Climate Change Education with NOAA B-WET

1-12-22

Transcript

(Slide 3) Great . I did not introduce myself yet. I am Bronwen Rice and I would like to welcome you to our webinar climate change with NOAA B-WET and provide examples and share NOAA resources. Thank you for your time and interest in this topic today . The main speakers today is our California B-WET manager Seaberry and also Frank Niepold from the NOAA climate office and I will let them share more. There is other NOAA representatives on the call today to support this discussion and learn more from you and hear your questions related to the topic. We are really excited to share a lot of great information with you today. With that I will handed on over to Seaberry to kick us off.

Hello, everyone. Thank you so much for taking the time to participate in this presentation but we are very lucky to have Frank here to help us to go through educational resources offered by NOAA . My name is Seaberry and I am the California B-WET program manager . I do other programs both nationally and regionally. I am lucky enough to live in California and I spend time outside as much as I can.

(Slide 4) First we wanted to give you a little bit of an overview of NOAA the national oceanic and atmospheric administration that manages NOAA B-WET . It is a federal government agency that studies oceans, coasts, climate , and weather. We have satellites that take pictures of space and underwater robots that explore the ocean. I feel very lucky to work for this agency . It is quite a spectacular agency . Within NOAA , we also feel that education is a critical piece supporting its mission working with local communities to share our knowledge with a range of audiences through formal and informal education going to schools, businesses , and local agencies to help people understand the world around them providing scholarships and fellowships to help develop the next generation of science professionals.

(Slide 5) The B-WET program is NOAA's largest educational grant program . Since 2002, NOAA B-WET has been supporting meaningful watershed educational expenses or MWEEs that focus on hands-on student driven investigations into local environmental issues that result in student led action projects. We see MWEE and NOAA B-WET fending as tools to support states, districts , and the partners to develop high quality education that includes rigorous teacher training opportunities.

(Slide 6) NOAA B-WET operates in seven regions around the country but really the MWEE framework that is the base of B-WET can really be applied to any educational programming anywhere in the country. We currently have open competitions in Chesapeake Bay, California, the Gulf of Mexico, Hawaii , and the Pacific Northwest.

(Slide 7) If you are interested in applying for B-WET , we didn't have a lot of time to get into the details on that but we want to leave a lot of time for questions that we do want to provide you with some very brief information about how you can apply that you can see on the slide there is some active links. I would encourage you to download the funding announcement, which is out in some of the regions right now . You will have the opportunity to find out more information on our NOAA B-WET website as well . If you are eligible to apply for the California or Hawaii opportunities , those are open right now with informational webinars set up this week and next week.

(Slide 8) This year the national B-WET program specifically highlights climate change as a priority topic addressing climate change and somewhat encouraging applicants to incorporate this topic into their projects where we focusing on climate change this year? And it is presenting growing challenges to human health and safety in the rate of economic growth and also what goes beyond knowledge acquisition and formal classroom teaching to reach audiences of all demographics and economic and justice elements of climate change. Education on this topic has the power to help students develop meaningful connections, a sense of personal agency and apartment and impacting behaviors and decision-making in relation to climate change. The MWEE educational framework can directly foster climate change, knowledge, skills, and competencies, climate impacts and the opportunity to contribute to climate solutions in their own communities.

(Slide 10) Now I will go into a little bit more detail about climate education and MWEEs and how those two interrelate. Hopefully most of you have some idea of what a MWEE is , a meaningful watershed educational experiences and these slides will provide a brief description of what a MWEE is the NOAA adopted the framework to assist with the effective projects founded in best practices. This framework is informed by over a decade of B-WET project implementation across the country. In short, through MWEE students investigate a locally relevant environmental issue and claims based on investigation and identify and implement an action project as a solution to the issue they were investigating.

(Slide 11) Like I said, we do not have time to do a deeper dive on the MWEE framework. If you like to learn more about MWEEs , there is resources here to support you , including these that I am showing you here. These are catalogued on the NOAA website and resources include a MWEE guide , MWEE tools, and a facilitator guide to help you and please feel free to look at these in a little bit more depth if you have the time.

(Slide 12) And one of the ways to address topics is through resilience and it defines resilience as a capability to prepare for, respond to , and recover from significant multi-hazard threats with minimal damage to the economy and environment. The United States climate resilience tool kit includes steps to resilience, which are outlined here, a risk assessment and planning framework by which stakeholders can participate in an inclusive, deliberate dialogue aimed at implementing a plan for resilience . This helps participants compare and build upon experience, understand risk , uncertainty, and complex systems and move from exposure and vulnerability to taking action that we do have one of those call out bubbles that's directly responds to one of the questions received during the registration process .

(Slide 13) Frank will share them a little but more about steps to resilience framework in an educational context later in the presentation , but we wanted to introduce you to how this aligns with the MWEE framework and you can see how the MWEE essential elements has the potential to address all of the steps to resilience.

(Slide 14) We also thought it would be helpful to outline a couple of tangible examples of how other B-WET projects have successfully adopted climate change into their projects . Here are a few highlights. This first one , the MWEE for resilience to accelerated sea level rise and flooding risk is a project funded multiple years with University of Southern Mississippi Gulf Coast research lab marine education center. Students in the school district used climate tools to conduct research on coastal issues and hazards and climate change. Students were able to visit their local reserve to conduct research and meet scientists to learn how NOAA and the state of Mississippi are looking to understand and model changes in the ecosystem. Projects culminated in an action projects with student developed solutions to resilience professionals . We highlighted this project in a web story that is linked here on this slide so that you can read more about it.

(Slide 15) The second example we wanted to provide for you is the ECCOA project and this stands for energy efficiency to mitigate climate change and ocean acidification . This is a project based program run by the MERITO foundation encouraging students to research climate and energy issues and implement energy efficiency water conservation, water reduction , and climate advocacy models within their schools . At the end of the school year, students participate in a challenge . As you can see, this is one of many . They participate in a challenge to come up with mitigation solutions and reduce the carbon footprint on school campuses. So far they've developed 24 lesson plans and activities of focusing on ocean and climate literacy.

(Slide 16) Lastly , the third B-WET project we wanted to highlight takes place in the Chesapeake Bay with the Howard County land Conservancy, who is working with Howard County public schools to develop a curriculum incorporating meaningful watershed educational experiences providing professional development opportunities for sixth grade teachers on environmental justice , developing a climate curriculum including three field investigations with real-life data collection opportunities and testing the program . The project aims to work with all 20 middle schools in the district, every sixth grade teacher and student. We do have the link on here with the photostory , if you wanted to learn more about it and also some of the opportunities to look at the curriculum.

(Slide 17) Lastly, we did want to highlight the NOAA environmental literacy program. They offer quite a bit of resources and information about resiliency. ELP has been focusing on resilience education with resources and examples that might also support your work. Successful grantees might also want to look to literary grants as another source of funding or opportunity to scale up your projects. The current competition is closed now, but there are new solicitations every two years . The program also has a lot of resources, including grantee developed curriculum products, some of which Frank will share about but they've also developed a theory of change integrating what they have learned from grantees as well as a broad base of research that identifies the most effective approaches for education contributing to community resilience .

(Slide 18) With that, I have ended my part of the presentation. We wanted to just pause here for a few minutes people ask questions and we are going to do this mostly on the padlet . If you have questions, feel free to click on this link to add a question to the padlet. We wanted to spend most of this focused on climate change education resources. You are always welcome, if you're interested in applying come you're welcome to contact any one of the B-WET managers to ask them more about that . With that, Bronwen , do you have any questions on the padlet ?

There are some coming in. I would encourage folks to take a look because we are also posting responses to questions. If we are not able to address all of your questions , please look for some responses. I would also say there is been some questions about the links available in the presentation . The presentation is available for you to download in the files part in the meeting. You can save that and have this for reference and then also I will just ask folks dialed into the phone line to please mute so we can avoid background noise on the call today. With that , in the interest of time, a lot of the questions that I see are about specific examples and specific cases with different age levels. Maybe we should segue to Frank in the presentation because he will provide more of those and move along. We will have time for more questions at the ending . I guess I would say there are some questions about funding and applying for B-WET grants and we will not spend time going into the specifics of the competitions today. Take a look at the notices of funding opportunities for what is eligible under those this year , or contact your regional program manager for information. Great. Okay.

With that, I would like to pass it over to Frank .

(Slide 19) Thank you, Seaberry and Bronwen. This is a really exciting opportunity here . Let me frame this a little bit. I was a former classroom teacher, field educator, and NOAA asked me 15 years ago to come in and lead making the nation climate literate. No small task. I have been doing this quite some time. It is a great opportunity here with B-WET to explore how the intersection of B-WET and the MWEE experiences and how B-WET has been billed we are going to talk about two different kinds of things . I hope that the 15 years of experience going to help you and how you approach what you might consider a traditional B-WET approach and that is what this is and then there is extensive resources that we have been cultivating and building across NOAA and our partners for quite some time that I hope will be useful as you consider moving forward a B-WET project focused on climate.

One of the key things we have to consider is when you think of climate change education, a lot of times people around us and working in the space think of advocacy, activism , and this is a natural thing and sometimes a hesitation for people when they consider this topic that that is not really education. I am going to venture to say a slightly different approach. I understand this and appreciate it, but there is an educational dimension that we miss when we only do that.

I love this photograph because education has to play a critical role in the long-term systemic transformation in addressing climate change. It is for all students , all future workforce. It is that kind of issue. Climate is going to continue to drive society more and more and more for the coming year, years, decades, and beyond. It is all of students and society kind of issue. It has to transform from let's start dealing with it and actually all of us are dealing with it in productive ways. This image for me really talks about the careers and the work and it is not just for men and it is not just for places that the amount of offshore wind just today we are expanding the leases for New York that are incredible opportunities. It is just a frame.

(Slide 22) There is really important data sets and tools that we have available to us to help us with this issue because it is not the same ever in the nation and if you are not aware of the Yale and George Mason University collaboration on six Americas and also Gail climate maps, they break it down into the county level data about important data and positions about where people are thinking. So the estimated number of adults who assume global warming is happening in the newest data that supports this was just released today. For September of 2021. It will get updated. They do it twice a year . You can see it is not the same everywhere.

(Slide 23) If you go to the next year about who thinks it is caused by human activities, you see some changes. Coastal is different than the center of the country.

(Slide 24) Then you go to scientists who think global warming is happening and the number drops a little bit more and then you start

(Slide 25) looking at the next one, which is those who think global warming will harm them personally and you see a cooling of the map.

(Slide 26) Then you go to adults who think global warming will harm future generations. This is closer to the work that we do in this community. You can see the number rises significantly and is associated with costs but not evenly .

(Slide 27) Then you ask another question about who thinks that schools should be teaching about solutions and causes of global warming and it rises again with a strong coastal preference here. That tells you there is geographic variations. I hope you find this kind of data helpful as you differentiate your approaches in your community context.

(Slide 28) This data should give you , now if you zoom in to Louisiana, one of the areas and coastal Texas, you can see even inside this region there is a variation. This is not a topic that is universally accepted or approached across the country.

(Slide 29) I would encourage you to look about the same is true for Washington State in the Northwest

(Slide 30)

and the Chesapeake Bay. There is also variance in the geography that is important to consider.

(Slide 31) Hawaii

(Slide 32) and then if you look a little bit into another part of West Virginia, you will see a different approach than you would if you were looking at Prince George's County, Maryland. This variation is something that I hope you will find to be useful. The links are in the slides but I found with partners over the years this is incredibly useful.

(Slide 33) It is an important thing to consider looking at climate, climate action, and education. Is it something that has emerged over the past few years strongly and this is from a paper that we wrote a number of years ago. Unfortunately, a preponderance of our work when we talk about climate and climate change is very problem heavy. When you do a very problem heavy educational intervention or program with students, there is some anxiety that comes with that. There is a lot of gap that we focus on and how you close that gap between what they are being taught and if they are being taught is important. I am telling you, and hope that you can hear me carefully report the students I talked to across the country for over a decade now really want is much more focus on the solutions to this issue than they want on the problem. That balance between problem and solution is promising for our disciplines. When we think about coherent approaches on this issue, getting a climate solution and balance problem balanced solution right is a critical practice approach. I am highlighting this. There is lots of great resources that have really built a solution focused. They want to know how to support the solving of the problem as opposed to how big of a problem it is. They have heard that. They are ready to roll up their sleeves more often than you think just think about that.

(Slide 35) There are some challenges that communities are facing is the deal with climate change. This is important for our work. Some of the findings are a little bit old, but it is still useful. This topic while many people in these communities are thinking about climate change, yes it is a thing , but they also have other issues that might be more important right now. Economy, health, security, jobs communal. Things of that nature. So this low priority aspect a worried about it but it is not a high priority for us to deal with yet. This is a challenge when we are talking about the level of transformations that we are talking about in this country and worldwide. I have an international responsibility. It is not just us that has this challenge. A lot of communities who are doing advanced work on climate and climate action are having a hard time making the case and sustaining the case. Especially if they go from one governor to the next. Independent of political party, it is just a hired thing to keep people focused on why this is an important issue. It is getting more , but they still need help sustaining that case. The last one is there is a lot of work dealing with climate change and the skills are different. The knowledge is different. Helping our students be better prepared at helping their communities to be better prepared to enact those actions in a significant way is an important alignment between what we do in education and how we focus on climate. These are important points to consider.

(Slide 36) One of the first resources, and I got a lot of these geographic questions about climate and climate issues. The first resource you should go to to really help you with this is the national climate assessment for gas when they are done every four years was released in 2018 and I was part of the process. You should be able to go to the website that is here. All of those links , they look like they work . You should be able to click on them in your version of this presentation and start exploring Volume 2, which would be looking for impact and Volume 1 would be what is happening with climate change. This is easy to use and comprehensive national look. It has regional breakdowns. It has a lot of supporting details but I think you are going to find incredibly useful as you weave climate. What is this data coming from ? It will let you know where the data came from and it should be highly usable for you.

(Slide 37) This is the link to this that is in the slides . You can incorporate geographic data and interact with this and this is a story map using those tools NOAA has in order to dig in a deeper way and a dynamic way as opposed to a static graphic. Hopefully, you will want to incorporate the geographic information into your work. I hope you find this useful. Explore it. Let us know if it is useful or if you have questions.

(Slide 38) This is a graphic that comes from that . When we are talking about coastal communities, we will be talking about sea level rise. For the most authoritative assessment of where it is going and how fast it will rise , this is where I would send you to go. This was from 2018. There has been updated information. I want you to remember this top number. 8 feet is the high-level projection by what we expect globally . 8 feet. You have got to remember that number.

(Slide 39) There is an effective practice that is emerging and tickets to the solution piece but makes it accessible . I have seen it in a number of places. This is one example where students use the risk reduction plans, climate mitigation plans, and sustainability plans. Whether it is a city, state, county but they have slightly different names. Students can go into do analysis on them and see what actions the community is taking and evaluate them and build a town hall around what they have already said about what they think the risks or issues are. Do you remember steps to resilience? Many communities are built on this the students do not know that.

It is emerging as a powerful practice . It shows what we are already doing and what we plan to do more as opposed to we need to start taking climate change seriously, your community could be well in advance of this. Knowing this reduces anxiety . There is a lot of websites, like this one. You can go to the adaptation clearinghouse and explore and look it up. Here is an example of one in Philadelphia , my hometown. It is from 2016. This is right there what Philadelphia house . It tells you what Philadelphia is concerned about and then you can say

(Slide 42) how I would examine the sea level rise, area ? When I went in, I found a tool at the top. I say let's see what that tool can do and how it can help me. If I zoom in to Philadelphia, this is useful anywhere in the country. It has this little slider on the side . The graph will give you a clue and it will tell you how far you should raise this bar. I wasted up to 8 feet and there you go . This is what the 8 feet sea level rise projection looks like in Philadelphia this is a nontrivial amount of risk . I got that from one resource to help you with another peer putting them together in a coherent way is an important practice. This summer when Ida came to , this area had extreme flooding. I have never seen my part of my city

 flood like this and had nothing to do with sea level rise but precipitation. When you go back to sea level rise, the biggest concern is the airport. This is going to be an issue

 regardless of where you are. Most of the airports were put in coastal communities in floodplains .

(Slide 46) Think about this is a phenomenon you will explore with your students . I found this resource from Ray and I will not say his last name , but Ray is charged with environmental management for the Philadelphia International Airport. People have said to him we should put it somewhere else. Where should we put it? That is a question students and teachers can explore with real issues. This is what communities are doing right now. Participate in it, practice it, and supported. I am just giving an example of one way to do this to help you explore what kind of topics you might explore in your topics .

(Slide 47) In the United States climate resilience tool kit, we have resources that you can explore and case studies from all over the country that you can look at to give you examples of what might help you. This is an interactive website . It has a lot of great tools. All of the educators I have worked with and use this resource find it to be valuable to them .

(Slide 48) This idea of hope is a preconditioned action . These findings are really important for you to consider as you move forward.

Sorry, Frank. We have folks dialed into the phone and I am not able to mute them. Folks on the phone , could you please mute?

All right. I would just keep on going, Bronwen.

All right. Thank you, Frank.

All right. This is some other data that makes the point that hope is an important thing to facilitate with your students . Building that intentionally into your program is a really important point. Let me give you a matrix of how to look at some solutions .

(Slide 49) You have the project drawdown architecture. This is 100 solutions against global warming. Which ones you would use in your community would not be all 100, but this is a powerful framework how to look at solutions. If you are not aware of it, it would be useful to you as you consider what you might propose.

(Slide 50) I brought this one back because of jobs. The best question is ever asked by a student about climate change was a seventh grader . He raised his hand about three quarters of the way through and said I think I understand climate change, but I want to know what are the jobs going to be in the future related to climate change? I honor that . I thought about it for a while. Raised to teach middle school. I love middle school. Sometimes jobs are going to change. Some will disappear and some will show up. This job in the United States is beginning to show up. Offshore wind technician will have five wind turbines right now , they are about to explode across the East Coast and West Coast in time. That is a new job. Still, students want to know what can I do to prepare for that future and that what we are doing right now? By the time a seventh grader or a fifth grader and the courses they take in which major or minor, all of the is preparing for a future that is different than what we are doing right now . Giving them guidance, signals, opportunities to prepare for the red future. They are asking for more support.

(Slide 51) Right now on the East Coast we are expanding offshore wind massively. This one right here is the Empire wind one. It just went out today for the lease. All of that relates to work that is going to be coming that it doesn't exist right now. This here is the project of of Martha's Vineyard . It is the first one that will go massive first project. But it is going to go all of the way down the East Coast in time. There is a lot of work here. That is just one example of the 100 solutions I was showing you.

(Slide 52) In the West Coast, it will be floating offshore wind turbines because the continental shelf drops to go fast . This technology is beginning to get perfected, but I am trying to give you a signal this relates to agency, hope, action , careers, and opportunities. I would be crazy enough to climb up on these off of the ocean surface and hang out there and work . I would do that in a heartbeat if I was 16 or 18 right now .

(Slide 53) I think you get to that point . Let's look at an example of one NOAA funded environmental literacy grant program that has skills and resources that can help anybody doing a B-WET project, potentially. The RiSC which is the resilient schools consortium project was looking at afterschool programs. They did not figure out a way to get into the core programming in schools. They have now done that. Engaged students with community leaders and climate leaders on how they would deal with some of the storm surge that came with Sandy when they hit their communities . They know what impact it looks like. It was a powerful program .

(Slide 54) They built a curriculum, and it is available to you if you want to look at it and customize it and modify it. That is why this is here. That is why NOAA works the way they do. Hopefully you can see that work.

(Slide 55) Another one that I was part of his climate summit . The center has done amazing work on looking at either a capstone event or a launch event for students where they can understand how they would approach their community or their school on building action plan so that it doesn't become more anxious . It will give you the opportunity to see how you would do this. They have done incredible impactful work in conservative communities. It is a very powerful model and free. Collaboration is robust .

(Slide 56) There is another resource that we have here . It is the resource hub for the program. A lot of projects that I work on have already started indexing those resources. This is not B-WET, but there should be some learnings and so the ELP grant is about four years ahead of B-WET on climate. Those resources learnings would be transferable and helpful. Consider those.

(Slide 57) One thing that I want you to consider as you are looking at this work , and it is different for climate because it is a different climate. The bottom line is Governor Baker within a hearing with Congress back in 20 maintain. If we want to make sure whatever we do is supported at a local level, if you do not have local support it will not be sustained over time. Dealing with climate change must be sustained over time which means you must have local support and processes that support and nurture that local support . These grants and projects and partnerships are a part of that process at a scale where action happens. It is just something to consider as you move forward and work practices where local climate action is in the United States. It is robust but uneven. This is been updated , but it is a key point to consider as you move forward in this work. The local work is the most powerful partner in your work on climate.

(Slide 59) This is not a pretty slide and I made it that way up her pills when I thought about these questions that you're asking me, I came in and said there is some amazing organizations doing impactful climate education work that you should know about. That I looked at the questions and found more. In the notes , I made a link to all of them. I hope that you can look at some of them and build from there models and resources so that you can get a leg up on what might be working for you and citizen science and regional education . These are some of the best that I know . My watch keeps thinking I'm talking to it. Sorry about that .

(Slide 60) Am also part of the climate resumes tool kit that is here.

(Slide 61) I want you to dig in to the tool kit even more. To orient you more to that, this is the landing page from a couple days ago and the URL is here .

(Slide 62) It has some key aspects to appreciate that we have regional information. These are not all of the areas. It looks like we do not have everything that you, but we might have well . The information is customized and usable .

(Slide 63) We also did it by topics. These topics are not the same everywhere in the country.

(Slide 64) I will break down the water one . You have key take a messages. This connects to the national climate assessment. All of the references are transparent. You have subtopics under water. This should help you orient

(Slide 65) and now we go to a subtopic of water leading . Here it is . Tools and case studies and resources all related to flooding .

(Slide 66) I have gone to a case study. I find these to be incredibly useful. Which step up the steps to resilience we are talking about ? These are always consistent and then the relevant topics that relate to education and storm water management . That is the case study title. I think you will find incredible resources.

(Slide 67) Another one here is a different stop , but it gets you different tools and topics. It is a tool . This is a really treasure trove

(Slide 69) if you want to learn about the steps to resilience and this comes back to before but the steps outlined in the robust. Every step of the process has case studies, tools, building what each of these are in a different context.

(Slide 70) Another aspect people were asking for in the notes was data analysis and explanation. A really robust tool called the claimant Explorer was built. It will help you with key questions and variables.

(Slide 71) To look at what is going on with temperature in robust ways, there is great support on this. I think you will find the Explorer to be a go to resource so what is going on where we live and what we want to focus on in a detailed way , and it is a very interactive tool. You can look at a map or graph. Just know that . I'm going to segue because I want to leave enough time for questions .

(Slide 73) Another great resource is the clean collection . Reviewing excellent examples of activities that relate to climate that are digital and free and expertly reviewed. That is not a trivial task we have been doing it since 2009 and it is still going. It is more than just resources.

(Slide 74) You can get it in both places

(Slide 75) but also one of the things people wanted to know was I need alignment of climate change education to practices and standards. We did that. It is a robust part of the CLEAN collection . Please explore the.

(Slide 76) Let's just take a quick case study. If you do a Google search in this space, it is maddening what you have to go through but in the CLEAN search you go for hurricane and you are now down to 37 instead of some crazy number. This is a useful tool that will help you immensely

(Slide 77) for every resource where there is a page of information and also the standards is right there and you can search by and see which ones relate to this resources.

(Slide 78) This is a rare resource. You can get from 800 down to three very quickly and really find something of value . Please consider that is here doing.

(Slide 79) Another part is the guidance pages. These are robust and useful for educators with some pieces. One of them built was guidance about climate and energy. I saw this over and over again . I start with the page on something we have funding by NASA to build this is an important area we have built into but there is culturally relative teaching climate that is another key consideration in your work and how to approach your work as it relates to B-WET .

(Slide 80) Another is the STEM teaching tools with a climate learning focus . It is a great project . You might not have known they put this climate learning thing in the center of the toolbar . Two I pulled out because of the questions, meaning and just ideas for making a fun and hopeful and empowering on I found this to be incredibly useful. How it can inspire action and the super important question and this one I think would be super useful.

(Slide 81) Another set of questions was addressing controversial science topics . Climate is going to be one of the top controversial topics due to a social process . The science is not controversial . That doesn't mean the controversy isn't going to show up in the classroom . This will help you with that. I think this will be important and useful for a guide on how to deal with those, so consider those.

(Slide 82) Bearers other resources that could be helpful. Webinars would be a high-value . Explore it. Hopefully you will find value.

(Slide 83) I moving a little fast and I'm sorry. I just wanted to, have been at NOAA 15 years . What I have seen has been impressed so and it is not just the climate program but across the agency .

(Slide 84) Rising to the challenge. These programs and partnerships that we have been building , we have Bart Merrick here and Elise Trelegan there work with the mid-Atlantic climate change education conference is really an important part of the work of NOAA . There is the science on the sphere network that is important. You know, the science and the spheres. It is another tool that is incredibly powerful and useful for helping with this work. You might find this to be very helpful in an educational purpose we were just talking about how to make new data sets available earlier today.

(Slide 85) One of the things that I think is crucial for just a general point is the idea NOAA works collaboratively in diverse ways. I have been incredibly impressed with all of the partnerships and a lot of the people who I work with across the agency that is where we were 15 years ago and where we are now is fundamentally different . This idea that I am showing you two photographs that you do not need to understand the context but because of the pandemic, and transitioning programs into how we would continue to make progress in the work even though we cannot do it the way we used to. I would expect if your partnership is across the agency , we are the kind of good at doing this so going forward in your projects would be something that would be very natural and intuitive.

(Slide 86) When Bronwen and I were talking for setting up , all of the data comes from the grants that are funded flows together for something we call the annual accomplishments report . These are three parts of how we roll up all of that work that relates to this topic. Your work in a grant is part of this combined effort. Why this is important is the topics we are talking about is so important. The importance of education as it relates to climate change requires all of us to be working together in a variety of ways. You have to roll it up together to see that we are actually making progress. These numbers have grown over the years, even in spite of the pandemic. I think the mission of NOAA is shared . This does not sit with us. It is not our mission, it is our mission . Hopefully you get the intent difference even though it is the same word .

(Slide 87) The mission at NOAA is to educate and inspire the nation toward improving safety and resilience to the environment and prepare the future workforce to support the mission of NOAA which is a climate smart nation and a weather ready nation. That is the mission we are talking about. Hopefully we can transition the question answer and think about how we could help you further as you go forth and put together these proposals or partnerships beyond B-WET opportunities we are a hyper- collaborative agency. There is a number of important people here on this call. Yes science is cool . This is a important time for us to come together so we will transition over the questions.

Sounds good . Thank you so much, Frank. Thank you, everyone , for bearing with us with technical difficulties and background noise took I'm glad it seems like we have it sorted out. So we have the padlet link on the slide again. You folks want to go there and add any additional questions that you have, we can also talk about the ones already posted. Yes I see some folks are not able to access the padlet . I will try to find a way to share this after the fact with the recording and the follow-up information. There is a lot of great resources folks are adding. If you have suggestions and answers, please add your thoughts as well in the comments we will try to share this with the recording from the presentation as well . If you have a question you would like to ask in person, if you are online you can raise your hand and I will unmute you. Feel free to do that. Or

 on the phone you should be able to speak your question as is . Without I will stop sharing the presentation ensure the padlet and we can take a look at questions there.

Bronwen , this is Seaberry. It looks like there isn't new questions so far . Maybe people are at them right now .

Seaberry , there was one question about the ECCOA project that you shared with MERITO and the link to the curriculum wasn't working . Is not something that we can share?

Yes . I do not see this question, but it will definitely get the link. Thank you .

It is in the comment thread on one of these that we will make sure to include that .

There is a presentation here or a mini question from Sheila Wilson . These maps are powerful. Will these slides be shared? Yes. Is not a PDF or a presentation? Bucket is the full PowerPoint presentation.

Perfect.

Or can we bring Frank into present desserts the at teacher trainings? Absolutely . One of the things that is important and how NOAA purchase education grounds as we are hyper- collaborative. Whether it is me or a host of people across the agency, but partnering with those providers who are working in these areas is something that we do all of the time and now after almost 2 years of remote , we can collaborate

 in a much more effective way using digital tools and ways to so that we can be more efficient with our time as opposed to driving or flying. Absolutely. Again not just me. There's hundreds of people at the agency who can do this really well . Happy to continue .

Frank , it does look like we had a couple questions, and it through the padlet . I would be interested in hearing more about climate justice and environmental justice resources, specifically ones that have more than lesson plans.

Yes. It is a really great question. Remember about slide I had that had all of those logos around the country? It is an important slide because there is organizations who are doing work on environmental justice right now . They will collaborate with you. There might be some people on this call who are doing this work and if you are, name yourself and the child right now. One group that I would think is doing a lot of great work on that is climate generation out of Saint Paul, Minnesota. They are doing work in multiple programming models . I would think that they are another one and that is We Act out of New York City. Taylor Morton would be the contact on that. Bart, you know Curtis Bennet out of the aquarium in Baltimore. Curtis has been doing amazing environmental justice work . It is an emerging priority area. Some of the newest environmental literacy grounds are really centering there were quite the work Jeremy Hoffman is doing in Richmond, Virginia . It is important . It is emerging . There is another effort what they are looking at the indigenous Prince Mike Army justice and equity perspective. I called out some of them in the slide as well . Depending upon where you are in the country, I would recommend this would be an important part of how you would approach that intersection of justice and climate and community and education.

Frank, there is another question asking about potential mentoring for folks that are interested in developing curriculum and teaching resources .

Sure. There's many ways you can . There is some project that I've really done long work . Climate generations is one of them. The Cleveland Institute and Miami , those are partners. But then there is advising . So I do not know how this works with B-WET, but I have more experience with the larger environmental literacy programs. There you are expecting to partner actively with NOAA program specialist scientists and educators. It is expected. When we partner, it is a significant partnership . It can be a much more substantial partnership. Reliant on NOAA as a collaborative agency . There is a lot of names I've seen in the chat that you would want to partner with whether it is in Hawaii or the Northwest or the Chesapeake for the Northeast . It could be a climate enterprise but definitely partnerships and collaborations or a part

 and people are likely to sales . You just have to ask. You have deadlines to meet

 to complete your proposal. Do not expect one email to be a no responses no. Keep on asking. We are doing work and it is not a no when it is a missed email but just a lot going on so ask again. I'm a big fan of respectful persistence . I invite people to nudge me all the time. Respectful persistence is a great treat.

There is a real interesting question

 that we might not be able to address entirely but it is a good point . In minimally elementary schools most traditional science focused instruction is not being done . And its places more instruction focused on literacy. There is tools to integrate science and literacy but if we are not intentional, we are missing the boat for most students. Are we recognizing these trends as we develop resources for teachers ?

That is a long question and a super important one. Whoever asked this question, you are not alone. There is a lot of innovation come around to do what what happens in the classroom is the only place with his work can happen. Elementary school learning is critically important . Simply sometimes overfocus on just the classroom part in this learning is really what the focus is, and in lots of and with that said, you are tapping into a key part of the innovation that would be effective. This topic is intersectional . It does not just focus on the science part. Especially as he moved to the solutions signed . If you are looking at the history of place you can do this within other domains, but you have to find resources and practices. Just because science isn't being taught doesn't mean you cannot advance the. I am with you, but I think I see some innovations that are going to help you with the. One teacher who is really good at this if you're not familiar with the plan as stewards it is a NOAA effort and there is a lot of teachers in that network that already gotten ahead of you in this so joining and asking that would elicit some good opportunities to learn from others who are doing exactly what you are talking about and they have years of experience. It is a great opportunity for collaboration and sharing of resources. I imagine somebody has already but the link in the chat . If not, it is super easy to find . That would be just one place to go to help you with that.

We have another question here. It is about circular economy her brother resources, and future jobs with the circular economy? This person said it was hard for me to recommend careers that perpetuate resource exploitation .

I think you're absolutely a foundational question here because the economies generating the problems we are dealing with have to have an educational focus. We do not have a circular economy

 in vast parts of it. Transitioning that over, and there are different skills and different knowledge bases and explorations to be able to be really skillful in dealing with a circular economy on any part of the supply chain or any sector . This is a really important part. There universities that are already doing this work that you might want to look at and then trying to cascaded down to where that is . I'm trying to think of a really great example in business. The people doing this work right now, they didn't learn this at the elementary level and start thinking this way. They had to figure it out themselves at the undergraduate level. We are giving the opportunity to open up a lower-level entry point to get more advanced Pier 1 ways to bring people who are deep in this work into your proposal so that they could start thinking about what would they need to learn that he agreed to help them get ready for what they are doing right now? There are businesses that are involved in this practice of a circular economy were sustainable . Even the Levi's company and the Gap company. They are really figuring out how to make cotton work that way now just beginning to think about circular economy. There are some countries and organizations that are deep in this work . Let's bring that into our educational practice so that we normalize that this is a new direction so you can get excited and it is concrete enough that you can really get inspired to be ready for that moment when you get to be part of my practice . Sorry that was a rambling answer .

A lot of these topics that you are talking about right now we can have a workshop on. Those are really good questions that we did have a question in the chat box that I can answer really quickly. Meredith asks when we partner with NOAA for example Frank as a speaker , do we write that in as a line item in the grant project? If you're asking for any NOAA experts are federal agency expert, you would not include that in the budget because that would be part of the job. Any outside nonfederal agency you could put that in your budget .

I am fully paid for most federal people are fully paid for . We cannot receive money nor would we ask to pull money away from a project but we couldn't . It is illegal and not needed. We are good to go .

And as far as I can tell , I think we got to all the questions on the chat and padlet. I do not know if there is any last ones .

If anyone wants to raise their hand and verbal is a question, we have 11 minutes . I'm starting to see people dropping off, but I think you can raise your hand and Bronwen can open up your microphone . Sometimes verbal questions. Look at that. We got some hands .

Hello. Am I correct in reading that the primary activities of this B-WET solicitation is not limited to coastal areas but more inland areas as well?

 I think you are calling in from the trial of Victor is a change in the area of eligibility this year and it is statewide in the gulf states so you are correct and that is a change . There are some other geographies that I've shifted with current funding opportunities both in California , which Seaberry can speak to and Chesapeake Bay . I would encourage folks who are interested in those and had looked in the past and were outside the geography to look and see what the current year

 because we have made changes to the area of eligibility.

Excellent. Thank you .

Just one important thing because you move further away from the coast .

Martha, you should be able to connect to your microphone and ask your question. You might need to connected with the phone icon at the top of the window and you can choose to select computer audio or phone.

Thank you so much. My name is Martha and I am in California . We often do dream careers in Richmond with the high school students that we work with. I was wondering if we could reach out to NOAA staff to come speak with students .

Sorry. I do not know if you can hear me.

Yes.

I am worried that in California. We do green career and Richmond with high school students. I was wondering if we could reach out to NOAA staff in the area to come and speak with them and what that will look like .

I can jump in. This is Seaberry. You can call me or the Monterey Bay and we are happy to put you in touch with someone that would be appropriate for the topic.

Thank you so much.

I would also encourage you

 to think about there is a lot of other California organizations and one example is SEI in California that also supports the California climate corridor . They are doing amazing work . I think the other kinds of topics, there is just such a wealth that you would be in great shape . In my experience with NOAA , we do not want all of it to just be NOAA resources.

Thank you so much .

And actually SEI is one of our grant recipients .

Thank you for the resource .

There you go. I just put the link to the organization. They do amazing work.

Frank , it does look like Tiffany asked if any of the resources shared today if they will be used in next week's workshop. I'm curious so I can start exploring those resources first.

I do not know about the workshop .

I think Bart commented on that .

Is he an answer from Bart to you . It is right there. Bart

 does amazing work as does the entire Chesapeake Bay. Yes .

I don't know if there is any hands raised, but I do not see anything else in the chat.

SI hand from Bart .

I'm trying to unmute him. You have microphone rights. You might need to connect your audio the top window .

I think he was just going to try to verbalize his response so I think we are good .

I just want to thank everyone for this opportunity . B-WET has been on my radar for a long time is an important project . It has been a great honor and a joy to do this work . Hopefully we can keep on rolling this year and see what kind of projects we can do together. That is my contact information. Anything we can do to support you and any other partners we can connect you with our data or expertise but remember respectful persistence is really helpful right now because things are busy at NOAA . A slow response is not a no response.

Thank you so much, Frank for your time and remarks. I would like to echo what Frank said that this is a relatively new area at the B-WET program., Some have included it many years but we are really putting some more emphasis on a going forward so this is the start of a conversation and I encourage you to reach out to us if you want more information or resources . Thank you for participating and bearing with the technical difficulties. I will keep the padlet up for a little bit. If you think of other questions, throw them in and we will try to summarize this in the answers that we share with the follow-up materials but we will send around the recording . I'm sorry we do not get the captions working, but we will have a transcript that I will put together for what we share with you and we will send this to all of the registrants. Thank you for your time and attention today and for everything that you do to support climate education around the country.

Thank you, Bronwen. Thank you, Seaberry , for making this possible.

[ Event concluded ]