, sediment, and nutrients are the main NPS pollutants of concern in the Grand River watershed.

The LGREI program is designed to improve education and awareness about NPS pollution and reduce the associated impacts on water quality. Schools involved with LGREI will receive support to participate in teacher professional development workshops, educate students about water quality issues, enhance community awareness about NPS pollution, engage with watershed managers and other technical experts, and implement service learning initiatives that reduce NPS pollution impacts.

To protect lakes and rivers from NPS pollution, watershed managers use both large and small-scale projects that capture and clean rain where it falls. Given the widespread nature of stormwater—rain falls all over the city—and large volume of runoff, managers must implement many projects throughout the urban area. For example, one inch of rain landing on Van Andel Arena, a 140,280-square-foot entertainment venue in downtown Grand Rapids, will generate more than 87,000 gallons of runoff.

“I think place-based education is the best thing that’s happened to current education. You need hands-on learning to figure out what’s real... Students need to go experience it. When I started working with Groundswell and PBE, everything came alive. All the activities the kids did were authentic because they were connected to their community.”

*Rosemary Lucchese,
City High/Middle School—Grand Rapids,
Groundswell Teacher*



Groundswell teacher Laura Zeichman participates in a professional development experience provided by Groundswell partner Plaster Creek Stewards.

Capturing and cleaning such large volumes of stormwater runoff requires a community-wide effort. Through the LGREI program, Groundswell students are learning what they can do to help. They are exploring how rain gardens, rain barrels, and native vegetation gardens soak up rain and filter pollutants from runoff.

“I am amazed at how schools, teachers and administrators, are asking for direction and becoming more and more interested in dealing with water issues and education issues by taking their kids outdoors and figuring out ways to bring nature into the school yard,” said Andrea Lubberts of Plaster Creek Stewards, a Groundswell community partner.

“I wish that every school had the support of the Groundswell program,” Lubberts said.

Students from CA Frost are helping neighborhood residents determine what they can do at home to help protect the Brandywine Creek from NPS pollution. This creek runs through Blandford Nature Center property, and protecting the creek is a high priority for the center. Students are working with Blandford staff and other community partners to evaluate the health of the stream and develop projects to protect it.

Groundswell emphasizes reciprocal partnerships, where both the schools and community organizations benefit

from working together. These mutually beneficial relationships tend to be more impactful and sustainable.

“The Groundswell LGREI program allows for ongoing engagement between community partners and students,” said Jamie Vaughan with Trout Unlimited, a Groundswell partner. “Because of this, I have recognized a noticeable improvement in the teachers’ and students’ environmental literacy in regards to NPS pollution.”

When Art and Science Collide

A large-scale, community-based mural designed to raise awareness about NPS pollution exemplifies Groundswell’s reciprocal partnership model. Students from New Branches Charter Academy, a Groundswell school, wanted to submit a stormwater pollution mural in the 2015 ArtPrize contest. They wanted to paint this mural around a storm drain to educate the community that the drains flow directly to the river, along with pollutants from any surface the rain touches. But a long list of regulations limited and restricted what the students could paint and where.

The students needed help obtaining the necessary permissions and ensuring the project proceeded properly. They needed community partners who would also benefit from a stormwater pollution mural.

Two community partners were vital for the completion of this project—the Grand Rapids Environmental Services Department and the Lower Grand River Organization of Watersheds (LGROW). Both groups work to help protect the Grand River from NPS pollution. A mural would fit their mission by serving as a public education campaign and raising community awareness.

“Making the connection between stormwater and the Grand River through activities like macroinvertebrate sampling and mapping infrastructure students can see the moving parts of the cause and effect relationship between NPS pollution and water quality. When students make that connection the natural next step is wanting to do something about it,” said Bonnie Broadwater of LGROW.

Over the course of two weeks, more than 60 students, teachers, and community members painted the stormwater pollution mural on a city-owned parking lot adjacent to the Grand River. Passers-by stopped to ask what was happening and the students engaged them in conversation about protecting the river. ArtPrize attendees explored the final piece by searching for hidden pictures in the mural as part of a scavenger hunt. Community members continue to enjoy a permanent art installation—and reminder about NPS pollution.

Stewards of the Future

These are just a couple of examples of how Groundswell helps support community-based action to help ensure

adequate protection of our water resources. The program serves as a model for how place-based environmental education can successfully engage students in community-based learning and stewardship. Ultimately, Groundswell strives to foster lifelong environmental stewards and civic engagement as a vital component of a thriving, vibrant community.

“Students are uniquely fit for inspiring community stewardship because of their fresh ideas and positive attitudes,” Vaughan said.

Groundswell is demonstrating that place-based learning and project-based education are effective strategies for engaging students. The program provides students with an opportunity to see and learn about their place. Learning through their community and developing projects to protect their local environment helps create a meaningful goal for the students.

“When I started working with Groundswell and PBE, everything came alive,” Lucchese said. “All the activities the kids did were authentic because they were connected to their community. Learning becomes more like play. The avenues are endless.”

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Latino Earth Partnerships and Groundswell Join Forces

The Grand Valley State University (GVSU) Center for Educational Partnerships received a small grant from the University of Wisconsin, Madison, through the U.S. Environmental Protection Agency for the Latino Earth Partnership project. Groundswell, a place-based environmental education initiative housed in the GVSU College of Education, will utilize the Latino Earth Partnership funding to provide professional development for West

Michigan K-12 teachers this summer. The Latino Earth Partnership project engages educators in environmental stewardship integrating Latino perspectives with grade-level academic content and provides culturally appropriate educational resources. Groundswell is excited to work with the Latino Earth Partnership project to support teachers in encouraging the next generation of environmental stewards.