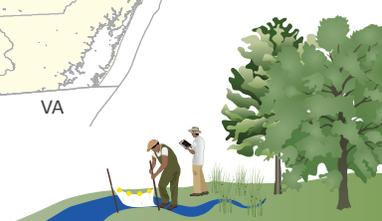
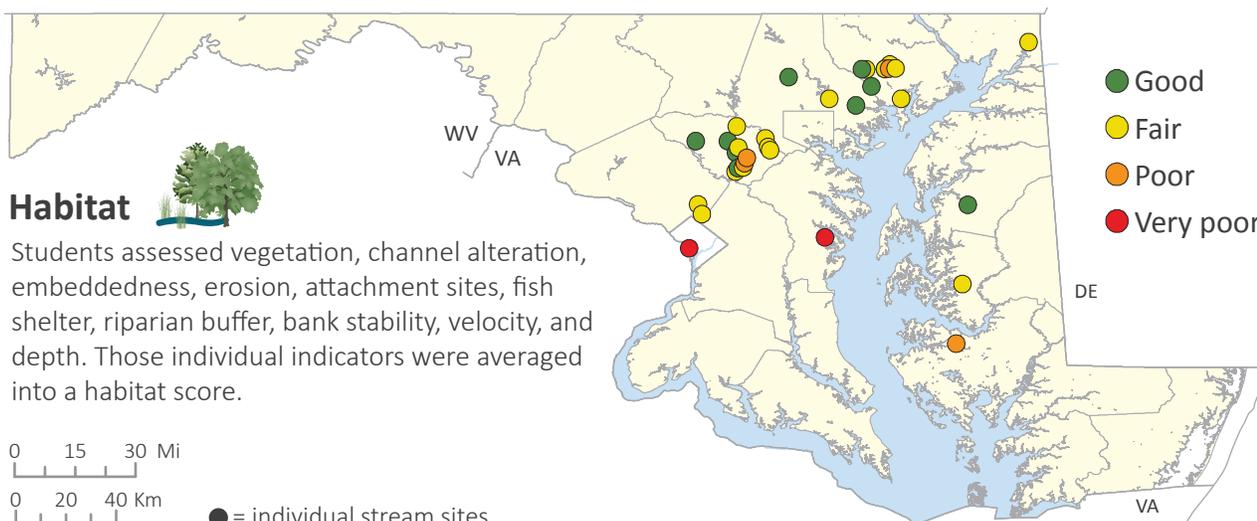
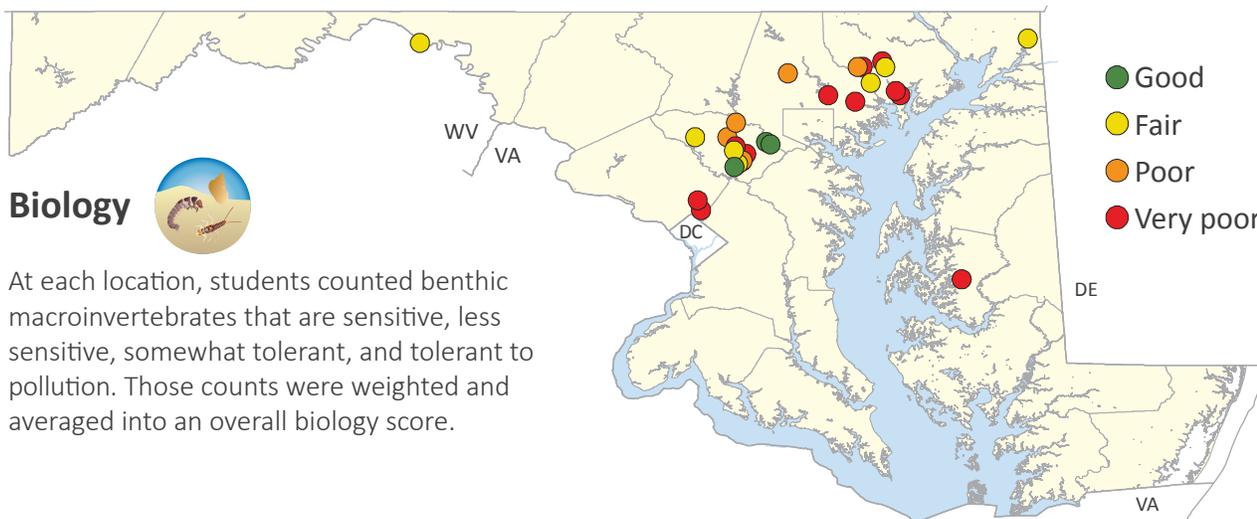
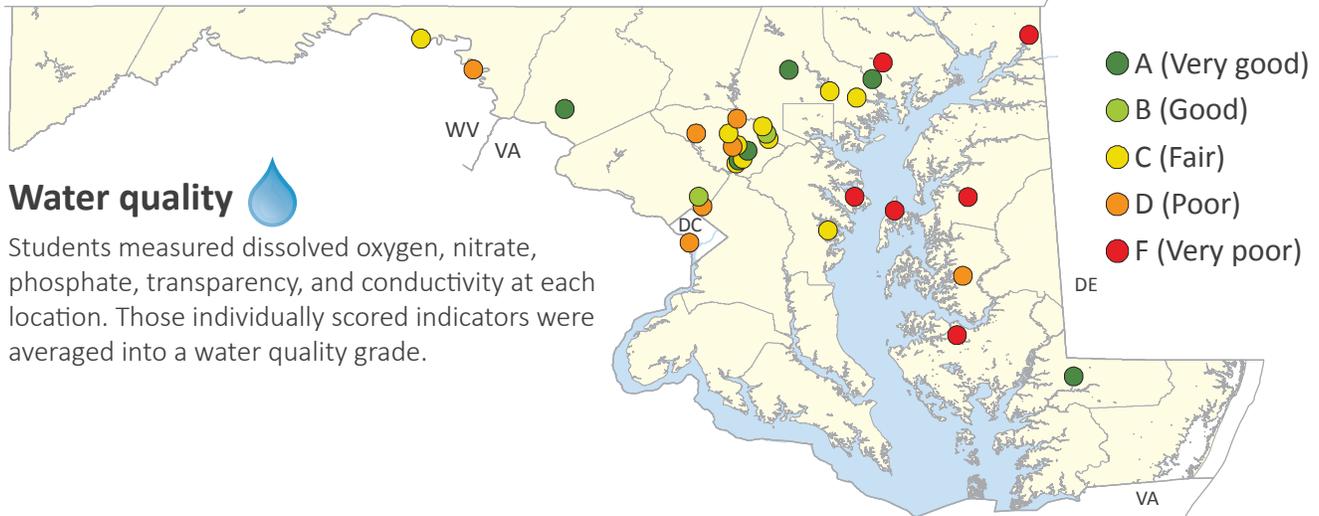


STUDENT SCIENTISTS IN ACTION



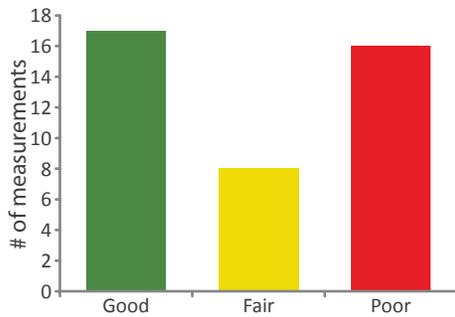
Findings

Summary of student-collected nutrients and macroinvertebrates



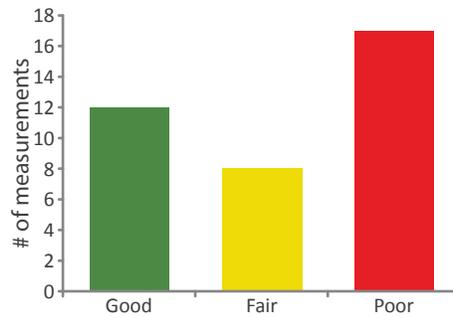
Most student-collected data occurred at individual stream sites in the developed I-95 corridor of Maryland, which showed a mix of good, fair, and poor stream health, both from a water quality and benthic macroinvertebrate perspective. Water quality data collected in more agricultural areas of Maryland, like the Eastern Shore, also showed a mix of good, fair, and poor stream health. While the streams that were sampled often had forested buffers along their banks, none of the sites were in forested watersheds.

Nitrate



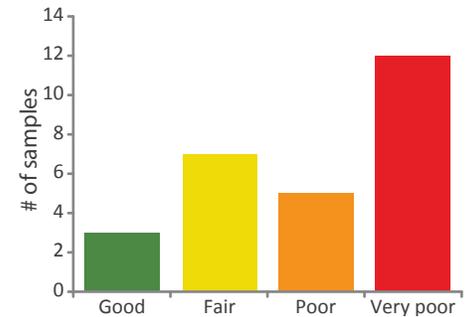
There were just as many streams with nitrate levels ranked poor as there were streams with nitrate levels ranked good (above graph). Nitrate is an important nutrient needed by all plants and animals. But, too much of it can degrade our streams, leading to poor conditions for insects and fish. Efforts to decrease the amount of nitrates reaching streams, such as planting rain gardens, are needed.

Phosphate



There were more streams with phosphate levels ranked poor than there were streams with phosphate levels ranked good (above graph). Similar to nitrate, phosphate can degrade streams. The same efforts to decrease nitrates will also decrease phosphate. Phosphate is tied to sediment, so any efforts to stop sediment from entering streams will also reduce phosphate.

Benthic macroinvertebrates



Most benthic macroinvertebrate samples were rated poor or very poor (above graph), indicating that these streams are degraded. Only a small number of streams sampled were in good condition. Restoring streams to their natural state will improve the habitat needed for macroinvertebrates. Check out the back page to see how students are helping to restore streams!



School highlights

North Hagerstown HS

Elkton Middle School

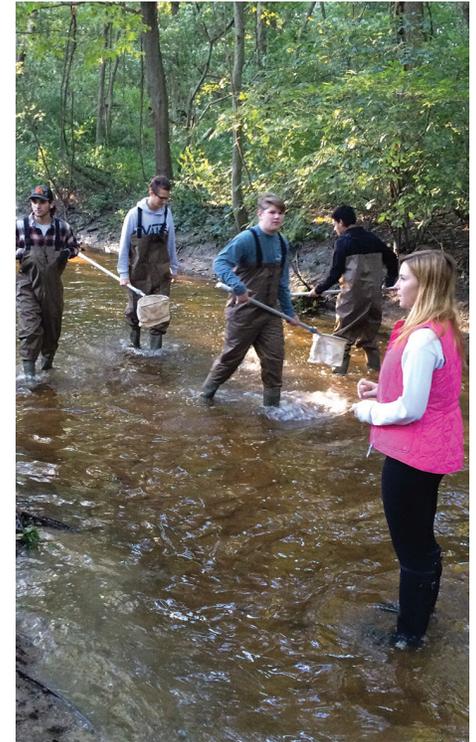
Easton High School



Students use kick seine nets to sample for benthic macroinvertebrates in the Potomac River.



Students identify macroinvertebrates using charts supplied by NorthBay Environmental Learning Center.



Students sampled Windmill Branch, a tributary to the Tred Avon River, which flows into the Choptank River.

Jen Aydelotte AP Env. Science Teacher



Environmental Science students have been participating in an ongoing water quality study at the Chesapeake & Ohio Canal and Potomac River below Dam #4 for four years. The goal of the investigation is to conduct water quality monitoring in both the canal and the river with the assistance of the U.S. National Park Service Rangers. Realizing it is still a snapshot in time for Potomac River water quality, the students look at trends and discuss what they mean. This past fall, students participated in a tree planting on campus with the long-term goal of creating a native plant species trail through the area.

Chelsea Jones 7th Grade Science Teacher



Cecil County Public Schools System was awarded a three-year grant from the National Oceanic and Atmospheric Administration for students to study their local watershed. Students at the middle and high school level travel to a nearby waterway and test the physical, chemical, and biological conditions. Students have taken these data and entered them in FieldScope, an online database and data-sharing tool. The students plan to continue their efforts to analyze their watershed's health to raise awareness and make efforts to preserve the watershed and the Chesapeake Bay!

Lauren Rose AP Env. Science Teacher



Easton High School has received continuous recognition for being a Maryland Green School and prides itself on further reducing its ecological footprint. Environmental Science classes are working to create sustainability and reduce litter by proposing the installation of a water bottle re-filler and installing more recycling bins. Living so close to the water, students have the unique ability to visually see the environment "in action." In addition, many students have family members whose livelihoods depend on the watershed, and therefore have a familial and scholastic experience associated with their own lives.

Students take action to protect their streams

School	County	Action
Broadneck HS	Anne Arundel	Planting trees and cleaning up local streams
South River HS	Anne Arundel	Sponsoring “Plant it for the Planet” event, where students plant native shrubs on school property; Creating floating wetlands in the South River
Catonsville MS	Baltimore	Students monitor salinity in a local stream as part of Salt Watch and analyze how results change when influenced by weather events
Elkton MS	Cecil	Raising awareness about protecting the watershed in their community
Edgewood MS	Harford	Planting trees, adding pollinator plants to the Low-Mow Zone, and picking up trash; Creating runoff awareness through storm drain art
Glenelg HS	Howard	Creating a No-Mow Zone on school campus and adding native plants and educational signage to existing garden
Hammond HS	Howard	Adding native plants and educational signage to existing garden
Homewood Center	Howard	Adding native plants and educational signage to existing gardens
Long Reach HS	Howard	Replacing invasive plants with natives and adding educational signage
Marriotts Ridge HS	Howard	Stenciling storm drains to increase watershed awareness
Mt Hebron HS	Howard	Replacing invasive plants with natives and adding educational signage
Patapsco MS	Howard	Identifying funding options to manage areas of erosion on schoolyard
River Hill HS	Howard	Stenciling storm drains to increase watershed awareness
Reservoir HS	Howard	Adding native plants and educational signage to an existing gardens
Thomas Viaduct MS	Howard	Surveys local stream to deepen understanding of trends in water quality
Wilde Lake HS	Howard	Stenciling storm drains to increase watershed awareness
Northwood HS	Montgomery	Extending the rain garden on school grounds; Publicize their work through school announcements
Kent Island HS	Queen Anne’s	Stenciling storm drains to increase watershed awareness
Easton HS	Talbot	Planting natives along a local stream and on school campus
North Hagerstown HS	Washington	Tree planting on campus; long-term goal of creating a trail lined with native plants
Pocomoke MS	Worcester	Planting native plants and installing educational signage on school property

Acknowledgments

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 Eleanor Nulud, South River High School
 Emily Perry, Thomas Viaduct Middle School
 Melanie Poknis, Thomas Viaduct Middle School
 Lauren Rose, Easton High School
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 Kristie Smith, Edgewood Middle School
 Aaron Sporik, Catonsville Middle School
 Danielle Stephenson, Patapsco Middle School

