

Dare County Schools

<http://www.darecountyschoolsonline.com/moxie/hello/MHS-Green-Collaboration.shtml>

Color This Collaboration Green

By [Sharon Perry Sullivan](#)

Manteo High School's Educational Highlights for the September 8 Board of Education meeting featured the school's ongoing collaborative cistern and rain garden projects. With UNC Coastal Studies Institute Education Programs Coordinator John McCord, MHS Science teacher Pat Holland and Construction Technology teacher Beau Barber, students representing diverse academic disciplines shared the podium to describe the projects from beginning to future plans. Collaboration was the operative word running throughout these tandem projects that border several east-facing MHS classrooms.

Cisterns are storage tanks designed to capture rainwater from a road or other catchment area; raingardens are functional and attractive systems of plants and soil designed to intercept, capture and detain stormwater.

Raingardens further protect water quality by filtering stormwater before it can pick up pollutants from the landscape and impact groundwater and other nearby water supplies. MHS' 2600 gallon cistern captures 1,300 gallons of roof water for every one inch rain event; its solar powered pump assists in access to the captured resource to water garden plots and even wash school vehicles and equipment. The 600 square foot raingarden serves as an overflow for the cistern, treating roof runoff.

Extensive planning was key to the outcome of the projects. Participating classes and interested students were instructed by UNC Coastal Studies Institute and NC Coastal Federation staff on water quality and protection, and cistern and raingarden planning and construction. Once the site was chosen and the concrete pad poured by Beau Barber's MHS Construction Tech classes, students began to take an active, hands-on roll in making the plans for the cistern a reality. Dennis Saver of Earth Saver, LLC played an invaluable role in setting up the solar panel for the cistern's pump as well as directing the cistern's hook up - skills that many students will likely use again. Other students dug a rough depression for the raingarden on March 22, the same day the cistern was installed.



Interdisciplinary and Community Collaboration - MHS senior Paul Charron was one of several students who shared his reflections about the school's ongoing cistern and raingarden projects with the Dare County Board of Education on September 8. The ventures have been cross-curriculum, involving students in Carpentry 1 and 2; Fundamentals of Technology; General Biology; AP Environmental Science; AP Biology and clubs including the Student Environmental Awareness Club (SEAC); Garden Club and Key Club members. Charron, an Advanced Placement (AP) Environmental Science student, noted that he welcomed the opportunity to work outdoors with a hands-on project.



Installing Cistern - NHS students (from left) juniors Blaze Hayes and Dallas Twyne with senior Carson Dunn were directed by Dennis Saver of Earth Saver, LLC to connect a 2,600 gallon cistern last spring in a collaborative, hands-on learning experience. Supported by community groups, individuals and agencies, the cistern/raingarden projects at MHS ended up involving 150 of the schools' students - a third of the school's population. Teachers Pat Holland (science) and Beau Barber (construction technology) are the faculty leaders for these projects.

An integral part of the cistern/raingarden project and its success, UNC CSI's McCord says, "This hands-on multidisciplinary project teaches students valuable 21st century skills while educating them on stewardship and water quality issues."



Positive Impact - "Working on the cistern was a good way to get hands on, real life experience and also have a positive impact on the environment," commented construction technology student Carter Mann. Mann, a senior, addressed the Dare County Board of Education on the school and community collaboration to install and maintain a large cistern and adjacent raingarden on the schools' east side. UNC Coastal Studies Institute Education Programs Coordinator John McCord (seated at left, running a PowerPoint for students' presentation) is an integral part of the projects success. McCord applauds the venture, noting the hands-on multidisciplinary project teaches students valuable 21st century skills while educating them on stewardship and water quality issues.

Water Conservation and from the Dare Education Foundation; funds from North Carolina Community Conservation Assistance Program (CCAP), Dare County Schools Facilities Management and individual contributions have all helped to fund the projects. Agencies providing assistance and expertise include the Coastal Federation, NC Aquarium on Roanoke Island, Elizabethan Gardens, Coastal Plain Conservation Nursery, Dare County Planning Department, and Earth Saver LLC, as well as individuals in the school and surrounding community.

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From any perspective, the standout feature of this project is its collaborative nature. Holland notes, "It was amazing to see the way so many people (students, teachers, parents, community partners, local businesses and environmental foundations) came together to complete this project. The single most important aspect however, was providing a rich and rewarding educational experience for our students. The fact that we were able to impact approximately 150 students, across disciplines, with this project made it all worthwhile."

This opportunity has been embraced by students - in fact, about a third of the schools' students have participated in one or both of the projects through classes or clubs.

"Working on the cistern was a good way to get hands on, real life experience and also have a positive impact on the environment," commented construction technology student Carter Mann. Advanced Placement (AP) Environmental Science student Paul Charron welcomed the change of working outside, "It was great to be able to work outside of the classroom with a hands-on project."

Now, with a comprehensive maintenance and use plan, comes the work of caring for the new cistern and raingarden. Beau Barber informed the board that the plan for his students this year is to clad and roof the cistern with local juniper, to not only make it more attractive but to teach his students another woodworking skill.

Funds have come primarily through College Tech Prep grants secured by Dare County Schools and the Dare Campus of the College of the Albemarle; however grant sources including those applied for by Dare County Soil and



Community Collaboration Supports 21st Century Ventures at MHS

- From the 600 square foot "rough depression" dug by Manteo High School students, teachers and community representatives - that in April rains often resembled a muddy pit - a "raingarden" has grown. Here - in late May - students place plants in the kidney bean shaped area located near the schools' 2600 gallon cistern that has evolved into an attractive water filtering system for the cistern's overflow. Funds for the tandem "green" projects have come primarily through College Tech Prep grants secured by Dare County Schools and the Dare Campus of the College of the Albemarle. (Courtesy photo)