Environmental and Energy Study Institute

Briefing Transcript

Cultural Heritage and Climate Change

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Daniel Bresette

Good afternoon everyone, happy hump day. Thanks for joining us today for the third installment of our Climate Adaptation Data Week online briefing miniseries. I'm Dan Bresette, the executive director of the Environmental and Energy Study Institute. This miniseries is part of our work to raise awareness of coastal resilience issues for policymakers and the public and highlight climate change solutions and resilience strategies. On Monday, we heard from two experts about data needs in the state of Washington. Yesterday, the topic was the use of vulnerability and sensitivity analyses to evaluate the risks to national parks. If you were unable to join us yesterday or Monday, or if you've missed any of our previous briefings to date, you can visit us online at www.eesi.org for video recordings and written summaries. In our briefing miniseries we'll have two more installments after today. Tomorrow we'll bring you *Bridging the Gap Between Science and Decision-Making*, followed on Friday with *Weather and Social Data to Inform Participatory Planning Initiatives*. Be on the watch for briefings on two more areas: Alaska next Tuesday, April 21st, and on a date TBD about Puerto Rico and the U.S. Virgin Islands. When you visit our website you can sign up for our bi-weekly Climate Change Solutions newsletter to help stay up-to-date and informed.

As I described earlier, this briefing miniseries format is part of our adaptation to the new normal, and this new normal will be with us for a while apparently, which means it is critical for us to stay focused on the urgency of climate change. Our goals for this week-long, regularly scheduled briefing miniseries are to explore topics in greater detail and recreate online a more conversational dynamic. You can find the complete schedule of this briefing miniseries online at www.eesi.org. Please also take a moment to complete our survey to tell us what you think about this miniseries format. Thanks to everyone who's already offered your thoughts, feedback, and ideas for improvement. We take that all very seriously and we appreciate it.

Here we are on Wednesday to learn about cultural heritage and climate change. After my presentation my colleague Amber Todoroff and I will once again co-moderate the discussion and you can participate too by following us on Twitter @EESIOnline or by sending us your questions to EESI@EESI.org. We do our best to get all of them, but yesterday for instance we got an awful lot of questions, which we really appreciate. So, if you didn't

get it answered yesterday please still reach out today. Follow us online, follow us on Twitter, we'll do our best to get to you today.

Today we will hear from Marcy Rockman. Marcy is an archaeologist with experience in national and international climate change policy. Her research focus is how humans gather, remember, and share environmental information, and she's used this to address situations as diverse as cultural resource management in the American West and homeland security risk communication in Washington D.C. Between 2011 and 2013, she served as the inaugural National Park Service Climate Change Adaptation Coordinator for Cultural Resources. She is now working with the International Council on Monuments and Sites as scientific coordinator of a project to improve incorporation of heritage in reports of the Intergovernmental Panel on Climate Change. She also works with the nonprofit Co-Equal here in Washington D.C. to provide climate change research for the U.S. Congress. With that, Marcy, welcome to the online briefing today. I really look forward to your presentation and our discussion afterwards.

Marcy Rockman

Thank you so much, Dan. Good afternoon everyone, thank you so much for joining. I am really really pleased to be here. What I'm stepping in to talk about today, as Dan just introduced, is cultural heritage and climate change at the federal to international levels. The focus of my talk today is a paper that was just published this past Monday afternoon in Proceedings of the National Academy of Sciences titled “Expanding Use of Archaeology in Climate Change Response by Changing its Social Environment.” Now I know this series this week is about climate and data, and I need to just say straight up, overtly this paper is not about climate and data per se, but issues of how data from and about archaeology are compiled in relation to climate change. How those data are paid for, and how it’s shared and used or not are woven throughout, so I'm going to point to those data issues where I can, and I'm happy to dig in further in the Q&A.

My co-author Carrie Hirtz and I are both archaeologists, and we both worked in the federal government for several years. As Dan just introduced, I was with the National Park Service in the role of Climate Change Adaptation Coordinator for Cultural Resources. Carrie was with the National Science Foundation and then the Census Bureau. Both of us also served with the Social Science Coordinating Committee (SSCC) of the U.S. Global Change Research Program, which is the program that puts out National Climate Assessments. In this time, both of us were working in various ways to better connect archaeology to efforts to respond to climate change.
In doing these things, we both ran into roadblocks and issues that, as we compared notes, they seemed to be bigger than any one of our individual projects. At risk of sounding very dramatic, it felt like we were fighting forces much larger than ourselves. And so we asked, what's going on here? How can we describe what's happening? And most importantly, how can we design some solutions that are also bigger than us and fight these forces at the right level? This paper is our first try at answering these questions.

I'm going to start where we started, and that's with a call that was made in 2018 by world leaders at the conclusion of the UN Framework Convention on Climate Change 24th Conference of the Parties, known as COP24, in Poland, for social and political ambition to act on climate. We started here because their call also raises questions. Not only how can such social and political will be realized, but how can and should the world address all of the historical, cultural, economic, equity, justice, and communication issues that are inherent in deciding what those actions should be, and how to move them forward?

These issues and questions exist in part because humans inhabit two types of environment: a natural environment and a social environment. The natural environment is the geophysical, atmospheric, marine, and biotic worlds, and as we know it's being changed by increases in greenhouse gas emissions from human activity and related warming of the climate. The social environment is created by human interactions, our values, expectations, perceptions, and beliefs. The social environment shapes what actions are considered to be possible, acceptable, and desirable. The changes that were called for by world leaders at COP24 are changes to the social environment that will make possible, acceptable, and desirable action to address climate change.

I'm going to dive a little bit deeper into some theory for just a moment. I expect everyone listening is familiar with a theory of natural selection, that is there's a diversity in a given population, and those elements of the population best suited to the environment are the ones most likely to survive. We most often talk about natural selection with respect to the natural environment, but this frame can also be applied to our social environment, meaning that ideas, beliefs, and practices that are best suited to the social environment are often

the ones that are most likely to be chosen. Whether or not what is chosen in the social environment is best suited to the natural environment is not a given; that's something that society needs to figure out separately. I'm going to put down the theory for just a little bit now.

In very brief terms, archaeology is a means by which we can study the intersections of natural and social environments over time and across space. When you add elements of the broader category of cultural heritage, of which archaeology is a part, like buildings, structures, monuments, landscapes, museums, and archives, and then intangible things like oral traditions, arts, manners, rituals, practices, and knowledge that have come into the present from the past, there is a lot of data available about past natural and social environments and how they interacted. At the same time, methods of doing, funding, and managing archaeology and other heritage require that society at large figure out what we value about the past, answering things like what do we save? What do we let go? Whose history matters? Bringing these ideas together, the reason that Carrie and I cared so much about our work and trying to overcome the roadblocks that we were facing was because we could see that archaeology has a lot to share with modern global climate response, both the information that it provides and as a way to help address the complexity of the modern social environment.

I'm going to give you three more detailed examples of what we mean by this. My first example is from Lake Myvatn, which is in northeastern Iceland. This area is a major breeding ground for waterfowl, and it's currently understood to host some of the greatest waterfowl diversity on the planet. Current waterfowl harvesting in this area prohibits taking of the live ducks, and it allows collecting only half of the eggs in any given nest. Historic documents describe these management practices as going back to the 18th century, and this is where it gets really cool. Archaeological evidence suggests that these practices go back much further, to the first settlement of the region in the 10th century. This combined evidence suggests that human exploitation of these waterfowl populations is actually an example of sustainable harvesting that has operated on a millennial scale. The UN has set out its sustainable development goals, which set 17 targets for a more livable global future. While we can set sustainability goals now, and we should, sustainability itself can only be realized over long periods of time. So, these findings of archaeology in Iceland describe, in a way that no other scientific approach can, an outcome that the global climate response is looking to create. What the community around Lake Myvatn achieved was a balance between its natural and social environments, production and consumption shaped and held over generations. This archaeological work shows that this kind of sustainability is possible, and this is what it can look like.

Our second example is from Lowell, Massachusetts. This is where some of the earliest industrialization in the U.S. took place. Construction of water-powered textile mills began in the 1820s. Archaeological work at Lowell has looked at things like ceramics and glassware and, among other things, changes in the placement of plumbing. It's all relevant, and what you can see in these changes are transitions from early paternalistic, but generally equitable, relations between laborers and management to much more rigid and less equitable structures by the end of the 19th century. These changes also track changes in the labor force and the rise in competition from industrial centers starting to use fossil fuels such as coal. What the archaeology at Lowell describes is the history of the system that's created climate change. Now, no one at Lowell set out to create climate change, but the dynamics of labor, energy, and economy over time did. What's so fascinating about Lowell is we can literally see these relationships change every time, we can put our hands on them, with each shift reflecting emerging social priorities.

My third example is the very practice of archaeology as it takes place in the U.S. under the National Historic Preservation Act, or NHPA, which is what established the National Register of Historic Places, which is the plaque I am showing you right here. The NHPA requires that any federal undertaking assess the impacts of a project on significant heritage. If significant heritage will be affected, appropriate treatment must be developed. Very briefly, significance here means meeting the criteria of the National Register of Historic Places. I could talk about these criteria for hours, but all I'm going to say here is that these criteria make it possible for us to discuss what is most important for society to save for the future. Figuring out what to do about impacts to heritage is done through the Section 106 consultation process. This process identifies stakeholders, it shares information about impacts, and it develops consensus around treatment. Most treatment takes the form of something like avoidance, but it doesn't have to. The process actually allows a great deal of creativity, limited only by agreement of the stakeholders and managing agencies. What this means is there are already in place processes to engage communities with places that are important to them and the risks to those places. There are processes to develop

consensus. The significance criteria together combine attention to a range of economic, historic, and cultural issues, which are the sorts of things the global climate response needs to address. The archaeologists and resource managers who work with these processes are skilled at using them, but both these data and these methods are not currently being substantively used in major climate response. This includes the international level and the U.S. level.

I'm going to give you an example from the U.S. to illustrate what I mean. I've previously mentioned the U.S. Global Change Research Program, USGCRP, which prepares the U.S. National Climate Assessments. The USGCRP was founded in 1990 with a charge to develop and coordinate "a comprehensive and integrated United States research program which will assist the nation and the world to understand, assess, predict, and respond to human induced and natural processes of global change." It's comprised of representatives from 13 federal departments and agencies shown here. Since the USGCRP's founding, the National Academy of Sciences has called it out several times for gaps in attention to social science. Despite these calls, such gaps are still evident in National Climate Assessments. The NCAs are massive documents produced by a great deal of volunteer labor by scientists across the country. They are major accomplishments, and I need to acknowledge that. The concerns that Carrie and I have are for how they've been developed and structured.

For example, the NCA 4 has a chapter on adaptation, and adaptation is really about the flexibility that we can see in human systems. The Social Science Coordinating Committee, which we were both members of, reviewed this chapter. We noted that of its 20 authors, not one had primary training in the social sciences, by extension, anthropology, archaeology. That means attention to places that communities value, and the creativity, such as can come from Section 106 consultations, were not incorporated, nor were examples of what sustainability can look like, such as at Lake Myvatn or similar examples in the U.S. Both the third and fourth U.S. National Climate Assessment list indigenous peoples as a sector in a named chapter, and I'm just showing you table of contents here. These chapters note that indigenous peoples have history and heritage, and this history and heritage will be affected by climate change. This is absolutely true, and this must be in there, but other decisions that were made about chapter structure and authorship, also commented on by the SSCC, meant that history and heritage are essentially co-defined with indigenous peoples, and that the history and heritage of communities such as Lowell, Massachusetts, which is the history of climate change itself, were not included. Going back to our original questions, why is this and what can be done to fix it? Currently, the U.S. does not have a clearly named agency for archaeology and cultural heritage. Other countries do, such as Historic England, Historic Environment Scotland, Ministry of Culture and Sports in Greece, and the *Ministerio de Cultura* in Peru, just to name a few. In the U.S., the lead federal agency for cultural heritage is the National Park Service, or NPS. Park Service is responsible for management of cultural heritage in all units of the Park system. It provides policy and guidance for management of heritage on federal lands and it processes funding to states, tribes, and local governments. But all federal agencies that manage land or property are responsible for the heritage on their property—the NPS doesn't do it for them. Other archaeological work is done by the Smithsonian, academic research is funded by the National Science Foundation, and international and diplomacy aspects are led by the State Department.

This fragmented approach to managing archaeology and heritage at the national level limits the capacity to address the intersections of climate change with archaeology and heritage. I haven't mentioned at all what we know about the impacts of climate change on heritage, and there are a lot of them. If you had a chance to see Rob Young's presentation yesterday, Rob talked about efforts to assess the vulnerability of Park Service infrastructure to sea level rise and storm surge, including historic infrastructure like the Cape Hatteras Lighthouse. As difficult as it is to build a view of vulnerability across the Park Service, and Rob and his team is doing a really good job, currently there is no compilation of the vulnerability of heritage across all federal lands, let alone all of the U.S. Further, despite its many roles for archaeology and heritage, the Park Service prioritizes its responsibilities with respect to national parks and natural resources, and the disparity in this attention has grown in recent years. An estimated two-thirds of all national parks have been established to preserve cultural heritage, and the NPS is responsible for heritage that exists in any park regardless of why that park was founded. But, while funding and staffing for natural versus cultural resources was relatively equivalent in 1995, from 95 to 2008, which is the most recent date for which I have data, funding and staffing for natural resources increased by 71 and 31 percent respectively, while funding and staffing for cultural resources decreased by 19 and 27 percent respectively. This imbalance of natural versus cultural is replicated in the structure of federal programs to address climate change,

particularly the USGCRP. Again, I'm going to point to its thirteen member departments and agencies, and I'm going to give you a very basic visual level of representation. There are several USGCRP agencies with legislative mandates to address the natural world that reference that responsibility in their names. What I'm showing you here like Fish and Wildlife Service, U.S. Geological Survey, National Oceanic and Atmospheric Administration, you can see the importance of what they do in the name. The NPS is the lead federal agency for cultural heritage, but it doesn't have that responsibility clearly indicated in its name. So, even at this very visual level archaeology and heritage are effectively invisible in the makeup of the Global Change Research Program.

These gaps, unfortunately, are not balanced out by academic research. NSF is the primary government funding agency for this kind of research. Archaeology generally receives about 5 percent of its division budget, and in 2019 it was funded at the level of about four million. For one point of comparison, the National Ecological Observatory Network, which is one of NSF's programs for study of the natural world, received 80 million in 2017 and approximately 633 million since its founding in 2017. These comparisons are using only publicly available data and we know that they are not direct, but they illustrate disparity in the relative levels of investment.

This disparity is also not balanced out by major climate and conservation-focused NGOs. I can't show you all of the relevant information here, but quickly to say major categories of NGO attention to climate are generally in the form of climate models, economic and infrastructure sectors, and this distribution is generally similar across major NGOs. Where human society is addressed, it's primarily in terms of human health, jobs, and international development. Where there is any attention to history and heritage it's generally like the National Climate Assessment: part of attention to indigenous peoples. I need to again recognize here, these NGOs do very good and very needed work, but the point is archaeology and heritage are also effectively invisible here.

I can come to several explanations why there are these connections between all of these examples, and I'm going to briefly return to our natural and social environment frames and their related evolutionary processes. If you're in a social environment and you want to choose an idea, belief, or practice that's likely to suit your environment, how do you decide? There are two common biases that are probably going to influence your decision. One is frequency bias, which is choosing that which is most common around you, and prestige bias, choosing that which is done by highly visible or high-status people or organizations. If you follow behavioral economics, their availability heuristic is a very similar frame. Both of these types of processes describe how that which is most common or visible in a social environment is taken to be that which should be replicated or carried forward. Our proposal is that while study of climate change processes began in the physical sciences, social processes have reinforced this focus across government, funding, research, and advocacy to the extent that the cultural worlds that must generate the social and political will to address climate change are not a widely recognized part of it.

So with that, what do we do? Carrie and I have come up with four suggestions. First, we recommend founding a named federal Climate Heritage Coordination Office. This office would be responsible for connecting agencies that address climate and/or heritage, fostering relevant research, and representing heritage in interagency and other government forms, and possibly helping with the compilation of data. Additional analysis is needed of where this office would sit, perhaps alongside or within the USGCRP. This office would provide greater visibility for archaeology and heritage both inside and outside of the federal government and leverage existing knowledge and resources.

Two, we want to link archaeology and heritage in climate research and investment. Currently, for example, NSF lists archaeology as a fundamental science but not other areas of heritage. While the definition of what is the science and not a science is too big for us to dive into here, what Carrie and I wanted to recognize is that this approach has the effect of separating the kind of research that generates things like the sustainability findings at Lake Myvatn from support for contemporary work with climate adaptation that would benefit from those findings. Wherever these can be linked, they should be.

Three, foster climate heritage demonstration projects. Several member agencies of the USGCRP manage or fund diverse adaptation projects. We recommend an initiative to deliberately bring elements of heritage into these projects where they have not been used before. This could range from archaeological contributions to land management to consultations with communities about contemporary important places. These demonstrations would allow assessment of how useful heritage can be in addressing adaptation projects, and it would help introduce more climate practitioners to what archaeology and heritage can do.

Fourth and finally, we recommend expanding NGO attention to heritage. Rapid attention to connections of archaeology, heritage, and climate change both in the U.S. and around the world are most likely to be most effective in the realm of NGOs. There are several cultural heritage NGOs. ICOMOS, which is the one that I work with, and I'll mention the Florida Public Archaeology Network as another in the U.S., and the Scottish Coastal Archaeology and Problem of Erosion, or SCAPE, project in Scotland are all mobilizing for climate change. ICOMOS, for example, put out a major road map document last year to help the global heritage community better support the goals of the Paris Agreement, but due to long-term under investment in heritage these organizations can't make all the change that's needed alone. ICOMOS has national chapters in 107 countries, but it does most of its work on a volunteer basis, so it can't take on everything. Knowledge and expertise exist in these organizations, so by linking with more traditional climate sources we may be able to quickly grow capacity and engagement. Finally, in that long list of NGOs that I showed you I wanted to point out that there appears to me to be overlap in major areas of NGO attention to climate change. We are not recommending that all climate or conservation NGOs should address archaeology and heritage, but we think one or some should, and we suggest that at least a portion of this engagement should go towards collaborative partnerships between governmental or intergovernmental climate science organizations and cultural heritage. Demonstration projects such as I just described might be one approach, and our collaboration with the USGCRP for the next National Climate Assessment could be another focus.

Taken all together, these are not going to solve all of our issues, but they will give visibility, an opportunity to bring the experience from the full depth of human experience, which is what archaeology and heritage is, to the challenge of climate change. Given the scale of the challenges we're facing with climate change, I hope it's possible to give these at least some of a chance. With that, I am going to say thank you for listening, and I would be more than happy to do my best to answer whatever questions you might have.

Bresette

Thanks, Marcy, that was really interesting, a really great presentation, and hopefully this briefing helps with your fourth recommendation, right, expanding NGO attention and linking archaeology and heritage and climate. Thanks very much for your presentation, so perfectly in line. Just a quick reminder to folks who might have joined us a minute late or maybe heard Marcy reference back to Rob's presentation yesterday, just a reminder, our video recordings, the presentations, and written summaries will be online later, and actually not too much later. There's lots of detail in those presentations, so if you miss something or if you want to go back or if you want to follow Marcy's recommendation and link archaeology, heritage and culture, and climate change in your own work, our online briefing [inaudible] where it will help you do that.

We're going to turn now to Q&A. We have a good amount of time for Q&A, and just as a reminder you can send us questions by following us on Twitter @EESIOnline. You can also send us an email with your question at EESI@EESI.org. For the Q&A I'm going to turn to my colleague Amber Todoroff and she's going to kick us off. Amber's on our policy team as one of our policy associates, and has been working with EESI for almost a year so she technically outranks me seniority-wise. Amber, when you're ready to go take it away.

Amber Todoroff

Great, thanks so much Dan, and thank you, Marcy. This was so interesting, and really got me hyped for cultural and historic preservation, which is great. Since this is data week and you've laid such a great foundation for this discussion, what are the unique data needs for archaeological and historical cultural sites for climate adaptation planning?

Rockman

It’s a big question, so thank you. We’ll see if I can pull this together concisely. One of our biggest challenges is gathering enough observations to understand what's happening to heritage and climate. There was a photo that I showed you initially that had archaeology, and then a bunch of different forms of heritage. One of the archaeology photos that I showed you is actually an overview of excavations at Jamestown Island, of James Fort, and I'm going to use that as my main example.

One of our biggest challenges is really understanding the full scale of what climate change is going to be doing to archaeology and heritage, and that particular site in Jamestown Island is really interesting because for a

long time everyone had thought it had eroded into the James River. We didn't even think it was there, and then it was found, part of it. We knew that we were lucky, but we were expecting erosion to be a problem. There's actually been a seawall there for more than 100 years now, so it's historic itself, to help protect that site. As part of the Park Service preparations, like the work that Rob Young is doing, there's been a lot of work with storm surge and hurricanes, so we know erosion is a problem, surges are a problem, those are things that we can see. One of the other things that has come up from Jamestown Island is that a couple of years ago staff there recognized that when it rains, this island just wasn't draining very well, and marsh vegetation that hadn't grown there before was coming up.

What they have realized through work with the USGS is that the water table on the island is actually rising. Not only is that groundwater table rising, it's actually brackish water, and as I understand they're not sure why, which is basically saturating archaeological sites from the bottom up. What we're seeing is that we can see and measure erosion along the side, we can anticipate probability of inundation from the top. What may actually take out most of these sites or make them inaccessible soonest is what we can't see, and that's the saturation from the bottom up. So, it's this balance between trying to understand what we can see and not see.

Up in the Arctic, we know that there are sites that are melting, literally, as permafrost is melting. That's something we can see, but in places like the southwest we are now also understanding that the wildfires are so hot and intense that they are literally starting to shatter artifacts and they're baking soils in a way that they haven't before, and that's having effects we still haven't even wrapped our heads around. So, it's figuring out that balance between what we can see and what we can't see, tracking impacts that we know but also keeping a really creative eye out for the things that we didn't even know to look for before.

Todoroff

Whoa, very important stuff. Along the lines of Rob Young's presentation yesterday and other presentations using NOAA's Sea Level Rise Viewer and other national databases for doing sea level rise analysis, is there a geo-referenced national database for these historic registered properties or other important cultural historical sites that could be used on a national basis to check their vulnerability to sea level rise, or should there be? What would be the barrier to that happening?

Rockman

That's another really really good question. There is a national database of all National Register sites so that exists, and I know some colleagues at the National Park Service have been working on that and cleaning it up, because the National Register has been around for a long time and sometimes the location information for some of the early sites isn't always precise. They've had to just go back and make sure that it's still really precisely located. They've been working on cleaning that database, so if something is on the National Register there should be a location known for that.

One of the other [inaudible] is that for archaeological sites, their location information is not supposed to be publicly available. It's considered confidential, to help protect them. Particularly worried about things like looting, damage to Native American sites, and so forth, and that's under the *Archaeological Resources Protection Act*. They're not even subject to FOIA, you're not supposed to find them. They are considered confidential, so we would not want and we cannot create a full database of all of the archaeology in the U.S. that would be publicly available, because that information is specifically restricted.

There's some amazing colleagues at the University of Tennessee that have started to figure out a way around that. They've built some database architecture that pulls together data from state Historic Preservation Offices without copying the data, but it'll pull it together and create a map that has relatively close points. They have used it, their paper came out in late 2017, to look at the potential impacts of sea level rise on archaeological sites in the Southeast region. It's not a super fine scale, but it's a really great start to help us see where are things most at risk. I think they have been trying to grow that database and that ability to pull data together at a larger scale. There are champions in doing that.

Bresette

Marcy, I'm going to ask a question that came in through email from one of our audience members. Your presentation dealt mainly, it seems, with the federal level, but a lot of this work is done by state agencies. The

preface of the question is, a lot of responsibility for survey and identification of cultural resources lies with state and tribal Historic Preservation Offices. Do you have any thoughts about how survey and mapping by state and tribal Historic Preservation Offices could be improved, whether it's an issue of policy or funding, and how that might be used to improve climate change and resilience planning?

Rockman

My first response is that I'm sure they need more funding. More funding and staffing is always one of our issues. I think one of the areas where I don't actually have a lot of information, and this would be a question for some of our state colleagues when we have a chance to do it, is the extent to which they're able to do research themselves versus managing information that comes in from development projects that are done around the country. A lot of our knowledge about where heritage is comes from those development projects under the National Historic Preservation Act, and so we're kind of dependent on who wants to build a road or a housing project or a pipeline to help us figure out where a lot of things are. I know for the federal government there's another section of the NHPA that requires federal agencies to inventory all of their holdings. That takes a long time, we're not there yet, but there is that provision there. I don't know how well that functions at the state level and how able they are to survey across the state, so that's a question for them.

One of the challenges that we had in the Park Service, and I think this also applies at the state level, is trying to balance care for the places that we already know are there versus continuing to search and look for places that may be at risk. For example, there's so much federal land in Alaska we surveyed a small, small percentage of it. We had this question, we know there's stuff along the coast that's eroding, but we also know that like 95 percent of the land area in Alaska hasn't been surveyed, so how do we prioritize even going to look for things that might be at risk? I expect that same contrast and that issue exists at the state level of balancing surveys for things that might be at risk, but then also understanding the risk to the places that they know.

Bresette

Thanks. Another question came in, this one came in by Twitter. The person was surprised to see the funding comparisons and funding trends between natural and cultural resources in the time period that you gave, but it looked like the time period you gave ended around 2008. The person asked whether or not there's any more recent data about what that split might look like and whether that trend that you outlined is continuing, or if it's still a big issue. Is it still a problem, is it a growing problem, or is it something that's changed a little bit since the data that you presented?

Rockman

The data that I showed is the most recent data that I was able to find. There was a specific report in 2008 that looked at that distribution. That's what I was pulling from, and there's a reference to that at the bottom of the slide if you want to look at it. I don't have any additional data from 2008 to now. What I can tell you from my experience at the National Park Service is that it did not improve substantially there. Actually, cultural resources staffing was going down further while I was there. I can't give explicit numbers for you, but my experience was not that the trend was going up, it was actually continuing to go down.

Bresette

Okay, and you were at the National Park Service through 2018, so just so pretty recently.

Rockman

I was there from 2011 to 2018.

Bresette

Great, thanks for that clarification. Amber, I'm going to hand it over to you. I think you might get the last question of the day.

Todoroff

Great. This is more directed towards your work with ICOMOS and IPCC. What are the lessons that the U.S. can draw from that international work, and which countries are leading the way that we might be able to look at as an example of great cultural stewardship and climate adaptation?

Rockman

There is a country that I look to as being out in the lead, and that country is Scotland. They have done a tremendous job in really understanding what the risks are, particularly along their coasts, and Scotland has a lot of coastline. A small program that I mentioned, Scottish Coastal Archaeology and the Problem of Erosion, or SCAPE, has done a tremendous job to reach out to not only capture data and clean data and make really accessible databases of what is at risk and what is most important, and I'll say some of the Park Service policy on how to balance our significance and vulnerability is modeled or inspired by some of the things that Scotland did. Scotland has also done some tremendous outreach to the public, and they've done some citizen science work. They said look, we've got a whole bunch of coastline, we've got a lot of history and heritage on that coastline, but similar to the U.S. they do not have a lot of funding to manage that coastline. They said, three people can't manage all of this, so they basically crowd-sourced it and said, "okay, public. We're giving you this data. Help us monitor these places." This is where I should step back and say Scotland has a very different approach to managing archaeological information. They do make it publicly available. We could not do the same citizen science approach here in the States that they've done over there, but seeing how the public has responded to that and watching some of those conversations with them has really been very inspiring. My colleagues at the Florida Public Archaeology Network have been working very closely with Scotland and trying to draw whatever lessons they can and build them into the public ecology approaches that we have over here, so there's been some great partnerships back and forth.

I think on a global scale, one of the things we are trying to do is say, we've got a lot of information but we really don't want it to stay at that level of just potentials—like, it could be useful, we really want to get some things going. To say, this is how it is useful, this is where we can really make a difference. That's where combining some of our international connections and then having ICOMOS serve as this umbrella, because it's got some of the convening capacity. It's existed since 1965-1966, so they've had some gravitas, and to say let's bring this together and make a proposal, which actually we've done. We're in the process of talking with the IPCC and saying, we would like to hold an expert meeting on culture, heritage, and climate change, and that would be the first step towards a special report of the IPCC on culture, heritage, and climate change. We think this is a really good time for that.

If our current pandemic is showing us anything, it's how important our connections are to each other, and to our stories, and to our place, and to our communities, and that's really what we think we could bring to the climate world, and serve as that connection. We're always struggling for staff and capacity, but the ability to realize people around the world are having these questions and these concerns and they want to do it, and we want to move it forward. It seems like right now we have a pretty good opening to make that happen.

Bresette

Great, thanks Marcy. That was a really excellent presentation, and thanks for joining us for some Q&A and answering questions that we came up with and questions the audience came up with, so thank you very much for that. Thanks also to Amber and Anna McGinn and Dan O'Brien and Amaury Laporte and Abby Neal and Sydney O'Shaughnessy and to everyone at EESI who's helped bring this briefing series together. Abby and Sydney in particular have been working really hard with Anna's help to get to summaries up so quickly, and obviously that's really, really important, so special shout out to them. Just a quick reminder we have the fourth of five briefings in the series: *Bridging the Gap Between Science and Decision-Making*. It's tomorrow at noon Eastern. And then on Friday, also at noon Eastern, we'll wrap up the online briefing mini-series with *Weather and Social Data to Inform Participatory Planning Initiatives*. Two really great topics coming up, you won't want to miss them, and really, really expert speakers. We've been really lucky this week by the caliber of the experts who've been willing to join us to share these important topics with our audience. Thank you again, Marcy, thanks to everyone.

Last word, if you are new to EESI or if you're not, take a moment to sign up for Climate Change Solutions if you haven't already. It's our newsletter; the last issue dropped yesterday, and it's every two weeks. You can visit EESI.org and sign up for that. Also, if you have a few moments to take our survey, Dan O. is showing the link to

that right now. If you have a moment, it means a lot to us for you to share your thoughts about how this is going, and EESI in general. I'll go ahead and conclude there; thanks to everyone for joining us. Thanks again to Marcy, and I hope everyone has a great rest of your Wednesday. I hope that you'll join us back here tomorrow at noon for the next installment.

The Environmental and Energy Study Institute (EESI) is a non-profit organization founded in 1984 by a bipartisan Congressional caucus dedicated to finding innovative environmental and energy solutions. EESI works to protect the climate and ensure a healthy, secure, and sustainable future for America through policymaker education, coalition building, and policy development in the areas of energy efficiency, renewable energy, agriculture, forestry, transportation, buildings, and urban planning.