

Virginia Naturally Classroom Grant Program

Program Evaluation

Conducted by the Virginia Office of Environmental Education

For the Virginia Resource-Use Education Council

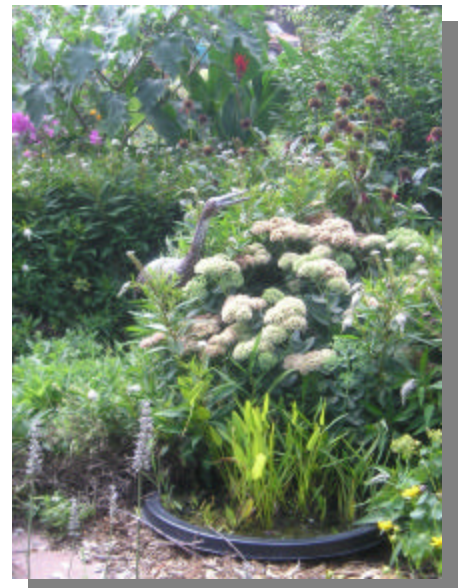
April 2010

Summary

Over the last seven years, the Virginia Naturally Grant program awarded 602 grants totaling \$437,550 for the purposes of Meaningful Watershed Educational Experiences (MWEE.) Funding for this program was provided by Virginia Environmental Endowment, Virginia Department of Conservation and Recreation (via EPA Chesapeake Bay Program), Smithfield Foods and the National Oceanic Atmospheric Administration (NOAA) BWET. Classroom grant recipients represent a cross-section of elementary, middle and high schools from across the Commonwealth. The most notable impact of the program has been improved attitude and enthusiasm for the subject matter and increased awareness and knowledge of the local watershed. Respondents also indicated that their students and their families increased their visitation to natural areas and spent more time outside.

Total improvements to the natural environment for the 56 documented projects include:

- Surface stabilization of 33 acres of riparian buffer;
- Removal of invasive plant species from 2.5 acres of land;
- Establishment of rain gardens that drain a combined 2 acres of impervious surface; enhancement of wildlife habitat on 135 acres;
- Removal of over 2 tons of trash from natural areas;
- Establishment of 11 new recycling centers in communities, and
- Establishment of 1 community garden



*40% of the projects involved
schoolyard plantings*

Background

For the past seven years, the Virginia Office of Environmental Education (VOEE) at Virginia Department of Environmental Quality (VADEQ) has administered the Virginia Naturally Classroom Grants Program to support “Meaningful Watershed Educational Experiences.” (MWEE). To date, 602 grants ranging from \$500-\$1000 have been awarded, for a total of \$437,550 of direct support to teachers and students.



Approximately 50% of the projects were conducted on the water.

Approximately 50% of the projects include an on-the-water experience provided by professional environmental educators. For many students from the headwaters regions, of the Alleghany Highlands or Shenandoah Valley for example, these trips are their first tangible experience with the Bay or its major tributaries. Photographs documenting the trips often feature highly engaged students observing a variety of aquatic organisms recently netted in their natural habitat. Many of the remaining MWEE grant projects focus on local water quality studies. While completing a variety of biological, chemical and physical assessments, students paint a more intricate

portrait of nearby streams and rivers and their relationship to the larger watershed. All of these experiences reinforce the first (or .1) Science Standard of Learning at each grade level which focuses on the Scientific Method.

Prior to receiving funding from the VOEE, applicants documented how their project would meet the published definition of a MWEE (developed by the Chesapeake Bay Program Education Workgroup,) as well as the Virginia Standards of Learning. Long term sustainability of the project, cost per student and in-kind or financial match from the school and/or community was also considered. Selection committee members included representatives from the Virginia Resource-Use Education Council (each of the main state natural resource agencies and Virginia Department of Education). A variety of other formal and non-formal educators and administrators were also given opportunity to provide input into the overall direction of the MWEE grants program.

A parallel program, MWEE Partner Grants, funded by NOAA BWET has helped build capacity for delivering programs. In many underserved communities, the establishment and continuation of MWEE programs appeared to be linked to the presence of a viable community partner, such as a local museum, 4-H Cooperative Extension Agent or Soil and



The Partner Grant program has helped underserved communities.

Water Conservation District. Thus, to address gaps in delivery, mini-grants to community partners were made available four years ago through NOAA Chesapeake Bay office. The majority of the MWEE partner grants are locally or regionally based organizations that routinely assist the surrounding school systems by providing professional development for teachers and coordinating the field investigation portion of their MWEE projects. Others focus on offering youth opportunities for in-depth field studies and service learning projects. To date, 52 partners have received grants for a total of \$100,700. Both MWEE classroom and partner grant projects reflect the interests and needs of the school and communities they are designed to serve.

Virginia Classroom Grant Program Evaluation

These mini-grants to “classrooms” have been possible through funding from the Virginia Environmental Endowment, the Virginia Department of Conservation & Recreation, and Smithfield Foods.

This report highlights data collected through a survey conducted from MWEE Classroom Grant recipients. Nearly 20% of grantees who received awards (\$500, \$750, or \$1,000) between 2004-2009 responded. The most notable impact of the program has been improved attitude and enthusiasm for the subject matter and increased awareness and knowledge of the local watershed.

Survey Design

The process of designing the survey used to evaluate the MWEE classroom grant program began in September 2009. A list of potential questions was generated through discussion with non-formal educators, classroom teachers and administrators. Additional advisory group members were sought at the VRUEC / Environmental Leadership pre-conference meeting held in conjunction with the state environmental education conference, September 8, 2009.

Several key issues emerged including: *how closely did the learning activities that were characterized as “MWEE” by the schools resemble the original definition? What were the key factors affecting whether an experience was replicated the following school year and further into the future? And were certain student populations, grade levels or geographic regions of the state underserved?*

A survey was drafted for review in early October 2009. Extensive revision was conducted in cooperation with Jim Firebaugh, recently retired science curriculum specialist and administrator with the Virginia Department of Education. Mr. Firebaugh was a primary author of the MWEE definition adopted by the Chesapeake Bay Education workgroup. Several questions were re-



written to more closely parallel the annual school division survey conducted by the Department of Education so accurate analysis could be made.

The survey was posted on-line at Virginia Naturally in early November 2009. All MWEE classroom grant recipients from 2004 to 2009 were notified electronically and through standard U.S. mail that the evaluation was being conducted. Educators were told that completing the survey was a requirement for continued participation in the grant program.

Survey Results

To date, 56 individuals have completed the on-line survey, comprising approximately 18.6% of the potential respondents. Several MWEE projects included more than one grade level of students. The 56 responses indicated that 13,515 students were served; 302 faculty members and 583 community/parent volunteers also participated. Over 80% served the middle (5th-7th) grade levels. The second largest group reached were 11-12th graders.



583 parents and community volunteers participated in the 56 projects surveyed.

Approximately one-half of the respondents represent schools in Northern Virginia and the Shenandoah Valley. Hampton Roads and Richmond area comprise an additional 38%. Those from outside the Chesapeake Bay watershed constituted approximately 10% of the sample.

Educators were asked to rate the degree in which their projects addressed the major components of a MWEE as described in the published definition. Examples of criteria included the sustained, investigative nature of the project, treated the watershed as a system, used high quality instructional design, involved natural resource personnel and external communication, and served all students. The respondents indicated the experiences were very successful in this regard, with all components averaging a score of 3.5 out of a highest score of 4.0.

Several MWEE projects included more than one main activity or field experience. Fifty percent of the respondents indicated they conducted a local water quality study with minimal assistance from professional environmental educators. The other half participated in on-the-water experiences with Chesapeake Bay Foundation or similar staff-led program at a state park or nature center. Forty (40%) of the respondents indicated they also completed a schoolyard improvement project in conjunction with their MWEE award.

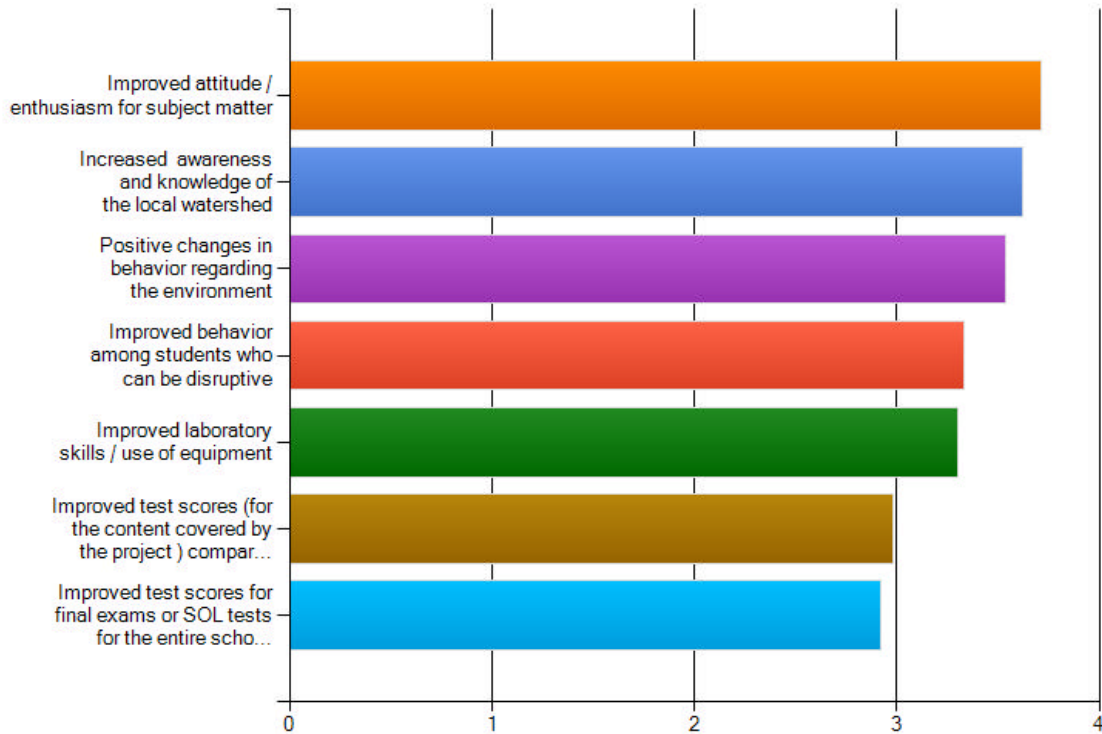
The types of individual schoolyard projects varied



Greenbrier Middle School aboard CBF workboat- 50% of projects included professional environmental educators.

depending upon the level of support from school administration, additional funding sources and grade level of the students. For example, elementary school projects often featured an annual vegetable, flower or herb garden where the students would be able to track growth rates and other data relatively quickly. Water as a requirement of life and growth was

Impacts of the Project: (Check all that apply and describe the nature of the evidence at the end of the section; with "1" being NO impact on students, "2" being LITTLE impact on some students, "3" being GOOD impact on most students and "4" being SIGNIFICANT impact on most students.)Students exhibited:



emphasized. Literature and math skills were often stressed in addition to science. By contrast, high school projects were more complex, longer term in nature and tended to involve multiple departments such as civics, science, art, drama and vocational training. Examples include larger scale landscaping projects, outdoor classrooms and rain gardens. Water quality monitoring of the water feature or run-off was often included in the project.



An awareness of nature starts outside!

Major Impacts

Educators were asked to evaluate the impacts of their projects on students, the environment and the community using a 1.0 - 4.0 scale, with "1" being of little to no change and "4" being significant. All potential impacts on students were rated relatively highly (average above 2.9) by the 56 respondents. Of particular note were improved attitude and enthusiasm for the subject matter (3.71 average rating) and increased awareness and knowledge of the local watershed (3.63 average rating.)

Improved test scores on both the unit exam and the final exam (or SOL test) were the least significant impacts. Other noted benefits to students of the MWEE projects included improved laboratory skill level, social behavior and general environmental ethic.

Total improvements to the natural environment for the 56 documented projects include: surface stabilization of 33 acres of riparian buffer; removal of invasive plant species from 2.5 acres of land, establishment of rain gardens that drain a combined 2 acres of impervious surface; enhancement of wildlife habitat on 135 acres; and the removal of over 2 tons of trash from natural areas.

As a result of the 56 MWEE projects, a new recycling program was established at 1 school, 10 new recycling centers were established in the larger community and 1 community garden was established. Two (2) respondents indicated that their students and their families increased their visitation to natural areas and spent more time outside.



Flint Hill Elementary School



Kecoughtan High School

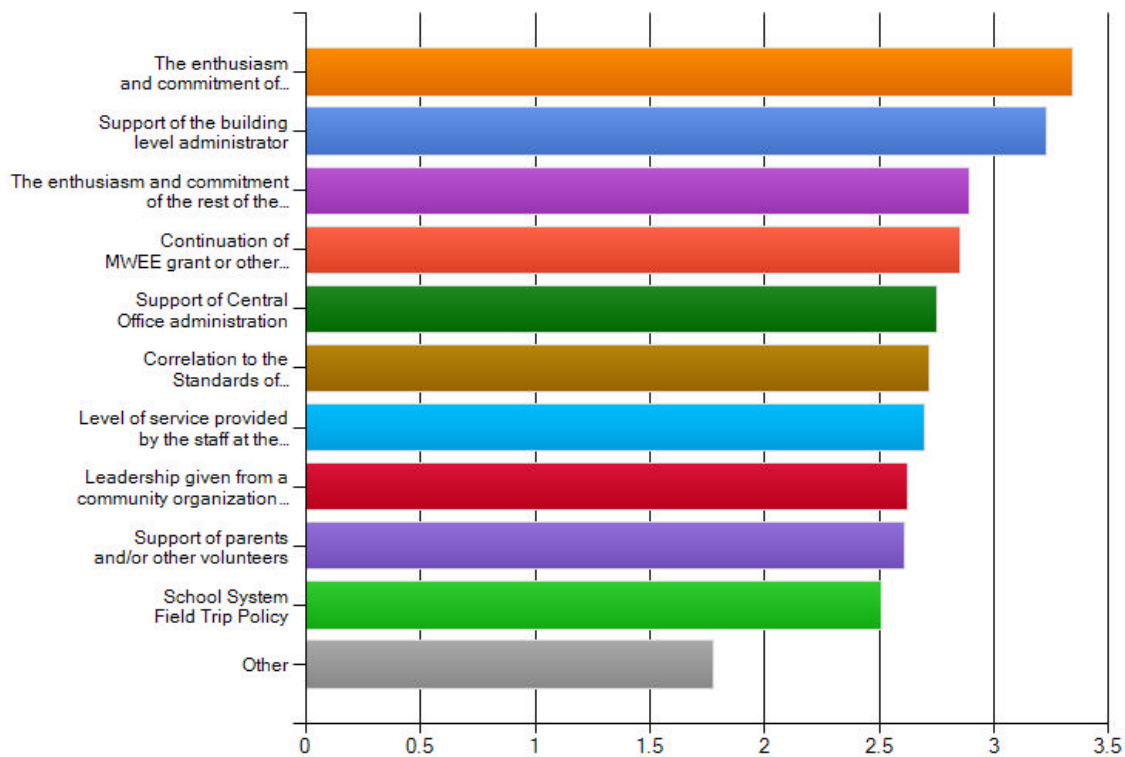
Future Projections:

Over 75% of the respondents indicate they are still implementing their MWEE projects with new students.

Teachers indicate a variety of factors influence the sustainability of projects. The most statistically significant variation in the survey occurred in regards to the factors that influence MWEE sustainability. Enthusiasm and commitment level of the lead teacher was considered the most critical factor (average rating of 3.34,) followed closely by the support of building level administrator (average rating of 3.23). Also considered of relative importance were: support of the rest of the grade level team, continuation of the MWEE grant funding, support of the central office administration, and the level of service provided by community partners. Changes in school schedule or testing and support of PTA/PTO and maintenance staff were given relatively low scores.

Survey Limitations

The level of influence each of the following factors had in the project's continuation (or lack of continuation), with "1" being no impact and "4" being of considerable impact:



The survey did receive a better than average response rate (nearly 20% compared to about 10% for similar program evaluations.) However, with any survey of this nature it can be surmised that the most enthusiastic and successful project leaders will respond. Also, the survey participants did not reflect the geographic distribution of the MWEE awards which were

relatively uniform across the state. For example, the survey response rate from Southwest Virginia (the 81 corridor) in particular did not match the number of awards that were made to the region.

No long term analysis of project sustainability can be made using this particular survey because relatively few respondents indicated when they received their award. Only 15 of the 56 people indicated when they received the classroom grant. Of those 15, all but one said it was within the last 3 years.

In addition, it appears as though the lead teacher for the MWEE project completed the survey in most cases. Thus, the educators are primarily evaluating their own work. Another factor that would call objectivity into question would be the relative importance they gave MWEE fund continuation. Many people would assume an unfavorable evaluation may hurt their chances of being awarded another grant.

Attempts to hold focus group meetings in person, in Hampton Roads, Lynchburg and Northern Virginia were unsuccessful due to insufficient registration. Thus, in-depth follow-up questions were not asked or answered in the first phase of this evaluation project.

Implications for future

The results of the MWEE Classroom Grant survey will be incorporated into long range planning efforts. Initial review of the survey data suggests that several of the recommendations received from other means (focus group meetings with MWEE providers) have merit. For example, teachers report building level administrators have significant influence on the continuity of the MWEE projects. Increased communication with principals, superintendents and school boards concerning MWEE goals has been recommended. Environmental education leaders statewide will need to determine who is in the best position to develop contacts and what will be the most effective methods of communication.

The MWEE Classroom Grant survey indicated the lead teacher is the most critical factor in project sustainability. However, only 12.5% of the respondents participated in a MWEE related professional development session. Environmental educators in Virginia (MWEE providers) have identified the following needs in support of teachers: expanding and enhancing pre- and in-service environmental education; provide and promote exemplary models of MWEE programming; develop watershed curriculum framework to be used as a template to investigate local sub-watersheds; continue science methods strand at



A lead teacher is important to sustain the project.

the Virginia Association of Science Teachers professional development institute; and establish mentoring program in suitable locations. Since educators feel the continuation of the MWEE grants program is also instrumental to the future of their projects, general fund development, grant writing and how to identify additional community resources should be included in comprehensive professional development.

Virginia Bay Summit group recommendations also included a similar effort to expand and enhance professional development opportunities for MWEE providers, the development of a list of core concepts or watershed wide messages, and continuing efforts to work with under-represented school systems and localities.

For more information, please contact:

Jennifer.Underwood@deq.virginia.gov