

PLACE-BASED STEWARDSHIP EDUCATION CASE STUDIES



Schoolwide Stewardship Education at Whitehall Middle School

Whitehall, Michigan

A suburban middle school

About the case study

This case study of place-based stewardship education (PBSE) at Whitehall Middle School is one of 11 case studies developed by staff of the Great Lakes Stewardship Initiative (GLSI), staff of the GLSI's nine regional hubs, and the educators whose work is featured in the study.

The case studies focus on PBSE efforts during the 2014–15 school year. At most of the sites featured in these studies, the PBSE approach has been developed over the course of several years.

Each school featured in a case study works with the GLSI through a regional hub. Hubs provide professional development for educators, help schools connect and partner with

community-based organizations, and provide funding and other PBSE supports with an environmental stewardship emphasis. Whitehall Middle School has a longstanding relationship with its hub, the West Michigan Great Lakes Stewardship Initiative, or WMGLSI.

Schoolwide Stewardship Education at Whitehall Middle School

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Conventions in this document

As you read this study, you will see special icons in the text.



This icon marks a teaching tool, resource, or product that you can access and download from the case study.



This icon marks a connection between the work being described and the GLSI's Guiding Principles for Place-based Stewardship Education, developed by GLSI central and hub staff to describe the GLSI's vision for exemplary place-based stewardship education. Certain aspects of each case study illustrate how one or more of the principles can be enacted in classrooms and communities.



Quick Summary

Teams at every grade level used the community as a context for learning

Whitehall Middle School students made films to screen at an environmental film festival, enhanced a state park, and helped the new Michigan's Heritage Park in Whitehall get ready for its grand opening.

Since 2007, Whitehall Middle School teachers have been working with their regional hub, the West Michigan Great Lakes Stewardship Initiative, to establish place-based stewardship education at their school.

The WMGLSI is a leading source of learning opportunities for teachers, and also offers access to a network of community partners and financial support.

With support from the U.S. EPA, as well as their teachers, partners, and GLSI hub, 320 Whitehall Middle School students educated the community through film and took action at local parks with cleanups, native plantings, and other environmental work.

The case study tells the story of each project and gives a behind-the-scenes look at the support that made these efforts possible.



Eighth-grade students made more than 60 short environmental films and planned and hosted the GreenScreens Film Festival. Their story begins on [page 27](#).



Whitehall's seventh-grade class provided much-needed services to Duck Lake State Park. Learn more beginning on [page 21](#).



Sixth-grade students helped the new Michigan Heritage Park prepare for its grand opening. Go to [page 14](#) to see more.



Community Context



Context is essential in place-based stewardship education

There is perhaps no more distinctive characteristic of PBSE than its treatment of place as the context for learning.

Our sense of place does not exist in only one geography, and it changes as we age. When we are very young, we may experience our strongest sense of place in our homes, neighborhoods, and favorite places for play. As we grow, we begin to understand that we are members of other communities, too—a school community, a city or town, a watershed, a state, or a bioregion such as the Great Lakes.

PBSE relies on place—including lands and waters, people and organizations, history, and culture—as a starting point for teaching and learning. Reading about rainforests or deserts may be interesting, but environmental learning grounded in students' home communities builds on a foundation of community attachment and place-based knowledge.

In Whitehall, that foundation includes White Lake and Lake Michigan, and places like Duck Lake State Park.

Whitehall is a community with deep connections to the water

Whitehall is located in northern Muskegon County, just off the Lake Michigan coastline on White Lake, at the mouth of the White River. About ten miles north of Muskegon, the city of Whitehall is a unique blend of an old-fashioned small town and a progressive, full-service city. With its connection to White Lake and Lake Michigan, Whitehall has a reputation as a relaxing vacation destination.

In addition to tourism, the area includes a wide variety of smaller manufacturing and light industrial businesses. Producing everything from weathervanes to plastic plant tags, the Whitehall and Montague Industrial Parks are growing, with manufacturer Alcoa Howmet being the largest employer in Whitehall.

Water plays an important role in this community, and protecting water resources is essential to its current and future prosperity.





White Lake has a history of pollution and restoration

The White Lake watershed has suffered chemical pollution and habitat degradation, which led to the lake's listing as one of 43 U.S. EPA Great Lakes Areas of Concern (also known as AOCs, or "toxic hotspots") in 1985 (White Lake Environmental History Project, 2016). Many of the lake's impairments were tied to past industrial practices at a tannery and numerous chemical plants, which left lake sediment too toxic for standard dredging and resulted in fish consumption restrictions. Fertilizer and other runoff also contributed to White Lake's AOC status.

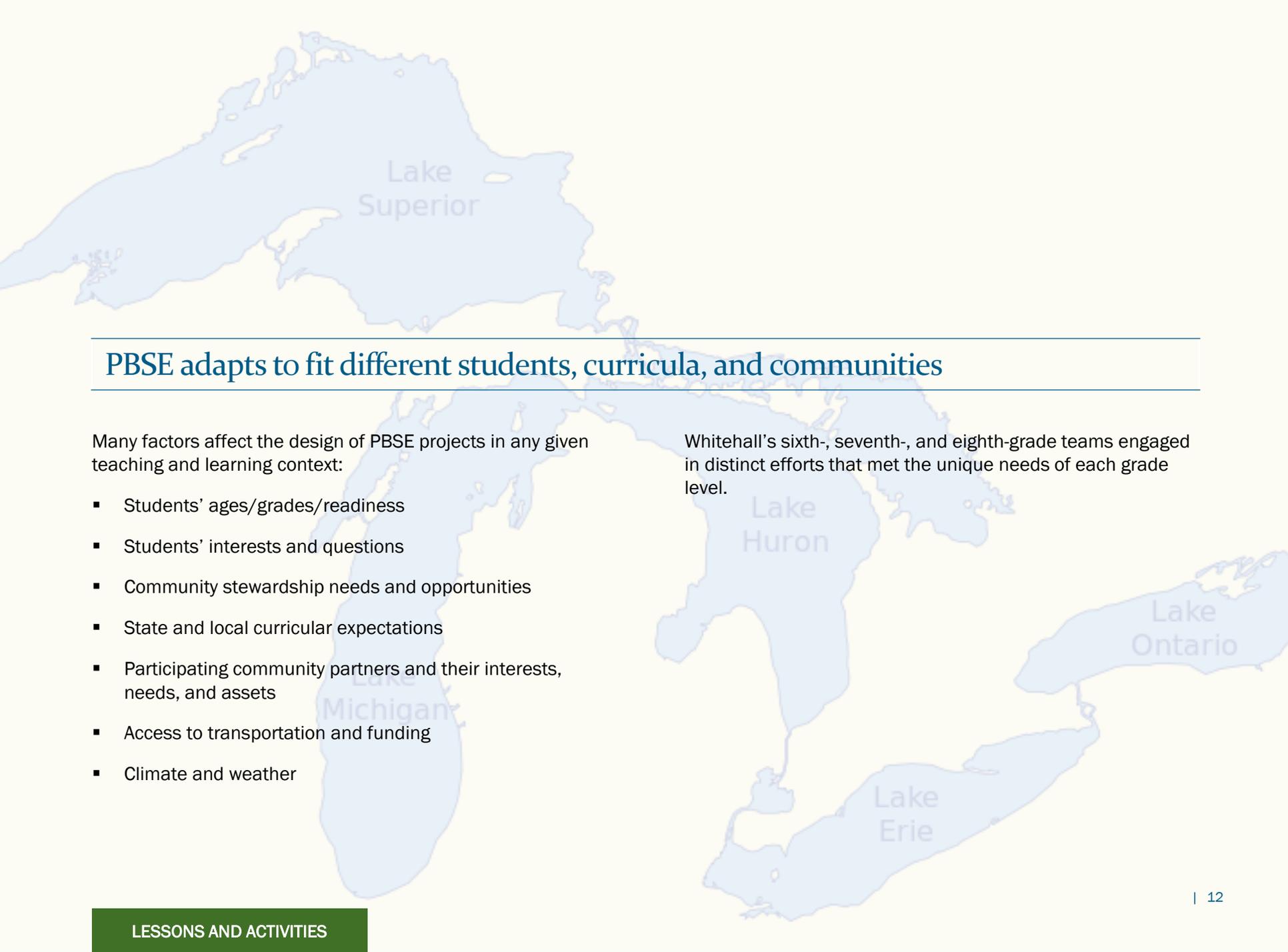
After decades of cleanup efforts, hastened by grant funding through the Great Lakes Restoration Initiative, White Lake was delisted as an AOC in October 2014.

[LINK: GREAT LAKES. GREAT IMPACT. THE STORY OF WHITE LAKE. \(VIDEO\)](#)

[LINK: RESTORING WHITE LAKE GRAPHIC TIMELINE](#)



Lessons and Activities



PBSE adapts to fit different students, curricula, and communities

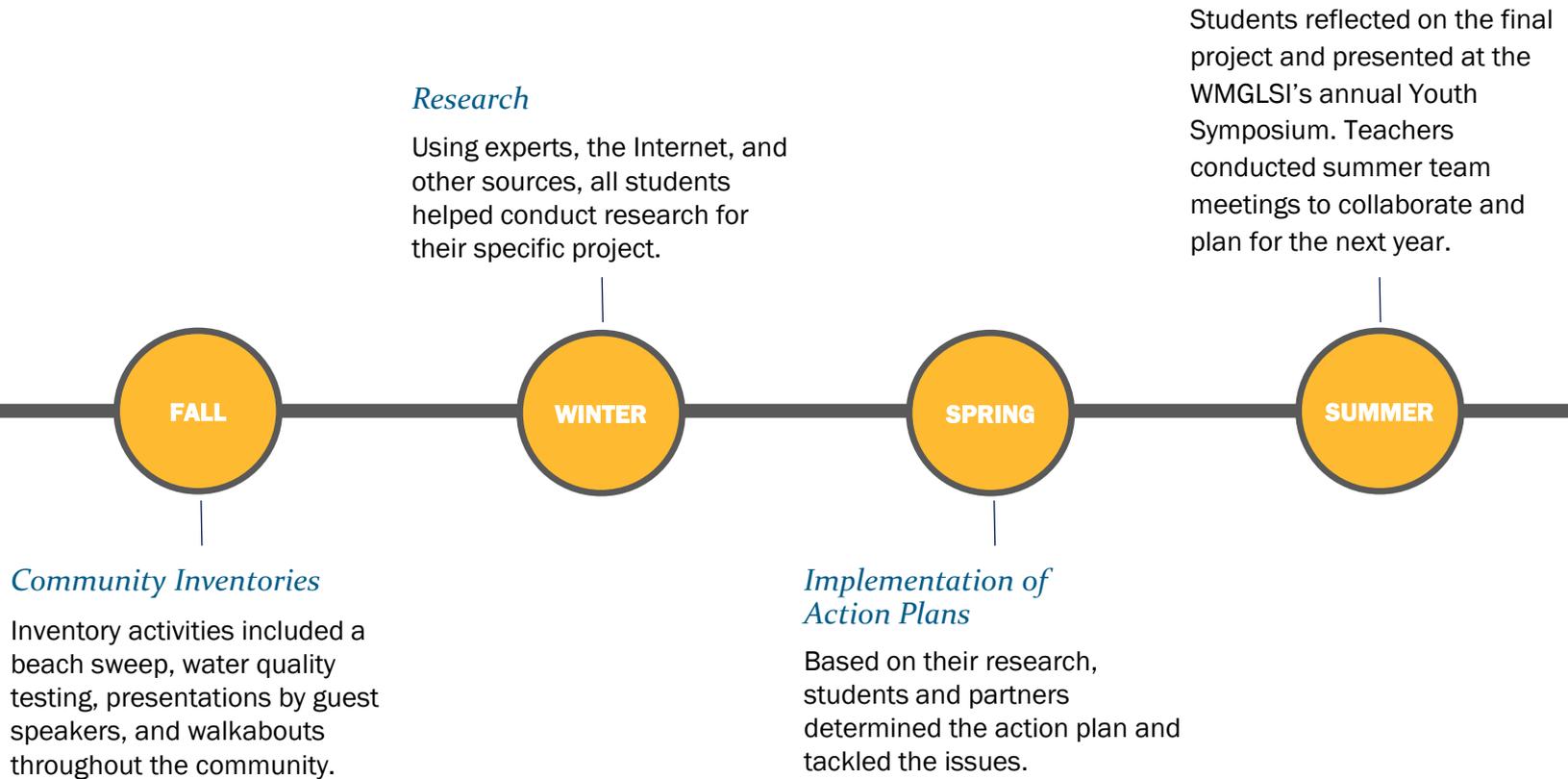
Many factors affect the design of PBSE projects in any given teaching and learning context:

- Students' ages/grades/readiness
- Students' interests and questions
- Community stewardship needs and opportunities
- State and local curricular expectations
- Participating community partners and their interests, needs, and assets
- Access to transportation and funding
- Climate and weather

Whitehall's sixth-, seventh-, and eighth-grade teams engaged in distinct efforts that met the unique needs of each grade level.

Three distinct projects shared one common structure

Although the sixth-, seventh-, and eighth-grade projects were entirely different, each followed a common developmental timeline.





Sixth Grade

Sixth graders began by taking inventory of community needs and stewardship opportunities

Sixth-grade students began their PBSE effort with a community walkabout, which allowed them to observe strengths and issues within their own community. They learned about stormwater runoff, including the chemicals and garbage that could wash into the lakes and rivers. During this time, students also learned about the importance of native plants in reducing runoff.

Additionally, Melissa Horton, project director at the new Michigan's Heritage Park at Hilt's Landing, presented to the students on the goals and vision for the new park. The main goal was to create an interactive opportunity to learn about the 10,000-year geologic history of Michigan.

Students considered taking some action to reduce stormwater runoff, but ultimately decided to focus their efforts on Michigan's Heritage Park.



Students learn about stormwater infrastructure on their school grounds.

“I was surprised about how clogged our storm drains were when we did our inventory around our school.”

—Sixth-grade student

Students also shared their own preferences about opportunities to contribute through an interest inventory

At all grade levels, teachers, and partners provided ample opportunities for students to have a voice throughout the whole PBSE process. For example, sixth-grade students completed an interest inventory in the initial stages of planning. This inventory helped teachers gather information on what students hoped to do at and for the park, as well as ideas for the future.

Youth voice is a critical component of all PBSE projects. Teachers know that when youth have a voice, they are more invested and engaged in the work, which helps students learn.



Would you be interested in helping plant native species in order to help in teaching our community about the history of Michigan?

- Yes, very much so!
- Not sure
- No thank you.

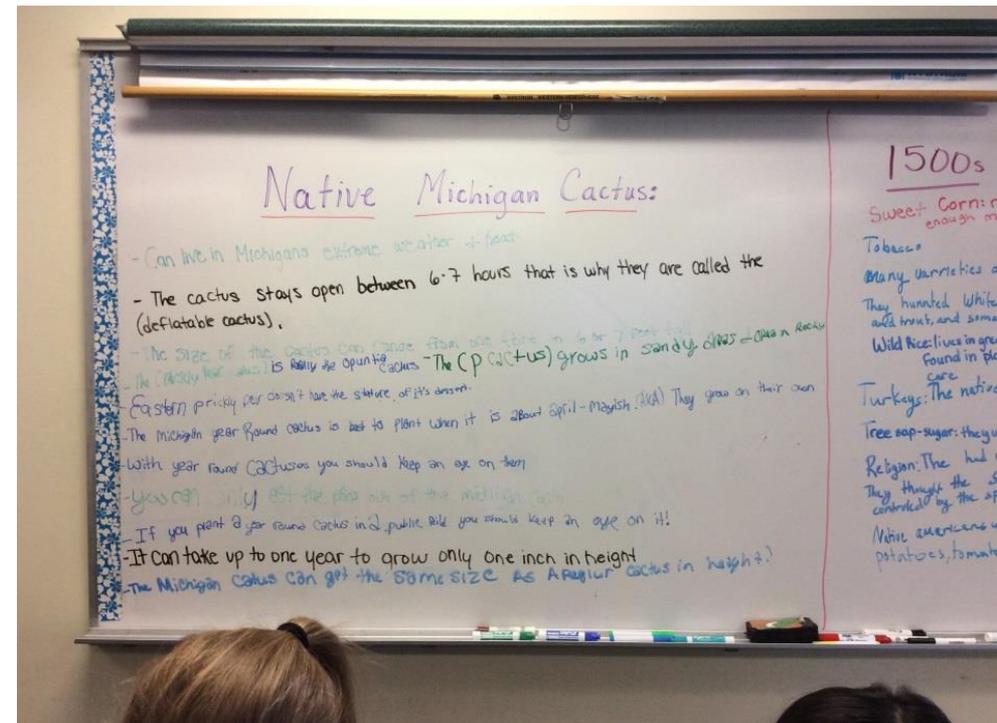
Interest Inventory Survey Page: Teachers at Whitehall Middle School used Google Forms to prepare the interest inventory as an online survey. Collecting the students' preferences in this manner gives students a voice, and also creates opportunities to learn about democratic choice processes. For example, you can ask, "What options were most preferred?" or "What criteria should we use in choosing among these options?"

In the winter, students researched historically appropriate choices for plantings and exhibits at the new park

Students learned about native Michigan cacti, birds, and gardening practices.

After completing various inventories and with the help of museum personnel, students researched various topics to help the museum prepare for its grand opening in June 2015. Students studied Michigan native plants, focusing on the prickly pear cactus, as this was a favorite of George Hilt, the donor of the land where the park is located.

Students also researched the Kirtland's warbler, early gardens of Michigan, invasive plant species, and how Native Americans and settlers created various fences during the early 1800s. All of this research fit with the goals of the museum as well as the sixth-grade curriculum.



Students generated a list of facts about native Michigan cacti.

Students implemented their plan in the spring



Students planted prickly pear cacti with local community member Tom Hamilton.

Students spent two days in April at Michigan's Heritage Museum and surrounding property. A large part of the project involved planting the prickly pear cacti to help create a prairie environment. Working with Tom Hamilton, a local community advocate, students planted 100 cacti in five different pods along power lines. Future classes may continue adding native species over the upcoming years.

Additionally, students picked up trash, built fences, tilled gardens, removed invasive plants, and glued rocks onto cement foundations of log cabins to help prepare the park and its exhibits.

Students summarized and presented their work as the school year ended

All of the Whitehall PBSE teams chose students to present at the West Michigan Great Lakes Stewardship Initiative Youth Symposium, held in May at Muskegon Community College and attended by parents, community partners, environmentally conscious citizens, and by students and teachers from other schools in Muskegon that are working with the WMGLSI.

As we walked around our school and neighborhood, we noticed stormwater run-off carrying garbage into our water.



At the annual Youth Symposium, each group of four to eight students presents their school or team's PBSE work through a brief slideshow, video, or other digital product. Students sometimes incorporate a song, a dance, or another creative act.

During an intermission from the formal presentations, students present at hallway stations with display boards and other artifacts of the projects, and the audience members can walk about and discuss the projects with students and their teachers.

LINK: [SIXTH GRADE PRESENTATION](#)

This is one slide of the sixth-grade students' presentation summarizing their work in 2014-15.

A final reflection was valuable for both teachers and students



How do you think the project helped you and others?

What did you enjoy best about the project?

What could have made this project better?

What did you enjoy best about the day out at Hilt's Landing?

What would have made the day at Hilt's Landing better for you and others?

Do you have any other comments, thoughts, or suggestions?

Reflection is one of the most critical pieces of the PBSE experience and should be incorporated throughout the process. Reflection is valuable not only to the teacher, but even more so for the student; it challenges students to think deeply about their experiences and can lead to transformative learning.

Reflection helps students move beyond preconceived notions to discover new ideas and ways of thinking. Reflection brings learning to life.

Sixth graders completed a final reflection focusing on what they learned, what they enjoyed the most, and how the project could be improved in the future.

LINK: [SIXTH GRADE FINAL REFLECTION RESPONSES](#)

These are the reflection prompts presented to the sixth-grade students. Teachers used Google Forms to capture student responses.



Seventh Grade

In the fall, seventh-grade students assessed needs at Duck Lake State Park

Their kickoff event, an Adopt-a-Beach cleanup, involved both research and service components.

Seventh-grade students have been working at Duck Lake State Park for the past couple of years. In September 2014, students launched their work in the park with the Alliance for the Great Lakes' annual Adopt-a-Beach event. During the beach sweep, students saw firsthand some of the environmental challenges faced by Duck Lake State Park.

Additionally, students did a walkabout to explore the park's trails and beaches. Through this largely unstructured, exploratory process, they identified park features they considered areas of strength and those in need of maintenance or improvements. Armed with the knowledge from their beach sweep and walkabout, students headed back to the classroom for further discussion and research.



Students take inventory at the park.

During winter, students researched the issues in cooperative groups

At this stage of the effort, their tasks were to decide which issues to tackle and to determine what could be done.

Students brainstormed ideas about how they could help park staff and other partners address environmental needs at the park. Students decided on four main areas of work—improving trails, encouraging recycling, controlling erosion, and reducing the spread of invasive plants.

Throughout the winter, students researched methods and solutions with regards to these four areas.



Seventh-grade students discuss their ideas.

Students took action in the spring

The seventh-grade team built and installed map holders, added trail posts, removed invasive plants, and placed recycling bins throughout the park.



Seventh-grade students install trail posts at Duck Lake State Park.

In early spring, after discussions with the park staff, the team made its final decisions about improvements they would make.

Over the course of two days on site, students built map holders to be placed on posts along hiking trails, and added posts. They removed invasive plants throughout the park. Almost half of the trash collected at Duck

Lake State Park during the fall beach sweep was recyclable, so students also installed recycling bins throughout the park.

Students had hoped to take action on some erosion issues, but found they needed special permissions from the state. Therefore, they were unable to pursue all of the work they wanted to.



“It was really fun working outside with our friends. I liked being able to experience the problem firsthand, because working in a classroom you just get to hear about it.”

—Seventh-grade student

As the school year ended, students presented their work to their peers, community members, and Duck Lake State Park personnel

Some of the seventh-grade students presented at the West Michigan Great Lakes Stewardship Initiative Youth Symposium. The team also presented to Duck Lake State Park personnel. Students were selected by teachers, in part on the basis of the students' expressed interest in presenting.

LINK: [SEVENTH GRADE PRESENTATION](#)



The slide features a dark purple header with the title "This Years Project" in white serif font. Below the title, there is a small yellow banner with illegible text. The main body of the slide is white with black text. The text describes plans to get more recycling bins and to map trails. At the bottom right of the slide is a blue recycling bin icon with a white recycling symbol.

This Years Project

This year we have/are going to, get a few more recycling bins. Last year the seventh graders found out after they got recycling bins, was that the park staff reported that they found less trash along the trails. So we are hoping to get an even better result. No trash at all!

Another project that we are working on is that we are going to be mapping some trails or GPS-ing them, and making a map out of them. As you have already saw the last year seventh graders installed some trail markers. This will help us in the process of mapping out the trails.

Students developed a slideshow for communicating with Duck Lake State Park personnel. The students described what they had done, and what is planned for the future.



At the WMGLSI Youth Symposium, a seventh-grade student talks with a Michigan Department of Natural Resources employee about the work at Duck Lake State Park.



Eighth Grade

Eighth-grade students began the year with water quality sampling

To deepen their understanding of local environmental needs, students tested the water quality of six White Lake tributaries. Students measured water temperature, pH, and dissolved oxygen levels, and they counted and classified types of macroinvertebrates in the water.

“I was shocked by how many plastic water bottles there were in the stream where we did our water testing.”

—Eighth-grade student



Students draw water samples from a White Lake tributary.

Students built awareness of White Lake’s environment and history through a fall trip on the W. G. Jackson and more

“Our boat trip on the W.G. Jackson was really cool. It was my first time out on Lake Michigan, and I learned so much about water quality and how our actions affect the watershed.”

—Eighth-grade student

Another component of eighth graders’ inventorying activities was a hands-on, investigative science experience on the W.G. Jackson, a research vessel at the Annis Water Resources Institute. Through field trips, mapping exercises,

and research on restoration work conducted by local community activists and organizations, students learned about environmental issues in the White Lake community and beyond.



Students prepare for their trip on the W.G. Jackson.

Fall exploration laid the groundwork for winter research and creativity

Students brainstormed possible film topics, formed teams, researched their issue, and created films.

After conducting water quality tests and learning about the environmental history of White Lake in the fall, students decided on topics for their environmental films. During the winter months, they spent time researching their respective topics and creating their films, some of which would ultimately be chosen for screening at GreenScreens, Whitehall Middle School's environmental film festival.

Students also met with local filmmaker David Ruck, who taught them how to tell powerful stories through film.



Eighth-grade students worked on their film projects in teams.

The GreenScreens process was designed to support and cultivate student voice

The GreenScreens Film Festival highlights environmental films created by Whitehall eighth-grade students. Students used the [GreenScreens brainstorm form](#) to explore topics of interest. After filling out the form and discussing potential topics in class, students looked online to find interesting environmental issues or events affecting Michigan or the Great Lakes.

Students were engaged in their research and script creation because they got to choose the topic that interested them. When students are curious and engaged, the assignment stops feeling like "school work." They are learning for their own benefit, not the teacher's benefit.

Students used the [student film rubric](#) to guide them as they planned and created the narration and video. Through direct instruction and online tutorials, they learned about building a story, inflection, and other narration techniques, as well as video effects like panning and zooming.



GLSI Guiding Principle 7: Cultivate student voice and involve students in democratic practices throughout the course of a PBSE effort.

Whitehall Middle School is fortunate to have a Chromebook for every student, so students could use WeVideo (a Web-based moviemaking program) to create their films.

In addition to their films, each student team watched professional environmental documentary trailers, and then used a [criteria-based decision-making worksheet](#) to identify the films they thought should be screened at the festival.

GreenScreens Film Project	Name: <u>Megan V.</u>	<u>5th VRS</u>
Film Topic Brainstorm		
1. List three things that are important to you that would be considered natural resources:		
• <u>The woods</u>		
• <u>Healthy fish population</u>		
• <u>Animals</u>		
2. List three activities that you like to do outdoors:		
• <u>Fish</u>		
• <u>Take pictures of nature</u>		
• <u>Camping</u>		
• <u>Biking</u>		
3. List three plant or animal species in Michigan that are important to you:		
• <u>Fish</u>		
• <u>Maple/Oak trees</u>		
• <u>Flowers</u>		
4. The most beautiful place you have ever been to in Michigan is:		

Student hosted the GreenScreens Film Festival in May

The second annual GreenScreens Film Festival took place on May 5, 2015, at the historic Howmet Playhouse in Whitehall. Students organized and planned all of the details leading up to—and on the day of—the event.

Over 60 top-quality student films were created by the young environmental stewards during their English and science classes.

The event also included a screening of the award-winning documentary *Food, Inc.* After the screening, attendees had the opportunity to ask questions about farming and food sustainability to a panel of guest speakers.



The GreenScreens Film Festival Planning Team at the Howmet Playhouse.

Films were evaluated by students, teachers, and local and state environmental advocates

Prior to GreenScreens, the student teams' science and English teachers scored the films using the [student film rubric](#). The top 12 films were sent to a panel of local and state environmental leaders who served as judges. This group's top four films were screened at the festival in May.

The top 12 films were also watched in the students' science classes, and students used the [top 12 student scorecard](#) to record their own comments and scores. These student scores were used to select a "People's Choice Award."

You can view the top four films on YouTube by clicking the film titles.

GreenScreens Top 12

Congratulations to our student filmmakers!

Balloons: A Floating Menace

Mackenzie C., Keven G., and Lyndsey J.

Colorado River

Blake G., Allison H., and Alyssa H.

The Tragedy of the Cuyahoga River

Hayley S. and Sydney S.

Lake Erie Algal Bloom

Hailey E., Stephanie S., and Claire W.

Mackinac Pipeline

Ethan M., Merrick S., Jerra S.

Microbeads: The Great Lakes' Smallest Killers

Leeanna B. and Zeza S.

Naegleria Fowleri

Jillian G., McKenna H., and Abby S.

PBB Contamination in Michigan

Patrick B. and Jayson V.

Petcoke: Coal's Evil Cousin

Saroya A. and Kacy J.

Quagga Mussels

Bryce S., Ben S., and Brendan V.

Vanishing Sand Dunes

Kaeli D.

The Tannery: A Toxic History

Grace B. and Mary T.



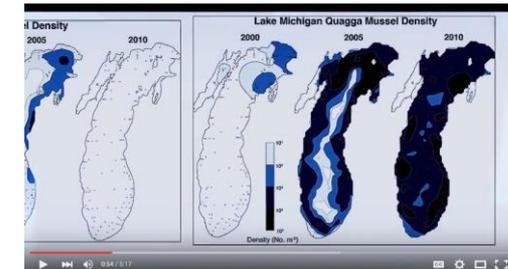
1st Place—[PBB Contamination in Michigan](#)



2nd Place—[Microbeads: The Great Lakes' Smallest Killers](#)



3rd Place (tie)—[The Tannery: A Toxic History](#)



3rd Place (tie)—[Quagga Mussels](#)

Students gained interpersonal skills by working on their films in cooperative groups

Cooperative learning is one strategy for developing social competencies essential to stewardship, which include teamwork, responsibility, empathy, and conflict resolution.

According to David Johnson and Roger Johnson (1999), there are five basic elements for successful cooperative learning:

Positive interdependence: Students feel responsible for their own and the group's effort.

Face-to-face interaction: Students encourage and support one another; the environment encourages discussion and eye contact.

Individual and group accountability: Each student is responsible for doing their part; the group is accountable for meeting its goal.

Group behaviors: Group members gain direct instruction in the interpersonal, social, and collaborative skills needed to work with others.

Group processing: Group members analyze their own and the group's ability to work together.



LINK: [OVERVIEW OF RESEARCH ON EFFECTIVE COOPERATIVE LEARNING](#)

LINK: [COOPERATIVE LEARNING TEACHER'S GUIDE](#)



GLSI Guiding Principle 9: Incorporate opportunities for students to develop the social competencies essential to stewardship.

Teachers provided a peer evaluation system to help team members stay accountable to each other



Teachers often use cooperative learning techniques when implementing PBSE efforts. As shown on the prior page, one of the recommended strategies within a cooperative learning approach is to hold individuals and the full group accountable. Eighth graders at Whitehall Middle School rated the members of their film team on a variety of dimensions.

LINK: [DOWNLOAD THE PEER EVALUATION FORM FOR GROUP WORK](#)

Peer Evaluation Form for Group Work

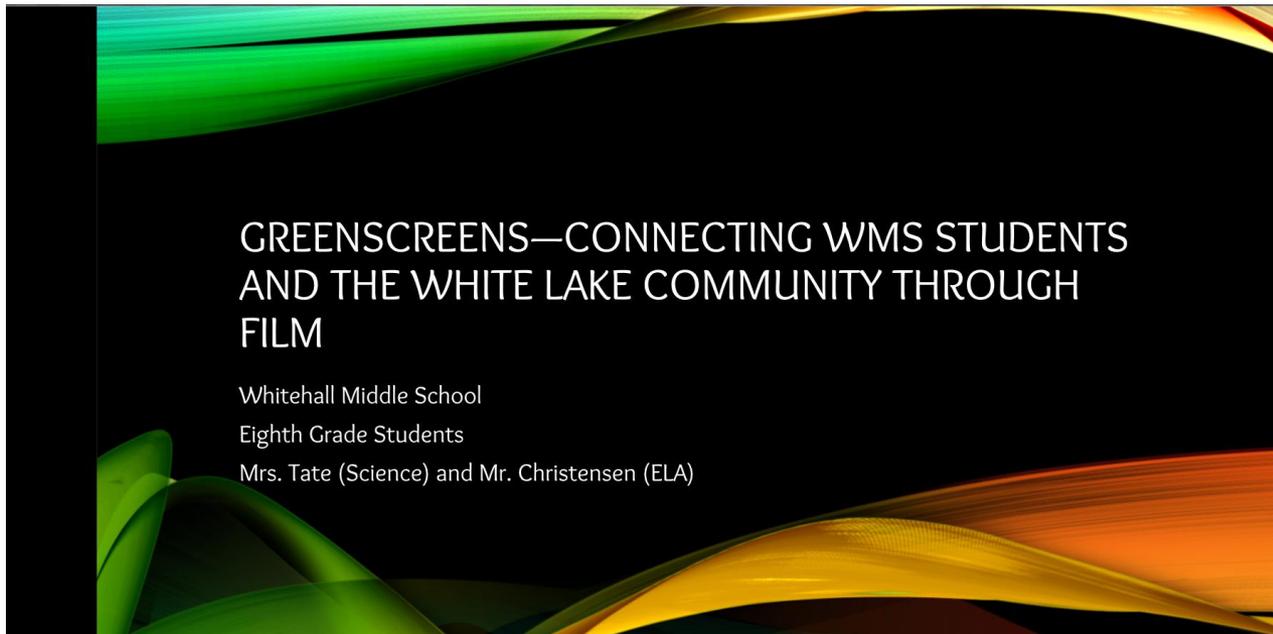
Your name _____

Write the name of each of your group members in a separate column. For each person, indicate the extent to which you agree with the statement on the left, using a scale of 1-4 (1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree). Total the numbers in each column.

Evaluation Criteria	Group member:	Group member:	Group member:	Group member:
Attends group meetings regularly and arrives on time.				
Contributes meaningfully to group discussions.				
Completes group assignments on time.				
Prepares work in a quality manner.				
Demonstrates a cooperative and supportive attitude.				
Contributes significantly to the success of the project.				
TOTALS				

As the school year ended, eighth graders summarized and presented their work to the community

A subset of the eighth-grade team attended the WMGLSI Youth Symposium to share the story of their efforts to create environmental films.



[LINK: EIGHTH GRADE PRESENTATION](#)

This is a slide from the eighth-grade students' slideshow summarizing their work in 2014-15. Student volunteers presented at the WMGLSI annual Youth Symposium, along with student representatives from other schools in the Muskegon area working with the WMGLSI.



An eighth-grade student emcees the GreenScreens Film Festival

“I was so impressed with the way my students took ownership of the film festival. I could see how proud they were to have organized an event of this magnitude, and how this empowers them to take action in the future.”

—Susan Tate, eighth-grade teacher



Team and Planning



PBSE builds relationships that support teachers

Relationships are an important part of most PBSE efforts. Teachers can work in grade level, multidisciplinary teams on a common PBSE effort, or on teams that span grades or even schools. This does not mean that a single teacher cannot implement PBSE, just that the benefits are often greater when they can work with a team.

Teachers also form partnerships with community members who have environmental expertise or resources to share, or an ongoing community or environmental project that would benefit from the involvement of students.

Over the years that the GLSI has been operating, many teachers have said that they particularly value this opportunity to collaborate with other teachers and experts in the community.

The benefits of teacher collaboration are supported by research like [The Missing Link in School Reform](#), from the Stanford Social Innovation Review.

LINK: [THE MISSING LINK IN SCHOOL REFORM](#)

Twelve Whitehall Middle School teachers collaborated on the projects



Pictured left to right are Derek Taranko, Susan Tate, Terri Reid, Katie Van Dam, and Craig Christensen, five of the participating teachers.

Whitehall Middle School teachers have built a culture of collaboration in their building. The sixth-grade team consists of Terri Reid (social studies), Lori Gripton (math), Bobbi Friend (English language arts, or ELA) and Matt Borushko (science). In the seventh-grade team, teachers Derek Taranko (ELA/science) and Tom Sheesley (math/social studies) worked together on their project.

The eighth-grade teachers are Susan Tate (science), Aaron Boyd (math/science), Craig Christensen (ELA), Mae Hill (ELA, social studies), Troy Love (social studies) and Katie Van Dam (ELA).

Each grade level team partnered with community organizations for mutual benefit

Each of the grade level teams engaged with at least one leading community partner and several community partners who played support roles.

The sixth-grade team worked with personnel from Michigan's Heritage Museum, who played a leading role in the planning, design, and implementation of the project. The museum provided space, personnel, and other resources. Community members Tom and Jan Hamilton helped students grow and plant Michigan native cacti.

The seventh-grade team has been working with the Michigan Department of Natural Resources at Duck Lake State Park for the past three years and this relationship continues to expand. Park staff varies from year to year, but they are always more than happy to participate and support in any way possible—from working with the state to get special permissions to helping during field activity days. Students partnered with the Adopt-a-Beach program of the Alliance of the Great Lakes to capture and share beach sweep data.

The eighth-grade team has partnered with the Howmet Playhouse, which hosted the film festival, for the past two years. This partnership is slated to continue. In addition, the Muskegon Community Foundation provided funding for the film festival, and numerous individuals throughout the community served as judges for the film festival.

WHITEHALL'S HISTORIC THEATER

HOWMET
PLAYHOUSE



Lakeshore Museum Center
Discover Muskegon County, Michigan





“Working with the GLSI students is the highlight of our field season. Their energy, enthusiasm, and knowledge of the issues and problems is a joy. They carry our message forward into the community and make our job easier in so many ways.”

*—Randy Butters,
Newaygo Invasive Plant Project*

Planning for PBSE begins well in advance of the project

Teachers met frequently to ensure student-driven projects would meet curricular goals and standards.

Teachers from all disciplines across multiple grade levels collaborated on the PBSE projects. Through summer planning sessions, monthly meetings, and online collaboration, they worked together to ensure that all project aspects were well planned.

A critical part of the teachers' work was to ensure the projects would fit their curriculum and meet their required grade level standards. Using the project planning guide, teachers identified appropriate standards and curricular connections; environmental goals; roles of teachers, students, and community partners; community connections; student assessments; and more.

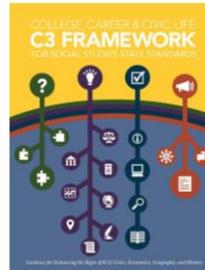
The project planning guide was a template that made the whole planning process easier. Teachers worked on the planning guide individually and collaboratively, using Google Drive.

LINK: [PROJECT PLANNING TEMPLATE](#)

Through careful planning, teachers address numerous content standards and integrate content across the disciplines



The Next Generation Science Standards are founded on disciplinary core ideas, scientific practices, and crosscutting ideas.*



The emerging C3 Framework for social studies covers civics, economics, history, and geography.



The Common Core Standards for English/language arts include reading, writing, speaking and listening, and language strands.

A project like the GreenScreens Film Festival covers varied content standards and asks students to integrate across disciplines. Standards addressed include those related to:

- Reading and writing informational text
- Presenting ideas
- Discussing issues with others
- Creative expression and language use
- Scientific practices including obtaining, evaluating, and communicating information
- Disciplinary core ideas in the life and earth sciences
- Core topics in the social studies, including civic participation and human impacts on the environment

Making films facilitates growth in teamwork, organization, and technology skills.

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GLSI Guiding Principle 3b: Teach students to draw on multiple disciplines and ways of knowing as they consider and take action on local stewardship needs.

Planning and organizing continues through the year

Including youth voice and finding time to collaborate with all parties—including students, teachers, and community partners—requires careful, well-orchestrated planning.

Since three different projects occurred at three different grade levels, the planning was a well-coordinated effort between teachers, students, and community partners that looked a little different at each grade level. At times, planning involved just individual teams, and at other times, all teams planned together.

The sixth-grade project provided time for the teachers, students, and community partners to meet at Michigan's Heritage Museum during and after school to determine possible needs for the park. Students visited the park, and park personnel presented in the classroom. Once the needs were determined, students voted on which issues they wanted to tackle and then worked with the park on the action plan.

The seventh-grade project involved students working with the teachers and staff at Duck Lake State Park to discuss findings from their walkabout and beach sweep and establish priorities for action.

The eighth-grade team established a project planning team composed of ten students that made decisions about the details related to the film festival. They met as a group during the school day to discuss possible environmental documentaries they wanted to screen.



Robb Zoellmer, Duck Lake State Park employee, talks with students about their work.

Additionally, they created the logo, designed a t-shirt, contacted speakers, and made preparations. On the day of the event, they served as emcees and presented awards.

Longer-term planning has focused on establishing the practice of PBSE in the school

Whitehall Middle School serves approximately 450 students in grades six through eight. In 2014–15, 320 students (a significant portion of the total enrollment) were involved in PBSE through their English, science, social studies, and/or math classes.

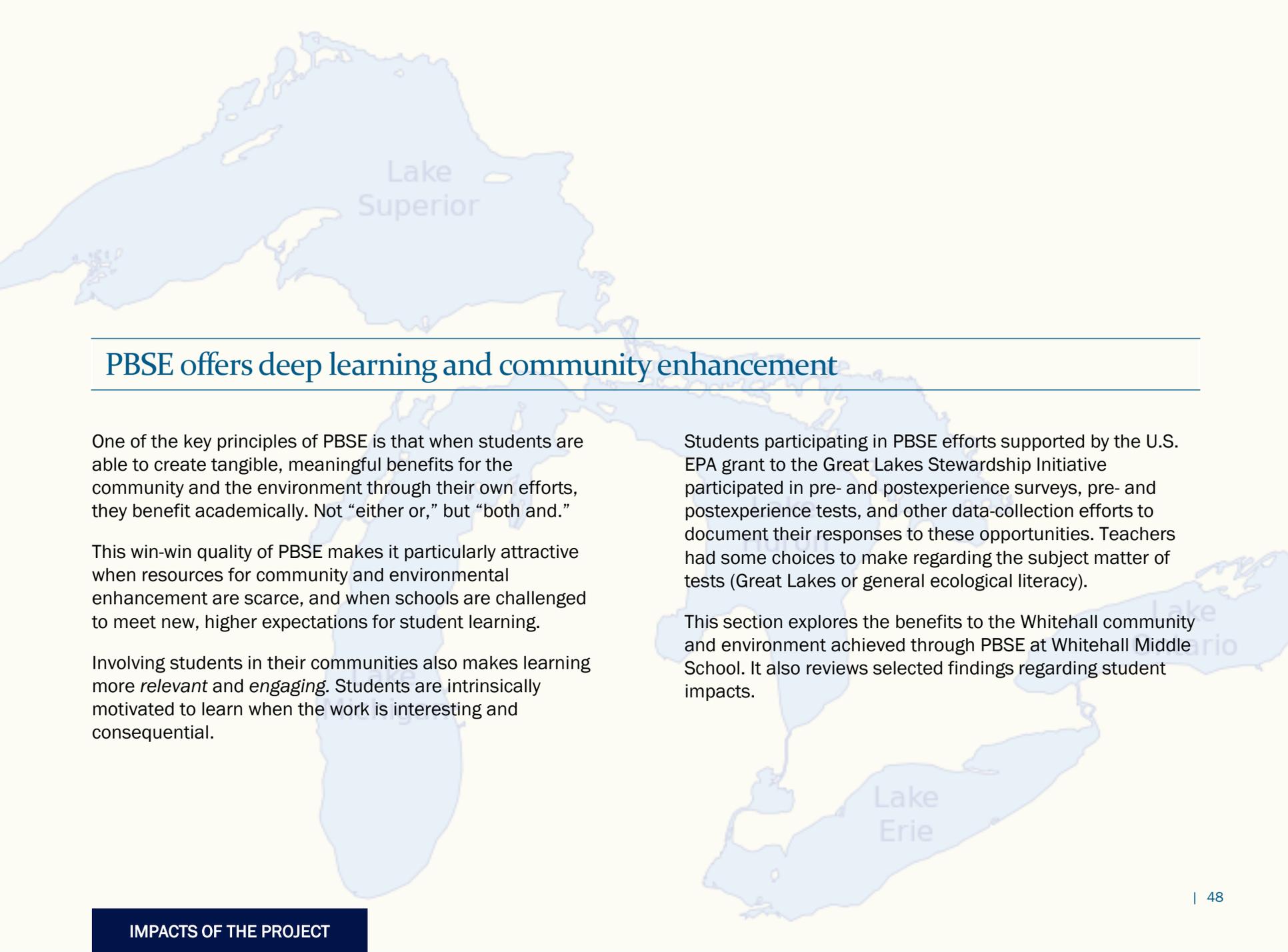
All participating teachers at Whitehall Middle met monthly with their WMGLSI-provided field coordinator, and the buildingwide team worked with WMGLSI staff on sustainability planning over the summer. For sustainability planning, the teachers are using *Learning that Lasts: How Service-Learning Can Become an Integral Part of Schools, States and Communities*.

LINK: [LEARNING THAT LASTS FIELD GUIDE](#)





Impacts of the Project



PBSE offers deep learning and community enhancement

One of the key principles of PBSE is that when students are able to create tangible, meaningful benefits for the community and the environment through their own efforts, they benefit academically. Not “either or,” but “both and.”

This win-win quality of PBSE makes it particularly attractive when resources for community and environmental enhancement are scarce, and when schools are challenged to meet new, higher expectations for student learning.

Involving students in their communities also makes learning more *relevant* and *engaging*. Students are intrinsically motivated to learn when the work is interesting and consequential.

Students participating in PBSE efforts supported by the U.S. EPA grant to the Great Lakes Stewardship Initiative participated in pre- and postexperience surveys, pre- and postexperience tests, and other data-collection efforts to document their responses to these opportunities. Teachers had some choices to make regarding the subject matter of tests (Great Lakes or general ecological literacy).

This section explores the benefits to the Whitehall community and environment achieved through PBSE at Whitehall Middle School. It also reviews selected findings regarding student impacts.

PBSE improved the Whitehall community in many ways

Sixth-grade students helped a new local museum prepare for its grand opening.

LINK: [MEDIA COVERAGE](#)



Sixth-grade students collect branches for the natural fence at Michigan's Heritage Museum.

Michigan's Heritage Park needed help preparing for their grand opening in June 2015, and the sixth graders at Whitehall Middle School were more than happy to get out of the classroom and into the community to lend a hand. Research on service-learning demonstrates that students are more engaged in the learning when a project yields genuine benefits, and this project certainly benefited all of those involved.

The students learned about the connection between their environment, history, and the economy, while the park received some much-needed help. Additionally, community members will now have the opportunity to enjoy Michigan's Heritage Park. All of this work could not have occurred without the collaboration between the school and the local community.



Seventh-grade students label new recycling bins for the park.

State parks require constant upkeep and are at times understaffed, so extra hands and ideas are always welcome. Over the course of the school year, Whitehall Middle School seventh graders addressed park needs that are difficult for staff to

address while learning important content and developing their capacity for stewardship. The improvements made by the students will benefit visitors to the state park for years to come.

Duck Lake State Park received new recycling bins, trail posts, and map holders

“We are so glad that you guys decided to improve our trail system. The posts and the map holders are wonderful!”

—Park Officer Kris Kluting

Students collected harmful trash from the shoreline



Seventh-grade students sort through trash collected on the beach at Duck Lake State Park.

Students collected 216 pounds of trash at Duck Lake State Park, including food wrappers, discarded food, pieces of fishnet, broken glass, cigarette butts and cigar tips, more than 150 beverage containers, and much more. The Alliance for the Great

Lakes reported that, in 2014, 3,920 Michiganders (including the Whitehall Middle School students) contributed more than 11,000 volunteer hours and picked up more than 9,000 pounds of trash on Great Lakes beaches.

LINK: [BEACH SWEEP DATA](#)

Students helped foster environmental learning among other members of the community

The GreenScreens Film Festival educated attendees on topics ranging from the dangers of plastic microbeads in the Great Lakes to the PBB contamination of livestock in the 1970s. There was also a screening of the award-winning documentary *Food, Inc.*

The films helped educate the more than 300 community members and students in attendance.

For weeks after this screening, parents, community members, and school leaders continued the conversation about the impact of these films on their thinking about sustainability and stewardship.

LINK: [MEDIA COVERAGE](#)



Whitehall Middle School eighth graders who are participating in the "GreenScreens" film event Wednesday stand outside their school with the event's banner. CONTRIBUTED PHOTO

Students explore environmental issues through film documentaries

A free "GreenScreens" film event will be held this Tuesday at the Howmet

WHITEHALL – Whitehall Middle School eighth grade students are filmmakers!

The students have spent the past school year engaged in a research-based, interdisciplinary project, exploring environmental issues surrounding the Great Lakes watershed and creating documentaries to report their findings.

As a way to showcase some

the Community Foundation for Muskegon County Environmental Endowment Fund, and the U.S. EPA. Eighth grade Science teacher and GreenScreens advisor, Susan Tate, has partnered with the WMGLSI for the past seven years, leading students in a myriad of environmental projects including stream bank restoration, stormwater education, and water

life Service; Elizabeth Christensen, education officer, JOID Resolution; and Robb Zoellner, WMGLSI field coordinator.

The Greenscreens student planning team, comprised of eighth grade students, obtained license to publicly screen the film *Food, Inc.*, a 2008 documentary directed by Emmy-award winning filmmaker Robert Ken

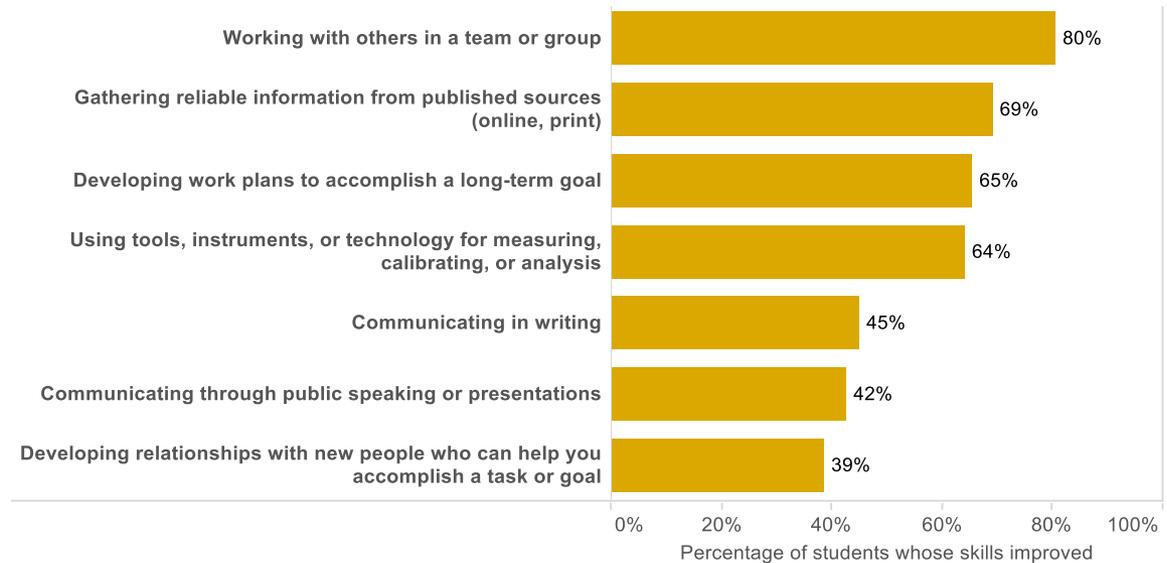
News coverage in the White Lake Beacon from May 14, 2015.

Surveyed students indicated that PBSE helped build their professional skills

The average student responding to the survey identified more than four skills developed or enhanced through stewardship work in 2014–15.

Students in the sixth and eighth grades participated in pre- and postexperience surveys. In the postexperience survey (after students had completed their stewardship projects), they were presented with a list of skills and asked to check any that their stewardship work helped them develop.

Whitehall Middle School students were particularly likely to say they learned to work with others in a team or group, gather reliable information from published sources, develop work plans, and use technology or tools for measuring and analysis.



The postexperience student survey asked respondents to consider a list of skills, and check each that they felt they developed through their PBSE work. The graphic shows the percentage of responding students who checked each skill.

Eighth-grade students were asked to describe how their thinking had changed regarding the health of the White Lake watershed

To show changes in thinking, students responded to three prompts: “I used to think,” “But now I know,” and “This is how I learned it.”

Many eighth graders wrote about learning through their GreenScreens assignment. Things they “used to think” included numerous misconceptions about White Lake and about threats to the watershed. These included:

- White Lake has always been clean
- White Lake is currently seriously polluted
- Only one company polluted White Lake; the tannery associated with White Lake pollution is now gone
- Microbeads aren’t harmful to water or water life
- Water quality testing is a simple one-time effort, or requires experts, or is only for the purpose of determining if water is safe to drink
- There is only one kind of lake, and all water is chemically the same
- White Lake is “just water”
- Oil spills couldn’t happen
- Lake Michigan is saltwater
- Invasive mussels and other invasive species are harmless to native wildlife

I USED TO THINK...	BUT NOW I KNOW...
I used to think that microbeads didn't affect us or our environment at all	I now know that they are a huge problem in the great lakes and, they can affect us.
AND THIS IS HOW I LEARNED IT...	
I learned this by researching for my green screens project, we had to pick a topic and learn about how it affected our great lakes. then we had to make a short documentary about it. My partners and I learned a whole lot about it, and we tried to stop people from using them.	

An example of the form and response.

Students also expressed various misunderstandings they used to have about water life, such as what plankton look like, or how salmon come to live in the Great Lakes. A couple of students said they used to think that White Lake was clean (but now thought differently).

Eighth-grade students now know more about White Lake's history, threats to water quality, and the purposes and practice of water quality testing

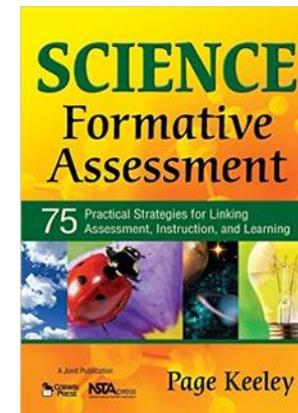
Each student's description of change in thinking was unique, but many said they learned from making their film or watching other students' films.

Students now know:

- White Lake has a history of impairment
- White Lake has been restored and removed from the list of Areas of Concern
- The nature and history of pollution of White Lake
- Microbeads absorb toxins and are ingested by wildlife, passing those toxins up the food chain
- Aquatic invasive species are harmful to native wildlife
- The purposes, process, and value of water quality testing
- The meaning of various measures of water chemistry
- The watershed faces risks and requires active stewardship

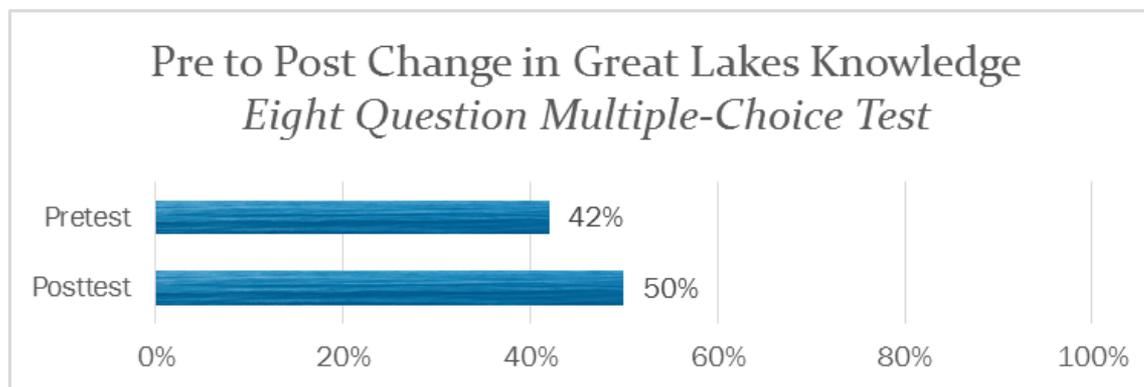
Several students commented about ways in which they have changed their behaviors to better protect their watershed.

LINK: [SCIENCE FORMATIVE ASSESSMENT: 75 PRACTICAL STRATEGIES FOR LINKING ASSESSMENT, INSTRUCTION, AND LEARNING](#)



The form's prompts were derived from a formative assessment in this 2008 text.

Eighth-grade students also increased their general knowledge of the Great Lakes



Whitehall Middle School eighth-grade students took a pre- and posttest of their Great Lakes knowledge. This test was one of two available to middle and high school teachers participating in the GLSI's U.S. EPA grant as a standard measure of student learning. The eight-question test was based on the Great Lakes Literacy Principles, a document created by Sea Grant educators that outlines essential knowledge of the Great Lakes for citizens of the region.

Whitehall Middle School students improved on several test questions. They were more likely at year end than at pretest to be able to identify the correct definition of a watershed, and more likely to be able to identify the ways in which invasive species are of harm to the Great Lakes. The gain of 8 percent on the test represented 38 percent of a standard deviation, a small to moderate effect.

[LINK: TEST OF GREAT LAKES KNOWLEDGE](#)

Sixth- and seventh-grade students described how their thinking about environmental stewardship had changed

Sixth and seventh graders completed the same worksheet as eighth graders. Patterns in their responses are shown in the tables below. Sixth graders' most common themes focused on new learning regarding stormwater runoff or soil, and deeper understanding and appreciation of why and how people

engage in acts of environmental stewardship. Seventh-grade students' most common observations focused on invasive species and on opportunities to serve and to collaborate with their peers.

Sixth grade:

I used to think	Now I know
Stormwater is always helpful	Stormwater runoff is a source of water pollution
All soils are the same	Soils vary, and different types of soil are good for different types of plants
Environmental stewardship is just labor/is unnecessary	Environmental stewardship involves careful planning and research, and makes a difference in the community
Nature can take care of itself	Environmental stewardship is needed

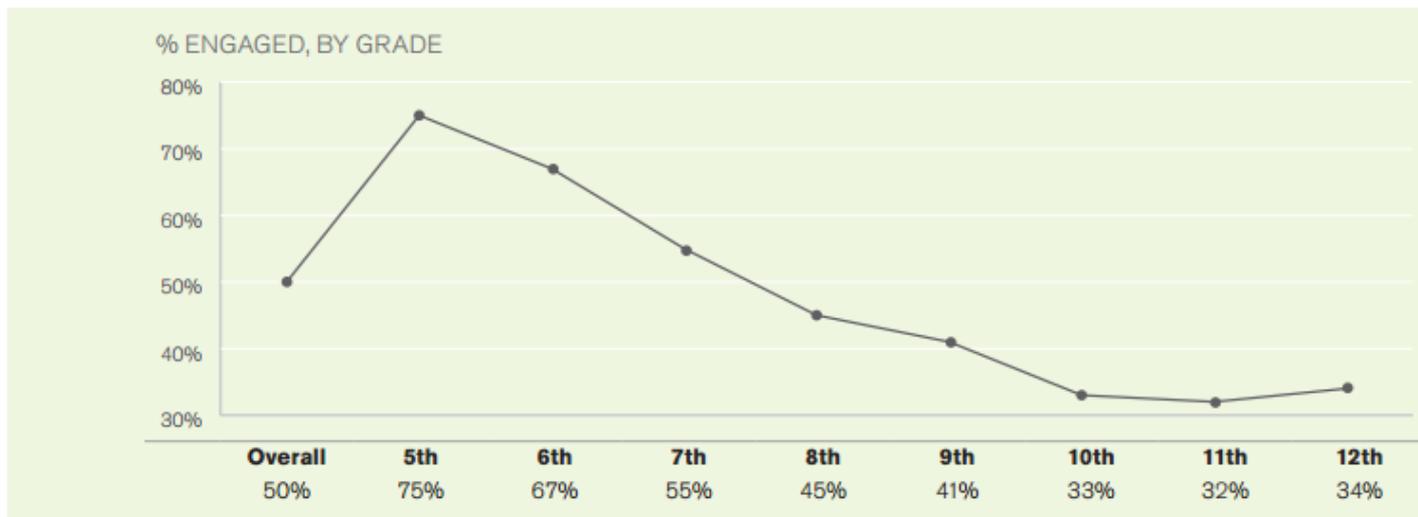
Seventh grade:

I used to think	Now I know
Invasive plants aren't harmful/all plants are good for the environment	Some invasive plants are harmful to other plants and to ecosystems
Pollution is the only environmental issue	There are other issues beyond pollution
Only the Department of Natural Resources gets involved in park stewardship	More people can get involved
Our class can't cooperate	We can cooperate and work together

Engagement in school is a serious national challenge, and declines significantly in the middle school years

Gallup Inc. has been administering the Gallup Student Poll since 2009. Their most recent report, *Engaged Today—Ready For Tomorrow: Fall 2015 Survey Results*, is derived from a 2015 survey of more than 900,000 students in fifth through 12th grades in 3,300 schools. Because the schools are self-selected, the results must be carefully interpreted.

As shown in the Gallup data below, engagement (as measured in the survey) decreases steadily and markedly between the fifth and 11th grades. Advocates for PBSE believe that PBSE can increase student interest in school and learning.



Copyright © 2016 Gallup, Inc. From Gallup Student Poll: Engaged Today —Ready for Tomorrow, p. 7. See link below for the full report.

LINK: [NATIONAL ENGAGEMENT REPORT FROM GALLUP](#)

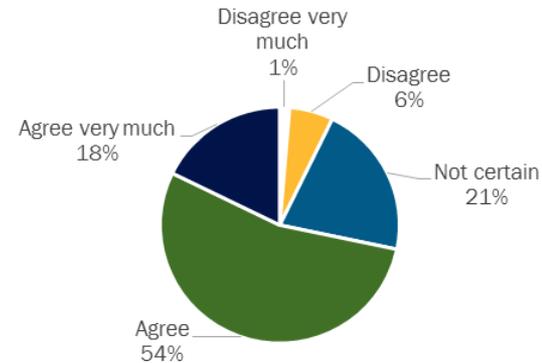
Whitehall students were engaged in the work

Seventy-two percent of students taking the postexperience survey “agreed” or “agreed very much” that “other students should have the opportunity to participate in a stewardship project like I did.”

Furthermore, many comments at the end of the survey expressed enjoyment and pride regarding the work. Students were asked, “What do you think you learned about yourself and your community from your place-based stewardship work this year?” The most common themes were:

- I am responsible for change/I have the ability to make change (27 percent)
- I gained a professional or stewardship-related skill (26 percent)
- I learned something new about the environment (17 percent)
- I gained insight into my community (16 percent)

I feel other students should have the opportunity to participate in a stewardship project like I did.



“I think that I learned about myself and my community that we can do big things if we all participate and contribute to the project.

In this project I do believe that we all participated and all of the hard work we did paid off.

Another thing that I learned about my community/classmates is that we are all determined to finish this project.

Something that I learned about myself is that I am not as shy as I thought I was, like I talked to all of those strangers that came up to our board at the WMGLSI Youth Symposium.

In conclusion, I think our whole class enjoyed this stewardship project, especially me!”

—Sixth-grade student

Other PBSE efforts could yield a different set of benefits

There is a lot of freedom within the PBSE framework, so many benefits are possible depending on the direction taken.

BENEFITS OF PLACE-BASED STEWARDSHIP EDUCATION CAN INCLUDE:

STUDENT ACADEMIC GAINS

- Improved academic scores and grades
- Improved critical thinking skills
- Increased engagement in school and motivation for achievement
- Increased professional skills, such as leadership, persistence, taking responsibility, teamwork, developing plans to reach a solution, managing time, motivating others, and dealing with unexpected challenges
- Deeper learning and action competence
- Increased awareness of career options

POSITIVE YOUTH DEVELOPMENT AND STEWARDSHIP GAINS

- Social-emotional development, including increases in self-esteem, a sense of empowerment and agency, social interaction skills and capital, and awareness of cultural diversity
- Sense of place and community attachment
- Civic-democratic competencies and attributes

- Pro-environmental attitudes
- Environmental sensitivity and awareness
- Responsible environmental behaviors

TEACHER BENEFITS

- Opportunity to pursue their interests and advance their values
- Skill development
- Motivated students

SCHOOL AND DISTRICT BENEFITS

- Teacher engagement and satisfaction
- An integrated option to reach numerous and robust standards and curricular priorities as well as youth development priorities
- Increased awareness from the community of the conditions, needs, and efforts of the schools
- Stronger connections with community-based organizations, parents, and individual community members
- Access to grants, funders, and recognition

PARTNER ORGANIZATION BENEFITS

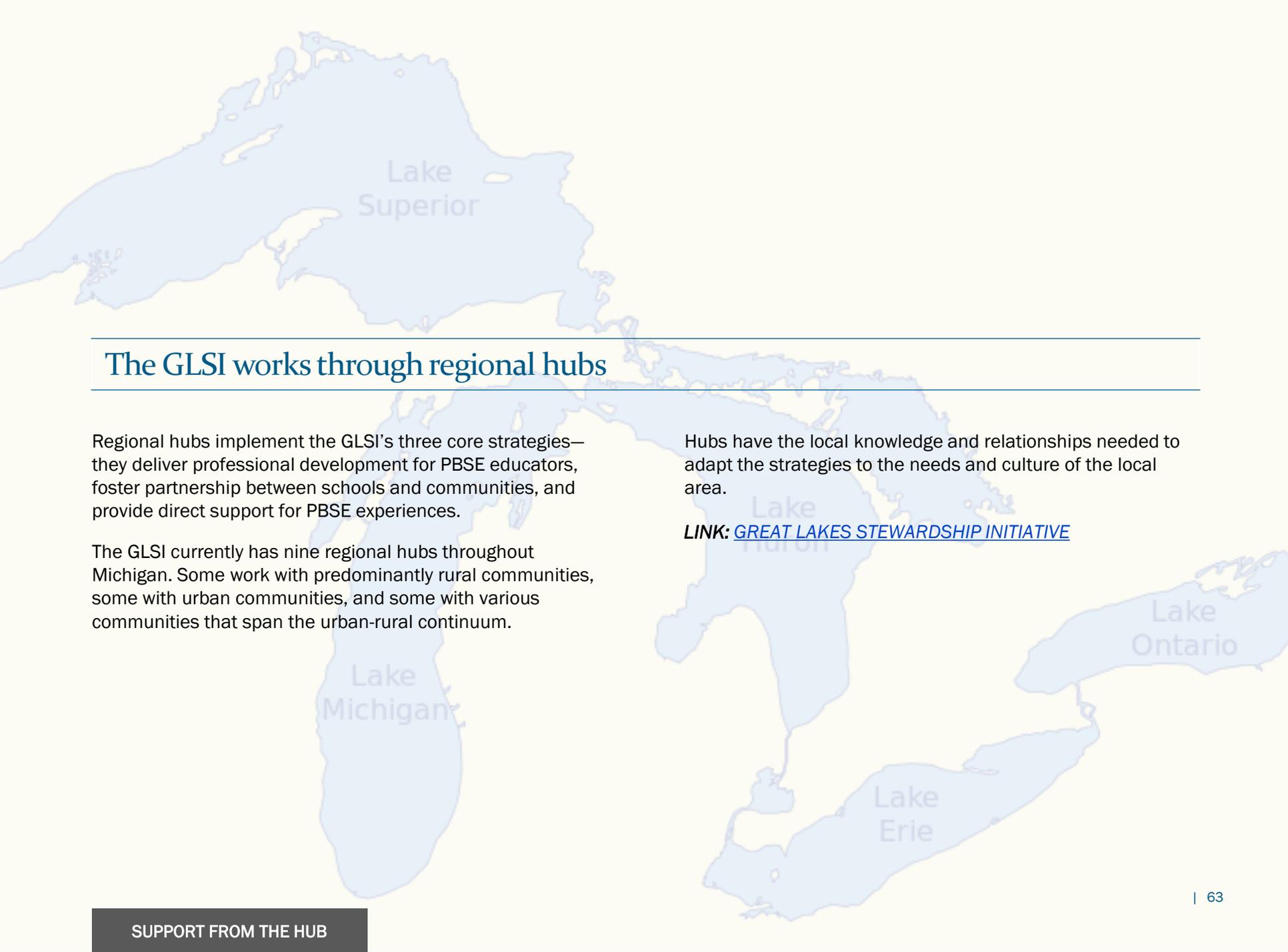
- Engaged youth and schools in their work
- Raised awareness of the mission
- Increased capacity
- Networks with other organizations in the field
- Access to grants, funders, and recognition

LOCAL BENEFITS

- Community revitalization and environmental improvements
- Sense of place
- Social capital and community capacity



Support from the Hub



The GLSI works through regional hubs

Regional hubs implement the GLSI's three core strategies—they deliver professional development for PBSE educators, foster partnership between schools and communities, and provide direct support for PBSE experiences.

The GLSI currently has nine regional hubs throughout Michigan. Some work with predominantly rural communities, some with urban communities, and some with various communities that span the urban-rural continuum.

Hubs have the local knowledge and relationships needed to adapt the strategies to the needs and culture of the local area.

LINK: [GREAT LAKES STEWARDSHIP INITIATIVE](#)

The WMGLSI serves the broader Muskegon area

The WMGLSI is located in Muskegon, Michigan, at the Muskegon Area Intermediate School District. It provides services and resources to schools in Muskegon, Newaygo, Oceana, and northern Ottawa Counties. The hub staff includes a program director, a project specialist, and field coordinators.

Since its inception in 2007, the WMGLSI has focused on its goal of using place as the context for learning, using service learning as the action, and creating stewards of the Great Lakes.

[LINK: WEST MICHIGAN GREAT LAKES STEWARDSHIP INITIATIVE](#)



Hubs implement three core strategies for stewardship

Each GLSI hub provides a program of sustained professional development, brokers school-community partnerships, and supports place-based education. Their strategies are not inherently tied to environmental stewardship—that theme and content must be infused into each aspect of the work.

The GLSI's hubs have developed approaches that reflect the environmental character and needs of their respective communities, the interests and goals of their school districts, the strengths of the hub staff and the host organization, and the mix of community organizations engaged in stewardship work with youth.

Every hub shapes their strategies to meet the needs of its people and places.



Sustained professional development is a critical component of the WMGLSI's work with educators

All teacher teams are required to participate in an intensive, five-day summer institute.

Every summer, the hub hosts an intensive, five-day summer institute, where participants are immersed in PBSE and environmental stewardship. Teachers learn about various environmental issues and how to connect those issues, and the PBSE approach, to their curricula.

In addition, the WMGLSI hosts four dinner-and-dialogues throughout the year, one day of backwards design and curriculum planning, and one day of Earth Force training, focusing on youth voice. The hub also offers small-scale, customizable professional development utilizing community partners, veteran teachers, field coordinators, and other hub staff.



Teachers work together at a WMGLSI professional learning event.



Teachers learn about and remove invasive plants during the WMGLSI summer institute.

The hub provides time, money, coaching, and other resources to support PBSE

The WMGLSI provides up to \$2,000 to participating schools to offset costs for materials, transportation, and other project-related expenses.

In addition to funding, the WMGLSI also provides a field coordinator to each team. Field coordinators are a unique element of the WMGLSI's staff. These individuals—typically retired teachers or community-based advocates for the environment—help with project planning, finding additional grant money, connecting with community partners, providing assistance when students are out in the field, and contributing in so many other ways.

The WMGLSI is housed in the Muskegon Area Intermediate School District, which recognizes the value of PBSE for engaging students and increasing academic achievement.

The work fits perfectly with the vision and mission of the Muskegon Area Intermediate School District.

The WMGLSI brokers school-community partnerships

Community partnerships can be a challenging element of PBSE. Teachers and partners work in very different professional environments and sometimes struggle to communicate effectively. Often, one of the biggest challenges is making that first connection.

Because of the barriers to school-community partnership, supporting partnerships is a core focus of the WMGLSI. For example, in one activity during the summer institute, 15 to 20 community partners are matched with teachers for a discussion of possible ways they could work together in the upcoming school year.

These partners also present at dinner-and-dialogue sessions hosted by the hub. Field coordinators and the hub's advisory council recruit new community partners into the WMGLSI network as well.



NOAA scientists educate teachers about invasive fish found in Lake Michigan during the WMGLSI summer institute.

The WMGLSI helped the Whitehall Middle School team grow, learn, implement projects, and plan for the future

What began in 2007 with one teacher has exploded into a schoolwide opportunity for the vast majority of Whitehall students, with 13 teachers from grades six through eight involving students in various PBSE experiences.

In order to support the work, three hub staff members (program director, project specialist and field coordinator) provided resources and expertise. The field coordinator helped the grade level teams plan, research, connect with partners, and implement their projects.

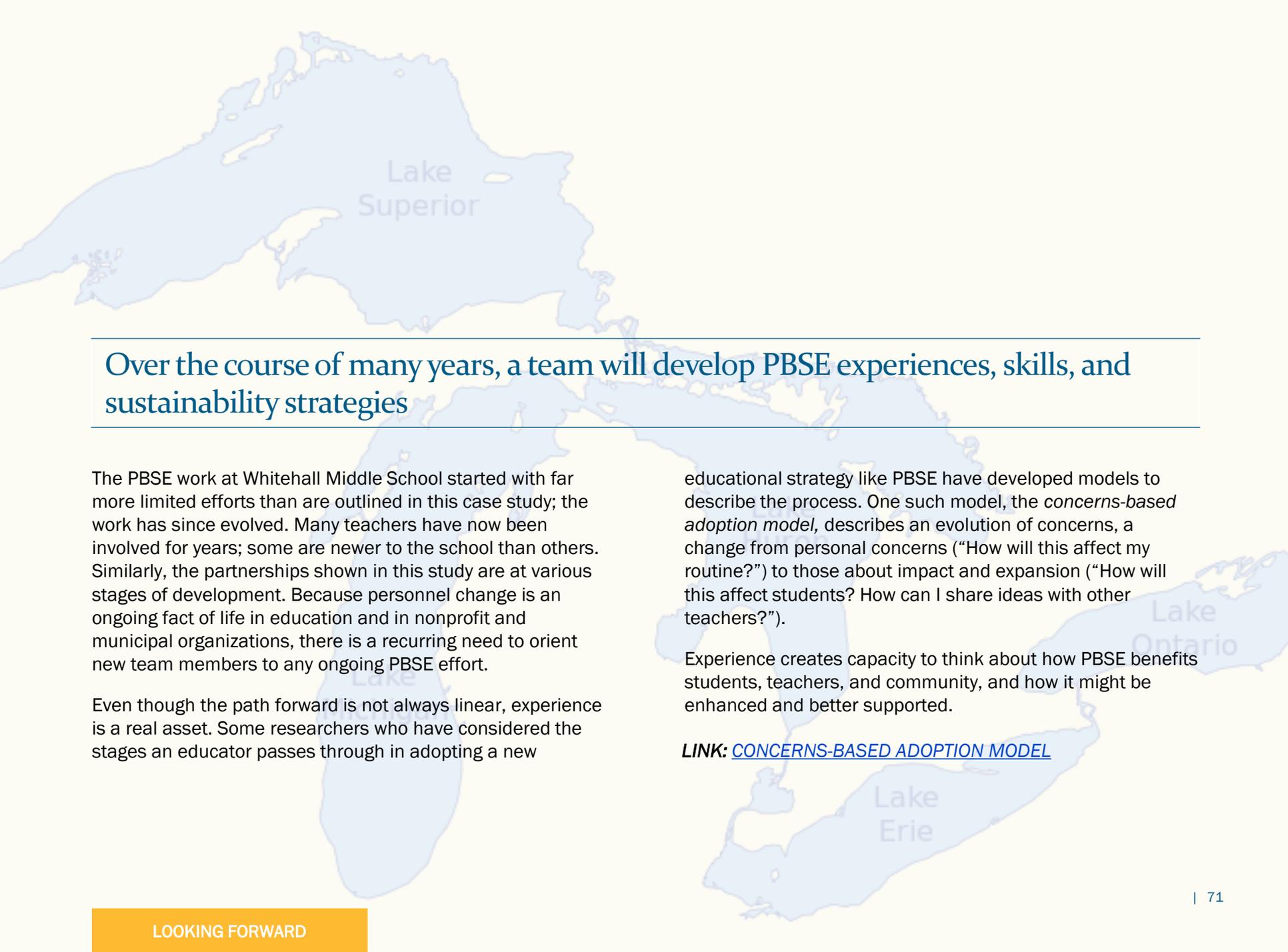
In summer 2015, the project specialist and program director also spent two days with the team, intensively working on plans to institutionalize the work. The first day was spent reflecting and assessing the school year, and the second day focused on planning and goal setting for the upcoming year. The summer work will continue in the upcoming years.

“The support of the hub just makes it so much easier to engage students in PBSE. They are always there to provide assistance in whatever way necessary.”

—Susan Tate, eighth-grade teacher



Looking Forward

A light blue map of the Great Lakes region (Lake Superior, Lake Michigan, Lake Huron, Lake Erie, and Lake Ontario) is overlaid on the page. The text is contained within a white box with a blue border.

Over the course of many years, a team will develop PBSE experiences, skills, and sustainability strategies

The PBSE work at Whitehall Middle School started with far more limited efforts than are outlined in this case study; the work has since evolved. Many teachers have now been involved for years; some are newer to the school than others. Similarly, the partnerships shown in this study are at various stages of development. Because personnel change is an ongoing fact of life in education and in nonprofit and municipal organizations, there is a recurring need to orient new team members to any ongoing PBSE effort.

Even though the path forward is not always linear, experience is a real asset. Some researchers who have considered the stages an educator passes through in adopting a new

educational strategy like PBSE have developed models to describe the process. One such model, the *concerns-based adoption model*, describes an evolution of concerns, a change from personal concerns (“How will this affect my routine?”) to those about impact and expansion (“How will this affect students? How can I share ideas with other teachers?”).

Experience creates capacity to think about how PBSE benefits students, teachers, and community, and how it might be enhanced and better supported.

LINK: [CONCERNS-BASED ADOPTION MODEL](#)

Whitehall Middle School is planning for deeper partnerships and broader impact

Teacher teams at all three grade levels plan to continue working with their respective partners for years to come. They recognize the importance of strong, long-term relationships to the success of PBSE efforts.

The teams plan to continue all three projects described in this case study. Sixth-grade students will continue to add more native plants to the grounds at Michigan's Heritage Museum, and will help the park staff develop and maintain more exhibits.

Seventh-grade students will continue an annual beach cleanup and walkabout at Duck Lake State Park and will seek new opportunities for stewardship at this site.

For eighth-grade students, teachers hope to develop the film festival into a countywide event that involves other eighth graders from nearby districts.



The panel of speakers discusses farming and food sustainability at the GreenScreens Film Festival.

“I love how the work has grown organically in our school and our district.”

—Katie Van Dam, eighth-grade teacher

Teachers are gaining proficiency in communicating with the school community

Teachers at Whitehall say that one of their biggest lessons learned is the importance of communicating and coordinating events with everyone, especially nonparticipating teachers, whose students, schedules, and work may be affected by PBSE activities. It is critical to use a Google calendar or some other tool to make sure there aren't any conflicts with other school activities. And it is important to communicate with all staff, including the administration and maintenance.

Another lesson teachers note is the importance of being flexible and willing to go with the flow. Sometimes things just don't go according to plan—just know that this will happen, and that it is okay.

In the end, even if there are bumps and glitches along the way, the students will still learn more than the teachers had ever imagined, because learning occurs during all moments, especially during the mistakes.



Eighth-grade teachers work together.

“Good communication amongst all stakeholders is a key aspect of effective place-based project planning.”

—Craig Christensen, eighth-grade teacher



Seventh-grade students celebrate their hard work at Duck Lake State Park.

Working with the school administration, the teachers are hoping to find ways to insert funding for PBSE into their school budget. Currently, administrators are extremely supportive of the work; they realize that PBSE and project-based learning help students achieve high academic standards and help the school meet other educational goals. At the moment, though, there is very little school funding to support the work.

The Whitehall Middle School team aspires to institutionalize this work and make it an ongoing part of the school culture, in the hope that when the current teachers leave, new teachers will continue the work in their place. They want PBSE to be a part of every student's educational experience for years to come at Whitehall Middle School.

The participating teachers hope to establish PBSE as a permanent fixture of the school's curriculum and culture

“Funding is probably the biggest issue we face, so hopefully we can find ways to include this work in the school budget.”

—Katie Van Dam, eighth-grade teacher



For More Information

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About the Great Lakes Stewardship Initiative

The Great Lakes Stewardship Initiative was launched in 2007 to develop knowledgeable and active stewards of the Great Lakes and their ecosystems.

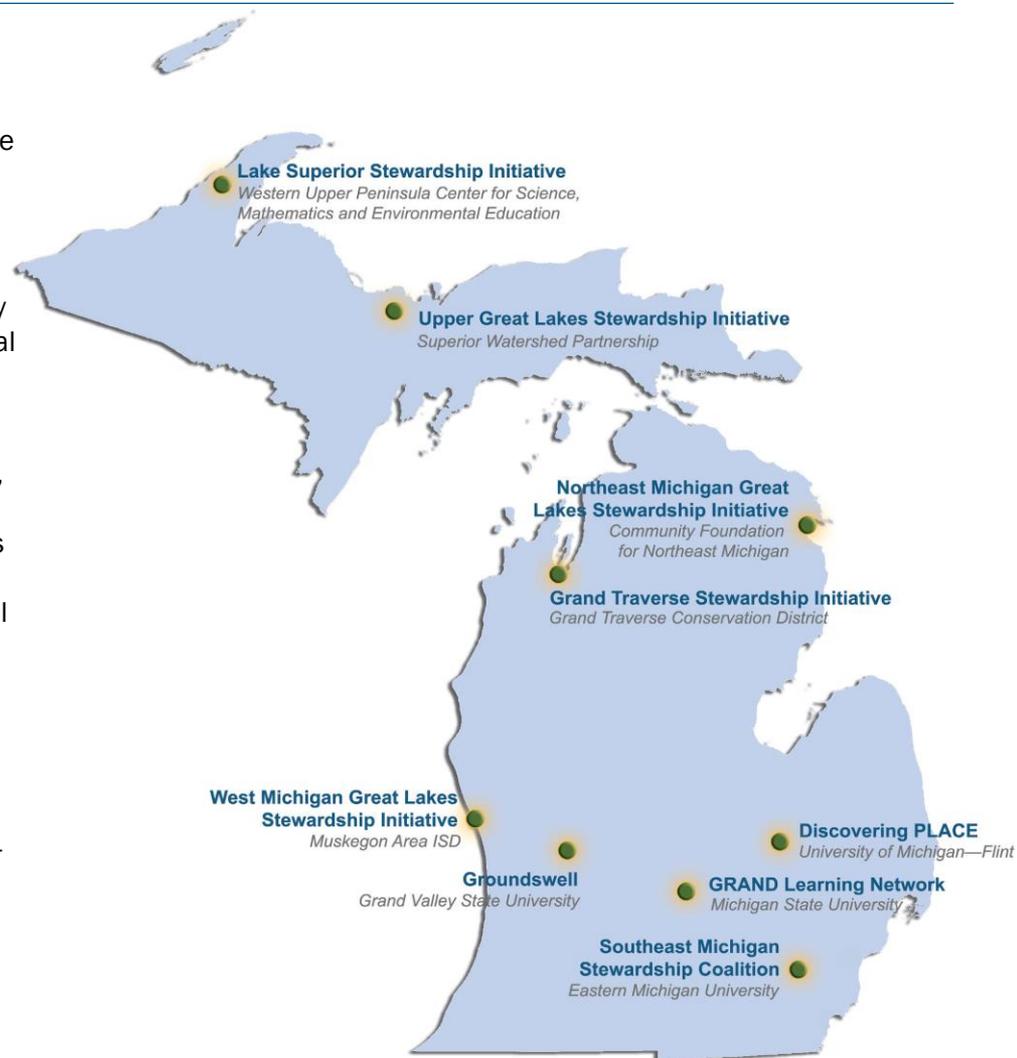
The GLSI enacts three key strategies (place-based stewardship education, sustained professional development, and school-community partnerships), mainly through the efforts of its nine regional hubs. A small central staff helps coordinate the work and provides technical assistance and support to hubs.

Hubs are funded, in part, by the Great Lakes Fishery Trust, which in 2007 pledged to provide more than \$10 million through 2017 to support the GLSI's work. The GLSI and its hubs solicit and receive additional support from foundations, federal and state agencies, local and regional partners, and individual donors.

From 2007 through the 2014–15 school year, the GLSI has worked with more than 1,500 teachers in more than 280 schools across Michigan, engaged hundreds of community partners, and supported rigorous place-based stewardship experiences for more than 80,000 students—and the work continues.

LINK: [GREAT LAKES STEWARDSHIP INITIATIVE](#)

LINK: [GREAT LAKES FISHERY TRUST](#)



The GLSI's 2014 grant from the U. S. Environmental Protection Agency supported this case study and other knowledge products

In 2014, the U.S. EPA awarded the GLSI a \$150,000 grant through its Environmental Education Grant Program. Through this grant, the GLSI funded a collection of exemplary place-based stewardship projects across Michigan and documented these projects through case studies.

The grant also supported the development of several knowledge products to support the practice and spread of place-based stewardship education in K–12 schools and communities. The first knowledge product is a set of guiding principles that describes the GLSI's vision for place-based stewardship education in K–12 schools and communities. The principles can serve as a compass for practitioners, and also highlight the ways that place-based education connects to important goals and initiatives in education.

The second knowledge product is a rubric that supports the guiding principles. The rubric describes in detail the actions and practices that characterize various developmental stages in place-based stewardship education. It can be used for several important purposes, including a self-assessment of practice.

A third knowledge product is a white paper that focuses on expectations for and the educational, community, and environmental benefits of place-based stewardship education across urban, rural, and suburban contexts.

This document was developed under Assistant Agreement No. 00E01327-0 awarded by the U.S. Environmental Protection Agency. It has not been formally reviewed by EPA. The views expressed are solely those of the Great Lakes Fishery Trust and EPA does not endorse any products or commercial services mentioned.

LINK: [OTHER EPA KNOWLEDGE PRODUCTS](#)

LINK: [FULL SET OF CASE STUDIES](#)



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With assistance from participating educators, civic leaders, and community partners, the GLSI:

- Helps young people become effective and motivated environmental stewards
- Encourages schools and community organizations to work together for mutual benefit
- Creates a sustained effort across Michigan to expand classrooms, strengthen communities, and improve the environment