

PAPERWORK REDUCTION ACT SUBMISSION

Please read the instructions before completing this form. For additional forms or assistance in completing this form, contact your agency's Paperwork Clearance Officer. Send two copies of this form, the collection instrument to be reviewed, the supporting statement, and any additional documentation to: Office of Information and Regulatory Affairs, Office of Management and Budget, Docket Library, Room 10102, 725 17th Street NW, Washington, DC 20503.

<p>1. Agency/Subagency originating request</p>	<p>2. OMB control number b. <input type="checkbox"/> None a. _____ - _____</p>
<p>3. Type of information collection (<i>check one</i>)</p> <p>a. <input type="checkbox"/> New Collection</p> <p>b. <input type="checkbox"/> Revision of a currently approved collection</p> <p>c. <input type="checkbox"/> Extension of a currently approved collection</p> <p>d. <input type="checkbox"/> Reinstatement, without change, of a previously approved collection for which approval has expired</p> <p>e. <input type="checkbox"/> Reinstatement, with change, of a previously approved collection for which approval has expired</p> <p>f. <input type="checkbox"/> Existing collection in use without an OMB control number</p> <p>For b-f, note Item A2 of Supporting Statement instructions</p>	<p>4. Type of review requested (<i>check one</i>)</p> <p>a. <input type="checkbox"/> Regular submission</p> <p>b. <input type="checkbox"/> Emergency - Approval requested by _____ / _____ / _____</p> <p>c. <input type="checkbox"/> Delegated</p>
	<p>5. Small entities Will this information collection have a significant economic impact on a substantial number of small entities? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
	<p>6. Requested expiration date</p> <p>a. <input type="checkbox"/> Three years from approval date b. <input type="checkbox"/> Other Specify: _____ / _____</p>
<p>7. Title</p>	
<p>8. Agency form number(s) (<i>if applicable</i>)</p>	
<p>9. Keywords</p>	
<p>10. Abstract</p>	
<p>11. Affected public (<i>Mark primary with "P" and all others that apply with "x"</i>)</p> <p>a. <input type="checkbox"/> Individuals or households d. <input type="checkbox"/> Farms</p> <p>b. <input type="checkbox"/> Business or other for-profit e. <input type="checkbox"/> Federal Government</p> <p>c. <input type="checkbox"/> Not-for-profit institutions f. <input type="checkbox"/> State, Local or Tribal Government</p>	<p>12. Obligation to respond (<i>check one</i>)</p> <p>a. <input type="checkbox"/> Voluntary</p> <p>b. <input type="checkbox"/> Required to obtain or retain benefits</p> <p>c. <input type="checkbox"/> Mandatory</p>
<p>13. Annual recordkeeping and reporting burden</p> <p>a. Number of respondents _____</p> <p>b. Total annual responses _____</p> <p> 1. Percentage of these responses collected electronically _____ %</p> <p>c. Total annual hours requested _____</p> <p>d. Current OMB inventory _____</p> <p>e. Difference _____</p> <p>f. Explanation of difference</p> <p> 1. Program change _____</p> <p> 2. Adjustment _____</p>	<p>14. Annual reporting and recordkeeping cost burden (<i>in thousands of dollars</i>)</p> <p>a. Total annualized capital/startup costs _____</p> <p>b. Total annual costs (O&M) _____</p> <p>c. Total annualized cost requested _____</p> <p>d. Current OMB inventory _____</p> <p>e. Difference _____</p> <p>f. Explanation of difference</p> <p> 1. Program change _____</p> <p> 2. Adjustment _____</p>
<p>15. Purpose of information collection (<i>Mark primary with "P" and all others that apply with "X"</i>)</p> <p>a. <input type="checkbox"/> Application for benefits e. <input type="checkbox"/> Program planning or management</p> <p>b. <input type="checkbox"/> Program evaluation f. <input type="checkbox"/> Research</p> <p>c. <input type="checkbox"/> General purpose statistics g. <input type="checkbox"/> Regulatory or compliance</p> <p>d. <input type="checkbox"/> Audit</p>	<p>16. Frequency of recordkeeping or reporting (<i>check all that apply</i>)</p> <p>a. <input type="checkbox"/> Recordkeeping b. <input type="checkbox"/> Third party disclosure</p> <p>c. <input type="checkbox"/> Reporting</p> <p> 1. <input type="checkbox"/> On occasion 2. <input type="checkbox"/> Weekly 3. <input type="checkbox"/> Monthly</p> <p> 4. <input type="checkbox"/> Quarterly 5. <input type="checkbox"/> Semi-annually 6. <input type="checkbox"/> Annually</p> <p> 7. <input type="checkbox"/> Biennially 8. <input type="checkbox"/> Other (describe) _____</p>
<p>17. Statistical methods</p> <p>Does this information collection employ statistical methods</p> <p style="text-align: center;"><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>18. Agency Contact (person who can best answer questions regarding the content of this submission)</p> <p>Name: _____</p> <p>Phone: _____</p>

19. Certification for Paperwork Reduction Act Submissions

On behalf of this Federal Agency, I certify that the collection of information encompassed by this request complies with 5 CFR 1320.9

NOTE: The text of 5 CFR 1320.9, and the related provisions of 5 CFR 1320.8(b)(3), appear at the end of the instructions. *The certification is to be made with reference to those regulatory provisions as set forth in the instructions.*

The following is a summary of the topics, regarding the proposed collection of information, that the certification covers:

- (a) It is necessary for the proper performance of agency functions;
- (b) It avoids unnecessary duplication;
- (c) It reduces burden on small entities;
- (d) It used plain, coherent, and unambiguous terminology that is understandable to respondents;
- (e) Its implementation will be consistent and compatible with current reporting and recordkeeping practices;
- (f) It indicates the retention period for recordkeeping requirements;
- (g) It informs respondents of the information called for under 5 CFR 1320.8(b)(3):
 - (i) Why the information is being collected;
 - (ii) Use of information;
 - (iii) Burden estimate;
 - (iv) Nature of response (voluntary, required for a benefit, mandatory);
 - (v) Nature and extent of confidentiality; and
 - (vi) Need to display currently valid OMB control number;
- (h) It was developed by an office that has planned and allocated resources for the efficient and effective management and use of the information to be collected (see note in Item 19 of instructions);
- (i) It uses effective and efficient statistical survey methodology; and
- (j) It makes appropriate use of information technology.

If you are unable to certify compliance with any of the provisions, identify the item below and explain the reason in Item 18 of the Supporting Statement.

Signature of Senior Official or designee

Date

Agency Certification (signature of Assistant Administrator, Deputy Assistant Administrator, Line Office Chief Information Officer, head of MB staff for L.O.s, or of the Director of a Program or StaffOffice)

Signature

Date

Signature of NOAA Clearance Officer

Signature

Date

Evaluation of NOAA Bay Watershed Education and Training (B-WET) Programs Revised Supporting Statement

OMB Control Number: 0648-0530 Expires: 12/31/2005

INTRODUCTION

On June 28, 2000, the members of the Chesapeake Executive Council, including the governors of Maryland, Pennsylvania, Virginia and the mayor of Washington, DC, renewed their commitment to improving the health of the Chesapeake Bay by signing the *Chesapeake 2000* agreement (see Attachment 32). These signatories committed to goals to restore fisheries, protect habitat, improve water quality, develop sound land use practices, and empower the watershed's citizenry through education and outreach. One significant goal for Education and Outreach is:

Beginning with the class of 2005, provide a meaningful Bay or stream outdoor experience for every school student in the watershed before graduation from high school.
(*Chesapeake 2000 Agreement*)

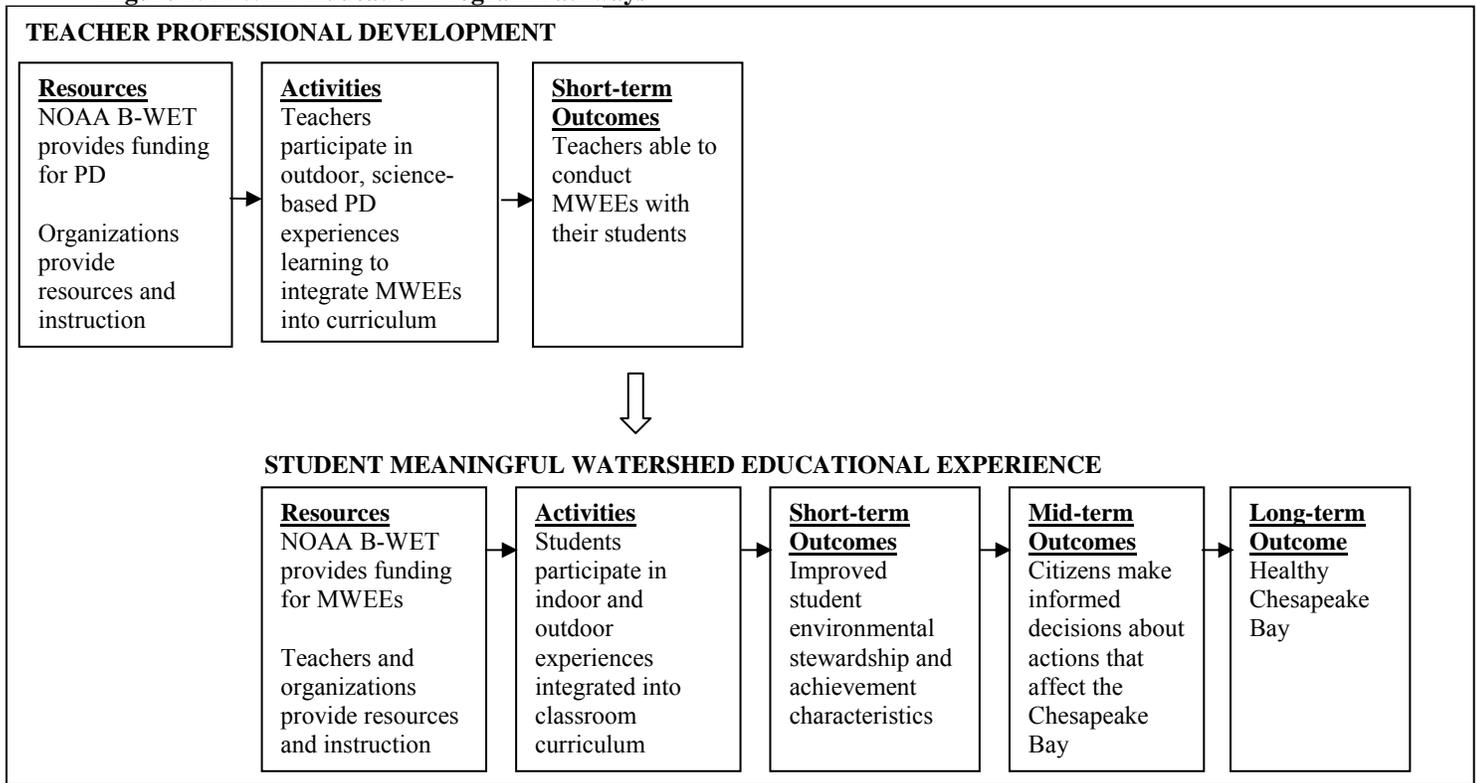
To bolster the watershed-wide effort to attain this goal, in 2002 the National Oceanic and Atmospheric Administration (NOAA) began administering the Bay Watershed Education and Training (B-WET) program to offer competitive grants to support existing environmental education programs, foster the growth of new programs, and encourage the development of partnerships among environmental education programs throughout the Chesapeake Bay watershed. The funding, over \$2 million per year, assists school jurisdictions in providing "Meaningful Watershed Educational Experiences" (MWEEs) to all students before they graduate from high school. B-WET funding is awarded to organizations that provide MWEEs directly to students and to organizations that provide professional development to teachers, training them to conduct MWEEs with their students. For FY2005, 32 organizations, including nonprofits, school districts, state agencies, and universities, are funded to provide MWEEs to over 27,000 students and professional development to over 2,000 teachers.

A MWEE integrates field experiences in the Chesapeake Bay watershed with multi-disciplinary classroom activities and instruction. Students then share their discoveries about the watershed with local schools and communities, both orally and in written form. MWEEs:

- Are investigative or project-oriented,
- Are integrated within the instructional program,
- Involve preparation, action, and reflection,
- Reveal the watershed as a system, and
- Are integrated into a significant amount of instructional time, ideally a school year.

By directly providing students with MWEEs and training teachers to conduct their own MWEEs, the B-WET program strives to encourage the Bay watershed citizenry, now and in the future, to improve and protect the health of the Chesapeake Bay and its watershed (Figure 1).

Figure 1: B-WET Education Program Pathways



A. JUSTIFICATION

1. Explain the circumstances that make the collection of information necessary.

NOAA needs to learn about the ways B-WET-funded programs implement MWEs and what outcomes are being achieved. In particular, NOAA seeks to ascertain whether B-WET-funded MWE programs are improving students’ stewardship and academic achievement, as well as teachers’ confidence in implementing MWEs with their students. NOAA, with additional funding from the Chesapeake Bay Trust and the Keith Campbell Foundation, has contracted with an external team of evaluators (Anita Kraemer, eeEvaluations; Dr. Jeff Kirwan, Virginia Tech; and Dr. Michaela Zint, University of Michigan) to conduct an initial, exploratory evaluation to collect baseline data on the MWE and professional development (PD) programs. In collaboration with NOAA and a steering committee of MWE and PD leaders and providers, the evaluators developed the following evaluation questions:

Student Programs

1. Do the student MWE programs increase students’ characteristics associated with environmental stewardship (e.g., knowledge of watershed issues, intention to protect/restore the watershed)?
2. Do the student MWE programs increase students’ characteristics associated with academic achievement (e.g., engagement in learning)?
3. Do student MWE programs increase students’ academic achievement in science as measured by end-of-year standardized tests?

4. What components of the MWEE student programs contribute to increases in students' environmental stewardship and academic achievement?
5. What tangible benefits to the Bay and its watershed result from the student MWEE programs?
6. Are the student programs meeting the MWEE criteria (i.e., integral part of instructional program, hands-on and investigative, sustained activity, involve sharing and communication, and demonstrate partnerships)?

Teacher Professional Development

7. Are the teacher professional development programs increasing the number of MWEEs conducted by teachers?
 - a. Do the professional development programs increase teachers' intentions to conduct MWEEs?
 - b. Do the professional development programs enhance teachers' perceived ability to conduct MWEEs?
 - c. Do teachers trained during prior years use MWEEs in the classroom?
What enables or hinders teacher use of MWEEs in the classroom?
8. What components of the teacher professional development programs contribute to teachers feeling prepared to use MWEEs with their students?

Overall

9. Is the B-WET funding advancing the implementation and effectiveness of MWEEs?

This initial B-WET evaluation will provide baseline data and set the stage for future monitoring of the effectiveness of the B-WET programs in achieving meaningful stewardship and learning outcomes. As a result of this evaluation, NOAA will learn about how the programs are being implemented and what benefits they are having for participants. The evaluation's results will be used by B-WET managers to document the effects of currently-funded programs, to inform future decisions on what programs to fund, and to share critical "lessons learned" with national education communities. The instruments developed as part of this initial evaluation will also be made available to B-WET program providers for their use in monitoring their individual programs' effectiveness.

2. Explain how, by whom, how frequently, and for what purpose the information will be used. If the information collected will be disseminated to the public or used to support information that will be disseminated to the public, then explain how the collection complies with all applicable Information Quality Guidelines.

The instruments and sources of measures that will be used to collect data for answering the research questions are summarized in Table 1. To ensure the validity and reliability of the scales used in this evaluation, measures from past, peer-reviewed, published studies were selected as originally-designed or minimally-altered to increase relevance to the B-WET programs.

Student Program Instruments

Student Pre- and Post-Questionnaires: Pre- and post-questionnaires have been developed to answer the following research questions:

- *Do the student MWEE programs increase students' characteristics associated with environmental stewardship (e.g., knowledge of watershed issues, intention to protect/restore the watershed)?*
- *Do the student MWEE programs increase students' characteristics associated with academic achievement (e.g., engagement in learning)?*
- *What components of the MWEE student programs contribute to increases in students' environmental stewardship and academic achievement?*

MWEE and comparison students will be given a pre-questionnaire (Attachments 1-4) immediately before the MWEE program begins and a post-questionnaire (Attachment 5-8) on the last day of the MWEE during the 2005-06 school year. Teacher introductory letters and instructions for administering the questionnaires will be included with the questionnaires (Attachments 12-17).

Parental permission forms will be used to obtain parental for their child's participation in the B-WET evaluation (Attachments 18 and 19). The students for whom parental consent has been obtained will be given paper questionnaires and will mark their answers on an opscan sheet. It will take students less than 30 minutes to complete each questionnaire. The student questionnaires elicit responses concerning students' stewardship and achievement characteristics.

Environmental stewardship: Most students will participate in stewardship actions as part of their MWEE. Through student and teacher reports, the evaluators will document how many students participated in stewardship activities during their MWEE, what types of activities they were involved in (e.g., restoration, monitoring), and what physical changes they made to the watershed (e.g., number of wetland plants planted).

To evaluate the likelihood of students' engagement in future stewardship behaviors to protect/restore the watershed, the evaluators will measure students' characteristics that have been shown to be connected to environmental stewardship behavior (Hungerford & Volk 1990). These characteristics include: environmental sensitivity, knowledge of ecology, knowledge of environmental issues, sense of personal responsibility, knowledge of environmental action strategies, locus of control, and intention to protect/restore the watershed. The evaluators have used valid and reliable measures based on the Hungerford and Volk (1990) model in past evaluations of environmental education programs (Ajzen & Fishbein 1980, Kraemer et. al. 2002, Nowak et. al., 1995, Zint et. al. 2002).

For purposes of triangulation, the evaluators will also collect teachers' perceptions of increases in students' stewardship and associated characteristics based on MWEEs.

Academic achievement: As a proxy measure for student achievement, the evaluators will measure MWEE students' engagement in learning. Past studies have found student engagement to be closely associated with academic achievement (Connell, Spencer, & Aber 1994, Marks 2000, Skinner, Wellborn & Connell 1990, Connell & Wellborn 1991, as reported in Fredericks, Blumenfeld & Paris 2004). Based on the valid and reliable scales used by these studies, students

will be asked about their class participation, preparation, and effort (Fredricks et. al. 2003, Institute for Research and Reform in Education, Inc. 1998, Marks 2000, U.S. Department of Education 1992).

The evaluators will also collect quantitative and qualitative data from 2005 B-WET program providers (via interviews) and MWEE teachers (via questionnaires). These providers and teachers will be asked to report on, as a whole, students' academic achievement and engagement in learning. By collecting student achievement data from multiple respondent groups, the evaluators will increase the validity of the evaluation's findings concerning this important outcome.

To investigate the answer to the following research question, the evaluators will examine end-of-year science test scores of participating students.

- *Do student MWEE programs increase students' academic achievement in science as measured by end-of-year standardized tests?*

Science scores will be examined given that science standards are the focus of all MWEEs. These scores are only available in Virginia at this time, so the evaluators will review the spring 2004 VA science test scores when the data are available (fall 2005) for those students who participated in MWEEs during the 2004-05 school year. Teachers of the those 2004-05 students will receive a questionnaire to describe the MWEE program their students experienced.

MWEE teachers post-program questionnaire: Teachers of the MWEE students will complete questionnaires describing the MWEE in which their students participated and what influence they observed the MWEE having on students' stewardship and achievement characteristics (Attachment 9 and 10). It is particularly critical to collect implementation data to be able to help make the causal link between MWEEs and changes in students' stewardship and achievement characteristics. The data on perceived changes in students will be used for triangulation purposes.

In addition, the teacher-reports on the students' MWEE experiences will provide information to answer the following research question:

- *Are the student programs meeting the MWEE criteria (e.g., integral part of instructional program, aligned with scope and sequence, hands-on and investigative, sustained activity, involve sharing and communication, and demonstrate partnerships)?*

MWEE providers post-program phone interview: The MWEE provider organizations will be interviewed by phone to collect detailed information about their programs and their role in the students' MWEE (Attachment 11). Again, data about implementation will be collected for causal purposes and data on perceived changes for triangulation purposes. The information collected during the phone interviews will also provide information to answer the following research questions:

- *What tangible benefits to the Bay and its watershed result from the student MWEE programs?*

- *Are the student programs meeting the MWEE criteria (i.e., integral part of instructional program, hands-on and investigative, sustained activity, involve sharing and communication, and demonstrate partnerships)?*
- *Is the B-WET funding advancing the implementation and effectiveness of MWEEs?*

Professional Development Instruments

Teacher-participants post-program questionnaire: To assess the influence of B-WET-funded professional development programs on teachers' confidence to conduct MWEEs with students, the teachers will complete an online questionnaire after their PD workshop (Attachment 20). The questionnaire measures have been adapted from valid and reliable measures used in past studies (Guskey 2000, Kirkpatrick 1998, Monroe 1994, Zint et. al. 2002). The data collected from the post-program questionnaire will help answer the following research questions:

- *Do the professional development programs increase teachers' intentions to conduct MWEEs?*
- *Do the professional development programs enhance teachers' perceived ability to conduct MWEEs?*
- *What components of the teacher professional development programs contribute to teachers feeling prepared to use MWEEs with their students?*

PD provider post-program phone interview: The PD providers will be interviewed by phone to collect detailed information about workshop resources, activities, and perceived outcomes (Attachment 21). The information collected will also help to answer the following research question:

- *Is the B-WET funding advancing the implementation and effectiveness of MWEEs?*

Past PD teacher-participants questionnaire: The purpose of the PD programs is to provide resources, information, and encouragement for teachers to conduct MWEEs with their students. At the end of the school year, a message including a web link to an online questionnaire will be emailed to teachers who participated in B-WET-funded PD during the past few years (Attachment 22). In addition to the above questions regarding the PD programs, contacting past participants will enable the evaluators to answer the following research question:

- *Do teachers trained during prior years use MWEEs in the classroom? What enables or hinders teacher use of MWEEs in the classroom?*

Teachers will be asked if they conducted MWEEs with their students and if so, to describe them. If they did not conduct a MWEE, they will be asked to explain why not. The former will provide important implementation data and data for triangulation purposes. The latter will provide insight into needs to increase the likelihood that teachers will conduct MWEEs, which will provide NOAA with guidance on what PD or other support will be most appropriate to fund.

Table 1: Student program measures

Research questions	Instrument	Measures	Sources for measures	Use of information
<p>Do the student MWEE programs increase students' characteristics associated with environmental stewardship (e.g., knowledge of watershed issues, intention to act)?</p> <p>Do the student MWEE programs increase students' characteristics associated with academic achievement in science (e.g., engagement in learning, attitudes toward science learning)?</p>	Student pre- and post-questionnaire	Past behavior (pre only) Environmental sensitivity Knowledge of ecology Knowledge of issues Personal responsibility Knowledge of action strategies Locus of control Intention to act	Zint et. al. 2002 Marcinkowski & Rehrig 1995	Building blocks for environmental stewardship
		Behavioral engagement in learning	Fredricks et. al. 2003, Institute for Research and Reform in Education, Inc. 1998, Marks 2000, U.S. Department of Education 1992	High correlation with academic achievement
		Background information (pre-test only): Sex, Grade, Ethnic background, Past achievement (grades)	Ethnic/race question from OMB Federal Register Notice, October 30, 1997	Control for student characteristics that can influence outcomes
	Current MWEE teachers and past-PD teachers' questionnaires	Reports of student changes in stewardship and achievement characteristics		Multiple methods/respondents strengthens validity of findings (i.e., triangulation)
Do student MWEE programs increase students' academic achievement in science as measured by end-of-year standardized tests?	End-of-year standardized test scores in Virginia (SOLs) from B-WET students and controls	Results collected from schools involved in FY 2004 MWEEs	Virginia Department of Education 2004	Direct evidences of student achievement

<p>What components of the MWEE student programs contribute to increases in students' environmental stewardship and academic achievement?</p> <p>Are the student programs meeting the MWEE criteria (e.g., integral part of instructional program, aligned with scope and sequence, hands-on and investigative, sustained activity, involve sharing and communication, and demonstrate partnerships)?</p>	<p>MWEE teacher questionnaire, student post-test, and provider interview</p>	<p>Teacher reports of MWEE components Student reports of MWEE experience Provider reports of MWEE components</p>	<p>Created from criteria in Chesapeake Bay Program Education Workgroup 2001</p>	<p>Data identifying program components and characteristics will serve as independent and control variables for evaluation analyses</p>
<p>What tangible benefits to the Bay and its watershed result from the student MWEE programs?</p>	<p>MWEE provider phone interview</p>	<p>Questions about resources, activities, audience, outputs, outcomes</p>		<p>Provide physical evidence for improvements to Bay watershed health</p>
<p>Do the teacher professional development programs improve teachers' perceived ability to conduct MWEEs?</p> <p>What components of the teacher professional development programs contribute to teachers feeling prepared to use MWEEs with their students?</p>	<p>Current PD teacher post-questionnaire and PD past-participant questionnaire</p>	<p>Teacher past PD experience Teacher intention to conduct MWEE in future Teacher confidence in ability to conduct MWEE Teacher perceived barriers to conducting MWEEs in future Impressions of PD experience and components</p>	<p>Guskey 2000, Kirkpatrick 1998, Monroe 1994, Zint et. al. 2002</p>	<p>Provide evidence of effectiveness of PD programs</p>
<p>Do teachers trained during prior years use MWEEs in the classroom? What enables or hinders teacher use of MWEEs in the classroom?</p>	<p>PD past participant questionnaire</p>	<p>Teacher past PD experiences Did teachers conduct MWEE If so, describe MWEE If not, why not Confidence in ability and intention to conduct MWEE in future Teacher perceived barriers to conducting MWEEs in future</p>	<p>Guskey 2000, Kirkpatrick 1998, Monroe 1994, Zint et. al. 2002</p>	<p>Identify what contributes to teachers' decisions to conduct MWEE with students</p>
<p>Is the B-WET funding advancing the implementation and effectiveness of MWEEs?</p>	<p>MWEE and PD provider interviews</p>	<p>Questions about program resources, activities, audience, outputs, outcomes Quality of the B-WET program</p>		<p>Determine influence of B-WET funding on MWEE implementation</p>

Instrument Distribution Timeline

The instruments for this evaluation will be distributed during the summer of 2005 and the following school year, as appropriate (Table 2). The data will be compiled and analyzed during the summer of 2006. A final report will be distributed by December 2006.

Table 2: B-WET Evaluation Timeline

	Summer 2005	Fall 2005	Spring 2006	Summer 2006	Fall 2006
PD teacher post-questionnaire distributed	X				
PD provider interviews conducted	X				
2004-05 SOL test results obtained and analyzed		X			
Student pre-test distributed		X			
Student post-test distributed			X		
MWEE provider interviews conducted			X		
Past PD teacher questionnaire distributed			X		
Data analyzed				X	
Report writing				X	X
Final report distribution					X

Reports

The information collected by the evaluation of the B-WET programs will be summarized and presented in a full, technical document as well as in a condensed executive summary. Both products will be available to the general public. The B-WET program manager will distribute the executive summary to B-WET program providers, school and school district administrators, state education agency officials, and the national environmental education community. This distribution will occur when the reports are completed in late fall 2006. In addition, the evaluation results will be presented at local and national education annual conferences such as the National Marine Educators Association, the Maryland Association for Environmental and Outdoor Education, the National Association for Research on Science Teaching, and the North American Association for Environmental Education.

The information in the report will be used by NOAA to refine its B-WET grant reward process. B-WET providers and other environmental and science education organizations in the Bay watershed will use the information to improve the quality of their programs. Other funders of Bay education programs may use the report information for refining their criteria for awarding funding to education programs.

Future Evaluations

The instruments developed by the external evaluation team will be made available, through the B-WET web site, to the Bay education community for ongoing future use. The instruments can be used as designed or adapted to meet the unique needs of education programs. B-WET providers will be encouraged to evaluate their programs to document the effects on student engagement, achievement, and stewardship. Based on these evaluations, programs will be able to improve the design of their programs.

It is anticipated that the information collected in this evaluation will be disseminated to the public or used to support publicly disseminated information. As explained in the preceding

paragraphs, the information has utility. NOAA will retain control over the information and safeguard it from improper access, modification, and destruction, consistent with NOAA standards for confidentiality, privacy, and electronic information. See response #10 of this Supporting Statement for more information on confidentiality and privacy. The information collection is designed to yield data that meet all applicable information quality guidelines. Prior to dissemination, the information will be subjected to quality control measures and a pre-dissemination review pursuant to Section 515 of Public Law 106-554.

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological techniques or other forms of information technology.

The data collection plan reflects sensitivity to issues of respondent burden, accuracy, and efficiency. To minimize cost and unnecessary use of paper and other resources and to facilitate distribution of questionnaires, web-based versions of the instruments will be used when feasible. Most B-WET providers of student programs have indicated that students will not all be able to complete an online questionnaire. Therefore, students will complete paper versions of the questionnaire using a pencil and an opscan sheet. These sheets will be scanned using a university scanner. The data will be compiled in an Excel spreadsheet which then will be imported into SPSS and SAS for analysis.

For professional development programs, teachers will be asked to complete a questionnaire at the end of the last day of their workshop. The evaluators will email teacher-participants on the last day of their program, providing them with a link to a web-based, post-program questionnaire. In addition, PD providers will distribute the link information during the workshop and encourage teachers to respond promptly. Paper questionnaires will be made available to teachers who do not have Internet access. At the end of the 2005-06 school year, all teachers who have had B-WET-funded professional development since the beginning of the program, and for whom the evaluators have email addresses, will receive a web link to a follow-up questionnaire. All data entered online will be downloaded into an Excel spreadsheet and then imported into SPSS and SAS for statistical analysis.

In the future, providers of student and teacher programs will be able to access the professional development and MWEE instruments online and use them for their own program evaluations. They will be able to use the questionnaires online or print the instruments from the web site and conduct their own collection and analysis of program data.

The reports containing the results of the B-WET evaluation will be available on the NOAA web site.

4. Describe efforts to identify duplication.

No other NOAA programs are surveying teachers and students in the Chesapeake Bay watershed.

5. If the collection of information involves small businesses or other small entities, describe the methods used to minimize burden.

The instruments are designed to be completed in as little time as possible while maintaining the quality of the data collected. Providers will be assisted in identification of respondents, distribution of questionnaires, and will be given postage-paid envelopes for returning the questionnaires. The evaluators will minimize the burden on organizations participating in the evaluation to ensure maximum participation and satisfaction with the evaluation.

6. Describe the consequences to the Federal program or policy activities if the collection is not conducted or is conducted less frequently.

This evaluation will ensure that federal funding is used in an effective and efficient manner to increase students' academic achievement and knowledge about and abilities to protect/restore the Chesapeake Bay. NOAA will be able to determine the effectiveness of the programs implementing MWEEs and professional development with B-WET funding. The results of this study will provide insight into how to design improved education programs throughout the Chesapeake Bay watershed.

Because program providers change from funding year to funding year, it is important for NOAA to ask for evaluations from providers on an annual basis. This proposed external evaluation will be a one-time event, but its instruments will be available for future providers' use in evaluating their individual programs.

7. Explain any special circumstances that require the collection to be conducted in a manner inconsistent with OMB guidelines.

The collection will be conducted in a manner consistent with OMB guidelines.

8. Provide a copy of the PRA Federal Register notice that solicited public comments on the information collection prior to this submission. Summarize the public comments received in response to that notice and describe the actions taken by the agency in response to those comments. Describe the efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

Due to emergency status of this request, NOAA did not submit a public comment solicitation notice to the PRA Federal Register. However, public and expert stakeholder comments were solicited through other means. First, the evaluation team convened a stakeholder group to advise the design of the data collection. Members of the stakeholder group included representatives from state departments of education and B-WET provider organizations. Second, the evaluation team presented the evaluation design to the Chesapeake Bay Program Education Workgroup for their feedback. Lastly, the evaluation team interviewed 8 MWEE providers to ascertain the appropriateness of the evaluation content to their programs.

Note that the proposed methods for data collection are supported by education literature. The instruments are adapted from those shown to be reliable and valid in past studies. The methods

used for collection, instructions, recordkeeping, and reporting have been used by the evaluation team to conduct two past evaluations of Chesapeake Bay education programs (Zint et. al. 2002).

9. Explain any decisions to provide payments or gifts to respondents, other than remuneration of contractors or grantees.

Respondents will not receive payments or gifts for their participation.

10. Describe any assurance of confidentiality provided to respondents and the basis for assurance in statute, regulation, or agency policy.

There will be no promise of confidentiality regarding the information collected; to allow matching of individual pre- and post-test results for purposes of statistical analysis individual surveys will be differentiated only by the month and day of birth and a class number, entered by the respondent. In addition, this differentiating information will be removed from the data once pre- and post-test data are matched. All reports resulting from analysis of the survey response data will present data in aggregate form only.

Parents of student respondents will be given an active consent form: (1) designating NOAA as the program funder, (2) explaining the purpose of the survey, and (3) stating the anonymity of the survey responses; they will select one of two checkboxes for consent or dissent to their child's participation, and sign.

Although not directly identifiable, all responses will be maintained in a secured database. Paper surveys will be temporarily stored in a lockable metal file cabinet, with only the NOAA program data analyst having access while she is scanning the data into the secured database. Once the data from the paper surveys has been entered, the paper will be shredded. The analyst will be the sole person with access to the database, via password-protected access. After removal of the identifier, data will be stored anonymously in NOAA archives.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private.

No questions of a sensitive nature will be asked.

12. Provide an estimate in hours of the burden of the collection of information.

The total respondent burden in hours and dollars is summarized in Table 3. Students will complete their questionnaires in no more than 30 minutes and teachers in no more than 20 minutes. The providers' interviews will last about 45 minutes with an additional 15 minutes allowed for them to look up program statistics (i.e., how many students/teachers participated).

Table 3: Estimate of Burden Hours for Information Collection

Informant	Number of respondents^a	Response frequency	Average time per response (hours)	Total respondent time (hours)	Estimated hourly wage (dollars)	Estimated labor cost burden to respondents (dollars)
MWEE students	2758 ^b	2	0.5	2758	0	0
MWEE teachers	92	1	0.33	30.36	33.27 ^c	1,010
MWEE providers	14	1	1.0	14	39.91 ^d	559
PD providers	14	1	1.0	14	39.91 ^d	559
PD current-year teachers	1551	2	0.33	1023.66	33.27 ^c	34,057
PD past-year teachers	3000	1	0.33	990	33.27 ^c	32,937
TOTALS	7429			4830		69,122

^a Assumes number of respondents given response rates in Table.

^b Includes MWEE and comparison students; sample size suggested by power analysis (Table 7).

^c U. S. Department of Labor (2004). *Washington-Baltimore DC-MD-VA-WV National Compensation Survey, April 2004*. Table 2-2. Mean hourly earnings for full-time “Teachers, except college and university”.

^d U. S. Department of Labor (2004). *Washington-Baltimore DC-MD-VA-WV National Compensation Survey, April 2004*. Table 2-2. Mean hourly earnings for full-time “Administrators, education and related fields”.

13. Provide an estimate of the total annual cost burden to the respondents or record-keepers resulting from the collection (excluding the value of the burden hours in #12 above).

There are no direct costs to participants. The only costs are the opportunity costs of respondents’ time required to provide information as explained in item 12 above. No capital equipment, start-up, or record maintenance requirements are placed on respondents.

14. Provide estimates of annualized cost to the Federal government.

The estimated cost to the federal government of conducting the Evaluation of the Meaningful Watershed Experience is based on the government’s contracted cost of the data collection and related study activities along with personnel cost of government employees involved in oversight and/or analysis. For the data collection activities for which OMB approval is currently being requested, the overall cost to the government is \$81,000 over a three year period. This includes

- \$25,000 annually for contracted activities including data collection, analysis, and report writing
- \$2,000 annually for government personnel costs in overseeing the evaluation activity

Thus, the total costs to the government for the first year of data collection will be \$27,000. It is anticipated that this level of effort will be required annually to accurately establish a baseline for future evaluations of this kind. This estimate is based on the evaluation contractor’s previous experience managing other research and data collection activities of this type.

15. Explain the reasons for any program changes or adjustments reported in Items 13 or 14 of the OMB 83-I.

No changes or adjustments are reported in Items 13 or 14 of the OMB 83-I.

16. For collections whose results will be published, outline the plans for tabulation and publication.

The results of the NOAA B-WET evaluation will be published as a technical report with summaries appropriate for stakeholders such as school systems, B-WET providers, and others interested in environmental and science education. The reports will summarize the answers to the research questions posed in Item 1 of this Supporting Statement. The evaluators may also seek to publish results in a peer-reviewed journal.

The evaluators will use SAS PROC MIXED (Littell et. al. 1996) to statistically analyze the data collected. SAS PROC MIXED is designed for multilevel analysis (i.e., individuals within groups, such as classes or workshops, whose responses are not independent) and it adjusts the dependent variable's (e.g., post-test or after-program) mean for fixed-factor effects (e.g., pre-test or before-program, type of treatment, demographic characteristics). The evaluators will examine results of the test of fixed effects to determine whether fixed factors were significantly related to post-test or after-program characteristics. When there are significant relations, the evaluators will identify pair-wise significant differences in adjusted post-test or after-program characteristic means based on the Bonferroni adjustment for multiple comparisons (Sahai & Ageel 2000). To test for other significant differences when it is not possible to account for random or fixed effects, the evaluators will use paired-t and Chi-square tests. The evaluators will interpret results as statistically significant at $\alpha = 0.05$. Results will be summarized in tables such as Table 4 which has been used and published by past studies (Zint et. al. 2002).

Table 4: Example Data Tabulation

<i>Post-test characteristics</i>	<i>Range of values</i>	<i>Pre-test mean</i>	<i>Test of fixed effects for</i>			<i>Post-test mean adjusted for significant fixed effects</i>				
			<i>type of treatment</i>			<i>MWEE Program 1</i>	<i>MWEE Program 2</i>	<i>MWEE Program 3</i>	<i>MWEE Program 4</i>	<i>comparison</i>
			<i>F</i>	<i>df</i>	<i>p</i>					
Environmental sensitivity										
Knowledge of ecology										
Knowledge of issues										
Personal responsibility										
Knowledge of actions										
Skill in actions										
Locus of control										
Group locus of control										
Individual locus of control										
Intention to act										
Engagement in learning										

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons why display would be inappropriate.

The expiration date for OMB approval will be displayed on all collection instruments.

18. Explain each exception to the certification statement identified in Item 19 of the OMB 83-I.

This data collection meets the criteria of the certification statement in Item 19 of the OMB 83-I.

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g. establishments, State and local governmental units, households, or persons) in the universe and the corresponding sample are to be provided in tabular form. The tabulation must also include expected response rates for the collection as a whole. If the collection has been conducted before, provide the actual response rate achieved.

Professional Development Respondents

According to the proposals of the FY2005 grant recipients, over 2,300 teachers will participate in B-WET-funded professional development offered by 17 organizations (Table 5). The professional development programs will serve teachers from Delaware, Maryland, Pennsylvania, Virginia, and Washington, D.C.

Table 5: 2005-06 Professional Development Participants

PD Organization	Location	Number of teachers
Anacostia Watershed Society	DC	40
Alice Ferguson Foundation	DC, MD	80
Chesapeake Bay Foundation	DC, MD, VA	175
University of Delaware	DE	60
Environmental Concern Inc.	DE, VA	240
Arlington Echo Outdoor Education Center	MD	25
Maryland Association for Environmental & Outdoor Educ.	MD	50
Thorpe Foundation	MD	9
University of Maryland Center of Environmental Science	MD	16
University of Maryland Center of Environmental Science	MD	12
Pennsylvania Department of Education	PA	1000
Chesterfield County Public Schools	VA	36
Commonwealth of Virginia	VA	80
Earth Force, Inc.	VA	40
Fairfax County Public Schools	VA	150
Mary Baldwin College	VA	100
Virginia Polytechnic Institute and State University	VA	23
Virginia Resource Use Education Council	VA	250
TOTAL		2386

MWEE student participants: According to the proposals of the FY2005 grant recipients, over 27,000 students will participate in B-WET-funded MWEEs during the 2005-06 school year (Table 6). Seventeen organizations will provide the MWEE programs. The students' schools are located in Maryland, Pennsylvania, Virginia, and Washington, D.C.

Table 6: 2005-06 MWEE Student Participants

MWEE Organization	Location	Number students	Grade level
District of Columbia	DC	1000	elem, middle, high
National Environmental Education and Training Foundation	DC	95	high
National Audubon Society	DC, MD	2550	high, elem
Smithsonian Institution	DC, MD, VA	80	high
Alice Ferguson Foundation	MD	1000	elem, middle
Arlington Echo Outdoor Education Center	MD	5000	elem, middle, high
Living Classrooms Foundation	MD	1600	elem, middle
Maryland Department of Natural Resources	MD	4000	middle
Montgomery County Public Schools	MD	750	high
National Aquarium in Baltimore	MD	200	middle, high
Wildfowl Trust of North America, Inc	MD	8000	elem, middle, high
Benton Area School District	PA	160	elem, high
Keystone Central School District	PA	350	high
Boxerwood Education Association	VA	650	elem, middle
Rivanna Conversation Society	VA	600	middle
Virginia Aquarium & Marine Science Center Foundation, Inc.	VA	1000	elem
The Mountain Institute	WV	300	middle
Totals		27335	

Sampling

Professional development teacher participants: A complete census of the 2005-06 teachers will be conducted rather than a sample. To ensure that teachers have sufficient time and a non-stressful environment for completing a post-program questionnaire, the PD program providers will give the teachers a web link to the questionnaire on the last day of their program. In addition, the evaluators will email the web link to the teachers on the last day of their program. The teachers will be asked to complete the questionnaire within 3 days following the end of their professional development. Paper questionnaires will be made available to any teachers who do not have access to the Internet.

Professional development program providers: All seventeen 2005-06 program providers will be called for a phone interview following completion of their professional development program (census).

Professional development past participants: About 7,000 teachers have participated in B-WET-funded professional development since 2002. The evaluators will contact all of the teachers for whom email addresses are available, assuming that will be about 6,000 teachers (convenience sample).

MWEE student participants:

Because a census of the 27,000 student participants is not possible for logistical and financial

reasons, a stratified random sample will be used to select student participants. Although a randomized control trial is a powerful evaluation design, random assignment of students to treatment and control groups is impossible in this case. MWEE providers have previously determined what schools they will engage (based on teacher interest and/or provider recruitment), therefore the students cannot be randomly assigned to treatment and control groups. Instead, the student assessment will be based on a quasi-experimental design. The evaluators will select the teachers who will participate in the evaluation, and those teachers will recruit non-participating teachers and their students at the B-WET students' school for comparisons.

The sample sizes were estimated based on Cohen (1992) and Erdfelder et. al.'s GPOWER software (1996). A power of 80% and an alpha of 0.05 were used. Effect size was set to 0.1 based on results of previous, similar studies (Kraemer et. al. 2002) indicating that the effect size was likely to be "small" (Cohen 1992). For the ANOVAs with two groups (i.e., MWEE vs. No MWEE), the necessary group size was estimated to be 788 students (Table 7). Half of the students in the group are treatment and half are comparison.

Because students participate in MWEEs as a class, we will sample students by teachers' classes. Teachers have an obvious, powerful influence on the students' MWEE experiences, thus the data analysis will take class membership into effect (as a random variable).

The number of classes included in the sample is directly related to the research questions that will be answered. To determine whether MWEEs in general improve students' environmental stewardship and academic achievement (measured as engagement in learning) requires samples of MWEE participants compared to non-MWEE participants (Table 7). For the MWEE/No MWEE analysis, students will be grouped by grade level (elementary, middle, high). Additional analysis will be conducted to determine what *types* of MWEE programs have greater effects on students' environmental stewardship and engagement in learning. To do this, middle school students will be oversampled (Table 7) and comparisons will be made of variables such as whether teachers had PD or not and in what type of action project the students participated.

Table 7: Sample Sizes

	MWEE compared to No MWEE (per grade level)	Additional middle school students for comparison of program types	Total
Sample suggested by power analysis* (students)	788	394	2758
Oversampling given estimated 65% response rate (students)	1212	606	4242
Minimum number of classes sent questionnaires (classes)	40	20	140

* Based on Cohen (1992) and Erdfelder et.al.'s (1996) GPOWER software.

MWEE teachers: All of the teachers of the classes selected in the above sampling design (70 MWEE and 70 comparison) will be asked to complete a post-program questionnaire.

MWEE providers: All seventeen 2005-06 program providers will be called for a phone interview following completion of their MWEE programs (census).

Expected Response Rates

Previous, similar studies had response rates for students in classes ranging from 48-75% when no financial incentive was offered (Zint et. al. 2002) and 75-92% when a financial incentive was offered (Kraemer et. al. 2002). When the Tailored Design Method (which includes a financial incentive) was used in other surveys, response rates averaged 77% (Dillman 2000). Although financial incentives are not available for this study, the B-WET program providers will call the MWEE teachers prior to the evaluators' contact (email) to reinforce the importance of this evaluation. For the phone calls, the program providers will be sent the text from the MWEE Teacher Participation Request email (Attachment 23) so they will have the evaluation information to communicate to the teachers. With this extra effort, the response rate is estimated to be 75% (Table 8). Although the evaluators expect a 75% response rate, the oversampling estimates in Table 7 are based on a conservative rate of 65% to ensure an adequate sample size.

Based on the evaluators' prior experience of high rates of cooperation in program-related phone calls with 2005-06 MWEE and PD providers, who are highly invested in the program's success and have received much support in their efforts, we expect a response rate, once each telephone contact is successful, of approximately 85%.

Response rates for the web surveys for current year PD teachers is estimated to be 65%, lower than Dillman's 77% average for mailed surveys due to lack of financial incentive and potential reduction in response due to use of the Internet. Based on Dillman (2000), the teachers will receive at least four personal appeals to complete their questionnaires with encouragement from the PD providers.

Response rates for web surveys for past year PD teachers is estimated to be lower than current year teachers based on prior experience with surveys mailed to prior-year teachers (Zint et. al. 2002) where the response rate was 33%. Response rates are expected to be 50% because the B-WET teachers participated in PD more recently (within the past four years) than those in the prior study (within the past twenty years).

Table 8: Expected Response Rates

Group sampled	Expected response rate
	%
MWEE students	75
MWEE teachers	75
MWEE providers	85
PD providers	85
PD current-year teachers	65
PD past-year teachers	50

2. Describe the procedures for the collection, including: the statistical methodology for stratification and sample selection; the estimation procedure; the degree of accuracy needed for the purpose described in the justification; any unusual problems requiring specialized sampling procedures; and any use of periodic (less frequent than annual) data collection cycles to reduce burden.

Only for the MWEE student classes will we use a statistical method to determine sample size, as described in detail in Section B, Question 1. There are no unusual problems that require

specialized sampling procedures, only the usual challenges of social science sampling.

The MWEE providers will provide complete lists of teachers who will be participating in B-WET-funded MWEEs during the 2005-06 school year (with contact information). This will provide the population for this study. B-WET is interested in a sample that is representative of the diversity of MWEE programs being funded by NOAA. We have decided to select a stratified random sample to ensure that we will be able to make comparisons based on these strata (Cochran 1977). Strata will include: grade level (elementary, middle, high school), whether the students complete an action project or not, and whether the teachers completed professional development before the MWEE. From these strata, the evaluators will create a randomized list of teachers. Starting at the top of the list, the evaluators will contact the teachers and ask for their participation in the evaluation. If the teacher says “yes”, he/she will be added to the study. If the teacher says “no”, the next teacher will be called until the desired number of teachers is in the sample (70 MWEE teachers). It is our assumption that teachers will not decline to participate for reasons associated with the program and we will verify this by asking them. Given this selection method, not all teachers have exactly the same probability of being selected, but the difference is insignificant.

Only one class per teacher will be included in the sample to reduce the overall effect of the teacher. To ensure a random selection, teachers will be asked to select the last MWEE class they teach during the school day.

MWEE students and PD current-year participants will be sampled twice during the 2005-06 school year (pre/post-tested and post/retention-tested respectively). All other respondents will be contacted one time. Repeated data collection is necessary given the research questions asked about the B-WET programs.

3. Describe the methods used to maximize response rates and to deal with nonresponse. The accuracy and reliability of the information collected must be shown to be adequate for the intended uses. For collections based on sampling, a special justification must be provided if they will not yield "reliable" data that can be generalized to the universe studied.

Effort will be made to minimize nonresponse error which results when people who respond to a survey are different in a meaningful way from those who did not respond. Multiple contacts have been shown to be more effective than any other technique for increasing response to surveys by mail. Recent research confirms that this is also true for surveys by e-mail (Dillman 2000). Dillman (2000) recommends the following “Five Needed Elements for Achieving High Response Rates”:

1. A respondent-friendly questionnaire (clear and easy to understand and complete),
2. Up to five contacts with the questionnaire recipients (send a prenotice letter, questionnaire, thank you, replacement questionnaire, final contact),
3. Inclusion of stamped return envelopes,
4. Personalized correspondence, and
5. A token of financial incentive is included with questionnaire.

All participants in this evaluation will receive user-friendly questionnaires with clear instructions on how to complete and return them. The participants will be addressed by name whenever possible. The participants will not be offered a financial incentive. Below are the strategies that

will be used to contact specific groups of participants.

MWEE Teachers

MWEE teachers will be contacted by email to request inclusion of their students in the study (Attachment 23). If they do not respond to the email request, the evaluators will call them by telephone. Once the teacher agrees to participate, the following two packets will be mailed to the teacher: (1) a class set of MWEE student questionnaires and a MWEE teacher questionnaire and (2) a class set of comparison student questionnaires and a comparison teacher questionnaire. The packets will include a stamped, addressed return envelope. The MWEE teachers will be called on the phone if they do not return the questionnaires in a timely manner.

PD Teachers

Teachers will receive an email prior to their PD program alerting them to the evaluation and an initial request for their participation (Attachment 24). The evaluators will mail a reminder note card to the providers for distribution on the last day of the PD program (Attachment 25). The evaluators will ask professional development providers to have their teachers complete a paper/pencil version of the questionnaire on the last day of the PD program (when teachers are a “captive audience”) when possible. For the PD programs that cannot accommodate a last-day questionnaire, the evaluators will send an email on the last day of the PD program asking teachers to complete the online questionnaire (Attachment 26). Finally, two reminder emails will be sent to nonrespondent teachers 7 days and 14 days after the initial request (Attachments 27 and 28).

Past PD Teachers

Teachers who participated in B-WET PD programs prior to FY2005 will be sent an email requesting their participation in the B-WET program evaluation (Attachment 29). Reminders will be sent out one week and two weeks later to nonrespondents (Attachments 30 and 31).

MWEE and PD Providers

The organizations that provide MWEE and PD programs will be called to set up appointments to discuss their programs. The evaluators will try three times to schedule an appointment.

Nonresponse Analysis for Current-year and Past-year Professional Development Teachers

Often researchers use existing databases of survey recipients’ personal information (e.g., demographics) to compare respondents with nonrespondents. In this case, the evaluators have no demographic or other information (other than email addresses) about the teachers who participated in B-WET-funded professional development. To obtain data on the nonrespondent PD teachers, a random sample of nonrespondents will be sent a web link to an abbreviated version of the appropriate professional development questionnaire (see Attachments 33 - 36). If phone numbers are available, calls will be made to nonrespondents to encourage completion of the abbreviated questionnaire. Responses collected from these questionnaires will be compared to those given by respondents to the initial questionnaire.

If the respondent and nonrespondent populations are determined not to be significantly different, no further analysis of nonrespondents will occur. If it is determined that the nonrespondent population is significantly different from the respondent population, the evaluators will conduct an analysis with weighted adjustments for nonresponse using a method such as those described in Part IV of *Survey Nonresponse* (Groves et. al. 2002).

4. Describe any tests of procedures or methods to be undertaken. Tests are encouraged as effective means to refine collections, but if ten or more test respondents are involved OMB must give prior approval.

The measures and procedures used for this B-WET evaluation have been tested in previous studies and have been shown to produce valid and reliable data (Dillman 2000, Zint et. al. 2002). The procedures, therefore, will not be tested again prior to implementation for this B-WET evaluation.

5. Provide the name and telephone number of individuals consulted on the statistical aspects of the design, and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

Individuals Consulted on Statistical Design

Eric Smith, Ph. D., Professor, Department of Statistics, Virginia Polytechnic and State University, Blacksburg, VA: 540-231-7929

Michaela Zint, Ph. D., Associate Professor, School of Natural Resources and Environment, University of Michigan, Ann Arbor, MI: 734-763-6961

Individual Who Will Conduct Data Collection and Analysis

Anita Kraemer, M.S., NOAA Contractor, eeEvaluations, Blacksburg, VA: 540-552-7722

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ATTACHMENTS

MWEE Questionnaires

1. Pre Elementary Student
2. Pre Elementary Student – comparison
3. Pre Secondary Student
4. Pre Secondary Student – comparison
5. Post Elementary Student
6. Post Elementary Student – comparison
7. Post Secondary Student
8. Post Secondary Student – comparison
9. Pre MWEE Teacher
10. Post MWEE Teacher
11. Post MWEE Provider – phone interview

MWEE Teacher Instructions and Letters

12. Pre Instructions
13. Post Instructions
14. Pre Teacher Letter
15. Pre Teacher Letter – comparison
16. Post Teacher Letter
17. Post Teacher Letter – comparison

MWEE Parental Consent Forms

18. Parental Consent Form
19. Parental Consent Form – comparison

PD Questionnaires

20. PD Teacher – web survey
21. PD Provider – phone interview
22. Past PD Teacher – web survey

Requests and Reminders

23. MWEE Teacher Participation Request – email
24. PD Teacher Pre-Program Request – email
25. PD Teacher Last Day of Program – note card
26. PD Teacher Last Day of Program – email
27. PD Teacher 1-Week Reminder – email
28. PD Teacher 2-Week Reminder – email
29. Past PD Teacher Request – email
30. Past PD Teacher 1-Week Reminder – email
31. Past PD Teacher 2-Week Reminder – email

Nonresponse Analysis for PD

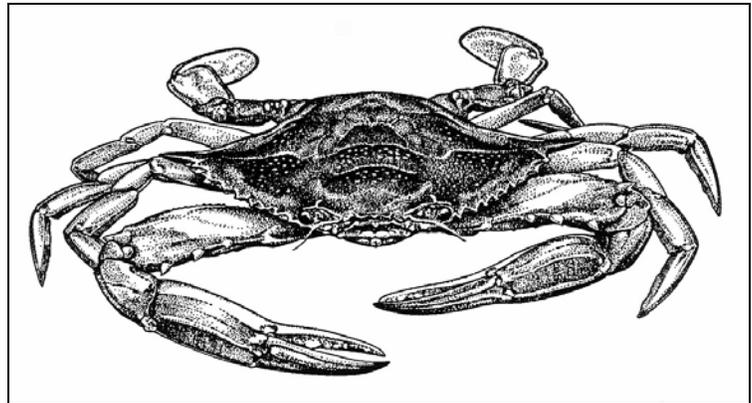
32. PD Teacher Nonrespondent Analysis – email
33. Past PD Teacher Nonrespondent Analysis – email
34. PD Teacher Nonresponse Analysis – web survey
35. Past PD Teacher Nonresponse Analysis – web survey

Legal Documents

36. Chesapeake 2000 Agreement



NOAA B-WET PROGRAM EVALUATION



Elementary Student Pre-Questionnaire B-WET



Paperwork Reduction Act Statement

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Kimberly Benson, NOAA Office of Education and Sustainable Development, Herbert C. Hoover Building, Room 6863, 14th and Constitution Avenue, NW Washington, DC 20230.

Responses are voluntary and collected and maintained as anonymous data. Information will be treated in accordance with the Freedom of Information Act (5 USC 552).

Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subjected to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

This evaluation is being conducted for NOAA by eeEvaluations, the University of Michigan, and Virginia Tech.





PLEASE READ BEFORE YOU BEGIN

Thank you for filling out this questionnaire! By doing this, you are helping to make the National Oceanic and Atmospheric Administration's (NOAA's) Chesapeake Bay education programs better for you and other students.

In this questionnaire, you will be asked what you know about your local watershed and the Chesapeake Bay, how you feel about the Bay, and what you are willing to do to help protect the Bay.

Please be completely honest when you answer the questions. Your answers to these questions will be kept anonymous (we don't ask for your name) and your answers will not affect your grade. Your teacher and your parents will not read your answers to these questions.

If you do not understand a question, do not mark a response on the answer sheet. Leave that question blank and move on to the next one.

This survey has 7 numbered pages. Please make sure you have all 7 pages before you begin. Your teacher can help you if you do not understand certain words or any of the directions for completing this questionnaire.

BEGIN HERE

PLEASE use a #2 pencil to fill in the circles on the answer sheet.

LAST NAME/FIRST NAME: Please skip this section. Do **NOT** write your name on the answer sheet.

BIRTH DATE: Please fill in only your birth **MONTH** and **DAY**. Fill in the numbered circles below your birth **DAY**. Do **NOT** fill in your birth **YEAR**.

IDENTIFICATION NUMBER: Ask your teacher for the 4-digit identification number to enter in the boxes. Fill in the numbered circles below.

SEX: Please mark if you are female or male.

GRADE: Please mark what grade you are in.





1. In the future, I will try to save water at home to protect my local watershed and the Chesapeake Bay.	No A	Not sure B	Yes C
2. In the future, I will try to tell others about ways that they can protect their local watershed and the Chesapeake Bay.	No A	Not sure B	Yes C
3. In the future, I will try to take care of a local stream or waterway.	No A	Not sure B	Yes C

4. It is my responsibility to help protect my local watershed.	No A	Not sure B	Yes C
5. It is my responsibility to help protect aquatic animals such as fish, crayfish, oysters, and crabs.	No A	Not sure B	Yes C
6. It is my responsibility to help protect natural areas such as streams, rivers, wetlands, and marshes.	No A	Not sure B	Yes C

7. How much do you care about the your local watershed?	Not at all A	Some B	A lot C
8. How much do you care about aquatic animals such as fish, crayfish, oysters, and crabs?	Not at all A	Some B	A lot C
9. How much do you care about natural areas such as streams, rivers, wetlands, and marshes?	Not at all A	Some B	A lot C





10. How much do you know about the loss of forests along streams, rivers, and the Bay?	Nothing A	Some B	A lot C
11. How much do you know about high levels of nutrients (such as fertilizer and sewage) and where they come from?	Nothing A	Some B	A lot C
12. How much do you know about the loss of important habitats such as wetlands and underwater plants?	Nothing A	Some B	A lot C
13. How much do you know about high levels of sediments (i.e., dirt) in the water and where they come from?	Nothing A	Some B	A lot C

14. Do you know how to save water at home to protect my local watershed and the Chesapeake Bay?	No A	Not sure B	Yes C
15. Do you know how to tell others about ways that they can protect their local watershed and the Chesapeake Bay?	No A	Not sure B	Yes C
16. Do you know how to clean up or take care of a local stream or waterway?	No A	Not sure B	Yes C

17. By working <u>on your own</u> , do you think you can make a difference in solving environmental problems at your school?	No A	Not sure B	Yes C
18. By working <u>on your own</u> , do you think you can make a difference in solving environmental problems in your community?	No A	Not sure B	Yes C
19. By working <u>with others</u> , do you think you can make a difference in solving environmental problems at your school?	No A	Not sure B	Yes C
20. By working <u>with others</u> , do you think you can make a difference in solving environmental problems in your community?	No A	Not sure B	Yes C





**Please answer the following multiple-choice questions as best you can.
REMEMBER --Your answers will not affect your grade.**

21. Which is true about wetlands and marshes?
- A. Wetlands and marshes increase flooding and erosion.
 - B. Wetlands and marshes are of little value to people.
 - C. Wetlands and marshes filter pollutants out of the water.
 - D. I don't know.
22. Which of the following is true about underwater Bay grasses?
- A. Underwater Bay grasses grow in deep water areas of the Bay.
 - B. Underwater Bay grasses provide a habitat for young crabs and fish.
 - C. Underwater Bay grasses grow best in water with high sediment content.
 - D. I don't know.
23. Which statement best describes forested buffers (that is, forests along streams, rivers, and the Bay)?
- A. Forested buffers increase flooding along streams and rivers.
 - B. Forested buffers decrease erosion and filter runoff along streams and rivers.
 - C. Forested buffers are good for streams and rivers because they increase nutrient flow into the water.
 - D. I don't know.
24. Which statement best describes the effect of sediment (that is, dirt in the water) on water quality?
- A. Sediment has no effect on water quality.
 - B. Sediment contains food needed by fish and crabs.
 - C. Sediment blocks sunlight needed by underwater grasses.
 - D. I don't know.





We want to know about you and your work in school. We won't share what you tell us with anyone, so please tell the truth as best you can.

25. Do you pay attention in this class?	Never A	Sometimes B	Always C
26. Do you feel bored in this class?	Never A	Sometimes B	Always C
27. Do you ask questions and share your ideas in class discussions?	Never A	Sometimes B	Always C
28. Do you finish classwork on time in this class?	Never A	Sometimes B	Always C
29. Do you finish homework on time for this class?	Never A	Sometimes B	Always C
30. Do you try as hard as you can in this class?	Never A	Sometimes B	Always C

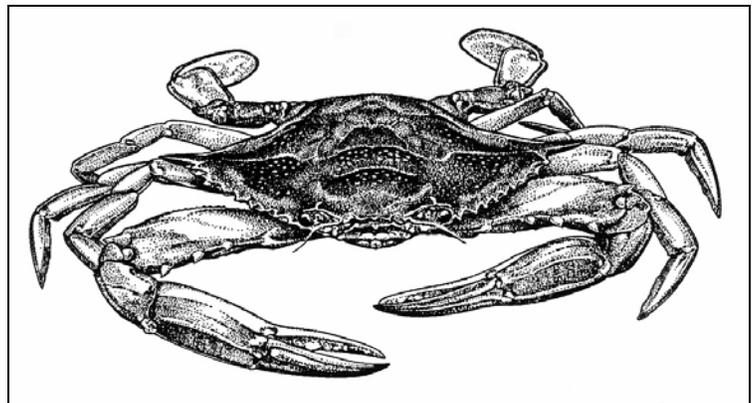
31. In school, do you get ...
- A. Mostly A's?
 - B. Mostly B's?
 - C. Mostly C's?
 - D. Mostly D's or below?
 - E. Our school does not give this type of grades.

Thank you for completing this questionnaire!





NOAA B-WET PROGRAM EVALUATION



Elementary Student Pre-Questionnaire Comparison



Paperwork Reduction Act Statement

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In this questionnaire, you will be asked what you know about your local watershed and the Chesapeake Bay, how you feel about the Bay, and what you are willing to do to help protect the Bay.

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SEX: Please mark if you are female or male.

GRADE: Please mark what grade you are in.





1. In the future, I will try to save water at home to protect my local watershed and the Chesapeake Bay.	No A	Not sure B	Yes C
2. In the future, I will try to tell others about ways that they can protect their local watershed and the Chesapeake Bay.	No A	Not sure B	Yes C
3. In the future, I will try to take care of a local stream or waterway.	No A	Not sure B	Yes C

4. It is my responsibility to help protect my local watershed.	No A	Not sure B	Yes C
5. It is my responsibility to help protect aquatic animals such as fish, crayfish, oysters, and crabs.	No A	Not sure B	Yes C
6. It is my responsibility to help protect natural areas such as streams, rivers, wetlands, and marshes.	No A	Not sure B	Yes C

7. How much do you care about the your local watershed?	Not at all A	Some B	A lot C
8. How much do you care about aquatic animals such as fish, crayfish, oysters, and crabs?	Not at all A	Some B	A lot C
9. How much do you care about natural areas such as streams, rivers, wetlands, and marshes?	Not at all A	Some B	A lot C





10. How much do you know about the loss of forests along streams, rivers, and the Bay?	Nothing A	Some B	A lot C
11. How much do you know about high levels of nutrients (such as fertilizer and sewage) and where they come from?	Nothing A	Some B	A lot C
12. How much do you know about the loss of important habitats such as wetlands and underwater plants?	Nothing A	Some B	A lot C
13. How much do you know about high levels of sediments (i.e., dirt) in the water and where they come from?	Nothing A	Some B	A lot C

14. Do you know how to plant trees to help your local watershed and the Chesapeake Bay?	No A	Not sure B	Yes C
15. Do you know how to tell others about ways that they can protect their local watershed and the Chesapeake Bay?	No A	Not sure B	Yes C
16. Do you know how to clean up or take care of a local stream or waterway?	No A	Not sure B	Yes C

17. By working <u>on your own</u> , do you think you can make a difference in solving environmental problems at your school?	No A	Not sure B	Yes C
18. By working <u>on your own</u> , do you think you can make a difference in solving environmental problems in your community?	No A	Not sure B	Yes C
19. By working <u>with others</u> , do you think you can make a difference in solving environmental problems at your school?	No A	Not sure B	Yes C
20. By working <u>with others</u> , do you think you can make a difference in solving environmental problems in your community?	No A	Not sure B	Yes C





**Please answer the following multiple-choice questions as best you can.
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21. Which is true about wetlands and marshes?
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 - C. Wetlands and marshes filter pollutants out of the water.
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22. Which of the following is true about underwater Bay grasses?
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24. Which statement best describes the effect of sediment (that is, dirt in the water) on water quality?
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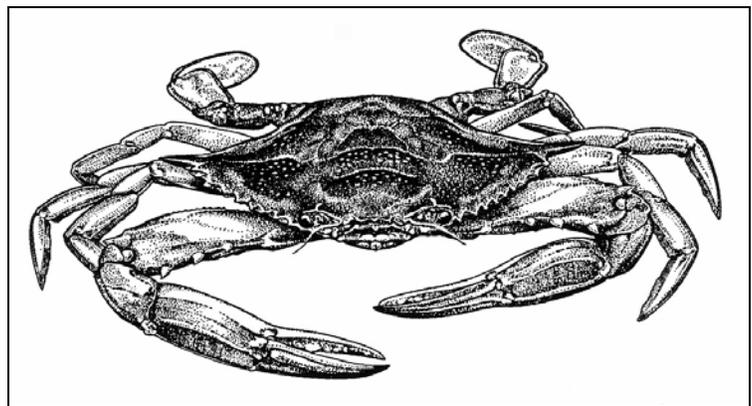
31. In school, do you get ...
- A. Mostly A's?
 - B. Mostly B's?
 - C. Mostly C's?
 - D. Mostly D's or below?
 - E. Our school does not give this type of grades.

Thank you for completing this questionnaire!





NOAA B-WET PROGRAM EVALUATION



Secondary Student Pre-Questionnaire B-WET



Paperwork Reduction Act Statement

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Please be completely honest when you answer the questions. Your answers to these questions will be kept anonymous (we don't ask for your name) and your answers will not affect your grade. Your teacher and your parents will not read your answers to these questions.

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IDENTIFICATION NUMBER: Ask your teacher for the 4-digit identification number to enter in the boxes. Fill in the numbered circles below.

SEX: Please mark if you are female or male.

GRADE: Please mark what grade you are in.





	Very unlikely	Unlikely	Likely	Very likely	Definitely
1. In the future, I intend to save water at home to protect my local watershed and the Chesapeake Bay.	A	B	C	D	E
2. In the future, I intend to tell others about ways that they can protect their local watershed and the Bay.	A	B	C	D	E
3. In the future, I intend to clean up or take care of a local stream or waterway.	A	B	C	D	E

How much do you agree with the following statements?	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
4. It is my responsibility to help protect my local watershed.	A	B	C	D	E
5. It is my responsibility to help protect aquatic animals such as fish, crayfish, oysters, and crabs.	A	B	C	D	E
6. It is my responsibility to help protect natural areas such as streams, rivers, wetlands, and marshes.	A	B	C	D	E





How much do you care about . . .	Not at all	A little	Quite a bit	Very much	Very, very much
7. Your local watershed?	A	B	C	D	E
8. Aquatic animals such as fish, crayfish, oysters, and crabs?	A	B	C	D	E
9. Natural areas such as streams, rivers, wetlands, and marshes?	A	B	C	D	E

How much do you know about these issues and how they affect people and the Bay?	Nothing	Very little	Some	A lot
10. The loss of forests along streams, rivers, and the Bay.	A	B	C	D
11. High levels of nutrients and where they come from.	A	B	C	D
12. The loss of important habitats such as wetlands and underwater plants.	A	B	C	D
13. High levels of sediments (i.e., dirt) in the water and where they come from.	A	B	C	D





Please answer the following multiple choice questions. REMEMBER --Your answers will not affect your grade. Don't worry if you don't know the answers.

14. Which is true about wetlands and marshes?
- A. Wetlands and marshes increase flooding and erosion.
 - B. Wetlands and marshes are of little value to people.
 - C. Wetlands and marshes filter pollutants out of the water.
 - D. I don't know.
15. Which of the following is true about underwater Bay grasses?
- A. Underwater Bay grasses grow in deep water areas of the Bay.
 - B. Underwater Bay grasses provide a habitat for young crabs and fish.
 - C. Underwater Bay grasses grow best in water with high sediment content.
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16. Which statement best describes forested buffers (that is, forests along streams, rivers, and the Bay)?
- A. Forested buffers increase flooding along streams and rivers.
 - B. Forested buffers decrease erosion and filter runoff along streams and rivers.
 - C. Forested buffers are good for streams and rivers because they increase nutrient flow into the water.
 - D. I don't know.
17. Which statement best describes the effect of sediment on water quality?
- A. Sediment has no effect on water quality.
 - B. Sediment contains food needed by fish and crabs.
 - C. Sediment blocks sunlight needed by underwater grasses.
 - D. I don't know.
18. Which statement best describes stormwater runoff?
- A. When rain runs off the land and into streams or rivers, it carries pollutants with it.
 - B. After a big storm, runoff usually soaks into the ground before it gets to a waterway.
 - C. Runoff moves faster in areas where there are trees and plants than in paved areas.
 - D. I don't know.





How much do you agree with the following statements?

I know how to ...	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
19. Save water at home to protect my local watershed and the Chesapeake Bay.	A	B	C	D	E
20. Clean up or take care of a local stream or waterway.	A	B	C	D	E
21. Tell others about ways that they can protect their local watershed and the Bay.	A	B	C	D	E
22. Restore Bay habitats by growing and planting underwater grasses, wetland plants, or fish.	A	B	C	D	E
23. Plant trees to help my local watershed and the Bay.	A	B	C	D	E

How much do you agree with the following statements?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
24. By working <u>on my own</u> , I can make a difference in solving environmental problems at my school.	A	B	C	D	E
25. By working <u>on my own</u> , I can make a difference in solving environmental problems in my community.	A	B	C	D	E
26. By working <u>on my own</u> , I can make a difference in solving Chesapeake Bay problems.	A	B	C	D	E
27. By working <u>with others</u> , I can make a difference in solving environmental problems at my school.	A	B	C	D	E
28. By working <u>with others</u> , I can make a difference in solving environmental problems in my community.	A	B	C	D	E
29. By working <u>with others</u> , I can make a difference in solving Chesapeake Bay problems.	A	B	C	D	E





We want to know about you and your work in school. We won't share what you tell us with anyone, so please tell the truth as best you can.

How often do you . . .	Never	Rarely	Some- times	Often	Always
30. Pay attention in this class?	A	B	C	D	E
31. Feel bored in this class?	A	B	C	D	E
32. Finish classwork on time in this class?	A	B	C	D	E
33. Participate actively (ask questions and share your ideas) in this class?	A	B	C	D	E
34. Complete homework on time for this class?	A	B	C	D	E
35. Come to this class without your books?	A	B	C	D	E
36. Come to this class without paper or something to write with?	A	B	C	D	E
37. Try as hard as you can in this class?	A	B	C	D	E
38. Do more work than is required of you for this class?	A	B	C	D	E

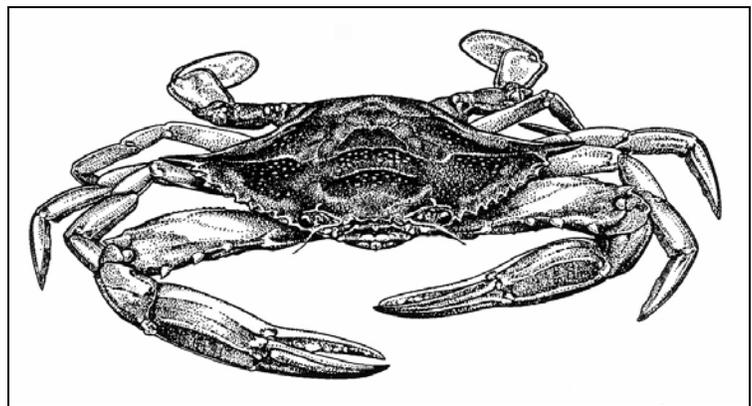
39. In school, do you get ...
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 - C. Mostly C's?
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 - E. Our school does not give this type of grades.

Thank you for completing this questionnaire!





NOAA B-WET PROGRAM EVALUATION



Secondary Student Pre-Questionnaire Comparison



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SEX: Please mark if you are female or male.

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	Very unlikely	Unlikely	Likely	Very likely	Definitely
1. In the future, I intend to save water at home to protect my local watershed and the Chesapeake Bay.	A	B	C	D	E
2. In the future, I intend to tell others about ways that they can protect their local watershed and the Bay.	A	B	C	D	E
3. In the future, I intend to clean up or take care of a local stream or waterway.	A	B	C	D	E

How much do you agree with the following statements?	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
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5. It is my responsibility to help protect aquatic animals such as fish, crayfish, oysters, and crabs.	A	B	C	D	E
6. It is my responsibility to help protect natural areas such as streams, rivers, wetlands, and marshes.	A	B	C	D	E





How much do you care about . . .	Not at all	A little	Quite a bit	Very much	Very, very much
7. Your local watershed?	A	B	C	D	E
8. Aquatic animals such as fish, crayfish, oysters, and crabs?	A	B	C	D	E
9. Natural areas such as streams, rivers, wetlands, and marshes?	A	B	C	D	E

How much do you know about these issues and how they affect people and the Bay?	Nothing	Very little	Some	A lot
10. The loss of forests along streams, rivers, and the Bay.	A	B	C	D
11. High levels of nutrients and where they come from.	A	B	C	D
12. The loss of important habitats such as wetlands and underwater plants.	A	B	C	D
13. High levels of sediments (i.e., dirt) in the water and where they come from.	A	B	C	D





Please answer the following multiple choice questions. REMEMBER --Your answers will not affect your grade. Don't worry if you don't know the answers.

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23. Plant trees to help my local watershed and the Bay.	A	B	C	D	E

How much do you agree with the following statements?

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37. Try as hard as you can in this class?	A	B	C	D	E
38. Do more work than is required of you for this class?	A	B	C	D	E

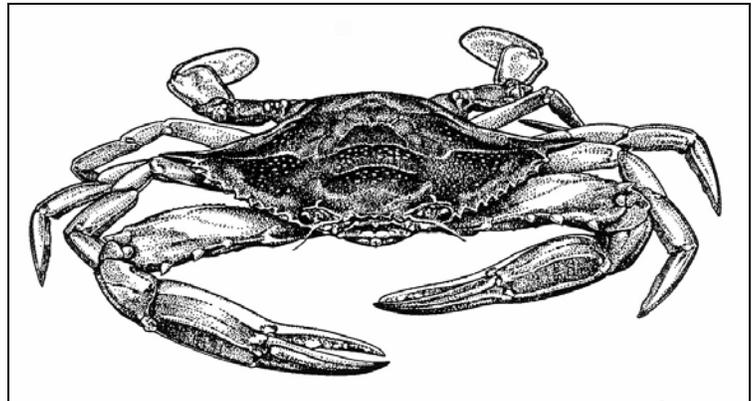
39. In school, do you get ...
- A. Mostly A's?
 - B. Mostly B's?
 - C. Mostly C's?
 - D. Mostly D's or below?
 - E. Our school does not give this type of grades.

Thank you for completing this questionnaire!





NOAA B-WET PROGRAM EVALUATION



Elementary Student Post-Questionnaire B-WET



Paperwork Reduction Act Statement

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In this questionnaire, you will be asked what you know about your local watershed and the Chesapeake Bay, how you feel about the Bay, and what you are willing to do to help protect the Bay.

Please be completely honest when you answer the questions. Your answers to these questions will be kept anonymous (we don't ask for your name) and your answers will not affect your grade. Your teacher and your parents will not read your answers to these questions.

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IDENTIFICATION NUMBER: Ask your teacher for the 4-digit identification number to enter in the boxes. Fill in the numbered circles below.

SEX: Please mark if you are female or male.

GRADE: Please mark what grade you are in.





1. In the future, I will try to save water at home to protect my local watershed and the Chesapeake Bay.	No A	Not sure B	Yes C
2. In the future, I will try to tell others about ways that they can protect their local watershed and the Chesapeake Bay.	No A	Not sure B	Yes C
3. In the future, I will try to take care of a local stream or waterway.	No A	Not sure B	Yes C

4. It is my responsibility to help protect my local watershed.	No A	Not sure B	Yes C
5. It is my responsibility to help protect aquatic animals such as fish, crayfish, oysters, and crabs.	No A	Not sure B	Yes C
6. It is my responsibility to help protect natural areas such as streams, rivers, wetlands, and marshes.	No A	Not sure B	Yes C

7. How much do you care about the your local watershed?	Not at all A	Some B	A lot C
8. How much do you care about aquatic animals such as fish, crayfish, oysters, and crabs?	Not at all A	Some B	A lot C
9. How much do you care about natural areas such as streams, rivers, wetlands, and marshes?	Not at all A	Some B	A lot C





10. How much do you know about the loss of forests along streams, rivers, and the Bay?	Nothing A	Some B	A lot C
11. How much do you know about high levels of nutrients (such as fertilizer and sewage) and where they come from?	Nothing A	Some B	A lot C
12. How much do you know about the loss of important habitats such as wetlands and underwater plants?	Nothing A	Some B	A lot C
13. How much do you know about high levels of sediments (i.e., dirt) in the water and where they come from?	Nothing A	Some B	A lot C

14. Do you know how to save water at home to protect my local watershed and the Chesapeake Bay?	No A	Not sure B	Yes C
15. Do you know how to tell others about ways that they can protect their local watershed and the Chesapeake Bay?	No A	Not sure B	Yes C
16. Do you know how to clean up or take care of a local stream or waterway?	No A	Not sure B	Yes C

17. By working <u>on your own</u> , do you think you can make a difference in solving environmental problems at your school?	No A	Not sure B	Yes C
18. By working <u>on your own</u> , do you think you can make a difference in solving environmental problems in your community?	No A	Not sure B	Yes C
19. By working <u>with others</u> , do you think you can make a difference in solving environmental problems at your school?	No A	Not sure B	Yes C
20. By working <u>with others</u> , do you think you can make a difference in solving environmental problems in your community?	No A	Not sure B	Yes C





**Please answer the following multiple-choice questions as best you can.
REMEMBER --Your answers will not affect your grade.**

21. Which is true about wetlands and marshes?
- A. Wetlands and marshes increase flooding and erosion.
 - B. Wetlands and marshes are of little value to people.
 - C. Wetlands and marshes filter pollutants out of the water.
 - D. I don't know.
22. Which of the following is true about underwater Bay grasses?
- A. Underwater Bay grasses grow in deep water areas of the Bay.
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 - C. Underwater Bay grasses grow best in water with high sediment content.
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23. Which statement best describes forested buffers (that is, forests along streams, rivers, and the Bay)?
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 - B. Forested buffers decrease erosion and filter runoff along streams and rivers.
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24. Which statement best describes the effect of sediment (that is, dirt in the water) on water quality?
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 - B. Sediment contains food needed by fish and crabs.
 - C. Sediment blocks sunlight needed by underwater grasses.
 - D. I don't know.





We want to know about you and your work in school. We won't share what you tell us with anyone, so please tell the truth as best you can.

25. Do you pay attention in this class?	Never A	Sometimes B	Always C
26. Do you feel bored in this class?	Never A	Sometimes B	Always C
27. Do you ask questions and share your ideas in class discussions?	Never A	Sometimes B	Always C
28. Do you finish classwork on time in this class?	Never A	Sometimes B	Always C
29. Do you finish homework on time for this class?	Never A	Sometimes B	Always C
30. Do you try as hard as you can in this class?	Never A	Sometimes B	Always C

When learning about your local watershed or the Chesapeake Bay, how often did you <u>do outdoor learning activities</u> ?	Never A	A few times B	Many times C
When learning about your local watershed or the Chesapeake Bay, how often did you <u>have time to talk about or write about how you helped your local watershed or the Bay</u> ?	Never A	A few times B	Many times C
When learning about your local watershed or the Chesapeake Bay, how often did you <u>do hands-on learning about the Bay, instead of just reading or hearing about it</u> ?	Never A	A few times B	Many times C
When learning about your local watershed or the Chesapeake Bay, how often did you <u>learn things that are important to your life</u> ?	Never A	A few times B	Many times C





While learning in school about your local watershed or the Chesapeake Bay,

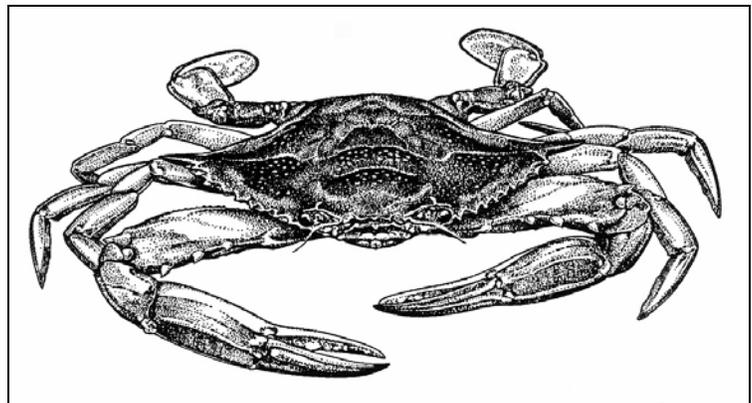
Did you plant a tree?	No A	Not sure B	Yes C
Did you grow underwater grasses in your classroom?	No A	Not sure B	Yes C
Did you plant underwater grasses in a waterway?	No A	Not sure B	Yes C
Did you plant wetland plants?	No A	Not sure B	Yes C
Did you do water testing on a local waterway?	No A	Not sure B	Yes C
Did you make a presentation to a group of people?	No A	Not sure B	Yes C
Did you put data on a web site?	No A	Not sure B	Yes C
Did you raise fish in your classroom?	No A	Not sure B	Yes C
Did you release fish into a local waterway?	No A	Not sure B	Yes C

Thank you for completing this questionnaire!





NOAA B-WET PROGRAM EVALUATION



Elementary Student Post-Questionnaire Comparison



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If you do not understand a question, do not mark a response on the answer sheet. Leave that question blank and move on to the next one.

This survey has 7 numbered pages. Please make sure you have all 7 pages before you begin. Your teacher can help you if you do not understand certain words or any of the directions for completing this questionnaire.

BEGIN HERE

PLEASE use a #2 pencil to fill in the circles on the answer sheet.

LAST NAME/FIRST NAME: Please skip this section. Do NOT write your name on the answer sheet.

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SEX: Please mark if you are female or male.

GRADE: Please mark what grade you are in.





1. In the future, I will try to save water at home to protect my local watershed and the Chesapeake Bay.	No A	Not sure B	Yes C
2. In the future, I will try to tell others about ways that they can protect their local watershed and the Chesapeake Bay.	No A	Not sure B	Yes C
3. In the future, I will try to take care of a local stream or waterway.	No A	Not sure B	Yes C

4. It is my responsibility to help protect my local watershed.	No A	Not sure B	Yes C
5. It is my responsibility to help protect aquatic animals such as fish, crayfish, oysters, and crabs.	No A	Not sure B	Yes C
6. It is my responsibility to help protect natural areas such as streams, rivers, wetlands, and marshes.	No A	Not sure B	Yes C

7. How much do you care about the your local watershed?	Not at all A	Some B	A lot C
8. How much do you care about aquatic animals such as fish, crayfish, oysters, and crabs?	Not at all A	Some B	A lot C
9. How much do you care about natural areas such as streams, rivers, wetlands, and marshes?	Not at all A	Some B	A lot C





10. How much do you know about the loss of forests along streams, rivers, and the Bay?	Nothing A	Some B	A lot C
11. How much do you know about high levels of nutrients (such as fertilizer and sewage) and where they come from?	Nothing A	Some B	A lot C
12. How much do you know about the loss of important habitats such as wetlands and underwater plants?	Nothing A	Some B	A lot C
13. How much do you know about high levels of sediments (i.e., dirt) in the water and where they come from?	Nothing A	Some B	A lot C

14. Do you know how to plant trees to help your local watershed and the Chesapeake Bay?	No A	Not sure B	Yes C
15. Do you know how to tell others about ways that they can protect their local watershed and the Chesapeake Bay?	No A	Not sure B	Yes C
16. Do you know how to clean up or take care of a local stream or waterway?	No A	Not sure B	Yes C

17. By working <u>on your own</u> , do you think you can make a difference in solving environmental problems at your school?	No A	Not sure B	Yes C
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**Please answer the following multiple-choice questions as best you can.
REMEMBER --Your answers will not affect your grade.**

21. Which is true about wetlands and marshes?
- A. Wetlands and marshes increase flooding and erosion.
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 - C. Wetlands and marshes filter pollutants out of the water.
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 - C. Sediment blocks sunlight needed by underwater grasses.
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We want to know about you and your work in school. We won't share what you tell us with anyone, so please tell the truth as best you can.

25. Do you pay attention in this class?	Never A	Sometimes B	Always C
26. Do you feel bored in this class?	Never A	Sometimes B	Always C
27. Do you ask questions and share your ideas in class discussions?	Never A	Sometimes B	Always C
28. Do you finish classwork on time in this class?	Never A	Sometimes B	Always C
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30. Do you try as hard as you can in this class?	Never A	Sometimes B	Always C

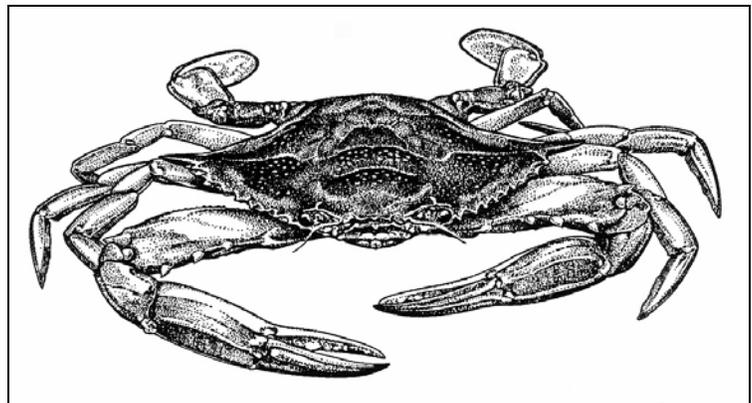
During this school year, how often did you <u>do outdoor learning activities</u> ?	Never A	A few times B	Many times C
During this school year, how often did you <u>do hands-on learning</u> ?	Never A	A few times B	Many times C
During this school year, how often did you <u>learn things that are important to your life</u> ?	Never A	A few times B	Many times C

Thank you for completing this questionnaire!





NOAA B-WET PROGRAM EVALUATION



Secondary Student Post-Questionnaire B-WET



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SEX: Please mark if you are female or male.

GRADE: Please mark what grade you are in.





	Very unlikely	Unlikely	Likely	Very likely	Definitely
1. In the future, I intend to save water at home to protect my local watershed and the Chesapeake Bay.	A	B	C	D	E
2. In the future, I intend to tell others about ways that they can protect their local watershed and the Bay.	A	B	C	D	E
3. In the future, I intend to clean up or take care of a local stream or waterway.	A	B	C	D	E

How much do you agree with the following statements?	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
4. It is my responsibility to help protect my local watershed.	A	B	C	D	E
5. It is my responsibility to help protect aquatic animals such as fish, crayfish, oysters, and crabs.	A	B	C	D	E
6. It is my responsibility to help protect natural areas such as streams, rivers, wetlands, and marshes.	A	B	C	D	E





How much do you care about . . .	Not at all	A little	Quite a bit	Very much	Very, very much
7. Your local watershed?	A	B	C	D	E
8. Aquatic animals such as fish, crayfish, oysters, and crabs?	A	B	C	D	E
9. Natural areas such as streams, rivers, wetlands, and marshes?	A	B	C	D	E

How much do you know about these issues and how they affect people and the Bay?	Nothing	Very little	Some	A lot
10. The loss of forests along streams, rivers, and the Bay.	A	B	C	D
11. High levels of nutrients and where they come from.	A	B	C	D
12. The loss of important habitats such as wetlands and underwater plants.	A	B	C	D
13. High levels of sediments (i.e., dirt) in the water and where they come from.	A	B	C	D





Please answer the following multiple choice questions. REMEMBER --Your answers will not affect your grade. Don't worry if you don't know the answers.

14. Which is true about wetlands and marshes?
- A. Wetlands and marshes increase flooding and erosion.
 - B. Wetlands and marshes are of little value to people.
 - C. Wetlands and marshes filter pollutants out of the water.
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- A. Sediment has no effect on water quality.
 - B. Sediment contains food needed by fish and crabs.
 - C. Sediment blocks sunlight needed by underwater grasses.
 - D. I don't know.
18. Which statement best describes stormwater runoff?
- A. When rain runs off the land and into streams or rivers, it carries pollutants with it.
 - B. After a big storm, runoff usually soaks into the ground before it gets to a waterway.
 - C. Runoff moves faster in areas where there are trees and plants than in paved areas.
 - D. I don't know.





How much do you agree with the following statements?

I know how to ...	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
19. Save water at home to protect my local watershed and the Chesapeake Bay.	A	B	C	D	E
20. Tell others about ways that they can protect their local watershed and the Bay.	A	B	C	D	E
21. Clean up or take care of a local stream or waterway.	A	B	C	D	E
22. Plant trees to help my local watershed and the Bay.	A	B	C	D	E
23. Restore Bay habitats by growing and planting underwater grasses, wetland plants, or fish.	A	B	C	D	E

How much do you agree with the following statements?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
24. By working <u>on my own</u> , I can make a difference in solving environmental problems at my school.	A	B	C	D	E
25. By working <u>on my own</u> , I can make a difference in solving environmental problems in my community.	A	B	C	D	E
26. By working <u>on my own</u> , I can make a difference in solving Chesapeake Bay problems.	A	B	C	D	E
27. By working <u>with others</u> , I can make a difference in solving environmental problems at my school.	A	B	C	D	E
28. By working <u>with others</u> , I can make a difference in solving environmental problems in my community.	A	B	C	D	E
29. By working <u>with others</u> , I can make a difference in solving Chesapeake Bay problems.	A	B	C	D	E





We want to know about you and your work in school. We won't share what you tell us with anyone, so please tell the truth as best you can.

How often do you . . .	Never	Rarely	Some- times	Often	Always
30. Pay attention in this class?	A	B	C	D	E
31. Feel bored in this class?	A	B	C	D	E
32. Finish classwork on time in this class?	A	B	C	D	E
33. Participate actively (ask questions and share your ideas) in this class?	A	B	C	D	E
34. Complete homework on time for this class?	A	B	C	D	E
35. Come to this class without your books?	A	B	C	D	E
36. Come to this class without paper or something to write with?	A	B	C	D	E
37. Try as hard as you can in this class?	A	B	C	D	E
38. Do more work than is required of you for this class?	A	B	C	D	E

While studying about your local watershed or the Chesapeake Bay, <u>how often did you</u> . . .	Never	Rarely	Some- times	Often
39. Do outdoor learning activities?	A	B	C	D
40. Do work that had meaning outside of school?	A	B	C	D
41. Have time to talk about or write about how you helped your local watershed or the Bay?	A	B	C	D
42. Do hands-on learning about the Bay, instead of just reading or hearing about it?	A	B	C	D
43. Learn things that are important to your life?	A	B	C	D





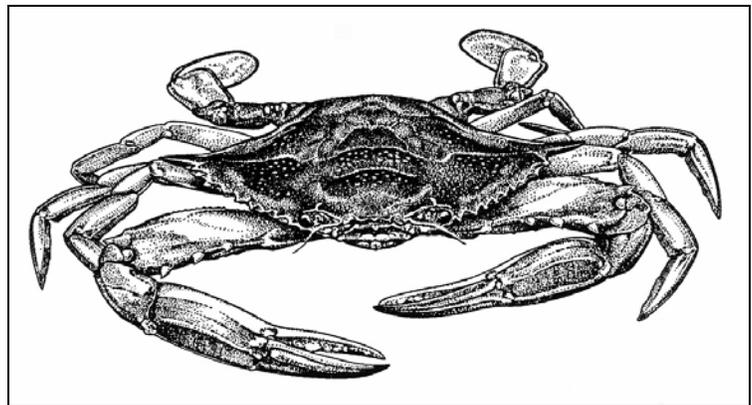
While learning in school about your local watershed or the Chesapeake Bay,	No	Yes	Not sure
44. Did you plant a tree?	A	B	C
45. Did you grow underwater grasses in your classroom?	A	B	C
46. Did you plant underwater grasses in a waterway?	A	B	C
47. Did you plant wetland plants?	A	B	C
48. Did you do water testing on a local waterway?	A	B	C
49. Did you make a presentation to a group of people?	A	B	C
50. Did you put data on a web site?	A	B	C
51. Did you raise fish in your classroom?	A	B	C
52. Did you release fish into a local waterway?	A	B	C

Thank you for completing this questionnaire!





NOAA B-WET PROGRAM EVALUATION



Secondary Student Post-Questionnaire Comparison



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	Very unlikely	Unlikely	Likely	Very likely	Definitely
1. In the future, I intend to save water at home to protect my local watershed and the Chesapeake Bay.	A	B	C	D	E
2. In the future, I intend to tell others about ways that they can protect their local watershed and the Bay.	A	B	C	D	E
3. In the future, I intend to clean up or take care of a local stream or waterway.	A	B	C	D	E

How much do you agree with the following statements?	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
4. It is my responsibility to help protect my local watershed.	A	B	C	D	E
5. It is my responsibility to help protect aquatic animals such as fish, crayfish, oysters, and crabs.	A	B	C	D	E
6. It is my responsibility to help protect natural areas such as streams, rivers, wetlands, and marshes.	A	B	C	D	E





How much do you care about . . .	Not at all	A little	Quite a bit	Very much	Very, very much
7. Your local watershed?	A	B	C	D	E
8. Aquatic animals such as fish, crayfish, oysters, and crabs?	A	B	C	D	E
9. Natural areas such as streams, rivers, wetlands, and marshes?	A	B	C	D	E

How much do you know about these issues and how they affect people and the Bay?	Nothing	Very little	Some	A lot
10. The loss of forests along streams, rivers, and the Bay.	A	B	C	D
11. High levels of nutrients and where they come from.	A	B	C	D
12. The loss of important habitats such as wetlands and underwater plants.	A	B	C	D
13. High levels of sediments (i.e., dirt) in the water and where they come from.	A	B	C	D





Please answer the following multiple choice questions. REMEMBER --Your answers will not affect your grade. Don't worry if you don't know the answers.

14. Which is true about wetlands and marshes?
- A. Wetlands and marshes increase flooding and erosion.
 - B. Wetlands and marshes are of little value to people.
 - C. Wetlands and marshes filter pollutants out of the water.
 - D. I don't know.
15. Which of the following is true about underwater Bay grasses?
- A. Underwater Bay grasses grow in deep water areas of the Bay.
 - B. Underwater Bay grasses provide a habitat for young crabs and fish.
 - C. Underwater Bay grasses grow best in water with high sediment content.
 - D. I don't know.
16. Which statement best describes forested buffers (that is, forests along streams, rivers, and the Bay)?
- A. Forested buffers increase flooding along streams and rivers.
 - B. Forested buffers decrease erosion and filter runoff along streams and rivers.
 - C. Forested buffers are good for streams and rivers because they increase nutrient flow into the water.
 - D. I don't know.
17. Which statement best describes the effect of sediment on water quality?
- A. Sediment has no effect on water quality.
 - B. Sediment contains food needed by fish and crabs.
 - C. Sediment blocks sunlight needed by underwater grasses.
 - D. I don't know.
18. Which statement best describes stormwater runoff?
- A. When rain runs off the land and into streams or rivers, it carries pollutants with it.
 - B. After a big storm, runoff usually soaks into the ground before it gets to a waterway.
 - C. Runoff moves faster in areas where there are trees and plants than in paved areas.
 - D. I don't know.





How much do you agree with the following statements?

I know how to ...	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
19. Save water at home to protect my local watershed and the Chesapeake Bay.	A	B	C	D	E
20. Tell others about ways that they can protect their local watershed and the Bay.	A	B	C	D	E
21. Clean up or take care of a local stream or waterway.	A	B	C	D	E
22. Plant trees to help my local watershed and the Bay.	A	B	C	D	E
23. Restore Bay habitats by growing and planting underwater grasses, wetland plants, or fish.	A	B	C	D	E

How much do you agree with the following statements?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
24. By working <u>on my own</u> , I can make a difference in solving environmental problems at my school.	A	B	C	D	E
25. By working <u>on my own</u> , I can make a difference in solving environmental problems in my community.	A	B	C	D	E
26. By working <u>on my own</u> , I can make a difference in solving Chesapeake Bay problems.	A	B	C	D	E
27. By working <u>with others</u> , I can make a difference in solving environmental problems at my school.	A	B	C	D	E
28. By working <u>with others</u> , I can make a difference in solving environmental problems in my community.	A	B	C	D	E
29. By working <u>with others</u> , I can make a difference in solving Chesapeake Bay problems.	A	B	C	D	E





We want to know about you and your work in school. We won't share what you tell us with anyone, so please tell the truth as best you can.

How often do you . . .	Never	Rarely	Some- times	Often	Always
30. Pay attention in this class?	A	B	C	D	E
31. Feel bored in this class?	A	B	C	D	E
32. Finish classwork on time in this class?	A	B	C	D	E
33. Participate actively (ask questions and share your ideas) in this class?	A	B	C	D	E
34. Complete homework on time for this class?	A	B	C	D	E
35. Come to this class without your books?	A	B	C	D	E
36. Come to this class without paper or something to write with?	A	B	C	D	E
37. Try as hard as you can in this class?	A	B	C	D	E
38. Do more work than is required of you for this class?	A	B	C	D	E

During this school year, how often did you . . .	Never	Rarely	Some- times	Often
39. Do outdoor learning activities?	A	B	C	D
40. Do work that had meaning outside of school?	A	B	C	D
41. Have time to talk about or write about what you learned?	A	B	C	D
42. Do hands-on learning?	A	B	C	D
43. Learn things that are important to your life?	A	B	C	D

Thank you for completing this questionnaire!



ATTACHMENT 9: PRE MWEE TEACHER



Teacher Pre-Questionnaire

Please fill in the dates for the pre-test and the anticipated date for the post-test.

Class code:

On what date did your students take the pre-test?

On what date do you expect to complete your watershed/Bay unit?

Paperwork Reduction Act Statement

Public reporting burden for this collection of information is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Kimberly Benson, NOAA Office of Education and Sustainable Development, Herbert C. Hoover Building, Room 6863, 14th and Constitution Avenue, NW Washington, DC 20230.

Responses are voluntary and collected and maintained as anonymous data. Information will be treated in accordance with the Freedom of Information Act (5 USC 552).

Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subjected to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

This evaluation is being conducted for NOAA by eeEvaluations, the University of Michigan, and Virginia Tech.



NOAA B-WET PROGRAM EVALUATION

Teacher Post-Questionnaire B-WET Classes

Paperwork Reduction Act Statement

Public reporting burden for this collection of information is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Kimberly Benson, NOAA Office of Education and Sustainable Development, Herbert C. Hoover Building, Room 6863, 14th and Constitution Avenue, NW Washington, DC 20230.

Responses are voluntary and collected and maintained as anonymous data. Information will be treated in accordance with the Freedom of Information Act (5 USC 552).

Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subjected to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

This evaluation is being conducted for NOAA by eeEvaluations, the University of Michigan, and Virginia Tech.

Class code: _____

On what date did your
students take the post-test? _____

Plases answer questions 1- 49 on the scannable answer sheet.

- 1. For how many weeks or months did your students participate in local watershed or Chesapeake Bay lessons?**
 - A. None
 - B. Less than 1 week
 - C. 1 to 3 weeks
 - D. 1 month
 - E. 2-4 months
 - F. 5-7 months
 - G. 8-10 months
 - H. More than 10 months

- 2. About how many hours of local watershed or Chesapeake Bay instruction did your students receive?**
 - A. None
 - B. 1-5 hours
 - C. 6-10 hours
 - D. 11-20 hours
 - E. 21-40 hours
 - F. 41-60 hours
 - G. 61-80 hours
 - H. More than 80 hours

- 3. How many school years in the past have you taught about your local watershed or the Chesapeake Bay?**
 - A. None
 - B. 1-3 school years
 - C. 4-6 school years
 - D. 7-10 school years
 - E. More than 10 school years

**I intend to _____ during
the next school year.**

	Extremely unlikely	Very unlikely	Unlikely	Likely	Very likely	Extremely likely
4. Teach about the local watershed or the Chesapeake Bay	A	B	C	D	E	F
5. Use the outdoors when teaching about the watershed or the Chesapeake Bay	A	B	C	D	E	F
6. Research an environmental issue with my students	A	B	C	D	E	F
7. Guide my students through taking action on an environmental issue	A	B	C	D	E	F

During the unit on your local watershed or the Chesapeake Bay, did the students ...

	No	Yes	Not applicable
8. Listen to talks about, or read about, local watershed or Bay environmental issues?	A	B	C
9. Explore the local community (beyond the classroom) for information on local watershed or Bay environmental issues?	A	B	C
10. Study social, economic, historical, or archaeological issues?	A	B	C
11. Collect local watershed or Bay data?	A	B	C
12. Use field equipment, such as hand-held technology, for data collection?	A	B	C
13. Analyze watershed or Bay data?	A	B	C
14. Graphically display data (e.g., create charts, graphs)?	A	B	C

During the unit on your local watershed or the Chesapeake Bay, did <u>the students</u> ...	No	Yes	Not applicable
15. Implement a solution to a local watershed or Bay problem?	A	B	C
16. Participate in a restoration project (e.g., growing/planting wetland plants)?	A	B	C
17. Participate in a monitoring project (e.g., periodic water testing)?	A	B	C
18. Participate in a pollution prevention project (e.g., erosion control)?	A	B	C
19. Participate in a communication/information-sharing action (e.g., making a presentation to the community)?	A	B	C

During the unit on your local watershed or the Chesapeake Bay, did <u>the students</u> ...	No	Yes	Not applicable
20. Participate in a school classroom-based, local watershed or Bay curriculum?	A	B	C
21. Participate in a museum tour about the local watershed or Bay?	A	B	C
22. Learn about the local watershed or Bay outdoors in the schoolyard?	A	B	C
23. Learn about the local watershed or Bay outdoors on an on-the-water field trip?	A	B	C
24. Have an opportunity to reflect on their local watershed/Bay unit?	A	B	C

During the unit on your local watershed or the Chesapeake Bay, did <u>the students</u> ...	No	Yes	Not applicable
25. Learn science content and skills?	A	B	C
26. Learn reading skills?	A	B	C
27. Learn language art content and skills?	A	B	C
28. Learn fine arts content and skills?	A	B	C
29. Learn social studies content and skills?	A	B	C

30. What percent of your students participated in an outdoor experience during their Chesapeake Bay/watershed unit?

- A. Zero
- B. About 25%
- C. About 50%
- D. About 75%
- E. 100% or close to 100%

As a result of completing their local watershed or Chesapeake Bay unit, my students ...	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
31. are better prepared for the end-of-year state assessments.	A	B	C	D	E
32. are more engaged in their learning.	A	B	C	D	E
33. know more about the local watershed or the Chesapeake Bay.	A	B	C	D	E
34. are more likely to act to protect their local watershed or the Chesapeake Bay.	A	B	C	D	E

How confident are you in your ability to _____?

	Not at all confident	Somewhat confident	Very confident	Extremely confident
35. Teach students about the Chesapeake Bay?	A	B	C	D
36. Teach students about their local watershed and its relation to the Chesapeake Bay?	A	B	C	D
37. Integrate local watershed or Bay lessons into your required curriculum?	A	B	C	D
38. Use the school yard to teach about your local watershed or the Bay?	A	B	C	D
39. Use a local waterway to teach about your local watershed or the Bay?	A	B	C	D
40. Research an environmental issue with your students?	A	B	C	D
41. Guide your students through a restoration project (e.g., growing/planting wetland plants)?	A	B	C	D
42. Guide your students through a monitoring project (e.g., periodic water testing)?	A	B	C	D
43. Guide your student through a pollution prevention project (e.g., erosion control)?	A	B	C	D
44. Guide your students through a communication or information-sharing action (e.g., making a public presentation)?	A	B	C	D
45. Make science lessons relevant and meaningful to your students?	A	B	C	D
46. Collect watershed or Bay data in the field?	A	B	C	D
47. Use field equipment, such as hand-held technology, for data collection?	A	B	C	D
48. Analyze watershed or Bay data?	A	B	C	D
49. Obtain funding for teaching about your local watershed or the Bay?	A	B	C	D

Please write your answers to these questions in the blanks provided.

On average, how many hours did students spend learning in a classroom during the Chesapeake Bay/watershed unit?

<i>Mark the approximate <u>number of hours</u> in each box as appropriate.</i>	Sept.-Nov.	Dec.-Feb.	March-June
With you or another teacher from your school	____ hours	____ hours	____ hours
With an instructor from a B-WET provider	____ hours	____ hours	____ hours
With another instructor	____ hours	____ hours	____ hours

On average, how many hours did students spend learning outdoors during the Chesapeake Bay/watershed unit?

<i>Mark the approximate <u>number of hours</u> in each box as appropriate.</i>	Sept.-Nov.	Dec.-Feb.	March-June
With you or another teacher from your school	____ hours	____ hours	____ hours
With an instructor from a B-WET provider	____ hours	____ hours	____ hours
With another instructor	____ hours	____ hours	____ hours

On average, how many hours did students spend learning inside a museum or nature center during the Chesapeake Bay/watershed unit?

<i>Mark the approximate <u>number of hours</u> in each box as appropriate.</i>	Sept.-Nov.	Dec.-Feb.	March-June
With you or another teacher from your school	____ hours	____ hours	____ hours
With an instructor from a B-WET provider	____ hours	____ hours	____ hours
With another instructor	____ hours	____ hours	____ hours

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!

ATTACHMENT 11: POST MWEE PROVIDER – PHONE INTERVIEW



OMB Control Number: 0648-0530 Expiration Date: 12/31/2005

Funding Sources:

How much money did you receive from NOAA per year for your MWEE program?

What was the chief MWEE program expense covered by NOAA funding?

How much money did you receive from other sources per year for your MWEE program?

How would your MWEE program be different if you didn't get NOAA funding?

Other resources:

How many of your staff, in full-time employee (FTE) equivalents, worked on the MWEE program?

Do you provide transportation to field sites?

Audience:

How many students were served this year by your MWEE program?

What percent of those students experienced outdoor instruction?

What grade levels did your MWEE program serve?

What subject areas were students in during the MWEE?

How many teachers participated in the MWEE program?

What percent of participating teachers had previously been involved in PD from your organization?

In how many schools did you serve one or more entire grade levels?

Activities:

How was the MWEE curriculum linked to the school district's curriculum?

What subject areas were targeted by your MWEE program?

What types of field instruction did you provide?

What types of classroom instruction did you provide?

Did the teacher provide in-class instruction beyond that which you provided?

Did you provide any materials to assist the teachers in integrating the watershed concept into the classroom?

What type of curriculum materials did you provide the teachers?

How many hours of contact did your staff have with a student on average?

What community members or experts helped with MWEE instruction?

How far away (miles) from the school did the students go for their outdoor experience?

Outcomes:

What improvements do you expect in the students' knowledge, attitudes, and skills?

What improvements do you expect in the environmental quality of the Chesapeake Bay and/or its watershed?
(quantitative and qualitative)

Evaluation:

Who evaluated your MWEE program?

How was the program evaluated?

Will you provide us with the evaluation results?

Rate quality of MWEE program:

What went well?

What could be improved?

What will you change next time?

Any other comments about the B-WET program?

:

ATTACHMENT 12: PRE INSTRUCTIONS



STUDENT PRE-TEST

TEACHER INSTRUCTIONS

1. Give each student one questionnaire and one scannable answer sheet. The students should use a #2 pencil to fill in the answer sheet.
2. After you hand out the questionnaires, please assist the students in completing the information requested on Page 3. These numbers are critical for us to accurately match pre- and post-tests.

STUDENT NAME: Students should NOT fill in their names in these spaces. The students' responses will be anonymous.

BIRTH DATE: To be able to match the students' pre-tests with their post-tests, we would like to have their birth MONTH and DAY. They should NOT fill in their birth year.

IDENTIFICATION NUMBER: All students in your class should use the 4-digit number _____ as their identification number (under A, B, and C).

SEX: Students should fill in either Female or Male.

GRADE: Students should fill in their grade level.

3. Please remind the students to:
 - Answer the questions honestly. It's OK to answer "I don't know." They are not being graded on their answers.
 - Answer the questions by themselves. Do not discuss the questions with other students while completing the questionnaires.
 - Try to answer all of the questions, but leave blank any questions they do not understand.
 - Take their time completing the questionnaire. When they are finished, they should sit quietly until all students are finished.
4. Please recycle the students' questionnaires. Please use the enclosed postage-paid envelope to mail these materials to Anita Kraemer as soon as possible:
 - The completed pre-test scantron sheets
 - The students' parental permission forms
 - The completed teacher pre-questionnaire

Thank you!

Anita Kraemer, eeEvaluations, 1404 Crestview Drive, Blacksburg, VA 24060

ATTACHMENT 13: POST INSTRUCTIONS



STUDENT POST-TEST

TEACHER INSTRUCTIONS

1. Give each student one questionnaire and one scannable answer sheet. The students should use a #2 pencil to fill in the answer sheet.
2. After you hand out the questionnaires, please assist the students in completing the information requested on Page 3. These numbers are critical for us to accurately match pre- and post-tests.

STUDENT NAME: Students should NOT fill in their names in these spaces. The students' responses will be anonymous.

BIRTH DATE: To be able to match the students' pre-tests with their post-tests, we would like to have their birth MONTH and DAY. They should NOT fill in their birth year.

IDENTIFICATION NUMBER: All students in your class should use the 4-digit number _____ as their identification number (under A, B, and C).

SEX: Students should fill in either Female or Male.

GRADE: Students should fill in their grade level.

3. Please remind the students to:
 - Answer the questions honestly. It's OK to answer "I don't know." They are not being graded on their answers.
 - Answer the questions by themselves. Do not discuss the questions with other students while completing the questionnaires.
 - Try to answer all of the questions, but leave blank any questions they do not understand.
 - Take their time completing the questionnaire. When they are finished, they should sit quietly until all students are finished.
4. Please recycle the students' questionnaires. Please use the enclosed postage-paid envelope to mail these materials to Anita Kraemer as soon as possible:
 - The completed post-test scantron sheets
 - The completed teacher post-questionnaire

Thank you!

Anita Kraemer
eeEvaluations

1404 Crestview Drive, Blacksburg, VA 24060

ATTACHMENT 14: PRE TEACHER LETTER



UNITED STATES DEPARTMENT OF COMMERCE
Office of the Under Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

Month Day, 2005

Dear B-WET Evaluation Teacher,

Thank you for participating in our study! Enclosed are the materials you will need to administer the pre-test to your students (see enclosed instructions). We will send post-test materials to you at the end of your watershed or Chesapeake Bay unit.

WHAT WE WOULD LIKE YOU TO DO NOW:

1. Distribute the parental permission forms to your students and ask them to return them as soon as possible. We have enclosed extra copies of the permission forms so that you can replace those misplaced by the students. Be sure to remind them often to return the forms. Only data from students with parental consent will be included in our analysis.
2. Administer the pre-test questionnaire to your students the day before you begin your watershed or Chesapeake Bay unit or, if you've already begun, as soon as you receive these materials.
3. Complete the teacher pre-questionnaire.
4. Return the completed student answer sheets with their associated parental consent forms and the completed teacher pre-questionnaire to us in the postage-paid mailer as soon as possible. Please recycle the student questionnaires.

WHAT WE WOULD LIKE YOU TO DO AT THE END OF THE WATERSHED/BAY UNIT:

1. Administer the post-test questionnaire to your students the day after you finish your watershed or Chesapeake Bay unit.
2. Complete the teacher post-questionnaire.
3. Return the completed student answer sheets and teacher post-questionnaire in the postage-paid mailer.

Thanks again for your help. If you have ANY questions, please give Anita Kraemer a call or send an email.

Sincerely,

Anita Kraemer
eeEvaluations
540-552-7722
eeEval@verizon.net

Michaela Zint, Ph.D.
University of Michigan

Jeff Kirwan, Ph.D.
Virginia Tech

OMB Control Number: 0648-0530

Expires: 12/31/2005



ATTACHMENT 15: PRE TEACHER LETTER - COMPARISON



UNITED STATES DEPARTMENT OF COMMERCE
Office of the Under Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

OMB Control Number: 0648-0530 Expires: 12/31/2005

Month Day, 2005

Dear B-WET Evaluation Comparison Teacher,

Thank you for participating in our study! Enclosed are the materials you will need to administer the pre-test to your students (see enclosed instructions). We will send post-test materials to you at the end of the other teacher's watershed or Chesapeake Bay unit.

WHAT WE WOULD LIKE YOU TO DO NOW:

1. Distribute the parental permission forms to your students and ask them to return them as soon as possible. We have enclosed extra copies of the permission forms so that you can replace those misplaced by the students. Be sure to remind them often to return the forms. Only data from students with parental consent will be included in our analysis.
2. Administer the pre-test questionnaire to your students on the same day that the pre-test is administered to the students who are participating in the Chesapeake Bay unit.
3. Complete the teacher pre-questionnaire.
4. Return the completed student answer sheets with their associated parental consent forms and the completed teacher pre-questionnaire to us in the postage-paid mailer as soon as possible. Please recycle the student questionnaires.

WHAT WE WOULD LIKE YOU TO DO LATER:

1. Administer the post-test questionnaire to your students the same day it is administered to the students who are participating in a Chesapeake Bay unit.
2. Complete the teacher post-questionnaire.
3. Return the completed student answer sheets and teacher post-questionnaire in the postage-paid mailer.

Thanks again for your help. If you have ANY questions, please give Anita Kraemer a call or send an email.

Sincerely,

Anita Kraemer
eeEvaluations
540-552-7722
eeEval@verizon.net

Michaela Zint, Ph.D.
University of Michigan

Jeff Kirwan, Ph.D.
Virginia Tech



ATTACHMENT 16: POST TEACHER LETTER



UNITED STATES DEPARTMENT OF COMMERCE
Office of the Under Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

OMB Control Number: 0648-0530 Expires: 12/31/2005

Month Day, Year

Dear Teacher,

Thank you again for participating in the evaluation of the NOAA's B-WET programs! Enclosed are the materials you will need to administer the post-tests to your students (see enclosed instructions). Please take the following steps:

1. Administer the post-test questionnaire to your students the day after (or as close to the day after as possible) you complete your watershed or Chesapeake Bay unit. Only data from students with parental consent will be included in our analysis.
2. Complete the teacher post-questionnaire.
3. Return the completed student answer sheets and teacher post-questionnaire (postage-paid mailer enclosed). Please put the return package in the mail as soon as you can.

Thanks again for your help. If you have ANY questions, please give Anita Kraemer a call or send an email.

Sincerely,

Anita Kraemer
eeEvaluations
540-552-7722
eeEval@verizon.net

Michaela Zint, Ph.D.
University of Michigan

Jeff Kirwan, Ph.D.
Virginia Tech



ATTACHMENT 17: POST TEACHER LETTER - COMPARISON



UNITED STATES DEPARTMENT OF COMMERCE
Office of the Under Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

OMB Control Number: 0648-0530 Expires: 12/31/2005

Month Day Year

Dear Comparison Teacher,

Thank you again for participating in the evaluation of the NOAA's B-WET programs! Enclosed are the materials you will need to administer the post-tests to your students (see enclosed instructions). Please take the following steps:

1. Administer the post-test questionnaire to your students the same day it is administered to the students who are participating in a Chesapeake Bay unit. Only data from students with parental consent will be included in our analysis.
2. Complete the teacher post-questionnaire.
3. Return the completed student answer sheets and teacher post-questionnaire (postage-paid mailer enclosed). Please put the return package in the mail as soon as you can.

Thanks again for your help. If you have ANY questions, please give Anita Kraemer a call or send an email.

Sincerely,

Anita Kraemer
eeEvaluations
540-552-7722
eeEval@verizon.net

Michaela Zint, Ph.D.
University of Michigan

Jeff Kirwan, Ph.D.
Virginia Tech



ATTACHMENT 18: PARENTAL CONSENT FORM



UNITED STATES DEPARTMENT OF COMMERCE
Office of the Under Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

September X, 2005

Dear Parent/Guardian:

This school year, your child will participate in Chesapeake Bay watershed learning activities. Parts of the curriculum, such as watershed field trips, will be funded by the National Oceanic and Atmospheric Administration (NOAA). We have selected your child's class to be included in a formal, research evaluation to see how much the students learn, how engaged they are in their learning, and whether they are more likely to act to protect the Bay/watershed in the future.

We would like to have your permission to include your child in this study. He or she will complete a written questionnaire (less than 30 minutes to complete) before and after the Chesapeake Bay watershed unit. Your child's participation in this program is voluntary, and there will be no penalty for nonparticipation or withdrawal from the study. However, the information your child will provide is extremely valuable and will contribute to improving educational opportunities offered by your child's school.

Your child's survey responses will be completely anonymous and will not affect your child's grade in any way.

We hope that you will allow your child to participate in this important evaluation. If you would like additional information about the evaluation, please contact Anita Kraemer at 540-552-7722 or eeEval@verizon.net. Thank you!

Anita Kraemer
Evaluation Consultant
eeEvaluations

Michaela Zint, Ph.D.
Assistant Professor
University of Michigan

Jeff Kirwan, Ph.D.
Extension Specialist
Virginia Tech

Please sign the form below and have your child return it to his or her teacher. Thank you.

Student's Name: _____ Parent's Name: _____

School Name: _____ Teacher Name: _____

My child MAY / MAY NOT (Please circle one) participate in the NOAA Chesapeake Bay education program evaluation conducted by eeEvaluations, the University of Michigan, and Virginia Tech.

Signed: _____ Date: _____

OMB Control Number: 0648-0530

Expires: 12/31/2005



ATTACHMENT 19: PARENTAL CONSENT FORM_COMPARISON



UNITED STATES DEPARTMENT OF COMMERCE
Office of the Under Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

September X, 2005

Dear Parent/Guardian:

This school year, other students at your child's school will participate in Chesapeake Bay watershed learning activities, some of which are funded by the National Oceanic and Atmospheric Administration. We have selected your child's class to be a comparison group in a formal, research evaluation to see how much the students learn, how engaged they are in their learning, and whether they are more likely to act to protect the Bay/watershed in the future.

We would like to have your permission to include your child in this study. He or she will complete two written questionnaires (less than 30 minutes to complete) at the same times as the students in the Chesapeake Bay watershed unit. Your child's participation in this program is voluntary, and there will be no penalty for nonparticipation or withdrawal from the study. However, the information your child will provide is extremely valuable and will contribute to improving educational opportunities offered by your child's school.

Your child's survey responses will be completely anonymous and will not affect your child's grade in any way.

We hope that you will allow your child to participate in this important evaluation. If you would like additional information about the evaluation, please contact Anita Kraemer at 540-552-7722 or eeEval@verizon.net. Thank you!

Anita Kraemer
Evaluation Consultant
eeEvaluations

Michaela Zint, Ph.D.
Assistant Professor
University of Michigan

Jeff Kirwan, Ph.D.
Extension Specialist
Virginia Tech

Please sign the form below and have your child return it to his or her teacher. Thank you.

Student's Name: _____ Parent's Name: _____
School Name: _____ Teacher Name: _____

My child MAY / MAY NOT (Please circle one) participate in the NOAA Chesapeake Bay education program evaluation conducted by eeEvaluations, the University of Michigan, and Virginia Tech.

Signed: _____ Date: _____

OMB Control Number: 0648-0530

Expires: 12/31/2005





[Exit this survey >>](#)

Evaluation of B-WET Professional Development

Introduction

If you have recently completed a professional development program (PD) funded by the National Oceanic and Atmospheric Administration (NOAA), please complete this post-program questionnaire. The questionnaire is 9 web pages long and will take you about 15-20 minutes to complete.

This questionnaire asks for your opinion of the PD program and how well-prepared you feel to teach about your watershed and the Chesapeake Bay.

Please be completely honest in your responses. **YOUR RESPONSES WILL BE ANONYMOUS.** The providers of your PD program will be given summary information that is not associated with individuals' names. Your responses are very important and will be used to improve future NOAA-funded PD programs.

Thank you for taking the time to complete this questionnaire! If you have any questions or concerns, please contact Anita Kraemer (eeEval@verizon.net or 540-552-7722).

Anita Kraemer, eeEvaluations
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

OMB Control Number: 0648-0530 Expires: 12/31/2005

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Evaluation of B-WET Professional Development

Background Information

1. Please indicate the name of the organization that provided the watershed/Bay professional development. (Choose one from the list or select "other" and fill in the box below.)

2. How many days was the watershed/Bay professional development?

1/2 day 1 day 2-3 days 4-10 days More than 10 days

3. How long ago did the watershed/Bay professional development end?

Today is the last day Less than a week ago 1-2 weeks ago 3-4 weeks ago More than 4 weeks ago

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Evaluation of B-WET Professional Development
Intention to Teach about the Watershed

4. BEFORE this professional development, how likely or unlikely WAS IT that you would _____ during the next school year?

	Extremely unlikely	Very unlikely	Unlikely	Likely	Very likely	Extremely likely
Teach about your local watershed or the Chesapeake Bay	<input type="radio"/>					
Use the outdoors when teaching about your local watershed or the Chesapeake Bay	<input type="radio"/>					
Research an environmental issue with your students	<input type="radio"/>					
Guide your students through taking action on an environmental issue	<input type="radio"/>					

5. AFTER this professional development, how likely or unlikely IS IT that you will _____ during the next school year?

	Extremely unlikely	Very unlikely	Unlikely	Likely	Very likely	Extremely likely
Teach about your local watershed or the Chesapeake Bay	<input type="radio"/>					
Use the outdoors when teaching about your local watershed or the Chesapeake Bay	<input type="radio"/>					
Research an environmental issue with your students	<input type="radio"/>					
Guide your students through taking action on an environmental issue	<input type="radio"/>					

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Evaluation of B-WET Professional Development

Confidence to Teach about Watershed/Bay

6. As a result of the watershed/Bay professional development (PD), how has your ability to _____ changed?

	No change	A small increase	A moderate increase	A large increase	A very large increase	Not addressed by PD
Teach students about the Chesapeake Bay	<input type="radio"/>					
Teach students about their local watershed	<input type="radio"/>					
Integrate local watershed or Bay lessons into your required curriculum	<input type="radio"/>					
Use the school yard to teach about your local watershed or the Bay	<input type="radio"/>					
Use a local waterway to teach about your local watershed or the Bay	<input type="radio"/>					
Research an environmental issue with your students	<input type="radio"/>					
Guide your students through a restoration project (e.g., growing/planting wetland plants)	<input type="radio"/>					
Guide your students through a monitoring project (e.g., periodic water testing)	<input type="radio"/>					
Guide your students through a pollution protection project (e.g., erosion control)	<input type="radio"/>					
Guide your students through an information-sharing action (e.g., making a public presentation)	<input type="radio"/>					
Collect watershed or Bay data in the field	<input type="radio"/>					
Use field equipment, including hand-held technology, for data collection	<input type="radio"/>					
Analyze watershed or Bay data	<input type="radio"/>					
Obtain funding for teaching about your local watershed or the Bay	<input type="radio"/>					

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Evaluation of B-WET Professional Development

Workshop Impressions

7. How would you rate the following components of this professional development experience?

	Poor	Fair	Good	Very good	Excellent	N/A
Your overall impression of this professional development	<input type="radio"/>					
Applicability of curriculum materials and activities to your school district's learning standards	<input type="radio"/>					
Usefulness of what you learned for improving student academic achievement	<input type="radio"/>					
Usefulness of what you learned for improving student environmental awareness, knowledge, and actions	<input type="radio"/>					
Presentation effectiveness on how to guide students in researching an environmental issue	<input type="radio"/>					
Presentation effectiveness on how to guide students in conducting environmental action (e.g., restoration, monitoring, prevention, communication)	<input type="radio"/>					
Quality of examples provided of watershed or Chesapeake Bay lessons and activities	<input type="radio"/>					
Helpfulness of community resources such as natural resource experts	<input type="radio"/>					
Quality of information provided (written or presented) about the local watershed or the Bay	<input type="radio"/>					

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Evaluation of B-WET Professional Development

Workshop Impressions, continued

8. How would you rate the following components of this professional development experience?

	Poor	Fair	Good	Very good	Excellent	N/A
Plans made for future collaboration with other teachers	<input type="radio"/>					
Plans made for follow-up support from PD providers	<input type="radio"/>					
Knowledge level of primary instructor(s)	<input type="radio"/>					
Amount of time for hands-on learning	<input type="radio"/>					
Amount of time available for teachers to learn from and share ideas with each other	<input type="radio"/>					
Amount of time available for practicing new skills	<input type="radio"/>					
Amount of time allowed for planning how you will integrate what you learned into your own teaching	<input type="radio"/>					
Your physical comfort during the indoor sessions	<input type="radio"/>					
Your physical comfort during the outdoor sessions	<input type="radio"/>					

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Evaluation of B-WET Professional Development

Open-ended Questions

9. What component(s) of this professional development best prepared you for teaching your students about the local watershed and the Chesapeake Bay?

10. How could this professional development experience be improved to better prepare teachers to teach about the local watershed and the Bay?

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Evaluation of B-WET Professional Development

About You

11. In what jurisdiction(s) do you teach?

- | | | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Delaware | Maryland | New York | Pennsylvania | Virginia | Washington, DC | West Virginia | Other |
| <input type="checkbox"/> |

12. What grade(s) do you teach?

- | | | | | | | | | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Other |
| <input type="checkbox"/> |

13. What subject(s) do you teach?

- | | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Science | Math | English | Reading | Social studies | Fine arts | Other |
| <input type="checkbox"/> |

14. How many school years in the past have you taught about the local watershed or the Chesapeake Bay?

- None
- 1-3 school years
- 4-6 school years
- 7-10 school years
- More than 10 school years

15. How many school years in the past have you used the outdoors to lead your students in an investigative or action project about your local watershed or the Chesapeake Bay?

- None
- 1-3 school years
- 4-6 school years
- 7-10 school years
- More than 10 school years

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Evaluation of B-WET Professional Development

Last Page

16. We will send you a follow-up questionnaire in several months to track the long-term impact of this PD experience. So that we may anonymously match those responses to these, please provide your birth MONTH and DAY. Do not fill in your birth YEAR.

Month/Day MM / DD / YYYY

17. Do you have any additional comments?

Thank you very much for completing this online questionnaire!

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Evaluation of B-WET Professional Development

Paperwork Reduction Act Statement

Public reporting burden for this collection of information is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Kimberly Benson, NOAA Office of Education and Sustainable Development, Herbert C. Hoover Building, Room 6863, 14th and Constitution Avenue, NW Washington, DC 20230.

Responses are voluntary and collected and maintained as anonymous data. Information will be treated in accordance with the Freedom of Information Act (5 USC 552).

Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subjected to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

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NOAA Chesapeake Bay Office

Chesapeake Bay News

In the News

- Fish & Shellfish
- Habitat
- SAV
- Education
- Ecosystem Model
- GIS
- About NCBO

[Grants and Funding Opportunities](#)

[2002 NCBO Reauthorization](#)



[1992 NCBO Authorization](#)



[Directions to NCBO](#)

[Annapolis Hotels, Food, and Fun](#)

CIMS
Chesapeake Information Management System

[Watershed Education Grant Opportunity Announced](#)

Grants of up to \$200,000 will be available through the B-WET (Bay Watershed Education & Training) Program, a competitive program that supports hands-on watershed education throughout the entire Chesapeake Bay watershed. Applications are due by October 24, 2005—learn more about the grant program, eligible applicants and projects, and the application process today.

[NOAA Under Way with Expedition Chesapeake](#)

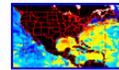
On June 24, a group of Turner Ashby High School students (Rockingham County, Virginia) and Chesapeake Bay Foundation educators started a 355-mile, 30-day canoe trip that will explore the Shenandoah and Potomac Rivers downstream to the Chesapeake Bay. NOAA will be following them all the way—literally! Scientists with NOAA's Chesapeake Bay Office have supplied Expedition Chesapeake with a buoy that will be towed behind a kayak or canoe and will measure, record, and transmit information by satellite back to the NCBO offices in Annapolis, Maryland. The buoy will monitor the water as it transitions from fresh water to salt water—the first water-quality record of its kind—as it tracks levels of dissolved oxygen, salinity, pH, chlorophyll, and other indicators of ecosystem health. This information will enable the students—and scientists—to analyze the connection between land use and water quality and to describe the effects of pollution on rivers and streams on the Chesapeake Bay. Data are displayed as they are collected on a website developed by the Chesapeake Bay Program for this expedition, <http://maps2.chesapeakebay.net/website/expeditionchesapeake/viewer.htm> For more information on Expedition Chesapeake, visit www.baybound.org.

[2005 Chesapeake Bay Blue Crab Advisory Report Released](#)

On June 22, the Chesapeake Bay Stock Assessment Committee (CBSAC) released the 2005 Blue Crab Advisory Report. In the report, the Committee analyzed data collected from 2004 through early 2005 to determine the status of blue crabs in the Bay. The blue crab population in the Chesapeake Bay remained low, but was similar to numbers reported in 2002 and 2003. While there were

- [Chesapeake Bay Fact Sheets](#)
- [Events](#)
- [Newsclips](#)
- [Bay Journal](#)

Features



[Chesapeake Bay Coastal Prediction Center](#)



[Chesapeake Bay Fish Poster](#)

ATTACHMENT 21: PD PROVIDER – PHONE INTERVIEW



OMB Control Number: 0648-0530 Expires: 12/31/2005

Funding sources:

How much money did you receive from NOAA per year for your PD program?
What was the chief PD program expense covered by NOAA funding?
How much money did you receive from other sources per year for your PD program?
How would your PD program be different if you didn't get NOAA funding?

Other resources:

How many of your, in full-time employee (FTE) equivalents, staff worked on the PD program?
Did you provide transportation to field sites?

Audience:

How many teachers were served per year by your PD program?
What percent of those teachers experienced outdoor instruction?
What grade levels did your teacher-participants teach?
What subjects did your teacher-participants teach?

Activities:

How many hours of professional development did the teachers get from you?
What type of curriculum materials did you provide the teachers?
Did the teachers receive any materials other than instructional guides to implement MWEEs in their classroom (e.g. water testing equipment, GPS units, etc.)?
How was the PD curriculum linked to the school district's curriculum?
What subject areas were targeted by your PD program?
What types of field instruction did you provide?
What types of classroom instruction did you provide?
What types of action projects did you model?
What community members or experts helped with PD instruction?
Is there any follow-up with the teachers throughout the year? If so, how and how often?
Do you ensure that teachers implement MWEEs with their students? If so, how?

Outcomes:

What improvements did you expect in teachers' ability to conduct MWEEs with their students?
What other improvements did you expect in the teachers' knowledge, attitudes, and skills?
What improvements did you expect in the environmental quality of the Chesapeake Bay and/or its watershed?
(quantitative and qualitative)

Evaluation:

Who evaluated your PD program?
How was the program evaluated?
Will you provide us with the evaluation results?

Any other comments about the B-WET program?

Rate quality of their PD program:

How did you think the professional development workshops went?
What went well?
What could be improved?

ATTACHMENT 22: PD PAST TEACHER – WEB SURVEY

The screenshot shows a Netscape browser window titled "Evaluation of B-WET Professional Development - Follow-up - Netscape". The address bar contains the URL: <http://www.surveymonkey.com/Users/40323672/Surveys/538401110234/90E16DD0-F913-4204-A858-EE79A732EC6C.asp>. The page content includes a NOAA logo, a title bar, and an "Introduction" section. The text in the introduction explains the purpose of the survey, its length, and provides contact information for Anita Kraemer, Dr. Jeff Kirwan, and Dr. Michaela Zint. At the bottom of the page, there is a "Next Page >>" link. The Windows taskbar at the bottom shows the Start button and several open applications, including "Re: NOAA B-...", "SurveyMonke...", "Evaluation of ...", "B-WET Evalu...", "24 PD Teach...", and "PRA Docume...". The system clock shows 10:27 AM.

Evaluation of B-WET Professional Development - Follow-up - Netscape

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Evaluation of B-WET Professional Development - Follow-up

Introduction

The National Oceanic and Atmospheric Administration's (NOAA's) B-WET program funds professional development about local watersheds and the Chesapeake Bay. If you have participated in this type of professional development since 2002, please complete this web-based questionnaire. Your participation in this survey will be used to improve future watershed/Bay professional development programs.

Please complete this questionnaire whether or not you taught about the local watershed or the Bay in the past. This questionnaire is 8-11 web pages long and will take you about 15-20 minutes to complete. The questionnaire asks about your experience teaching about local watersheds and the Bay (if applicable) and the value of the professional development you experienced.

Your questionnaire will be anonymous. NOAA and past providers of professional development will be given summary information that is not associated with individuals' names.

Thank you for taking the time to complete this questionnaire! If you have any questions or concerns, please contact Anita Kraemer (eeEval@verizon.net or 540-552-7722).

Anita Kraemer, eeEvaluations
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

OMB Control Number: 0648-0530 Expires: 12/31/2005

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Evaluation of B-WET Professional Development - Follow-up - Netscape

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Evaluation of B-WET Professional Development - Follow-up

Teaching about the Local Watershed or Chesapeake Bay

1. Did you teach about your local watershed or the Chesapeake Bay during the 2005-06 school year?

No Yes

2. If you answered YES to question 1, click "Next Page" below and continue the questionnaire.

If you answered NO, please explain why you did not teach about the watershed or the Bay this past school year, then click "Next Page".

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Note: If teachers select NO in question 1, the survey skips to page 6.

start Re: NOAA B-... SurveyMonke... Evaluation of ... B-WET Evalu... 24 PD Teach... PRA Docume... 10:28 AM

Evaluation of B-WET Professional Development - Follow-up
Local Watershed or Chesapeake Bay Instruction

3. During the unit on the local watershed or the Chesapeake Bay, DID THE STUDENTS ...

	No	Yes	Not applicable
Listen to talks about, or read about, local watershed or Bay environmental issues?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Explore the local community (beyond the classroom) for information on local watershed or Bay environmental issues?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Study social, economic, historical, or archaeological issues?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collect local watershed or Bay data?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use field equipment, such as hand-held technology, for data collection?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Analyze watershed or Bay data?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Graphically display data (e.g., create charts, graphs)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implement a solution to a local watershed or Bay problem?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participate in a restoration project (e.g., growing/planting wetland plants)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participate in a monitoring project (e.g., periodic water testing)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participate in a pollution prevention project (e.g., erosion control)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participate in a communication/information-sharing action (e.g., making a presentation to the community)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Evaluation of B-WET Professional Development - Follow-up
Local Watershed or Chesapeake Bay Instruction

4. During the unit on the local watershed or the Chesapeake Bay, DID THE STUDENTS ...

	No	Yes	Not applicable
Participate in a school classroom-based, local watershed or Bay curriculum?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participate in a museum tour about the local watershed or Bay?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learn about the local watershed or Bay outdoors in the schoolyard?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learn about the local watershed or Bay outdoors on an on-the-water field trip?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have an opportunity to reflect on their local watershed/Bay unit?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learn science content and skills?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learn reading skills?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learn language art content and skills?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learn fine arts content and skills?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learn social studies content and skills?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. What percent of your students participated in an OUTDOOR EXPERIENCE during their watershed or Bay unit?

- Zero
- About 25%
- About 50%
- About 75%
- 100% or close to 100%

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Evaluation of B-WET Professional Development - Follow-up
Effects of Watershed/Bay Unit on Students

6. As a result of completing their local watershed or Chesapeake Bay unit, I believe my students ...

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
are better prepared for the end-of-year state assessments.	<input type="radio"/>				
are more engaged in their learning.	<input type="radio"/>				
know more about the local watershed or the Chesapeake Bay.	<input type="radio"/>				
are more likely to act to protect their local watershed or the Chesapeake Bay.	<input type="radio"/>				

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Evaluation of B-WET Professional Development - Follow-up

Intention to Teach about the Watershed/Bay

7. I intend to _____ during the next school year.

	Extremely unlikely	Very unlikely	Unlikely	Likely	Very likely	Extremely likely
Teach about the local watershed or the Chesapeake Bay	<input type="radio"/>					
Use the outdoors when teaching about the local watershed or the Chesapeake Bay	<input type="radio"/>					
Research an environmental issue with my students	<input type="radio"/>					
Guide my students through taking action on an environmental issue	<input type="radio"/>					

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Evaluation of B-WET Professional Development - Follow-up

Confidence in Teaching about the Watershed/Bay

8. How confident are you in your ability to _____?

	Not at all confident	Somewhat confident	Very confident	Extremely confident
Teach students about the Chesapeake Bay?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teach students about their local watershed and its relation to the Bay?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use the school yard to teach about your local watershed or the Bay?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use a local waterway to teach about your local watershed or the Bay?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Research an environmental issue with your students?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guide your students through a restoration project (e.g., growing/planting wetland plants)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guide your students through a monitoring project (e.g., periodic water testing)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guide your students through a pollution protection project (e.g., erosion control)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guide your students through an information-sharing action (e.g., making a public presentation)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make science lessons relevant and meaningful to your students?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Collect watershed or Bay data in the field?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use field equipment, including hand-held technology, for data collection?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Analyze watershed or Bay data?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Obtain funding for teaching about your local watershed or the Bay?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Evaluation of B-WET Professional Development - Follow-up
Open-ended Questions

9. What component of your past professional development best prepared you for teaching about the local watershed or the Chesapeake Bay?

10. How could professional development programs be improved to better prepare teachers to teach about the local watershed or the Chesapeake Bay?

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Evaluation of B-WET Professional Development - Follow-up
Past Professional Development

11. How long ago did your last watershed/Bay professional development program end?

- I did not participate in watershed/Bay professional development.
- Within the last 3 months
- 4-6 months ago
- 7-12 months ago
- Over 1 year ago

12. With what organization was your last watershed/Bay professional development? (choose from the list or select "other" and fill in the box below)

13. How many days was your last watershed/Bay professional development?

- 1/2 day
- 1 day
- 2-3 days
- 4-10 days
- More than 10 days

[<< Previous Page](#) [Next Page >>](#)

Evaluation of B-WET Professional Development - Follow-up

Background Information

14. In what jurisdiction(s) do you teach?

- Delaware
- Maryland
- Pennsylvania
- Virginia
- Washington, DC
- West Virginia
- Other

15. What grade(s) do you teach?

- K
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- Other

16. What subject(s) do you teach?

- Science
- Math
- English
- Reading
- Social studies
- Fine arts
- Other

17. How many school years in the past have you taught about the local watershed or the Chesapeake Bay?

- None
- 1-3 school years
- 4-6 school years
- 7-10 school years
- More than 10 school years

[<< Previous Page](#) [Next Page >>](#)

Evaluation of B-WET Professional Development - Follow-up
Last Page

18. To allow us to match your responses to those you gave us in the past or to future responses, please provide your birth MONTH and DAY. Do not fill in your birth YEAR.

Month/Day / /

19. Do you have any additional comments?

Thank you very much for completing this online questionnaire!

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Evaluation of B-WET Professional Development - Follow-up - Netscape

File Edit View Go Bookmarks Tools Window Help

http://www.surveymonkey.com/Users/40323672/Surveys/538401110234/2DCCF772-5DD6-4F63-B19B-968C421E2938.asp? Search

Mail AIM Home Radio My Netscape Search Bookmarks

 Exit this survey >>

Evaluation of B-WET Professional Development - Follow-up

Paperwork Reduction Act Statement

Public reporting burden for this collection of information is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Kimberly Benson, NOAA Office of Education and Sustainable Development, Herbert C. Hoover Building, Room 6863, 14th and Constitution Avenue, NW Washington, DC 20230.

Responses are voluntary and collected and maintained as anonymous data. Information will be treated in accordance with the Freedom of Information Act (5 USC 552).

Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subjected to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

[<< Previous Page](#) [Done >>](#)

start Re: NOAA B-... SurveyMonke... Evaluation of ... B-WET Evalu... 24 PD Teach... PRA Docume... 10:30 AM



NOAA Chesapeake Bay Office

Chesapeake Bay News

- In the News
- Fish & Shellfish
- Habitat
- SAV
- Education
- Ecosystem Model
- GIS
- About NCBO

[Grants and Funding Opportunities](#)

[2002 NCBO Reauthorization](#)

[1992 NCBO Authorization](#)

[Directions to NCBO](#)

[Annapolis Hotels, Food, and Fun](#)

CIMS
Chesapeake Information Management System

[NOAA Welcomes You to the Chesapeake Bay for the Great Chesapeake Bay Swim 2005!](#)

Currents, water temperature, and event-day weather are all key elements in planning your Great Chesapeake Bay Swim 2005. NOAA scientists and technology combine to bring you the information you need for the Bay Swim.

The [Chesapeake Bay Coastal Prediction Center](#) is located at NOAA's Chesapeake Bay Office (NCBO) in Annapolis, Maryland. The NCBO provides science, service, and stewardship to support the protection and restoration of the Bay. Coastal observations—like those accomplished at the Chesapeake Bay Coastal Prediction Center—are integral to this mission. Visit the [Chesapeake Bay Coastal Prediction Center](#) for information on race-day forecasts and conditions for the June 12th Bay Swim.

We look forward to seeing you on—and in—the Bay soon. Best of luck in the Bay Swim!

[Quarterly Review of Non-native Oyster Research](#)

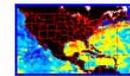
The NOAA Chesapeake Bay Office is sponsoring quarterly reviews of research being conducted on the non-native oyster, *Crassostrea ariakensis*, to provide scientific information for an Environmental Impact Statement (EIS) currently in preparation by federal and state agencies. The review sessions provide a forum for sharing and discussing the most current research findings to ensure timely incorporation of research results into the EIS evaluations.

This report summarizes preliminary findings presented at the Spring 2005 Quarterly Review session.

[Chesapeake Bay](#)

- [Fact Sheets](#)
- [Events](#)
- [Newsclips](#)
- [Bay Journal](#)

[Features](#)



Chesapeake Bay Coastal Prediction Center



[Chesapeake Bay Fish Poster](#)

ATTACHMENT 23: MWEE TEACHER PARTICIPATION REQUEST - EMAIL

MWEE Teacher Email Request to Participate



OMB Control Number: 0648-0530 Expires: 12/31/2005

We were told by the ORGANIZATION that you will be teaching your students about the local watershed or the Chesapeake Bay during the 2005-06 school year. ORGANIZATION is funded by the National Oceanic and Atmospheric Administration's (NOAA's) Bay Watershed Education and Training (B-WET) program. NOAA has contracted our team to evaluate their B-WET programs.

Would you be willing to include one of your classes of students in our study? The students will take a 20-30 minute questionnaire before they start their watershed/Bay unit and another, nearly-identical questionnaire after their watershed/Bay unit. We also ask you to complete a 15-20 minute questionnaire that describes your students' experience. All responses will be collected and maintained as anonymous data.

In addition, we would like you to recruit, if possible, another teacher to include his/her class as a comparison group. The other class should be similar in makeup to your class, but not participating in a watershed/Bay unit. The students in the comparison group will complete questionnaires at the same time your students complete theirs.

Please let us know if you ARE or ARE NOT willing to participate in the evaluation of the B-WET-funded education programs. Thank you!

Anita Kraemer, eeEvaluations, 540-552-7722
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

ATTACHMENT 24: PD TEACHER PRE-PROGRAM REQUEST – EMAIL

Pre-program Email Request: Sent before the teachers' professional development program.



OMB Control Number: 0648-0530 Expires: 12/31/2005

We are evaluating the National Oceanic and Atmospheric Administration's (NOAA's) Bay Watershed Education and Training (B-WET) education programs. Following the completion of the professional development program offered by ORGANIZATION, you will receive from our team an emailed link to a questionnaire. All responses will be collected and maintained as anonymous data. Please complete the questionnaire! Your responses will help ensure high quality professional development programs in the future.

Thank you!

Anita Kraemer, eeEvaluations, eeEval@verizon.net or 540-552-7722

Dr. Jeff Kirwan, Virginia Tech

Dr. Michaela Zint, University of Michigan

ATTACHMENT 25: PD TEACHER LAST DAY OF PROGRAM – NOTE CARD



OMB Control Number: 0648-0530 Expires: 12/31/2005

EVALUATION OF NOAA'S BAY WATERSHED EDUCATION AND TRAINING (B-WET) PROGRAM

Following the completion of this professional development program, you will receive an emailed link to a questionnaire, from a team of researchers who are evaluating the B-WET programs. Please complete the questionnaire! Your responses will help ensure high quality professional development programs in the future.

Thank you!

Shannon Sprague
B-WET Program Manager & Education Coordinator
NOAA Chesapeake Bay Office

ATTACHMENT 26: PD TEACHER LAST DAY OF PROGRAM – EMAIL

Email Request: Sent the last day of the teachers' professional development program.



Dear [FirstName] [LastName],

According to our records, you have recently completed a professional development (PD) program offered by the ORGANIZATION. The PD program was funded by the National Oceanic and Atmospheric Administration's (NOAA's) Bay Watershed Education and Training (B-WET) program. Please provide NOAA with feedback on the PD program by completing a post-program questionnaire. The questionnaire is 9 web pages long and will take you about 15-20 minutes to complete.

Click on this link to begin: [SurveyLink]

This questionnaire asks for your opinion of the professional development (PD) program and how well-prepared you feel to teach about your watershed and the Chesapeake Bay.

Please be completely honest in your responses. **YOUR RESPONSES WILL BE ANONYMOUS.** The providers of your PD program will be given summary information that is not associated with individuals' names. Your responses are very important and will be used to improve future NOAA-funded PD programs.

Thank you for taking the time to complete this questionnaire! If you have any questions or concerns, please contact Anita Kraemer (eeEval@verizon.net or 540-552-7722).

Anita Kraemer, eeEvaluations
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

OMB Control Number: 0648-0530 Expires: 12/31/2005

ATTACHMENT 27: PD TEACHER 1-WEEK REMINDER – EMAIL

Email Reminder: Sent 3 days after the last day of the teachers' professional development program.



OMB Control Number: 0648-0530 Expiration Date: 12/31/2005

This is a reminder to please complete this questionnaire for the National Oceanic and Atmospheric Administration (NOAA) Bay Watershed Education and Training (B-WET) professional development evaluation. If you have completed the questionnaire, our apologies and please disregard this email.

If you have not yet responded, please do so now. The questionnaire is 9 web pages long and will take you about 15-20 minutes to complete.

Click on this link to begin: [Evaluation of B-WET Professional Development](#)

This questionnaire asks for your opinion of the professional development (PD) program and how well-prepared you feel to teach about your watershed and the Chesapeake Bay.

Please be completely honest in your responses. Your responses will be anonymous. The providers of your PD program will be given summary information that is not associated with individuals' names. Your responses are very important and will be used to improve future NOAA-funded PD programs.

Thank you for taking the time to complete this questionnaire! If you have any questions or concerns, please contact Anita Kraemer (eeEval@verizon.net or 540-552-7722).

Anita Kraemer, eeEvaluations
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

ATTACHMENT 28: PD TEACHER 2-WEEK REMINDER – EMAIL

2nd Email Reminder: Sent 7 days after the last day of the teachers' professional development program.



OMB Control Number: 0648-0530 Expiration Date: 12/31/2005

This is a second and last reminder to complete this questionnaire for the National Oceanic and Atmospheric Administration (NOAA) Bay Watershed Education and Training (B-WET) professional development evaluation. If you have completed the questionnaire, our apologies and please disregard this email.

If you have not yet responded, please do so now. The questionnaire is 9 web pages long and will take you about 15-20 minutes to complete.

Click on this link to begin: [Evaluation of B-WET Professional Development](#)

This questionnaire asks for your opinion of the professional development (PD) program and how well-prepared you feel to teach about your watershed and the Chesapeake Bay.

Please be completely honest in your responses. Your responses will be anonymous. The providers of your PD program will be given summary information that is not associated with individuals' names. Your responses are very important and will be used to improve future NOAA-funded PD programs.

Thank you for taking the time to complete this questionnaire! If you have any questions or concerns, please contact Anita Kraemer (eeEval@verizon.net or 540-552-7722).

Anita Kraemer, eeEvaluations
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

ATTACHMENT 29: PAST PD TEACHER REQUEST – EMAIL



OMB Control Number: 0648-0530 Expiration Date: 12/31/2005

The National Oceanic and Atmospheric Administration's (NOAA's) Bay Watershed Education and Training (B-WET) program funds professional development about local watersheds and the Chesapeake Bay. If you have participated in this type of professional development since 2002, please complete this web-based questionnaire. Your responses to this survey will be used to improve future watershed/Bay professional development programs.

Click this link to begin: [B-WET Evaluation of Past Professional Development](#)

Please complete this questionnaire whether or not you taught about the local watershed or the Bay in the past. This questionnaire is 8-11 web pages long and will take you about 15-20 minutes to complete. The questionnaire asks about your experience teaching about local watersheds and the Bay (if applicable) and the value of the professional development you experienced.

Your questionnaire responses will be anonymous. NOAA and past providers of professional development will be given summary information that is not associated with individuals' names.

Thank you for taking the time to complete this questionnaire! If you have any questions or concerns, please contact Anita Kraemer (eeEval@verizon.net or 540-552-7722).

Anita Kraemer, eeEvaluations
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

ATTACHMENT 30: PAST PD TEACHER 1-WEEK REMINDER

Email Reminder: Send one week after the first email.



OMB Control Number: 0648-0530 Expiration Date: 12/31/2005

This is a reminder to complete this questionnaire for the National Oceanic and Atmospheric Administration (NOAA) Bay Watershed Education and Training (B-WET) professional development evaluation. If you have completed the questionnaire, our apologies and please disregard this email. If you have not yet completed the questionnaire, please read on.

If you have participated in a B-WET-funded professional development since 2002, please complete this web-based questionnaire. Your responses to this survey will be used to improve future watershed/Chesapeake Bay professional development programs.

Click this link to begin: [B-WET Evaluation of Past Professional Development](#)

Please complete this questionnaire whether or not you taught about the local watershed or the Bay in the past. This questionnaire is 8-11 web pages long and will take you about 15-20 minutes to complete. The questionnaire asks about your experience teaching about local watersheds and the Bay (if applicable) and the value of the professional development you experienced.

Your questionnaire responses will be anonymous. NOAA and past providers of professional development will be given summary information that is not associated with individuals' names.

Thank you for taking the time to complete this questionnaire! If you have any questions or concerns, please contact Anita Kraemer (eeEval@verizon.net or 540-552-7722).

Anita Kraemer, eeEvaluations
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

ATTACHMENT 31: PAST PD TEACHER 2-WEEK REMINDER – EMAIL

2nd Email Reminder: Send two weeks after the initial request email.



OMB Control Number: 0648-0530 Expiration Date: 12/31/2005

This is a second reminder to complete this questionnaire for the National Oceanic and Atmospheric Administration (NOAA) Bay Watershed Education and Training (B-WET) professional development evaluation. If you have completed the questionnaire, our apologies and please disregard this email. If you have not yet completed the questionnaire, please read on.

If you have participated in a B-WET-funded professional development since 2002, please complete this web-based questionnaire. Your responses to this survey will be used to improve future watershed/Chesapeake Bay professional development programs.

Click this link to begin: [B-WET Evaluation of Past Professional Development](#)

Please complete this questionnaire whether or not you taught about the local watershed or the Bay in the past. This questionnaire is 8-11 web pages long and will take you about 15-20 minutes to complete. The questionnaire asks about your experience teaching about local watersheds and the Bay (if applicable) and the value of the professional development you experienced.

Your questionnaire responses will be anonymous. NOAA and past providers of professional development will be given summary information that is not associated with individuals' names.

Thank you for taking the time to complete this questionnaire! If you have any questions or concerns, please contact Anita Kraemer (eeEval@verizon.net or 540-552-7722).

Anita Kraemer, eeEvaluations
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

ATTACHMENT 32: PD TEACHER NONRESPONDENT ANALYSIS – EMAIL

Dear Teacher,

You may have received requests from us to complete an online survey related to a watershed or Chesapeake Bay professional development program (funded by NOAA) you recently completed. Because you did not complete the initial questionnaire, **we ask that you complete this abbreviated, 3-minute version.** Your responses will assist in the evaluation of NOAA's programs.

Click on this link to begin the survey: [PD CURRENT-YEAR NONRESPONSE ANALYSIS QUESTIONNAIRE](#)

The multiple choice questions in this survey include:

- In what jurisdiction(s) do you teach?
- What grade level(s) do you teach?
- What subject(s) do you teach?
- How many school years in the past have you taught about the local watershed or the Chesapeake Bay?
- How likely is it that you will teach about your local watershed or the Chesapeake Bay during the next school year?
- As a result of the watershed/Bay professional development (PD), how has your ability to teach students about the Chesapeake Bay changed?
- As a result of the watershed/Bay professional development (PD), how has your ability to teach students about their local watershed changed?
- How would you rate the watershed/Bay professional development overall?

Please be completely honest in your responses. **YOUR RESPONSES WILL BE ANONYMOUS.** The providers of your PD program will be given summary information that is not associated with individuals' names.

Thank you for taking the time to complete this questionnaire! If you have any questions or concerns, please contact Anita Kraemer (eeEval@verizon.net or 540-552-7722).

Anita Kraemer, eeEvaluations
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

OMB Control Number: 0648-0530 Expires: 12/31/2005

ATTACHMENT 33: PAST PD TEACHER NONRESPONDENT ANALYSIS – EMAIL

Dear Teacher,

You may have received requests from us to complete an online survey related to a watershed or Chesapeake Bay professional development program (funded by NOAA) you completed in the past. Because you did not complete the initial questionnaire, **we ask that you complete this abbreviated, 3-minute version.** Your responses will assist in the evaluation of NOAA's programs.

Click on this link to begin the survey: [PAST-YEAR PD NONRESPONSE ANALYSIS QUESTIONNAIRE](#)

The multiple choice questions in this survey include:

- In what jurisdiction(s) do you teach?
- What grade level(s) do you teach?
- What subject(s) do you teach?
- How many school years in the past have you taught about the local watershed or the Chesapeake Bay?
- How likely is it that you will teach about your local watershed or the Chesapeake Bay during the next school year?
- How confident are you in your ability to teach students about the Chesapeake Bay?
- How confident are you in your ability to teach students about their local watershed and its relation to the Chesapeake Bay?

Please be completely honest in your responses. **YOUR RESPONSES WILL BE ANONYMOUS.** The providers of your PD program will be given summary information that is not associated with individuals' names.

Thank you for taking the time to complete this questionnaire! If you have any questions or concerns, please contact Anita Kraemer (eeEval@verizon.net or 540-552-7722).

Anita Kraemer, eeEvaluations
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

OMB Control Number: 0648-0530 Expires: 12/31/2005

ATTACHMENT 34: PD TEACHER NONRESPONSE ANALYSIS – WEB SURVEY

Nonresponse Analysis of B-WET Professional Development - Netscape

File Edit View Go Bookmarks Tools Window Help

http://www.surveymonkey.com/Users/40323672/Surveys/145621215830/CA83BA4D-6BEC-4A71-9CBD-B799EB88CD37.asp Search

Mail AIM Home Radio Netscape Search Bookmarks

[Exit this survey >>](#)

Nonresponse Analysis of B-WET Professional Development

Introduction

You may have received requests from us to complete an online survey related to a watershed or Chesapeake Bay professional development program (funded by NOAA) you recently completed. Because you did not complete the initial questionnaire, we ask that you complete this abbreviated, 2-minute version. Your responses will assist in the evaluation of NOAA's programs.

Please be completely honest in your responses. **YOUR RESPONSES WILL BE ANONYMOUS.** The providers of your PD program will be given summary information that is not associated with individuals' names.

Thank you for taking the time to complete this questionnaire! If you have any questions or concerns, please contact Anita Kraemer (eeEval@verizon.net or 540-552-7722).

Anita Kraemer, eeEvaluations
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

OMB Control Number: 0648-0530 Expires: 12/31/2005

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start Attachment 3... Inbox for eee... SurveyMonke... Nonresponse ... 10:19 AM

ATTACHMENT 34: PD TEACHER NONRESPONSE ANALYSIS – WEB SURVEY

Nonresponse Analysis of B-WET Professional Development - Netscape

File Edit View Go Bookmarks Tools Window Help

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Mail AIM Home Radio Netscape Search Bookmarks

 Exit this survey >>

Nonresponse Analysis of B-WET Professional Development

Background Information

1. In what jurisdiction(s) do you teach?

Delaware	Maryland	New York	Pennsylvania	Virginia	Washington, DC	West Virginia	Other
<input type="checkbox"/>							

2. What grade(s) do you teach?

K	1	2	3	4	5	6	7	8	9	10	11	12	Other
<input type="checkbox"/>													

3. What subject(s) do you teach?

Science	Math	English	Reading	Social studies	Fine arts	Other
<input type="checkbox"/>						

4. How many school years in the past have you taught about the local watershed or the Chesapeake Bay?

None

1-3 school years

4-6 school years

7-10 school years

More than 10 school years

[<< Previous Page](#) [Next Page >>](#)

start Attachment 3... Inbox for eee... SurveyMonke... Nonresponse ... 10:20 AM

ATTACHMENT 34: PD TEACHER NONRESPONSE ANALYSIS – WEB SURVEY

Nonresponse Analysis of B-WET Professional Development - Netscape

File Edit View Go Bookmarks Tools Window Help

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 Exit this survey >>

Nonresponse Analysis of B-WET Professional Development

Teaching about the Watershed

5. AFTER this professional development, how likely IS IT that you will _____ during the next school year?

Extremely unlikely Very unlikely Unlikely Likely Very likely Extremely likely

Teach about your local watershed or the Chesapeake Bay

6. As a result of the watershed/Bay professional development (PD), how has your ability to _____ changed?

No change A small increase A moderate increase A large increase A very large increase Not addressed by PD

Teach students about the Chesapeake Bay

Teach students about their local watershed

7. How would you rate the watershed/Bay professional development overall?

Poor Fair Good Very good Excellent Not applicable

Thank you very much for completing this online questionnaire!

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start Attachment 3... Inbox for eee... SurveyMonke... Nonresponse ... 10:20 AM

ATTACHMENT 34:PD TEACHER NONRESPONSE ANALYSIS – WEB SURVEY

Nonresponse Analysis of B-WET Professional Development - Netscape

File Edit View Go Bookmarks Tools Window Help

http://www.surveymonkey.com/Users/40323672/Surveys/145621215830/09DAEEBF-5B76-4F90-A921-6ED11376E73F.asp?l... Search

Mail AIM Home Radio Netscape Search Bookmarks

Exit this survey >>

Nonresponse Analysis of B-WET Professional Development

Paperwork Reduction Act Statement

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Responses are voluntary and collected and maintained as anonymous data. Information will be treated in accordance with the Freedom of Information Act (5 USC 552).

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start Attachment 3... Inbox for eee... SurveyMonke... Nonresponse ... 10:20 AM

ATTACHMENT 34: PD TEACHER NONRESPONSE ANALYSIS – WEB SURVEY

The screenshot shows a Netscape browser window displaying the NOAA Chesapeake Bay Office homepage. The browser's address bar shows the URL <http://noaa.chesapeakebay.net/>. The page features a blue header with the NOAA logo and the text "NOAA Chesapeake Bay Office". Below the header, there is a "Chesapeake Bay News" section with several news items. On the left side, there is a navigation menu with links to various topics. On the right side, there are featured articles and a "Chesapeake Bay Coastal Prediction Center" link. The browser's taskbar at the bottom shows several open applications, including "Attachment 3...", "Inbox for eee...", "SurveyMonke...", and "Welcome to t...". The system clock in the bottom right corner indicates the time is 10:21 AM.

Welcome to the NOAA Chesapeake Bay Office Home Page - Netscape

File Edit View Go Bookmarks Tools Window Help

<http://noaa.chesapeakebay.net/> Search

Mail AIM Home Radio Netscape Search Bookmarks

 **NOAA**
Chesapeake Bay Office

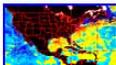
Chesapeake Bay News

Watershed Education Grant Opportunity Announced
Grants of up to \$200,000 will be available through the B-WET (Bay Watershed Education & Training) Program, a competitive program that supports hands-on watershed education throughout the entire Chesapeake Bay watershed. Applications are due by October 24, 2005—learn more about the grant program, eligible applicants and projects, and the application process today.

NOAA Under Way with Expedition Chesapeake
On June 24, a group of Turner Ashby High School students (Rockingham County, Virginia) and Chesapeake Bay Foundation educators started a 355 mile, 30 day canoe trip that will explore the Shenandoah and Potomac Rivers downstream to the Chesapeake Bay. NOAA will be following them all the way—literally! Scientists with NOAA's Chesapeake Bay Office have supplied Expedition Chesapeake with a buoy that will be towed behind a kayak or canoe and will measure, record, and transmit information by satellite back to the NCBO offices in Annapolis, Maryland. The buoy will monitor the water as it transitions from fresh water to salt water—the first water-quality record of its kind—as it tracks levels of dissolved oxygen, salinity, pH, chlorophyll, and other indicators of ecosystem health. This information will enable the students—and scientists—to analyze the connection between land use and water quality and to describe the effects of pollution on rivers and streams on the Chesapeake Bay. Data are displayed as they are collected on a website developed by the Chesapeake Bay Program for this expedition, <http://maps2.chesapeakebay.net/website/expeditionchesapeake/viewer.htm> For more information on Expedition Chesapeake, visit www.baybound.org.

2005 Chesapeake Bay Blue Crab Advisory Report Released
On June 22, the Chesapeake Bay Stock Assessment Committee (CBSAC) released the 2005 Blue Crab Advisory Report. In the report, the Committee analyzed data collected from 2004 through early 2005 to determine the status of blue crabs in the Bay.

Chesapeake Bay Fact Sheets
[Events](#)
[Newsclips](#)
[Bay Journal](#)

Features

Chesapeake Bay Coastal Prediction Center


Chesapeake Bay Fish Poster

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[SAV](#)
[Education](#)
[Ecosystem Model](#)
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[Annapolis Hotels, Food, and Fun](#)
CIMS
Chesapeake Information Management System

<http://fedgrants.gov/Applicants/DOC/NOAA/GMC/NMFS-CBPO-2006-2000265/listing.html>

start Attachment 3... Inbox for eee... SurveyMonke... Welcome to t... 10:21 AM

ATTACHMENT 34: PD TEACHER NONRESPONSE ANALYSIS – WEB SURVEY

ATTACHMENT 35: PAST PD TEACHER NONRESPONSE ANALYSIS – WEB SURVEY

Nonresponse Analysis for B-WET Professional Development - Follow-up - Netscape

File Edit View Go Bookmarks Tools Window Help

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Mail AIM Home Radio Netscape Search Bookmarks

 [Exit this survey >>](#)

Nonresponse Analysis for B-WET Professional Development - Follow-up

Introduction

Thank you for taking a few minutes to complete this questionnaire for the evaluation of NOAA's professional development programs.

Your questionnaire will be anonymous. NOAA and past providers of professional development will be given summary information that is not associated with individuals' names.

Thank you for taking the time to complete this questionnaire! If you have any questions or concerns, please contact Anita Kraemer (eeEval@verizon.net or 540-552-7722).

Anita Kraemer, eeEvaluations
Dr. Jeff Kirwan, Virginia Tech
Dr. Michaela Zint, University of Michigan

OMB Control Number: 0648-0530 Expires: 12/31/2005

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start Attachment 3... Attachment 3... Inbox for eee... SurveyMonke... Nonresponse ... 10:09 AM

ATTACHMENT 35: PAST PD TEACHER NONRESPONSE ANALYSIS – WEB SURVEY

Nonresponse Analysis for B-WET Professional Development - Follow-up - Netscape

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http://www.surveymonkey.com/Users/40323672/Surveys/297481215976/A1839CAB-5C8A-4A85-9D79-AB86C7FEB068.asp? Search

Mail AIM Home Radio Netscape Search Bookmarks

Nonresponse Analysis for B-WET Professional Development - Follow-up

Background Information

1. Did you teach about your local watershed or the Chesapeake Bay during the 2005-06 school year?

No Yes

2. In what jurisdiction(s) do you teach?

Delaware Maryland New York Pennsylvania Virginia Washington, DC West Virginia Other

3. What grade(s) do you teach?

K 1 2 3 4 5 6 7 8 9 10 11 12 Other

4. What subject(s) do you teach?

Science Math English Reading Social studies Fine arts Other

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ATTACHMENT 35: PAST PD TEACHER NONRESPONSE ANALYSIS – WEB SURVEY

Nonresponse Analysis for B-WET Professional Development - Follow-up - Netscape

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http://www.surveymonkey.com/Users/40323672/Surveys/297481215976/83A34CC9-A435-4BCD-A744-B676AE58151D.asp? Search

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Nonresponse Analysis for B-WET Professional Development - Follow-up

Teaching about the Bay or Watershed

[Exit this survey >>](#)

5. How many school years in the past have you taught about the local watershed or the Chesapeake Bay?

- None
- 1-3 school years
- 4-6 school years
- 7-10 school years
- More than 10 school years

6. I intend to _____ during the next school year.

Extremely unlikely Very unlikely Unlikely Likely Very likely Extremely likely

Teach about the local watershed or the Chesapeake Bay

7. How confident are you in your ability to _____?

Not at all confident Somewhat confident Very confident Extremely confident

Teach students about the Chesapeake Bay?

Teach students about their local watershed and its relation to the Bay?

Thank you very much for completing this online questionnaire!

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ATTACHMENT 35: PAST PD TEACHER NONRESPONSE ANALYSIS – WEB SURVEY

Nonresponse Analysis for B-WET Professional Development - Follow-up - Netscape

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Nonresponse Analysis for B-WET Professional Development - Follow-up

Paperwork Reduction Act Statement

Public reporting burden for this collection of information is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Kimberly Benson, NOAA Office of Education and Sustainable Development, Herbert C. Hoover Building, Room 6863, 14th and Constitution Avenue, NW Washington, DC 20230.

Responses are voluntary and collected and maintained as anonymous data. Information will be treated in accordance with the Freedom of Information Act (5 USC 552).

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ATTACHMENT 35: PAST PD TEACHER NONRESPONSE ANALYSIS – WEB SURVEY

The screenshot shows a Netscape browser window displaying the NOAA Chesapeake Bay Office website. The browser's title bar reads "Welcome to the NOAA Chesapeake Bay Office Home Page - Netscape". The address bar shows the URL "http://noaa.chesapeakebay.net/". The website has a dark blue background with white and light blue text and graphics.

NOAA Chesapeake Bay Office

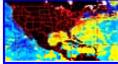
Chesapeake Bay News

Watershed Education Grant Opportunity Announced
Grants of up to \$200,000 will be available through the B-WET (Bay Watershed Education & Training) Program, a competitive program that supports hands-on watershed education throughout the entire Chesapeake Bay watershed. Applications are due by October 24, 2005—learn more about the grant program, eligible applicants and projects, and the application process today.

NOAA Under Way with Expedition Chesapeake
On June 24, a group of Turner Ashby High School students (Rockingham County, Virginia) and Chesapeake Bay Foundation educators started a 355 mile, 30 day canoe trip that will explore the Shenandoah and Potomac Rivers downstream to the Chesapeake Bay. NOAA will be following them all the way—literally! Scientists with NOAA's Chesapeake Bay Office have supplied Expedition Chesapeake with a buoy that will be towed behind a kayak or canoe and will measure, record, and transmit information by satellite back to the NCBO offices in Annapolis, Maryland. The buoy will monitor the water as it transitions from fresh water to salt water—the first water-quality record of its kind—as it tracks levels of dissolved oxygen, salinity, pH, chlorophyll, and other indicators of ecosystem health. This information will enable the students—and scientists—to analyze the connection between land use and water quality and to describe the effects of pollution on rivers and streams on the Chesapeake Bay. Data are displayed as they are collected on a website developed by the Chesapeake Bay Program for this expedition, <http://maps2.chesapeakebay.net/website/expeditionchesapeake/viewer.htm> For more information on Expedition Chesapeake, visit www.baybound.org.

2005 Chesapeake Bay Blue Crab Advisory Report Released
On June 22, the Chesapeake Bay Stock Assessment Committee (CBSAC) released the 2005 Blue Crab Advisory Report. In the report, the Committee analyzed data collected from 2004 through early 2005 to determine the status of blue crabs in the Bay.

Chesapeake Bay Fact Sheets
[Events](#)
[Newsclips](#)
[Bay Journal](#)

Features

Chesapeake Bay Coastal Prediction Center


Chesapeake Bay Fish Poster

Navigation Links:
In the News
Fish & Shellfish
Habitat
SAV
Education
Ecosystem Model
GIS
About NCBO

Grants and Funding Opportunities
2002 NCBO Reauthorization
1992 NCBO Authorization
Directions to NCBO
Annapolis Hotels, Food, and Fun
CIMS
Chesapeake Information Management System

The browser's status bar at the bottom shows the Windows taskbar with the Start button, several open applications (Attachment 3..., Inbox for eee..., SurveyMonke..., Welcome to t...), and the system clock showing 10:11 AM.



CHESAPEAKE 2000

PREAMBLE

The Chesapeake Bay is North America's largest and most biologically diverse estuary, home to more than 3,600 species of plants, fish and animals. For more than 300 years, the Bay and its tributaries have sustained the region's economy and defined its traditions and culture. It is a resource of extraordinary productivity, worthy of the highest levels of protection and restoration.

Accordingly, in 1983 and 1987, the states of Virginia, Maryland, Pennsylvania, the District of Columbia, the Chesapeake Bay Commission and the U.S. Environmental Protection Agency, representing the federal government, signed historic agreements that established the Chesapeake Bay Program partnership to protect and restore the Chesapeake Bay's ecosystem.

For almost two decades, we, the signatories to these agreements, have worked together as stewards to ensure the public's right to clean water and a healthy and productive resource. We have sought to protect the health of the public that uses the Bay and consumes its bounty. The initiatives we have pursued have been deliberate and have produced significant results in the health and productivity of the Bay's main stem, the tributaries, and the natural land and water ecosystems that compose the Chesapeake Bay watershed.

While the individual and collective accomplishments of our efforts have been significant, even greater effort will be required to address the enormous challenges that lie ahead. Increased population and development within the watershed have created ever-greater challenges for us in the Bay's restoration. These challenges are further complicated by the dynamic nature of the Bay and the ever-changing global ecosystem with which it interacts.

In order to achieve our existing goals and meet the challenges that lie ahead, we must reaffirm our partnership and recommit to fulfilling the public responsibility we undertook almost two decades ago. We must manage for the future. We must have a vision for our desired destiny and put programs into place that will secure it.

To do this, there can be no greater goal in this recommitment than to engage everyone — individuals, businesses, schools and universities, communities and governments — in our effort. We must encourage all citizens of the Chesapeake Bay watershed to work toward a shared vision — a system with abundant, diverse populations of living resources, fed by healthy streams and rivers, sustaining strong local and regional economies, and our unique quality of life.

In affirming our recommitment through this new *Chesapeake 2000*, we recognize the importance of viewing this document in its entirety with no single part taken in isolation of the others. This Agreement reflects the Bay's complexity in that each action we take, like the elements of the Bay itself, is connected to all the others. This Agreement responds to the problems facing this magnificent ecosystem in a comprehensive, multifaceted way.

By this Agreement, we commit ourselves to nurture and sustain a Chesapeake Bay Watershed Partnership and to achieve the goals set forth in the subsequent sections. Without such a partnership, future challenges will not be met. With it, the restoration and protection of the Chesapeake Bay will be ensured for generations to come.

We commit to:

LIVING RESOURCE PROTECTION AND RESTORATION

The health and vitality of the Chesapeake Bay's living resources provide the ultimate indicator of our success in the restoration and protection effort. The Bay's fisheries and the other living resources that sustain them and provide habitat for them are central to the initiatives we undertake in this Agreement.

We recognize the interconnectedness of the Bay's living resources and the importance of protecting the entire natural system. Therefore, we commit to identify the essential elements of habitat and environmental quality necessary to support the living resources of the Bay. In protecting commercially valuable species, we will manage harvest levels with precaution to maintain their health and stability and protect the ecosystem as a whole. We will restore passage for migratory fish and work to ensure that suitable water quality conditions exist in the upstream spawning habitats upon which they depend.

Our actions must be conducted in an integrated and coordinated manner. They must be continually monitored, evaluated and revised to adjust to the dynamic nature and complexities of the Chesapeake Bay and changes in global ecosystems. To advance this ecosystem approach, we will broaden our management perspective from single-system to ecosystem functions and will expand our protection efforts by shifting from single-species to multi-species management. We will also undertake efforts to determine how future conditions and changes in the chemical, physical and biological attributes of the Bay will affect living resources over time.

GOAL

Restore, enhance and protect the finfish, shellfish and other living resources, their habitats and ecological relationships to sustain all fisheries and provide for a balanced ecosystem.

Oysters

- By 2010, achieve, at a minimum, a tenfold increase in native oysters in the Chesapeake Bay, based upon a 1994 baseline. By 2002, develop and implement a strategy to achieve this increase by using sanctuaries sufficient in size and distribution, aquaculture, continued disease research and disease-resistant management strategies, and other management approaches.

Exotic Species

- In 2000, establish a Chesapeake Bay Program Task Force to:
 1. Work cooperatively with the U.S. Coast Guard, the ports, the shipping industry, environmental interests and others at the national level to help establish and implement a national program designed to substantially reduce and, where possible, eliminate the introduction of non-native species carried in ballast water; and
 2. By 2002, develop and implement an interim voluntary ballast water management program for the waters of the Bay and its tributaries.
- By 2001, identify and rank non-native, invasive aquatic and terrestrial species which are causing or have the potential to cause significant negative impacts to the Bay's aquatic ecosystem. By 2003, develop and implement management plans for those species deemed problematic to the restoration and integrity of the Bay's ecosystem.

Fish Passage and Migratory and Resident Fish

- By June 2002, identify the final initiatives necessary to achieve our existing goal of restoring fish passage for migratory fish to more than 1,357 miles of currently blocked river habitat by 2003 and establish a monitoring program to assess outcomes.
- By 2002, set a new goal with implementation schedules for additional migratory and resident fish passages that addresses the removal of physical blockages. In addition, the goal will address the removal of chemical blockages caused by acid mine drainage. Projects should be selected for maximum habitat and stock benefit.
- By 2002, assess trends in populations for priority migratory fish species. Determine tributary-specific target population sizes based upon projected fish passage, and current and projected habitat available, and provide recommendations to achieve those targets.

- By 2003, revise fish management plans to include strategies to achieve target population sizes of tributary-specific migratory fish.

Multi-species Management

- By 2004, assess the effects of different population levels of filter feeders such as menhaden, oysters and clams on Bay water quality and habitat.
- By 2005, develop ecosystem-based multi-species management plans for targeted species.
- By 2007, revise and implement existing fisheries management plans to incorporate ecological, social and economic considerations, multi-species fisheries management and ecosystem approaches.

Crabs

- By 2001, establish harvest targets for the blue crab fishery and begin implementing complementary state fisheries management strategies Baywide. Manage the blue crab fishery to restore a healthy spawning biomass, size and age structure.

VITAL HABITAT PROTECTION AND RESTORATION

The Chesapeake Bay's natural infrastructure is an intricate system of terrestrial and aquatic habitats, linked to the landscapes and the environmental quality of the watershed. It is composed of the thousands of miles of river and stream habitat that interconnect the land, water, living resources and human communities of the Bay watershed. These vital habitats—including open water, underwater grasses, marshes, wetlands, streams and forests—support living resource abundance by providing key food and habitat for a variety of species. Submerged aquatic vegetation reduces shoreline erosion while forests and wetlands protect water quality by naturally processing the pollutants before they enter the water. Long-term protection of this natural infrastructure is essential.

In managing the Bay ecosystem as a whole, we recognize the need to focus on the individuality of each river, stream and creek, and to secure their protection in concert with the communities and individuals that reside within these small watersheds. We also recognize that we must continue to refine and share information regarding the importance of these vital habitats to the Bay's fish, shellfish and waterfowl. Our efforts to preserve the integrity of this natural infrastructure will protect the Bay's waters and living resources and will ensure the viability of human economies and communities that are dependent upon those resources for sustenance, reverence and posterity.

GOAL

Preserve, protect and restore those habitats and natural areas that are vital to the survival and diversity of the living resources of the Bay and its rivers.

Submerged Aquatic Vegetation

- Recommit to the existing goal of protecting and restoring 114,000 acres of submerged aquatic vegetation (SAV).
- By 2002, revise SAV restoration goals and strategies to reflect historic abundance, measured as acreage and density from the 1930s to the present. The revised goals will include specific levels of water clarity which are to be met in 2010. Strategies to achieve these goals will address water clarity, water quality and bottom disturbance.
- By 2002, implement a strategy to accelerate protection and restoration of SAV beds in areas of critical importance to the Bay's living resources.

Watersheds

- By 2010, work with local governments, community groups and watershed organizations to develop and implement locally supported watershed management plans in two-thirds of the Bay watershed covered by this Agreement. These plans would address the protection, conservation and restoration of stream corridors, riparian forest buffers and wetlands for the purposes of improving habitat and water quality, with collateral benefits for optimizing stream flow and water supply.
- By 2001, each jurisdiction will develop guidelines to ensure the aquatic health of stream corridors. Guidelines should consider optimal surface and groundwater flows.
- By 2002, each jurisdiction will work with local governments and communities that have watershed management plans to select pilot projects that promote stream corridor protection and restoration.
- By 2003, include in the "State of the Bay Report," and make available to the public, local governments and others, information concerning the aquatic health of stream corridors based on adopted regional guidelines.
- By 2004, each jurisdiction, working with local governments, community groups and watershed organizations, will develop stream corridor restoration goals based on local watershed management planning.

Wetlands

- Achieve a no-net loss of existing wetlands acreage and function in the signatories' regulatory programs.
- By 2010, achieve a net resource gain by restoring 25,000 acres of tidal and non-tidal wetlands. To do this, we commit to achieve and maintain an average restoration rate of 2,500 acres per year basin wide by 2005 and beyond. We will evaluate our success in 2005.
- Provide information and assistance to local governments and community groups for the development and implementation of wetlands preservation plans as a component of a locally based integrated watershed management plan. Establish a goal of implementing the wetlands plan component in 25 percent of the land area of each state's Bay watershed by 2010. The plans would preserve key wetlands while addressing surrounding land use so as to preserve wetland functions.
- Evaluate the potential impact of climate change on the Chesapeake Bay watershed, particularly with respect to its wetlands, and consider potential management options.

Forests

- By 2002, ensure that measures are in place to meet our riparian forest buffer restoration goal of 2,010 miles by 2010. By 2003, establish a new goal to expand buffer mileage.
- Conserve existing forests along all streams and shorelines.
- Promote the expansion and connection of contiguous forests through conservation easements, greenways, purchase and other land conservation mechanisms.

WATER QUALITY PROTECTION AND RESTORATION

Improving water quality is the most critical element in the overall protection and restoration of the Chesapeake Bay and its tributaries. In 1987, we committed to achieving a 40 percent reduction in controllable nutrient loads to the Bay. In 1992, we committed to tributary-specific reduction strategies to achieve this reduction and agreed to stay at or below these nutrient loads once attained. We have made measurable reductions in pollution loading despite continuing growth and development. Still, we must do more.

Recent actions taken under the Clean Water Act resulted in listing portions of the Chesapeake Bay and its tidal rivers as "impaired waters." These actions have emphasized the regulatory framework of the Act along with the ongoing cooperative efforts of the Chesapeake Bay Program as the means to address the nutrient enrichment problems within the Bay and its rivers. In response, we have developed, and are implementing, a process for integrating the cooperative and statutory programs of the Chesapeake Bay and its tributaries. We have agreed

to the goal of improving water quality in the Bay and its tributaries so that these waters may be removed from the impaired waters list prior to the time when regulatory mechanisms under Section 303(d) of the Clean Water Act would be applied.

We commit to achieve and maintain water quality conditions necessary to support living resources throughout the Chesapeake Bay ecosystem. Where we have failed to achieve established water quality goals, we will take actions necessary to reach and maintain those goals. We will make pollution prevention a central theme in the protection of water quality. And we will take actions that protect freshwater flow regimes for riverine and estuarine habitats. In pursuing the restoration of vital habitats throughout the watershed, we will continue efforts to improve water clarity in order to meet light requirements necessary to support SAV. We will expand our efforts to reduce sediments and airborne pollution, and ensure that the Bay is free from toxic effects on living resources and human health. We will continue our cooperative intergovernmental approach to achieve and maintain water quality goals through cost-effective and equitable means within the framework of federal and state law. We will evaluate the potential impacts of emerging issues, including, among others, airborne ammonia and nonpoint sources of chemical contaminants. Finally, we will continue to monitor water quality conditions and adjust our strategies accordingly.

GOAL

Achieve and maintain the water quality necessary to support the aquatic living resources of the Bay and its tributaries and to protect human health.

Nutrients and Sediments

- Continue efforts to achieve and maintain the 40 percent nutrient reduction goal agreed to in 1987, as well as the goals being adopted for the tributaries south of the Potomac River.
- By 2010, correct the nutrient- and sediment-related problems in the Chesapeake Bay and its tidal tributaries sufficiently to remove the Bay and the tidal portions of its tributaries from the list of impaired waters under the Clean Water Act. In order to achieve this:
 1. By 2001, define the water quality conditions necessary to protect aquatic living resources and then assign load reductions for nitrogen and phosphorus to each major tributary;
 2. Using a process parallel to that established for nutrients, determine the sediment load reductions necessary to achieve the water quality conditions that protect aquatic living resources, and assign load reductions for sediment to each major tributary by 2001;
 3. By 2002, complete a public process to develop and begin implementation of revised Tributary Strategies to achieve and maintain the assigned loading goals;
 4. By 2003, the jurisdictions with tidal waters will use their best efforts to adopt new or revised water quality standards consistent with the defined water quality conditions. Once adopted by the jurisdictions, the Environmental Protection Agency will work expeditiously to review the new or revised standards, which will then be used as the basis for removing the Bay and its tidal rivers from the list of impaired waters; and
 5. By 2003, work with the Susquehanna River Basin Commission and others to adopt and begin implementing strategies that prevent the loss of the sediment retention capabilities of the lower Susquehanna River dams.

Chemical Contaminants

- We commit to fulfilling the 1994 goal of a Chesapeake Bay free of toxics by reducing or eliminating the input of chemical contaminants from all controllable sources to levels that result in no toxic or bioaccumulative impact on the living resources that inhabit the Bay or on human health.
- By Fall of 2000, reevaluate and revise, as necessary, the "Chesapeake Bay Basinwide Toxics Reduction and Prevention Strategy" focusing on:
 1. Complementing state and federal regulatory programs to go beyond traditional point source

controls, including nonpoint sources such as groundwater discharge and atmospheric deposition, by using a watershed-based approach; and

2. Understanding the effects and impacts of chemical contaminants to increase the effectiveness of management actions.

- Through continual improvement of pollution prevention measures and other voluntary means, strive for zero release of chemical contaminants from point sources, including air sources. Particular emphasis shall be placed on achieving, by 2010, elimination of mixing zones for persistent or bioaccumulative toxics.
- Reduce the potential risk of pesticides to the Bay by targeting education, outreach and implementation of Integrated Pest Management and specific Best Management Practices on those lands that have higher potential for contributing pesticide loads to the Bay.

Priority Urban Waters

- Support the restoration of the Anacostia River, Baltimore Harbor, and Elizabeth River and their watersheds as models for urban river restoration in the Bay basin.
- By 2010, the District of Columbia, working with its watershed partners, will reduce pollution loads to the Anacostia River in order to eliminate public health concerns and achieve the living resource, water quality and habitat goals of this and past Agreements.

Air Pollution

- By 2003, assess the effects of airborne nitrogen compounds and chemical contaminants on the Bay ecosystem and help establish reduction goals for these contaminants.

Boat Discharge

- By 2003, establish appropriate areas within the Chesapeake Bay and its tributaries as “no discharge zones” for human waste from boats. By 2010, expand by 50 percent the number and availability of waste pump-out facilities.
- By 2006, reassess our progress in reducing the impact of boat waste on the Bay and its tributaries. This assessment will include evaluating the benefits of further expanding no discharge zones, as well as increasing the number of pump-out facilities.

SOUND LAND USE

In 1987, the signatories agreed that “there is a clear correlation between population growth and associated development and environmental degradation in the Chesapeake Bay system.” This Agreement reaffirms that concept and recognizes that more must be done.

An additional three million people are expected to settle in the watershed by 2020. This growth could potentially eclipse the nutrient reduction and habitat protection gains of the past. Therefore it is critical that we consider our approaches to land use in order to ensure progress in protecting the Bay and its local watersheds.

Enhancing, or even maintaining, the quality of the Bay while accommodating growth will frequently involve difficult choices. It will require a renewed commitment to appropriate development standards. The signatories will assert the full measure of their authority to limit and mitigate the potential adverse effects of continued growth; each however, will pursue this objective within the framework of its own historic, existing or future land use practices or processes. Local jurisdictions have been delegated authority over many decisions regarding growth and development which have both direct and indirect effects on the Chesapeake Bay system and its living resources. The role of local governments in the Bay’s restoration and protection effort will be given proper recognition and support through state and federal resources. States will also engage in active partnerships with local governments in managing growth and development in ways that support the following goal.

We acknowledge that future development will be sustainable only if we protect our natural and rural resource land, limit impervious surfaces and concentrate new growth in existing population centers or suitable areas served by appropriate infrastructure. We will work to integrate environmental, community and economic goals by promoting more environmentally sensitive forms of development. We will also strive to coordinate land-use, transportation, water and sewer and other infrastructure planning so that funding and policies at all levels of government do not contribute to poorly planned growth and development or degrade local water quality and habitat. We will advance these policies by creating partnerships with local governments to protect our communities and to discharge our duties as trustees in the stewardship of the Chesapeake Bay. Finally, we will report every two years on our progress in achieving our commitments to promote sound land use.

GOAL

Develop, promote and achieve sound land use practices which protect and restore watershed resources and water quality, maintain reduced pollutant loadings for the Bay and its tributaries, and restore and preserve aquatic living resources.

Land Conservation

- By 2001, complete an assessment of the Bay's resource lands including forests and farms, emphasizing their role in the protection of water quality and critical habitats, as well as cultural and economic viability.
- Provide financial assistance or new revenue sources to expand the use of voluntary and market-based mechanisms such as easements, purchase or transfer of development rights and other approaches to protect and preserve natural resource lands.
- Strengthen programs for land acquisition and preservation within each state that are supported by funding and target the most valued lands for protection. Permanently preserve from development 20 percent of the land area in the watershed by 2010.
- Provide technical and financial assistance to local governments to plan for or revise plans, ordinances and subdivision regulations to provide for the conservation and sustainable use of the forest and agricultural lands.
- In cooperation with local governments, develop and maintain in each jurisdiction a strong GIS system to track the preservation of resource lands and support the implementation of sound land use practices.

Development, Redevelopment and Revitalization

- By 2012, reduce the rate of harmful sprawl development of forest and agricultural land in the Chesapeake Bay watershed by 30 percent measured as an average over five years from the baseline of 1992 -1997, with measures and progress reported regularly to the Chesapeake Executive Council.
- By 2005, in cooperation with local government, identify and remove state and local impediments to low impact development designs to encourage the use of such approaches and minimize water quality impacts.
- Work with communities and local governments to encourage sound land use planning and practices that address the impacts of growth, development and transportation on the watershed.
- By 2002, review tax policies to identify elements which discourage sustainable development practices or encourage undesirable growth patterns. Promote the modification of such policies and the creation of tax incentives which promote the conservation of resource lands and encourage investments consistent with sound growth management principles.
- The jurisdictions will promote redevelopment and remove barriers to investment in underutilized urban, suburban and rural communities by working with localities and development interests.
- By 2002, develop analytical tools that will allow local governments and communities to conduct watershed-based assessment of the impacts of growth, development and transportation decisions.
- By 2002, compile information and guidelines to assist local governments and communities to promote ecologically-based designs in order to limit impervious cover in undeveloped and moderately developed

watersheds and reduce the impact of impervious cover in highly developed watersheds.

- Provide information to the development community and others so they may champion the application of sound land use practices.
- By 2003, work with local governments and communities to develop land-use management and water resource protection approaches that encourage the concentration of new residential development in areas supported by adequate water resources and infrastructure to minimize impacts on water quality.
- By 2004, the jurisdictions will evaluate local implementation of stormwater, erosion control and other locally-implemented water quality protection programs that affect the Bay system and ensure that these programs are being coordinated and applied effectively in order to minimize the impacts of development.
- Working with local governments and others, develop and promote wastewater treatment options, such as nutrient reducing septic systems, which protect public health and minimize impacts to the Bay's resources.
- Strengthen brownfield redevelopment. By 2010, rehabilitate and restore 1,050 brownfield sites to productive use.
- Working with local governments, encourage the development and implementation of emerging urban storm water retrofit practices to improve their water quantity and quality function.

Transportation

- By 2002, the signatory jurisdictions will promote coordination of transportation and land use planning to encourage compact, mixed use development patterns, revitalization in existing communities and transportation strategies that minimize adverse effects on the Bay and its tributaries.
- By 2002, each state will coordinate its transportation policies and programs to reduce the dependence on automobiles by incorporating travel alternatives such as telework, pedestrian, bicycle and transit options, as appropriate, in the design of projects so as to increase the availability of alternative modes of travel as measured by increased use of those alternatives.
- Consider the provisions of the federal transportation statutes for opportunities to purchase easements to preserve resource lands adjacent to rights of way and special efforts for stormwater management on both new and rehabilitation projects.
- Establish policies and incentives which encourage the use of clean vehicle and other transportation technologies that reduce emissions.

Public Access

- By 2010, expand by 30 percent the system of public access points to the Bay, its tributaries and related resource sites in an environmentally sensitive manner by working with state and federal agencies, local governments and stakeholder organizations.
- By 2005, increase the number of designated water trails in the Chesapeake Bay region by 500 miles.
- Enhance interpretation materials that promote stewardship at natural, recreational, historical and cultural public access points within the Chesapeake Bay watershed.
- By 2003, develop partnerships with at least 30 sites to enhance place-based interpretation of Bay-related resources and themes and stimulate volunteer involvement in resource restoration and conservation.

STEWARDSHIP AND COMMUNITY ENGAGEMENT

The Chesapeake Bay is dependent upon the actions of every citizen in the watershed, both today and in the

future. We recognize that the cumulative benefit derived from community-based watershed programs is essential for continued progress toward a healthier Chesapeake Bay. Therefore, we commit ourselves to engage our citizens by promoting a broad conservation ethic throughout the fabric of community life, and foster within all citizens a deeper understanding of their roles as trustees of their own local environments. Through their actions, each individual can contribute to the health and well-being of their neighborhood streams, rivers and the land that surrounds them, not only as ecological stewards of the Bay but also as members of watershed-wide communities. By focusing individuals on local resources, we will advance Baywide restoration as well.

We recognize that the future of the Bay also depends on the actions of generations to follow. Therefore, we commit to provide opportunities for cooperative learning and action so that communities can promote local environmental quality for the benefit and enjoyment of residents and visitors. We will assist communities throughout the watershed in improving quality of life, thereby strengthening local economies and connecting individuals to the Bay through their shared sense of responsibility. We will seek to increase the financial and human resources available to localities to meet the challenges of restoring the Chesapeake Bay.

GOAL

Promote individual stewardship and assist individuals, community-based organizations, businesses, local governments and schools to undertake initiatives to achieve the goals and commitments of this agreement.

Education and Outreach

- Make education and outreach a priority in order to achieve public awareness and personal involvement on behalf of the Bay and local watersheds.
- Provide information to enhance the ability of citizen and community groups to participate in Bay restoration activities on their property and in their local watershed.
- Expand the use of new communications technologies to provide a comprehensive and interactive source of information on the Chesapeake Bay and its watershed for use by public and technical audiences. By 2001, develop and maintain a web-based clearing house of this information specifically for use by educators.
- Beginning with the class of 2005, provide a meaningful Bay or stream outdoor experience for every school student in the watershed before graduation from high school.
- Continue to forge partnerships with the Departments of Education and institutions of higher learning in each jurisdiction to integrate information about the Chesapeake Bay and its watershed into school curricula and university programs.
- Provide students and teachers alike with opportunities to directly participate in local restoration and protection projects, and to support stewardship efforts in schools and on school property.
- By 2002, expand citizen outreach efforts to more specifically include minority populations by, for example, highlighting cultural and historical ties to the Bay, and providing multi-cultural and multi-lingual educational materials on stewardship activities and Bay information.

Community Engagement

- Jurisdictions will work with local governments to identify small watersheds where community-based actions are essential to meeting Bay restoration goals—in particular wetlands, forested buffers, stream corridors and public access and work with local governments and community organizations to bring an appropriate range of Bay program resources to these communities.
- Enhance funding for locally-based programs that pursue restoration and protection projects that will assist in the achievement of the goals of this and past agreements.
- By 2001, develop and maintain a clearing house for information on local watershed restoration efforts, including financial and technical assistance.

- By 2002, each signatory jurisdiction will offer easily-accessible information suitable for analyzing environmental conditions at a small watershed scale.
- Strengthen the Chesapeake Bay Program’s ability to incorporate local governments into the policy decision making process. By 2001, complete a reevaluation of the Local Government Participation Action Plan and make necessary changes in Bay program and jurisdictional functions based upon the reevaluation.
- Improve methods of communication with and among local governments on Bay issues and provide adequate opportunities for discussion of key issues.
- By 2001, identify community watershed organizations and partnerships. Assist in establishing new organizations and partnerships where interest exists. These partners will be important to successful watershed management efforts in distributing information to the public, and engaging the public in the Bay restoration and preservation effort.
- By 2005, identify specific actions to address the challenges of communities where historically poor water quality and environmental conditions have contributed to disproportional health, economic or social impacts.

Government by Example

- By 2002, each signatory will put in place processes to:
 1. Ensure that all properties owned, managed or leased by the signatories are developed, redeveloped and used in a manner consistent with all relevant goals, commitments and guidance of this Agreement.
 2. Ensure that the design and construction of signatory-funded development and redevelopment projects are consistent with all relevant goals, commitments and guidance of this Agreement.
- Expand the use of clean vehicle technologies and fuels on the basis of emission reductions, so that a significantly greater percentage of each signatory government’s fleet of vehicles use some form of clean technology.
- By 2001, develop an Executive Council Directive to address stormwater management to control nutrient, sediment and chemical contaminant runoff from state, federal and District owned land.

Partnerships

- Strengthen partnerships with Delaware, New York and West Virginia by promoting communication and by seeking agreements on issues of mutual concern.
- Work with non-signatory Bay states to establish links with community-based organizations throughout the Bay watershed.

THIS AGREEMENT, we rededicate ourselves to the restoration and protection of the ecological integrity, productivity and beneficial uses of the Chesapeake Bay system. We reaffirm our commitment to previously-adopted Chesapeake Bay Agreements and their supporting policies. We agree to report annually to the citizens on the state of the Bay and consider any additional actions necessary.

(Date)

FOR THE CHESAPEAKE BAY COMMISSION _____

FOR THE STATE OF MARYLAND _____

FOR THE COMMONWEALTH OF PENNSYLVANIA _____

FOR THE COMMONWEALTH OF VIRGINIA _____

FOR THE DISTRICT OF COLUMBIA _____

FOR THE UNITED STATES OF AMERICA _____