



2007 CHESAPEAKE BAY EDUCATION SUMMIT

Summit Wrap Up

A total of 92 attendees participated in this year's Summit. There were a total of eight exhibitors; Chesapeake Bay Foundation, Chesapeake Bay Program/NOAA, PASCO Scientific, National Weather Service, Nauticus, National Park Service, Verizon Wireless and VIMS. Ten organizations presented on the topics of technology (6) and evaluation (4). Nineteen different speakers talked at the Summit. There were a total of eight breakout sessions, four on technology and four on evaluation.

The theme of this year's Summit was two fold; technology and evaluation. The technology sessions were initiated by a morning session at the pool where attendees learned how to build and use Remotely Operated Vehicles (ROVs) in a classroom setting. Following the ROV session, six presenters enlightened attendees on the benefits of integrating technology into environmental education and MWEE programs. To wrap up the day technology breakout sessions were held to address how partnerships can be strengthened and expanded and barriers to implementation overcome. Attendee also visited the Virginia Institute of Marine Science where they were treated to an evening reception highlighting the Chesapeake Bay Interpretive Buoy System (CBIBS).

The evaluation sessions kicked off with presentations on regional efforts to evaluate environmental education program success. A second round of presentations were given from each jurisdiction (DC, MD, VA, PA) describing their current evaluation initiatives and data collection methodology¹. Evaluation working sessions followed to brainstorm opportunities and challenges to evaluation in each jurisdiction.

The Summit wrapped up with a work plan discussion to summarize issues brought up in the evaluation sessions. The main purpose of this discussion was to formulate a work plan to solve the challenges described in the previous sessions.

Technology Breakouts

The technology session discussions resulted in a diverse pool of ideas on integrating web based systems into the classroom and how to share student data. We discussed the limitations of such initiatives as well as the value of implementing these unique programs into a classroom setting. The outcome of these sessions was the formation of several standing committees. Below we have provided a summary of topics discussed at each session as well as a list of those individuals on the committee.

Tools for Field Use and Data Collection (15 attendees)

The main focus of this session was to determine how to get innovative technologies that allow students to collect their own data into the hands of more educators. The breakout session never got to the specific items one might put in a "tool box". The discussion

¹ Jurisdictional presentations can be viewed at our webpage:
<http://www.chesapeakebay.net/calendar.cfm?EventDetails=9138&DefaultView=2&RequestDate=10/12/2007>

became focused on the need for cross-curricular comfort with the use of technologies in the classroom. Regardless of the type of data collected (i.e. temperature, salinity, turbidity), it was inconsequential compared to the need for all educators to be given abundant training. With training the teachers may overcome feelings of inadequacy that come with the constant introduction of evolving technologies (Distance Learning, Pod Casts, etc.). It was suggested that the training be geared more towards “playing” with the equipment in order to learn it rather than being formally taught how to use it. This way teachers are not given too much information, too fast, with little time to retain the information, but rather they can learn at their own pace and become comfortable with the new technology.

Most participants thought teachers receive little formal training in their collegiate career on integrating technology into their classroom. Beyond PowerPoint, word processing, and spread sheet use, was there any formal training that readied the teachers for the introduction of distance learning into the classroom? Again, there was an urgency to have this technology training presented to teams of teachers that represented all subjects. Using this universal training the overlap of technology use in a number of topics (math, science, social science, business, etc) might be identified.

There seemed consternation regarding the definition of distance learning. The concern about tools for field use and data collection was not around, for example, taking water temperature data; it was around comfort levels using new devices to take data samples.

The bottleneck for creating curriculum that followed the standards of learning and the adoption of technology was not in finding the money to use as incentive to create the lessons. The bottleneck was finding the teachers that possessed the ability and drive to do so. However, incentives can be used as motivation for teacher participation.

Standing Committee:

Jessica Russo*	Chris Petrone*
Allison Sill*	Ashley Brownly*
Bruce Davidson*	Sonya Wolen*
Keith Williams*	John Seidel
Jenn Raulin*	Jodi Vender
Jackie Fecteru*	Doug Levin

* Attended Breakout Session

Interactive Online Lessons and Curriculum (19 attendees)

The main focus of this session was on how to enhance student’s web-based experience, moving from static pages to dynamic interactive learning environments. We began with a clarification of why we were discussing technology at the summit, and how this particular topic was one to be focused on. We then had a conversation on what kinds of “innovative web tools” we were talking about. There was a great deal of discussion about what constituted effective tools, as well shortcomings and challenges to using the web in classrooms. There was agreement that the web can be an extremely valuable tool

in enhancing MWEEs, but recognition that it has many shortcomings as well. Attendees agreed that many of the issues we raised could constitute their own session or even conference given their complexity (i.e. how do teachers ensure quality of data from the web).

There was no clear consensus on what success would look like regarding the use of the web in MWEEs. Most agreed that reliable access to the internet in schools would be an important piece, but most participants felt that the biggest step would be consensus amongst the Bay environmental education community as to what our goals are regarding technology in our programs. Given that no clear goal exists, a cost could not be associated with success. However, most agreed that infusing quality web tools, whether that is developing new sites or improving school capabilities, would be very costly.

There was lively discussion about the possibility of partnerships, especially with businesses in telecommunications and other tech sectors to assist in funding and developing tools. Participants thought that the Bay Program and NCBO could assist in the inventory by inventorying what's available (perhaps this exists with ChART) and funding projects that incorporate technology through BWET.

Interactive Online Lessons and Curriculum Standing Committee:

Frank Rodgers*	Elizabeth Smith*
Melani Loney*	Barb Young*
Theresa Alberici*	Nancy Merrill
Jodi Vender*	Doug Levin
Peg Steffen*	Sandy Frost
Josh Falk*	Bill Bradley
Mike Land*	Sonya Wolen
Cat Stylinski*	

Student Data Sharing (19 attendees)

The main focus of this session was how to collect and deliver student data from across the watershed to one central interface where it could be accessible to everyone. The session began with the formation of a timeline of events necessary to establish a data sharing interface as well as partnerships and barriers to success. The major barriers discussed were teacher recruitment, funding and developing a user friendly product. Means of overcoming these barriers were discussed. Attendees stressed the focus needs to be on the resource and stewardship by weaving these themes into data collection. Those data collected must also be standardized in format to ensure ease in accessing the data. It was suggested that water quality measurements around the water trail may be good place to focus on initially. The session wrapped up discussing who should be involved in developing these systems.

Student Data Sharing Standing Committee:

John Seidel*	Tom Ackerman*	Bill Portlock
Paula Klonowski*	Bill Bridle*	Doug Levin
Tamra Willis*	Nancy Merrill*	Allison Sill

Don Baugh
Jamie Baxter

Neil Gillies
Lisa Deaton

Jodi Vender
Suzie Gille

Maintaining the Outdoor Connection (22 attendees)

The main focus of this session was how to ensure technology does not lead to “nature deficit disorder.” Participants discussed how technology could enhance outdoor experiences rather than replace them. Outdoor experiences discussed included sensory games, growing and building with place, story telling and tactile play and learning.

What is the outdoor connection in the context of data collection? Participants thought data collection didn’t speak to the SOL’s and thought coupling personal perspective with data collection could overcome this shortfall. We need to provide a baseline “experience” prior to data collection to help develop the student’s sense of wonderment. The discussion shifted determining if tools distract students from the outdoor experience. Participants agreed tools do not distract if they are kid/teacher friendly, reliable, affordable and use different methods; tools actually better prepare students. Example tools included DO probes, video and digital cameras, GIS and “GEO” stories.

Overall we need to better promote schoolyard habitats/connection, boost awareness and support from administration and make these tools available and balanced in all schools. The Chesapeake Bay Program and NOAA can assist by providing Oxford training for professionals, “advanced” trainings/workshops and an Environmental Training Center (ESTC). No standing committee was formed concluding this session; it served more as a discussion generator.

Evaluation Breakouts

During the final day, the Summit shifted gears from technology to evaluation. A total of seven speakers spoke on the topic of environmental education evaluation. Four breakout sessions were conducted for each of the four jurisdictions (PA, MD, VA, DC) to brainstorm opportunities and challenges facing environmental education evaluation in each state. A summary of each session is provided below:

District of Columbia

The session began with a discussion of how DC Public Schools evaluate student achievement. It was noted that Benchmark Assessment Standards (BAS) could be used to assess MWEE success, these scores are reported for grades 1-8. Formal State Standards (CAS) that could be utilized are evaluated in biology at grades 5 and 8. DC does not currently have any questions on standardized tests directly related to watersheds but may be integrated into CAS in the future. With regard to data access, CAS data is available to the public but access to BAS data is limited and it will be at least 2-3 years before the data is available.

Virginia

The Virginia assessment varies each year but tests the standards annually. The SOLs in Virginia give the basis for rigorous evaluations between MWEE and non-MWEE

students. How to get the data from schools was also discussed. Attendees suggested creating a working relationship with divisions and classroom as the best method to collect data, which can be done via contracts or grantee requirements. The feasibility of a new SOL, that includes weather and water, was discussed. Concerns were raised about the effect a new SOL would have on test results and curriculum. As an alternative to adding another standard it was suggested VA add new test questions. Finally, it was suggested the NOAA make a MWEE data contract prior to awarding grants, by making evaluation a requirement of funding NOAA would automatically receive the information it needs.

Pennsylvania

Pennsylvania State Standard Assessment (PSSA) Tests have questions related to watersheds under their Environment and Ecology Standard Assessment Anchors for Watersheds and Wetlands and Environmental Health. These standards are tested in 4th, 8th and 11th grade. Data becomes available in Mid-August. PSSA scores for Math and Reading are available online at the school level. Participants suggested the Chesapeake Bay Program and NOAA could assist in the evaluation effort by reaching out to students who might not be able to get outside and target 7th grade students for stewardship.

Maryland

Maryland School Assessment (MSA) Science Standards could be used as an evaluation tool. Students are tested in 5th and 8th grade. Maryland participants suggested stewardship be measured through service learning by listing the type of experience, outcome and the number of student hours. When discussing how partners outside of MSDE can assist in the evaluation effort it was suggested that BWET require MWEE evaluations using best practices outlined by Recreation Boating & Fishing Foundation (http://www.rbff.org/uploads/Resources_bestpractices/FINAL_Workbook_Layouts_11-6-03.pdf) or and National Science Teachers Association. NOAA can support the evaluation effort with best practices and environmental literacy standards.

Work Plan Discussion

The work plan discussion began with a clarification of NOAA and the B-WET program's role in facilitating MWEEs. The confusion was cleared up by Shannon's explanation that B-WET grants are not the only funding source for MWEEs, that there are numerous other organizations out there who also provide substantial funding. The two main steps necessary for formulating an evaluation work plan were decided to be:

1. *Develop a question:* either rework standardized test questions or develop a new tool that can be standardized across jurisdictions
2. *Take the Question to Jurisdictions:* this will provide the necessary data

Along with these two steps we must define the methodology for evaluation. This will include pre (baseline) and post testing and the development of a new measurement tool. This new measurement tool may include measuring stewardship. It was suggested measuring behavior changes via an intention to act survey. This survey should be standardized and distributed from program to program from partner to partner, across jurisdictional boundaries. It was suggested this become of requirement to receive B-WET funding.