



## **National Advisory Council for Environmental Policy and Technology Teleconference**

**Call-In Number: 866-299-3188, Conference Code: 2022330068#**

**Tuesday, November 28, 2017  
12:00 – 4:00 p.m. EST**

### **MEETING SUMMARY**

#### **Welcome, Introductions and Overview of the Agenda**

*Eugene Green, Designated Federal Officer (DFO) for the National Advisory Council for Environmental Policy and Technology (NACEPT or Council), Federal Advisory Committee Management Division (FACMD), Office of Resources, Operations and Management (OROM), Office of Administration and Resources Management (OARM), U.S. Environmental Protection Agency (EPA); and William Ross, Jr., NACEPT Chair, Council Member, Gillings School of Global Public Health Advisory Council, University of North Carolina at Chapel Hill*

Mr. Eugene Green (NACEPT DFO, EPA) welcomed the NACEPT members, explained that the teleconference was being recorded for meeting summary purposes, and called the roll. A list of meeting participants is provided in Appendix A.

Mr. William Ross, Jr. (NACEPT Chair, The University of North Carolina at Chapel Hill) also extended his welcome to the NACEPT members and other participants. He thanked the group leaders for their leadership and the members for their efforts in drafting NACEPT's second report on citizen science. He provided an overview of the agenda, which includes a discussion on the report, included as Appendix B.

The official certification of the minutes by the Chair is included as Appendix C.

#### **Public Comments**

*Eugene Green, NACEPT DFO, FACMD, OROM, OARM, EPA*

Mr. Green called for public comments; none were offered.

#### **EPA Citizen Science Updates**

*Jay Benforado, Chief Innovation Officer, Office of Research and Development (ORD), EPA*

Although EPA's full policy team is not in place following the administration change, Mr. Jay Benforado has received requests for information about citizen science from the new EPA Administrator. NACEPT's first report on citizen science was provided to the transition team.

EPA's Office of the Inspector General (OIG) has initiated an audit of citizen science at EPA. In addition to keeping abreast of various policy directions and performing investigations of fraud and abuse, the office also helps the Agency to position itself for the future. OIG has identified citizen science as an important area based on NACEPT's first report, the passing of the Crowdsourcing and Citizen Science Act of 2016, and Government Accountability Office (GAO) reports on the topic. The audit is a cooperative effort that began within the last month, Mr. Benforado is the lead for representing the Agency. Staff are engaged in the effort and have briefed senior management.

One strategic objective in President Donald Trump's draft strategic plan is to provide additional platforms for public engagement. OIG envisions citizen science as fitting into that strategic objective. The scope of OIG's effort is broad and will determine whether EPA has developed controls on how to manage the use of citizen science data and results to meet the Agency's mission. The scope includes citizen science projects funded and supported by EPA and citizen science without direct EPA funding that may produce data with which the Agency may engage.

OIG has begun examining EPA's citizen science website and is attempting to understand NACEPT's spectrum of citizen science uses. The goal is to bring more clarity and characterize how citizen science data contribute to work at the Agency. The plan is to question EPA staff about how citizen science may be able to be integrated into existing work. To inform its work, OIG also asked for existing guidance documents about how the Agency regularizes the use of citizen science. Multiple guidance documents exist about how normal science requirements apply to citizen science, but very little guidance exists that relates directly to citizen science itself *per se*. Scoping is expected to take 90 days from the October announcement, with a year-long study to be announced in early 2018.

Mr. Ross asked whether NACEPT members may be interviewed by OIG. Mr. Benforado explained that OIG considers the NACEPT report as the definitive statement regarding EPA and citizen science. Some of the NACEPT members' names have been provided to OIG, and these members have been informed, but OIG may contact any of the NACEPT members.

Ms. Bridgett Luther (Code Blue Innovations) asked about the driver for OIG's interest in this topic. Mr. Benforado explained that OIG indicated that the office had been considering this topic for 2 to 3 years, and the NACEPT report, recent legislation, and the two GAO reports about the value of citizen science and open innovation tools for government work prompted the office to focus on it at this time. OIG would like EPA to be more proactive and less reactive to the recommendations NACEPT made in its first report.

Dr. Emmanuel (Cris) Liban (Los Angeles County Metropolitan Transportation Authority) asked whether the OIG effort would affect the Council's current work. Mr. Benforado did not think that it would because the timing will not synchronize. OIG will be starting its study early next year; NACEPT's second citizen science report should inform the OIG study, but the reverse will not be true. OIG would like to identify the barriers and determine what is limiting EPA in using citizen science data. Dr. Liban noted the importance of determining NACEPT's role following the issuance of the second report. Mr. Benforado thought that NACEPT could help to inform the audit.

Ms. Barbara Jean Horn (Colorado Parks and Wildlife) indicated that she had not been contacted yet. Mr. Benforado responded that OIG still is scoping the issue and will not begin the interview process for a few more months.

Mr. Benforado reported that skepticism of citizen science data quality is a barrier to EPA, states and tribes using these data. During a meeting, approximately 100 stakeholders in New England requested more guidance on data quality and how to develop a Quality Assurance Project Plan. In response, EPA's Office of Environmental Information and Region 1 determined that it would be beneficial to develop guidelines. The resulting workgroup took 6 months to create a plain language handbook that explains to external organizations how to perform quality assurance (QA). Currently, states and tribes are providing input on the handbook, the goal of which is to provide citizen scientists with tools and procedures so that they know what kind of QA meets the intended use of their data and how to document QA. This information must be accessible for citizen scientists who do not have QA experience. After these government partners have provided their input, the handbook will undergo a limited review—which will include NACEPT members—that has a cross-section of various areas of expertise to ensure many perspectives are represented.

Mr. Benforado plans to send a request to determine which members have the time to review the 10- to 15-page handbook, which also includes 24 templates and several examples.

Ms. Shannon Dosemagen (Public Laboratory for Open Technology and Sciences) asked whether the handbook would be released prior to the next NACEPT report, as it would be helpful to be able to reference the handbook in the report. Mr. Benforado explained that the goal is to release the final draft in February 2018, so it should be possible to reference the handbook in the second NACEPT report.

The following NACEPT members volunteered to review the handbook: Ms. Horn, Ms. Dosemagen, Dr. Graciela Ramirez-Toro (InterAmerican University of Puerto Rico), Ms. Laureen Boles (New Jersey Environmental Justice Alliance), Mr. Jeffrey Mears (Oneida Nation) and Mr. Robert Kerr (Pure Strategies, Inc.). Ms. Luther asked to be contacted and will determine then if she is available to provide a review. Mr. Benforado explained that he will include the timeline when he sends the document. Members can provide a general review summarized in two to three sentences about how to make the document stronger and accessible to citizen science organizations. Alternatively, they can provide an in-depth review. In response to a question from Mr. Kerr, Mr. Benforado thought that the review might occur as early as mid-December.

Dr. Alison Parker (ORD, EPA) explained that Harvard Law School's Emmett Environmental Law and Policy Clinic recently had released a manual for citizen scientists, which is helpful for citizen science organizations and citizen scientists to plan and design projects and consider potential issues and relevant and potentially relevant laws. The appendix includes a state-by-state guide to laws relevant to citizen scientists. A coordinating workshop was held at Harvard University. NACEPT's first report on citizen science is referenced heavily in the manual and was discussed extensively at the workshop. Mr. Bob Perciasepe, the former EPA Deputy Administrator who initiated and promoted citizen science efforts at EPA, spoke at the workshop and praised the NACEPT report; at the meeting he had noted that the spectrum developed by NACEPT is a useful way to think of citizen science data.

### **Presentation Overview of the Organization for Security and Co-Operation in Europe: Economic and Environmental Dimension Implementation Meeting**

*William Ross, Jr., NACEPT Chair, Council Member, Gillings School of Global Public Health Advisory Council, University of North Carolina at Chapel Hill; Council Members*

Mr. Ross presented about NACEPT's first report on citizen science at the 2017 Economic and Environmental Dimension Implementation Meeting of the Organization for Security and Co-operation in Europe (OSCE) in Vienna, Austria, in October 2017. At the meeting, he directed the audience's attention to the title of the report and explained that NACEPT had intended the title to be unusual and intriguing because of what the Council had discovered about citizen science during the research and writing of the report. He told the audience that NACEPT had discovered three important things about citizen science:

1. It is a universe of stories of people participating in science in ways that are voluntary and meaningful and that bring change.
2. The universe of citizen science is a rapidly expanding universe, driven in part by emerging technologies that allow the public, in the words of Dr. Caren Cooper, to take the pulse of the planet or to create the infrastructure for community-based problem solving.
3. The magic about the way citizen science connects citizens and science and about the way it could connect agencies and the public is not being tapped to the extent it could and needs to be tapped by agencies like EPA.

Mr. Kerr asked whether other presenters at the meeting spoke about citizen science. Mr. Ross explained that his panel was devoted to promoting good governance in the environmental field, and the other presenters focused on fighting environmental crimes. He was the only one to speak specifically about

citizen science, but many people approached him during breaks to learn more about the topic, and he hopes that they will stay in touch. In early December, OSCE's Ministerial Council will meet and obtain input derived from the various implementation meetings; it will be interesting to see if citizen science is mentioned in the year-end report and the recommendations of OSCE's leadership council.

Mr. Benforado noted that an upcoming United Nations Environment Programme (UNEP) meeting in Nairobi, Kenya—which EPA staff are slated to attend—will include a session on citizen science. He explained that Dr. Anne Bowser of the Wilson Center has been helping connect the (U.S.) Citizen Science Association with its European and Australian counterparts. An African citizen science association may be established. Ms. Dosemagen provided additional details about the meeting, explaining that this is the first citizen science delegation to the UNEP, and the delegation includes representatives from the American, European and Australian citizen science associations. She is looking forward to writing a report about her experiences after the meeting. Mr. Benforado added that Dr. Gayle Hagler, who works on air sensors at EPA's Research Triangle Park facility, is presenting at the meeting, and her first slide is the cover of the first NACEPT citizen science report.

Mr. Green reported that the first report has been translated into Spanish, and this version is expected to be published within the next month.

Dr. Patricia Gallagher (Drexel University) reported that her colleague is teaching a course on citizen science at her university. NACEPT's first report is part of the reading material for the course, and Drs. Gallagher and Parker met with the class. The students were curious about the approach NACEPT took in stating that environmental protection belongs to the public. Her colleague indicated that it was helpful for students to learn about how these types of reports are developed.

#### **Discussion on Initial Integrated Draft of NACEPT's Report on EPA and Citizen Science: Building Collaborations and Partnerships**

*William Ross, Jr., NACEPT Chair, Council Member, Gillings School of Global Public Health Advisory Council, University of North Carolina at Chapel Hill; Council Members*

Dr. Parker explained that the final deadline for developing the next draft is mid-February 2018 so that the final report can be released in April 2018. Mr. Green added that the teleconference to approve the second report will occur in late February 2018; therefore, the draft must be completed with enough time to allow Council members to review it before that teleconference. Mr. Benforado emphasized that these are firm deadlines.

Mr. Green explained that the action items from this teleconference are being expedited and would be available by the end of the week. Members then will work on the draft during the next 3 to 4 weeks. Any quotes (and permission to use them) and acknowledgments must be gathered during this time. The core editing team will have 3 to 4 weeks to incorporate the material into the next draft for additional comments and feedback. Following the February teleconference, the core editing team and the contractor will have 2 to 3 weeks to incorporate any final changes or additional edits. The final report must be ready to be transmitted to the EPA Administrator in mid- to late-April 2018. Several NACEPT members' terms end in April, and the goal is to transmit the report before these terms end.

Ms. Dosemagen provided an overview of the current draft and how it was developed. In May of 2017, NACEPT members assembled four workgroups to build on the research and recommendations from the first NACEPT report on citizen science. Each workgroup represented core focus areas around which EPA citizen science collaborations could take place. During the spring and summer of 2017, these workgroups conducted extensive interviews and research into each focus area to provide top-level recommendations and core thoughts to a core editing team that includes Ms. Dosemagen, Dr. Parker and Mr. Dan Bator (ORD, EPA); Mr. Green, Mr. Benforado, Mr. Ross and Mr. Mark Joyce (FACMD, OROM, OARM, EPA) also assist with editing.

After reviewing the deliverables from each of the workgroups, recommendations were consolidated into a single draft report with an overall theme of investing in partnerships to move information to action. The goal is to produce a more concise report than the first report. Four themes emerged during the research and writing phases: (1) invest in partnerships to move citizen science from information to action; (2) support strong partnerships with state, tribal and local governments; (3) support strong partnerships with nongovernmental organizations (NGOs); and (4) support strong partnerships in open technology. Within these themes are nine recommendations that are tighter and more direct than those in the first report.

Three options exist for how the report can be organized within the broader concept of information to action and how partnerships can bring about action: (1) use the partnership elements of the first report's case studies, (2) use the new case studies submitted during the interview process of the second report, or (3) examine the case studies and interview responses to generate concise thoughts about the needs and challenges for moving information to action.

The introduction of the current draft provides a recent history of citizen science, including pertinent reports. The next four sections of the report detail the nine recommendations:

Invest in partnerships to move citizen science from information to action:

1. Leverage opportunities in legislation to bring citizen science into decisions.
2. Build ethical principles to guide partner interactions.
3. Understand the diversity of concerns, resource needs and circumstances of partner organizations.

Support strong partnerships with state, tribal and local governments:

4. Identify and catalog local data needs and applications and determine the best way to engage the public in the collection of needed data.

Support strong partnerships with NGOs:

5. Empower EPA employees by establishing a clear policy and guidance.
6. Explore the potential for special environmental projects to fund citizen science.

Support strong partnerships in open technology

7. Increase efforts towards transparency, open licensing and accessibility in hardware, software, data, models, publishing, grants and peer review.
8. Maximize the added value of stakeholder involvement while prioritizing EPA's inherently governmental role.
9. Facilitate partnerships in technology development by training EPA employees on advanced technologies.

Mr. Benforado commented that readers will benefit from having figures that frame the information. Figure 1 can be read from right to left or left to right to provide a framing of the information. It is important for EPA, states, tribes and others to have a framework for moving information to a decision or action.

Ms. Luther noted that the material submitted by her workgroup had been shortened and wondered whether additional material would be added. She also had questions about the recommendation regarding ethical principles. Dr. Parker explained that the editing team had consolidated a good deal of information and edited the material to streamline the report. If important items were excluded, they can be re-added. The goal is to make this report more accessible. Mr. Bator added that once "information to action" became the overarching theme, the contents of all of the workgroups were dispersed into all of the

sections. Dr. Parker agreed that the content from each workgroup has been moved to different sections than originally submitted.

Dr. Liban sits on other committees that make recommendations, and some recommendations languish because they do not have a champion or available funding. He did not see information about implementation of the recommendations in the current draft. Mr. Benforado responded that the basic messages are sound, understandable and implementable. He thought that the basic framework of the report—which provides an overview about investing in partnerships and then working closely with state, tribal and local governments as an activity area, determining how to partner more effectively with NGOs, and then partnering on technology development—will work inside the Agency. Dr. Liban reiterated that recommendations need a champion. Citizen science organizations may have questions about next steps, resources, implementation and so forth. Ms. Dosemagen stated that the editing team will keep this in mind when performing the next edit and can think about providing action steps within each recommendation. The first report was successful in demonstrating how the recommendations could be applied practically. The recommendations can include a path forward instead of just explanations about the recommendations. Dr. Liban agreed that this is what he would like to see.

Mr. Ross asked each Council member present to provide his or her thoughts on the current draft. Everyone was complimentary about the draft; specific input follows.

Mr. Kerr had the same concerns as Dr. Liban, and he would like to see more focus on action steps. The framework and objectives are clear but could be sharpened. For those who need to take action, it would be useful to include a graph or diagram that provides a structure of what the approach could be. Action steps are important to include, and case studies could be used to illustrate how to move forward. The diagrams and case studies could be used in tandem to provide an understanding of how to implement citizen science. A previous NACEPT report on pollution prevention was used extensively at the Agency, and each section “spoke” to each group within the Agency. He reiterated that more details on how to make citizen science happen at the Agency, including accompanying graphics, are needed in the report.

Mr. Matthew Howard (The Water Council) commented that, like Ms. Luther, he had noticed that a good deal of content had been removed. He thought that the recommendations fell under three categories, those aimed at EPA staff or program, those targeted to partnerships and stakeholders, and those addressing technology or data issues. He will email his thoughts about how to organize the report under these categories.

Ms. Boles noted that, in thinking about the report, she had considered the example of a neighborhood that has identified a problem and might want to conduct citizen science but is not formally organized; how can such a group get the attention of EPA and scientists?

Dr. Irasema Coronado (The University of Texas at El Paso) noted that she had sent her comments by email. She thought that the report should use the term “data” rather than “information” because “data” has more credibility when organizations want to share with EPA. She cited an example of the Agency dismissing a community group’s information about air quality. The report must address how to validate community organizations.

Dr. Ramesh Chawla (Howard University) asked whether the report will be published to NACEPT’s website when it is complete. Mr. Green and Mr. Benforado explained that the report will be publicly available on the EPA website when it is transmitted in April. Dr. Chawla commented that the report is focused on EPA and asked whether there would be an effort to extract general information to make the report less specific to EPA. Mr. Benforado noted that a good deal of cross-agency learning exists, but NACEPT’s charge was designed to be advise the EPA Administrator. Other agencies contribute to environmental protection are interested in the report, but the report should not be broadened to include them.

Dr. Gallagher supported the idea of keeping the report sharp and crisp and agreed that the recommendations need implementation and action steps added to them.

Ms. Horn noted that her comments are from the perspective of the charge in that this is advice specifically to EPA. If the Agency accepts these recommendations, the scientists do not necessarily need to change; rather, EPA needs to change its culture to be open to accepting citizen science data. EPA may need to encourage its state, tribal and local partners to integrate citizen science into their work, as well. EPA could incentivize this. Her view is that the report is less of a document to tell citizen science groups what to do and more about telling EPA what actions the Agency could take to promote citizen science and use of citizen science data. She thought that data and information are important, separate pieces and should not be combined. She would like the report to include more takeaways; each recommendation should include a summary takeaway (e.g., potential approaches) of three to four sentences. The recommendations also should include language that relates back to the theme of information to action. Finally, each case study should serve a purpose toward the theme and provide insight to where EPA may have a role.

Mr. James Joerke (Johnson County [Kansas] Department of Health and Environment) commented that, in terms of the process, it might be beneficial for future reports to allow more cross-consultation among the workgroups or even share workgroup drafts with each other.

Dr. Liban agreed with Ms. Horn's comments about the charge and the focus on Agency actions. He reiterated the need for implementation steps to define roles and how to move the recommendations forward. For example, the regions may have a significant role in implementation. Citizen science groups should be able to use the report to inform how they work with EPA.

Ms. Luther did not have additional comments from those she shared earlier except to thank Dr. Ramirez-Toro for her efforts in leading the workgroup during a major natural disaster in her area.

Dr. Ramirez-Toro thought that examples needed to be added to the recommendations. Headquarters' programs and regions do not necessarily interact with communities in the same way, and examples of the interactions would be helpful.

Mr. Mears agreed with many of the NACEPT members' comments. Making citizen science a central tenant of EPA and empowering EPA staff is critical, as is integrating citizen science into existing laws and programs. Citizen science is not a stand-alone program or project; it is a new way for EPA to meet its mission. The Agency has recently spoken of "going back to basics" in accomplishing its mission, and listening to citizens is getting back to the basics. In addition to advising EPA, he also considers how to inform tribes and other organizations about how they can work with the Agency on citizen science. The first step is advising EPA, and the next step is how to educate other organizations on how to work with EPA.

Dr. Dale Medearis (Northern Virginia Regional Commission) and Mr. Donald Trahan (Louisiana Department of Environmental Quality) agreed with the previous members' comments and did not offer any additional comments about the report.

After hearing from each of the members present on the teleconference, the group discussed how to move forward in developing the next draft.

In terms of Ms. Luther's earlier questions on ethical principles, Mr. Benforado has seen other organizations build principles that guide their citizen science work, so an ethics discussion could be integrated into the report at that level. Ethical issues of citizen science is a topic that has always been introduced in discussions about citizen science. Mr. Ross noted that at the NACEPT face-to-face meeting in May, Mr. Omega Wilson (West End Revitalization Association) had provided several ethics examples. Ms. Dosemagen commented that an inherent problem in citizen science is that many of the projects are top-down, which can result in nonequitable relationships. Mr. Wilson had described a memorandum of

understanding that guided the principles of relationships between communities and research institutions and provided a structure for how equitable partnerships can exist. This type of an agreement could be more widely implemented among citizen science projects and is an area to consider when providing recommendations to EPA. Successful partnerships rely on balanced and strong ethical underpinnings.

Mr. Bator thought that the term “ethical” had evolved from language submitted in regard to “equitable” partnerships. Ms. Luther expressed concern that the term “ethical” might have moral connotations, so the term “equitable” might be the better term. She agreed that the concept is important, because establishing equitable relationships is the baseline for citizen science. Dr. Coronado thought that the term “respectful” would be appropriate. Many of the groups she works with feel disrespected by government agencies. Ms. Horn thought that any relationship needs a set of boundaries, guidelines and principles; the term “guiding principles” could be used. She noted that the terms “equal” and “equitable” are not the same, and she also suggested providing examples of guiding principles, why they are needed, and how they provide credibility and trust to establish a foundation.

Ms. Boles noted that one discussion at the May face-to-face meeting centered on the disconnect of the conflicting views of scientists who see projects as research to be published, whereas the community sees projects as opportunities for problem resolution. This led to the discussion in the report about equal and equitable partnerships. Dr. Ramirez-Toro agreed with changing the word ethical and supported the inclusion of case studies to illustrate the point.

Dr. Parker summarized that the Council members would like the term “ethical” changed, more explanation added, and perhaps to include this recommendation in the third recommendation about the diversity of concerns for organizations. The importance of the action side of “information to action” for communities also needs to be emphasized. Mr. Ross liked the phrase “roadmap for collaboration.”

Mr. Ross said that the intriguing title of the first report was part of the success, and he would like this report to have a title that ties into the first one. The following titles have been suggested:

1. *Environmental Protection Belongs to the Public: Moving From Information to Action Through Partnerships in Citizen Science*
2. *Environmental Protection Belongs to the Public: Harnessing Information and Action Through Partnerships in Citizen Science*
3. *Partnering With the Public: Moving Information to Action Through Citizen Science*
4. *Information to Action: Strengthening Citizen Science Partnerships for Environmental Protection*

Mr. Ross preferred the first option and asked for opinions from the NACEPT members. Mr. Benforado said that the title and messaging is important. His concern is that the first several words are too similar to the first report’s title, which could lead to confusion. His preference is the fourth option.

Dr. Coronado reiterated that she thought “information” should be changed to “data.” Mr. Ross noted that information includes data, so being specific could lose some context, and using both terms would be wordy. Ms. Horn did not support the use of the term “data” to replace “information.” Information is more encompassing. Dr. Coronado cited examples of community groups contacting federal agencies with information, and the agencies always respond with, “Where are the data?” The term “information” is general, whereas the term “data” is more specific, and the government will not act without data. Ms. Dosemagen explained that she tends to use both terms together. Data are important for government action, but information is where context is derived; it can be visual, narrative (story telling) or based on experience. She suggested using both terms, even if that makes the title longer. A NACEPT member suggested using “information to data to action.”

Ms. Horn noted that data are turned into information to effect an action or result. Some data never are used because the data are not translated into information. They are different and related, and it is about the workflow between them. Using all three terms may lengthen the title, but NACEPT would be honoring the value of all of them. She supported connecting the title to the original report while understanding Mr. Benforado's point about the possible confusion. She suggested labeling the report as part of a series so that it is obvious that more than one exists.

Dr. Parker noted that the phrase "information to action" is a good catch phrase for the report. The title could use this phrase, but the text could always use "data to information to action." Ms. Horn noted the need to explain this framework early in the report. Mr. Benforado commented that data and information are considered separate by experts, and this distinction could be made in the opening paragraph rather than in the title.

Dr. Chawla stated that when he hears "information," he thinks in more general terms, whereas the term "data" is more specific to him. The terms are very different, and the preference in scientific literature is to use the term "data" rather than "information," which does not have as much of a scientific basis behind it.

Mr. Ross asked the NACEPT members to consider the potential titles for a future discussion through email after more information has been gathered and the next draft is complete.

Mr. Benforado provided his reactions to the feedback provided by the members, which he thought had some commonality. The editing team will need to consider the feasibility of organizing the report within the three categories that were suggested by Mr. Howard. The first three recommendations are different from the remaining six in that they are overarching. In terms of messaging, the report needs to be made accessible for policy and decision makers. He asked the NACEPT members to consider short quotes (one sentence) and figures that provide the messaging in a concise manner. The quotes currently in the draft are too long. The case studies are important, but a number of the current case studies are not relevant to EPA. It is important that the case studies amplify the thoughts in the report. Mr. Benforado commented that the recommendations are good, but they do not "sing" yet and need to be reworded. For example, he was unsure that Recommendation 4 was the right recommendation for that category. Recommendation 6 is important but may not resonate with the current EPA Administrator. Recommendation 7 is dense. Recommendation 8 is not worded clearly. He suggested sharpening the recommendations.

Dr. Parker explained that the editing team had questions for the NACEPT members about certain areas of the report. First, the Council needs to determine whether any of the recommendations will be cut from the report. The second question is whether NACEPT would like to aim for a shorter report with less explanatory text than is in the current draft or add more explanatory text.

Dr. Chawla noted the importance of defining the target audience for the report. Scientific personnel may appreciate a more in-depth report, whereas policy makers might prefer a more concise report. Mr. Ross explained that EPA is the first audience for the report given the charge, but the report will be read by a diverse audience. Shorter is better than longer when reaching a broad audience. Dr. Chawla suggested that the report itself be concise, but hyperlinks be added for those who would like more information. Ms. Luther supported the idea of a shorter report, but she thought that Recommendation 7 needed more explanation. The report will be more widely distributed if it is easier to read. The reports included in the current draft could be summarized in a paragraph, and the reports themselves placed at the back.

Ms. Horn supported the second report being shorter than the first report, but the first question to consider is whether the report contains the right content. Each point should be concise and clear as possible. The right examples and the right recommendations will allow the report to be succinct. Dr. Gallagher agreed. She reread the first report recently and found it daunting. She thought that most of the individuals whom she interviewed only had read the executive summary.

Dr. Parker asked the NACEPT members how they wanted to incorporate the case studies into the report. Mr. Ross supported using new case studies unless an important “teachable moment” came out of any of the case studies included in the first report. Dr. Parker noted that Ms. Horn’s point about the case studies needing to have a purpose supports the third option, which is to select a short piece of a particular case study and link it to text or a concept in the report. Ms. Horn thought that it would be beneficial to use case studies within the recommendations as examples of how EPA can implement the Council’s recommendations. Mr. Ross agreed with the current approach of connecting the case studies to Figure 1. Powerful case studies will help the figure to provide insight. Dr. Parker noted that Mr. David Rejeski (Environmental Law Institute) had developed the figure, and she could follow up with him to determine whether he had specific case studies in mind when he created the figure. Mr. Benforado agreed with Mr. Ross’ suggestion and thought that the case studies could illustrate the concepts included in the figure. He was concerned, however, about the time that this would take. Ms. Horn commented that it would take less time if just a few sentences of each case study are used instead of trying to build an entire story. Dr. Parker agreed that this was the crux of the third option. A participant commented that connecting abbreviated case studies with Figure 1 would allow the line (path) to be reflective of how a specific group took information to action. Dr. Gallagher supported this idea and noted that case studies could be further described in an appendix.

Mr. Mears commented that he often cites the 118-year-old National Audubon Society Christmas Bird Count as a successful example of citizen science. Prior to the bird count, as many birds as possible were shot on Christmas. Not only is the Christmas Bird Count an example of a successful long-term project, it is an example of successfully changing the paradigm. This is an important concept.

Dr. Parker asked the NACEPT members what additional material is needed. Ms. Boles responded that she may be able to obtain additional information from Mr. Wilson, as she plans to hear him speak that week, to strengthen Recommendation 2. Dr. Parker added that some information could be obtained from the recently released National Environmental Justice Advisory Council report. Mr. Chawla commented that, from a community group perspective, with a title that includes the language “information to action,” he would expect a step-by-step approach to engaging in a successful citizen science project. He wondered whether the report accomplished this. Dr. Parker noted that the primary target is for EPA to take information to action; community groups are the secondary audience. The report probably does not have enough content for the secondary audience, but this is outside the scope of the charge. Mr. Benforado agreed. The report is meant to help the Agency determine its role in supporting information to action. This should be explained clearly in the opening of the report. In response to Mr. Chawla’s comment, Ms. Boles suggested a combination of the first and fourth titles— *Strengthening Citizen Science Partnerships With EPA: Moving From Information to Action*.

Dr. Parker asked the Council members to consider how to present information visually. A contractor is available to help design figures for the report. Ms. Horn thought that it would be beneficial to illustrate partnerships graphically, allowing readers to visualize potential partnerships with EPA. NACEPT members also will be asked to supply photographs, as in the last report, to illustrate the text. Dr. Coronado asked about the quality needed for photographs and whether mobile phone pictures would be acceptable. Dr. Parker thought that if the phone is set at a high enough resolution, these pictures would be acceptable. Permission also will be needed. Included in the materials for this teleconference is a document with information about images and copyrights; members should refer to this document.

Mr. Bator explained that the report is intended to be a stand-alone report, so duplicative language from the first report could be removed to help streamline this report. He asked whether any of the NACEPT members had noticed any repetitive language. Mr. Ross thought that the report is a good follow-on to the first report, and any less explanation would leave a gap.

**Action Items and Next Steps**

*William Ross, Jr., NACEPT Chair, Council Member, Gillings School of Global Public Health Advisory Council, University of North Carolina at Chapel Hill; Council Members*

Mr. Green explained that the editing team will be meeting with the contractor the following week to discuss the layout and visual aspects of the report. Any photographs that were submitted for the previous report but not used can be resubmitted for consideration for this report.

The contractor will be providing a brief summary of comments and action items from this call to Mr. Green by the end of the week so that the editing team and NACEPT members can refer to this information when moving forward on the next draft.

NACEPT members who have additional comments that they did not share during the teleconference will email them to Ms. Dosemagen and Mr. Green by December 1. Council members will provide any additional material for the report no later than December 22, particularly in terms of case studies that apply to Figure 1. Workgroup leads will be the primary point of contact for the editing team and will share any information with their workgroups.

Mr. Green will poll the members about their availability for the February teleconference to approve the report.

Mr. Benforado encouraged NACEPT to be strategic about its recommendations and ensure that they are streamlined. The message should be targeted to how EPA can increase the value and use of citizen science.

**Adjournment**

Mr. Green and Mr. Benforado thanked the NACEPT members for their work on the report. Mr. Ross thanked the workgroup leads, editing team, EPA colleagues and contract support. Mr. Ross adjourned the meeting at 3:15 p.m. EST.

### **Action Items**

- Mr. Benforado will send an email to the NACEPT members about the review of the Quality Assurance Handbook for Citizen Science when it is ready for their review.
- Mr. Howard will email his thoughts about how to organize the report under the three categories he identified while reading the report—those aimed at EPA staff or program, those targeted to partnerships and stakeholders, and those addressing technology or data issues.
- Dr. Parker will follow up with Mr. Rejeski to determine whether he had specific case studies in mind when he created Figure 1.
- Ms. Boles will seek input from Mr. Wilson to strengthen Recommendation 2.
- Mr. Green will poll the members about their availability for the February teleconference to approve the report.
- NACEPT members will:
  - Consider potential title options for the second report.
  - Consider how to present information visually in the report.
  - Provide photographs (with appropriate permission) for the report.
  - Send any additional comments via email that they did not share during the teleconference to Ms. Dosemagen and Mr. Green no later than December 1.
  - Provide any additional material for the report no later than December 22.
  - Identify case studies that relate to Figure 1 no later than December 22.

## Appendix A

### National Advisory Council for Environmental Policy and Technology (NACEPT) Meeting Participants

#### NACEPT Members

**Ms. Laureen M. Boles**

State Director  
New Jersey Environmental Justice Alliance  
Trenton, NJ

**Dr. Ramesh C. Chawla**

Professor/Chair of Chemical Engineering  
Department of Chemical Engineering  
College of Engineering, Architecture  
and Computer Sciences  
Howard University  
Washington, D.C.

**Dr. Irasema Coronado**

Professor  
Department of Political Science  
University of Texas at El Paso  
El Paso, TX

**Ms. Shannon Dosemagen (*Acting NACEPT  
Vice Chair*)**

President/Executive Director  
Public Laboratory for Open Technology and  
Sciences  
New Orleans, LA

**Dr. Patricia M. Gallagher**

Associate Professor  
Provost's Fellow in Sustainability  
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Environmental Engineering  
Drexel University  
Philadelphia, PA

**Ms. Barbara Jean Horn**

Water Quality Resource Specialist  
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**Mr. Matthew C. Howard**

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The Water Council  
Milwaukee, WI

**Mr. James Joerke**

Deputy Director  
Johnson County (Kansas) Department of Health  
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Olathe, KS

**Mr. Robert Kerr**

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Oneida Nation  
Oneida, WI

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**Dr. Graciela I. Ramirez-Toro**

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Conservation and Research  
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San German, PR

**Mr. William G. Ross (*NACEPT Chair*)**

Council Member  
Gillings School of Global Public Health  
Advisory Council  
The University of North Carolina at Chapel Hill  
Chapel Hill, NC

**Mr. Donald Trahan**

Attorney  
Senior Environmental Specialist  
Office of the Secretary  
Louisiana Department of Environmental Quality  
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**NACEPT Designated Federal Officer****Mr. Eugene Green**

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## Appendix B

### Agenda for the November 28, 2017 NACEPT Meeting



#### National Advisory Council for Environmental Policy and Technology (NACEPT) Agenda

**Tuesday, November 28, 2017**

**12:00 p.m. – 4:00 p.m. EST**

**U.S. EPA William Jefferson Clinton East Building, Room 1132**

**1201 Constitution Avenue NW**

**Washington, D.C. 20460**

**Call-In Number: 866-299-3188, Conference Code: 2022330068#**

- 12:00 p.m. Welcome, Introductions, and Overview of Agenda**
- Eugene Green  
NACEPT Designated Federal Officer
- Bill Ross  
NACEPT Chair
- 12:15 p.m. Public Comments**
- 12:30 p.m. EPA Citizen Science Updates**
- Announcement of Citizen Science Audit From EPA's Office of Inspector General
  - Quality Assurance Handbook for Citizen Science
- Jay Benforado  
EPA Chief Innovation Officer
- 12:50 p.m. Presentation Overview of the Organization for Security and Co-Operation in Europe: Economic and Environmental Dimension Implementation Meeting**
- Bill Ross  
NACEPT Chair
- 1:00 p.m. Discussion on Initial Integrated Draft of NACEPT's Report on EPA and Citizen Science: Building Collaborations and Partnerships**
- Bill Ross  
NACEPT Chair
- Council Members

**3:30 p.m.      Action Items and Next Steps**

Bill Ross  
NACEPT Chair

Council Members

**4:00 p.m.      Adjournment**

## Appendix C

### Chair Certification of Minutes

I, William G. Ross, Jr., Chair of the National Advisory Council for Environmental Policy and Technology (NACEPT), certify that this is the final version of the complete minutes for the teleconference held on November 28, 2017, and that the minutes accurately reflect the discussions and decisions of the meeting.

  
\_\_\_\_\_  
William G. Ross, Jr., NACEPT Chair

January 9, 2018

\_\_\_\_\_  
Date