

B-WET

BAY WATERSHED EDUCATION
& TRAINING PROGRAM

Update on the B-WET National Evaluation

Bronwen Rice

B-WET National Coordinator

Jaime Frungillo

Grants Specialist

National Oceanic and Atmospheric
Administration (NOAA)

November 9, 2017

< B-WET Great Lakes



Purpose



- Update Great Lakes grantees on the status of the B-WET national evaluation system
- Discuss some results of a recent analysis
- Review how you can participate!



B-WET Evaluation History

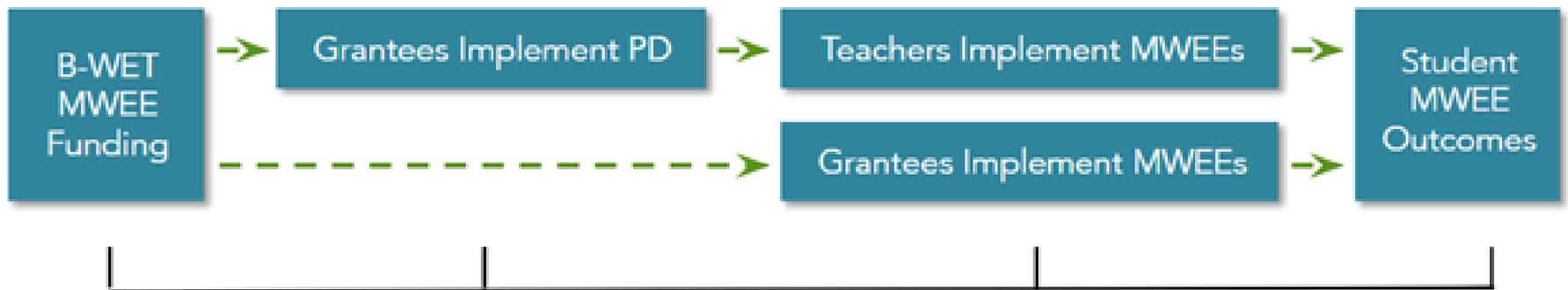


- Project and region-level evaluation work in California and Chesapeake Bay
- Data collection for the national evaluation system began in 2014
- Implemented a grant output tracking system in 2015 (Knack)
- Contributes to broader NOAA-wide evaluation

The B-WET National Evaluation System

Designed to evaluate “meaningful watershed educational experiences” or MWEEs

MWEEs are multi-stage activities that include learning both outdoors and in the classroom and aim to increase understanding and stewardship of watersheds and related ecosystems.



"Best Practices"

What do we do with the data?



- Ensure anonymity – intention is to evaluate **MWEEs**, not individual grantee or teacher
- Review aggregated data at national and regional levels to inform program decisions
- Grantees can view teachers responses through password protected private reports
- Aggregated data set will be available to researchers, to inform field

Evaluation Report Highlights



1. Teacher Professional Development (PD)
2. Student Meaningful Watershed Educational Experiences (MWEEs)



Teacher Professional Development Implementation



72% of teachers participated in at least one stewardship behavior during their professional development.

All grantees reported using NOAA resources as part of their PD.

Almost all teachers experienced outdoor contact time during their PD including a field trip/work, with the majority spending 1-10 hours outdoors.



Teacher Professional Development Outcomes



75% of teachers implemented MWEEs with their students within 12 months of their PD.

MWEE PD increases teachers' watershed literacy, confidence, and intention to implement MWEEs.

There are specific PD practices that predict teacher confidence and teacher perceptions of student outcomes.



Teacher Professional Development Best Practices

Grantees' PD should:

- Incorporate place-based and scientific inquiry learning.
- Provide hands-on support:
 - Assistance with field trips/work, use of equipment/technologies, and conducting stewardship projects
 - Share information about how to obtain funding for MWEEs.
- Focus on how teachers can use scientific data to support student MWEE outcomes.
- Align PD with district, state, and national education standards.
- Deliver PD through institutes and multi-day workshops
 - Aim for > 30 hours of total PD contact time including >10 hours outdoor.
- Include environmental stewardship behaviors.

MWEE Implementation

82% of teachers engaged their students in stewardship behaviors.

74% of grantees and 68% of teachers used NOAA resources.

MWEE outdoor contact time varied, with most teachers and grantees incorporating 1-5 hours.

Many teachers engaged their students in three or more outdoor learning experiences.

Teachers and grantees used diverse instructional methods.

MWEEs were conducted in a range of locations/settings, with the majority implemented off school grounds.

Almost all teachers engaged their students in collecting data or making observations (98%).

Student MWEE Outcomes

As a result of participating in MWEEs, teachers agreed:

- Their students' watershed literacy increased, such as their ability to recognize that both natural processes and human activities affect water flow and water quality in watersheds as well as behaviors they can engage in to protect watersheds.
- Their students improved in a range of environmental stewardship and science literacy outcomes as a result of participating in MWEEs, e.g.
 - Expressing greater concern for their watershed and being able to make informed decisions about how to protect it
 - Being better able to understand the nature of scientific research, and
 - Being more engaged in their learning.

MWEE Implementation Best Practices

Evaluation system and existing research results suggest that grantees should encourage the following MWEE practices:

- Integrate outdoor and in-classroom learning by teachers (i.e., preparing students for outdoor learning, linking outdoor and in-classroom learning, asking students to apply what they learned outdoors).
- Conduct outdoor field trips/work to enhance students' ability to conduct scientific investigations.
- Engage students in stewardship behaviors.

How you can participate!

For Grantees:

- Provide teacher contact info (email addresses)
- Complete an online survey at the end of the grant period (annually)

For Teachers:

- Complete an online survey following their professional development (“PD Survey”)
- Also receive a follow-up survey at the end of the following school year (“MWEE Survey”)

All information is collected via an online survey management system (Qualtrics)

Grantee Survey

- All grantees (regardless of project type) will be asked to complete an online survey at the end of your grant period (or once per year if your grant is multiple years).
- What is asked on the annual grantee survey:
 - Grantee satisfaction with B-WET program
 - Student MWEE goals and implementation
 - PD goals and implementation
 - Project descriptive information

Teacher Contact Information Survey

- **If you have a Teacher PD or Exemplary grant, we will ask you to complete an online form to provide contact info for the teachers who participate in your professional development (PD).** If you have multiple cohorts of teachers, you may complete this form, emailed monthly, as many times as needed over the course of your grant. You will be asked for your contact information, a list of teachers' email addresses, and the dates of the professional development you plan to provide. No other teacher contact information is requested.

Tips for Teacher Contacts!

- It is very important to provide an accurate anticipated end date for the entire professional development (PD) activity
 - when **all** of your interactions with that group of teachers will be complete
- Please submit contacts once you know who has participated, ideally at least one month prior to PD end date
 - It is Ok (even better!) to wait until later in PD so you will know for sure
- Please contact me if you need to make changes to contacts you have already submitted

Preview of Teacher Contacts Form

qualtrics.com®



B-WET

BAY WATERSHED EDUCATION & TRAINING PROGRAM

Q1. Please enter your NOAA B-WET award number. Your numbers, such as NA12NMF4638049. The award number is the region, not your organization, and 2) allow us to link information provided by your project's teachers.

Q2. In case teachers have questions about the B-WET information for NOAA B-WET, will be included in the email

First Name

Last Name

Organization Name

Your Email Address

Your Phone Number

Q3. In what region are you located? (choose one)

- California
- Chesapeake
- Great Lakes
- Gulf of Mexico

Q4.

Please provide the dates when your professional development interactions with this group of teachers will begin and end. The end date is for all of the professional development training and support that you will provide to this cohort of teachers, so depending on your type of program, it could be 7 days after the start date or 7 months.

Use the format MM/DD/YYYY, such as for June 9, 2013, enter 06/09/2013.

Start Date (MM/DD/YYYY)

End Date (MM/DD/YYYY)

Q5.

Please provide the email addresses of the teachers who participated in your professional development. These email addresses will be used for distributing a NOAA B-WET questionnaire link. The teachers' data will be anonymous.

Please list up to 30 teachers' names and email addresses. If more than 30 participated in your professional development, please complete this survey again to add the additional teachers.

PLEASE CLICK ON THE SUBMIT BUTTON AT THE BOTTOM OF THE PAGE WHEN YOU ARE FINISHED ENTERING EMAIL ADDRESSES. THANK YOU!

Q6. Teacher Contact Information

Email Address

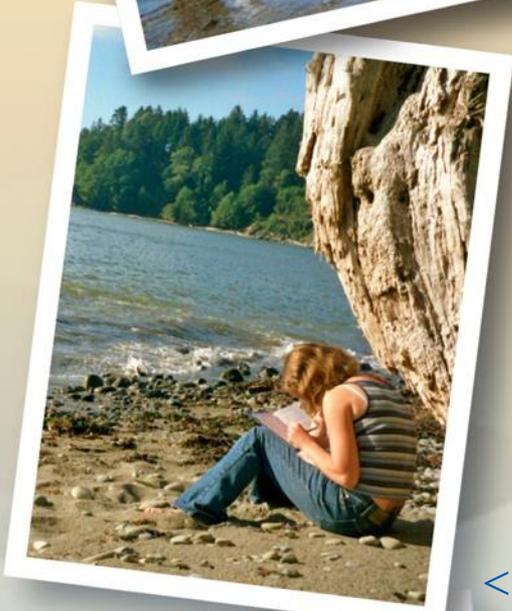
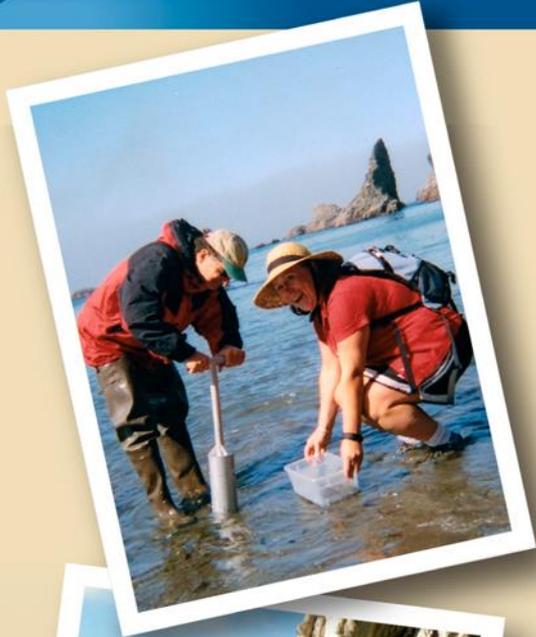
Q7. Teacher Contact Information

Email Address

What we'll ask your **teacher participants** to do:

- The teachers for whom you have provided email contacts will be asked to complete two online surveys at different times:
 1. Following their professional development experience as part of your grant they will receive the **Teacher PD Survey**, which asks them to provide information about their experience in the professional development, their intentions for instruction as a result, and their anticipated student outcomes.
 2. At the end of the following school year they will receive the follow-up **Teacher MWEE Survey** which asks for information about how they actually implemented MWEEs with their students and student outcomes.

Please participate in this data collection!

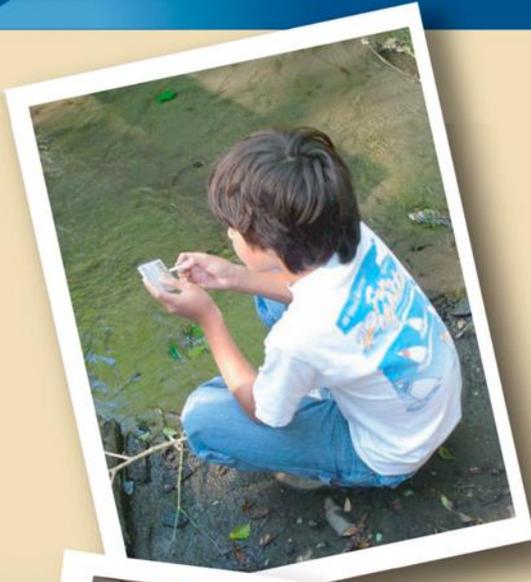


- Encourage your teachers to respond!
 - Response rate is a major challenge
 - Wherever possible please try to incorporate participation in this project into your existing requirements for PD program completion
- This system is not designed to replace your project level evaluation
- Your participation helps us troubleshoot and improve the system!

Accessing Qualtrics Reports

Grantees can access their project-specific PD survey results via a link provided in monthly reminder emails. The links stay the same, but results will update as teachers respond.

Has anyone used these?



Teacher PD Survey

Scale of 1-7 from (1) Strongly disagree to (7) Strongly agree

Teachers also asked about their INTENTION to do these things in the future: **80% intend to implement MWEEs in the future**

BEFORE the MWEE professional development, how confident were you in your ability to:

#	Question	Not at all confident 1	2	3	4	5	6	Extremely confident 7	Response	Average Value
1	Teach my students about local watersheds (ocean, coastal, riverine, estuarine, Great Lakes)	49	33	34	90	84	54	28	372	4
2	Incorporate MWEEs into my curriculum	85	39	64	84	56	29	15	372	3
3	Implement MWEEs without support from a professional development provider	90	57	57	78	49	27	14	372	3
4	Use NOAA resources to enhance my students' MWEE experiences	103	61	45	92	46	16	7	370	3
5	Guide students through taking action to protect or restore watersheds	53	47	51	94	65	40	17	367	4

AFTER the MWEE professional development, how confident are you in your ability to:

#	Question	Not at all confident 1	2	3	4	5	6	Extremely confident 7	Response	Average Value
1	Teach my students about local watersheds (ocean, coastal, riverine, estuarine, Great Lakes)	1	2	6	15	42	133	172	371	6
2	Incorporate MWEEs into my curriculum	-	5	8	33	59	120	145	370	6
3	Implement MWEEs without support from a professional development provider	1	7	12	41	62	122	125	370	6
4	Use NOAA resources to enhance my students' MWEE experiences	3	10	17	44	67	117	114	372	6
5	Guide students through taking action to protect or restore watersheds	1	6	14	24	52	123	151	371	6

MWEE Survey

In the past 12 months, did you implement a Meaningful Watershed Educational Experience (MWEE) with your students?

10

In the past 12 months, did you implement a Meaningful Watershed Educational Experience (MWEE) with your students?

#	Answer	Bar	Response	%
0	No		63	21%
1	Yes		231	79%
	Total		294	100%

Evaluation Resources



Resources for Evaluation System Participants

As part of this evaluation system, recipients of B-WET grants and teacher-participants in grantees' professional development programs are asked to voluntarily complete online questionnaires to provide evaluation data. One individual from each grantee organization will be asked to complete a questionnaire once per year of the award. For projects that work with teachers, the teacher-participants will be asked (using email addresses provided by the grantee organization) to complete one questionnaire at the close of their professional development and one after implementing Meaningful Watershed Educational Experiences with their students (at the end of the following school year). Grantees should be able to complete their questionnaire within 30-60 minutes (depending on the nature of their program) and teachers, within 30 minutes. B-WET grantees and teachers who respond to the questionnaires will remain anonymous.

Grantee Instructions (PDF)

Start here to learn about the mechanics of the evaluations system and how you can participate.

Frequently asked questions

Comprehensive list of common questions from grantees. Please check here to see if your question is answered before contacting your program manager.

Evaluation overview webinar presentation slides (PDF)

Annual overview webinar providing grantees with details about how to participate.

- Survey instruments
- Grantee instructions
- Overview presentation
- Student item bank and guidance

<http://www.noaa.gov/office-education/bwet/grantee-resources/national-evaluation>

B-WET

BAY WATERSHED EDUCATION & TRAINING PROGRAM

*FOR MORE INFORMATION ON B-WET
EVALUATION:*

Bronwen Rice

B-WET National Coordinator

Bronwen.Rice@noaa.gov

202-482-6797

<http://www.noaa.gov/office-education/bwet>

<http://www.facebook.com/noaabwet>



Meaningful Watershed Educational Experiences (MWEEs)



- The B-WET supports Meaningful Watershed Educational Experiences (MWEEs) for students and related professional development.
- MWEEs are multi-stage activities that include learning both outdoors and in the classroom, and aim to increase the environmental literacy of all participants.
- In 2016 the B-WET program adopted a revised MWEE definition:
<http://www.noaa.gov/explainers/noaa-meaningful-watershed-educational-experience>

Progress Reports vs. National Evaluation

	PROGRESS REPORTS	NATIONAL EVALUATION
Platform	Grants Online	Qualtrics web-based surveys
What does the PI do?	Uploads Word document (see progress report guidance) to Grants Online	1) completes the grantee survey; 2) provides teacher contact info for teacher survey
Purpose	Tracks progress toward specific tasks in a grant	Tracks satisfaction with, and outcomes of, the B-WET and MWEE approach
Scale	Project/local level evaluation, data reviewed by grant	National/regional level evaluation of B-WET approach, data reviewed in aggregate
Timing	Every 6 months from the start of your grant (or as established in your award)	At the end of each grant year, and periodically during grant for PD projects

Progress Reports vs. National Evaluation

	PROGRESS REPORTS	NATIONAL EVALUATION
Example	Your progress report will indicate progress toward your project goals as measured by your project evaluation. For example, a PI in Alabama may want to know if "teachers understand how oyster reef restoration can benefit coastal Alabama and specifically the communities in the Mobile Bay watershed?"	The National Evaluation will indicate the effectiveness of B-WET, and the MWEE approach, to improving environmental knowledge and conservation regardless of the location and specific local watershed environmental issues.

Progress Report Updates

- Progress report guidance (optional), available here: <http://www.noaa.gov/office-education/bwet/grantee-resources>
- We're required to report on numbers of teachers and students served by B-WET, your progress reports are the only way for us to get this info!
- MWEE definition includes Stewardship Action Projects



Stewardship Action Projects

Grantees are now asked to report on stewardship activities as appropriate as part of your regular progress reports (metric units preferred, see guidance for details)

Examples of stewardship actions include:

- Watershed Restoration or Protection (e.g., create schoolyard habitat, planting trees or grasses, invasive species removal)
- Everyday Choices (e.g., reduce/reuse/recycle/upcycle, composting, energy conservation, water conservation)
- Community Engagement (e.g., presentations, social media, event-organizing, messaging at community events/fairs/festivals, mentoring, PSAs, flyers, posters)
- Civic Action (e.g., town meetings, voting, writing elected officials/decision makers, advocating for policy change)

Student Item Bank

- Student data collection is not part of the formal evaluation system
- Item bank is a evaluator-developed resource for grantees and covers:
 - Science Learning Outcomes
 - e.g., science inquiry skills, science engagement
 - Environmental Stewardship Outcomes
 - e.g., connection with nature, water conservation behaviors, locus of control
 - Watershed Literacy Outcomes
 - e.g., Define the term “watershed”, Identify local watershed(s), Identify the functions that occur in a watershed (transport, store, and cycle water), Recognize that both natural processes and human activities affect water flow and water quality in watersheds etc.

The B-WET National Evaluation System

Collects information from grantees and from teacher participants in grantees' professional development programming.

Focuses on *Meaningful Watershed Educational Experiences (MWEEs)*

Will answer these evaluation questions:

- To what extent do regional B-WET programs support grantees in implementing *Meaningful Watershed Educational Experiences (MWEEs)*
- How are *MWEEs* implemented by grantees and teachers?
- To what extent do B-WET funded projects increase teachers' knowledge of watershed concepts, their confidence in their ability to integrate *MWEEs* into their teaching practices, and the likelihood that they will implement high quality *MWEEs*?
- To what extent do B-WET funded projects increase students' knowledge of watershed concepts, attitudes toward watersheds, inquiry and stewardship skills, and aspirations towards protecting watersheds?