# ESSENTIAL SCIENCE CONVERSATIONS
# Climate Change and Mental Health: An Update
# May 19, 2022

## Transcript

**Shandol Hoover:** Hi everyone, and welcome. Thank you for joining us today. This program is part of an APA series called Essential Science Conversations, where panelists and audience members can engage in an open dialogue about emerging topics in psychological science. Today's conversation will focus on climate change and mental health. APA and ecoAmerica recently published Mental Health and Our Changing Climate, 2021 Edition, an update of a 2017 report. We are excited to host two of the primary authors for a discussion on the big role that psychologists can play to address this global issue.

Before we get started, I want to share a few logistical details. First, many thanks to those of you who submitted questions for today's program when you registered. We'll try to get to as many of those questions as possible. You can also ask a question as the program is taking place in real-time. There is a Q&A feature on the dashboard. Please enter your questions there. We'll be monitoring those questions throughout the program. Also, this program is being recorded. Once it ends, everyone who registered will receive an email with a link to the recording. You should receive that email two to three business days after the webinar concludes.

Finally, we have an Essential Science Conversations webpage, where you can find recording slides and written transcripts of all of our programs. Be sure to bookmark the link and check it often. I will share that in the chat shortly. Without further ado, let's begin. I'm pleased to introduce our host who will be leading today's conversation. Let's welcome Dr. Mitch Prinstein, APA's Chief Science Officer. Welcome, Mitch.

**Mitch Prinstein:** Thank you so much, Shandol. Thank you also to everybody who is joining us today to talk about this incredibly important topic and the role that psychologists can play. I'm really pleased to introduce our panelists for today's discussion. First, we have Dr. Susan Clayton. Dr. Clayton is the Whitmore-Williams Professor of Psychology at the College of Wooster in Ohio, a visiting fellow at the Paris Institute for Advanced Studies during this past academic year, and a fellow and member of the Board of Directors of the American Psychological Association. Dr. Clayton's research examines people's relationships with the natural environment. How it's socially constructed and how a healthy relationship with nature can be promoted. She has written about the effects of climate change on mental health and has developed a scale to assess climate anxiety. She's the author or editor of six books and is currently the editor of the Cambridge Elements Series and Applied Social Psychology. She is on the editorial board for journals such as the Journal of Environmental Psychology and Sustainability.

Next, we have Dr. Christie Manning. Dr. Manning is a cognitive and biological psychologist who teaches in the Environmental Studies Department in Macalester College in Minnesota. For the past three years, she has served as the director of sustainability at Macalester. She is also a fellow of the American Psychological Association. Dr. Manning's research focuses on how people respond to climate change and climate injustice. She is particularly interested in psychological circumstances that motivate community level action. Her recent co-authored

publications include a 2021 academic textbook called Psychology for Sustainability. Thank you all for being here, and welcome to Essential Science Conversations.

Terrific. Susan, Christie, if I may, thank you so much for joining us for this conversation. A lot of people, when they think about the climate crisis and climate change, might not think of psychology immediately as a field that would be relevant for this debate, this conversation, but clearly, it is very relevant and your work are excellent examples. I'd love to start by just asking you to kind of talk with those who are listening about how it is and why it is that psychology should be in fact quite central to discussions around climate change. Susan, do you want to start?

**Susan Clayton:** Sure. I'll start with a fairly short answer, and then if people want it to be elaborated, that can come up in the questions. The most succinct answer I've heard is that climate change is caused by human behavior. Psychology is the science of human behavior. If we want to address climate change, we need to use psychology to address human behavior. Of course, psychologists also study cognition and they study mental health, and both of those are really implicated by climate change as well.

**Christie Manning:** I would second that, and add that it's not that psychology is the only approach that we need to take to address climate change but in collaboration with people with many other disciplinary mindsets and theories and methods, it's a really critical piece to the puzzle of understanding both how we think about climate change in order to move us toward action and then also how climate change affects us, our well-being, our mental health and how to address those impacts.

**Mitch:** Terrific. Christie, let me ask you, how are psychologists currently engaging with the issue of climate change and mental health and what might be promising future research areas?

**Christie:** I am gratified to say, an exploding number of psychologists who are working in the area of climate change, environmental justice, environmental degradation, climate justice. There are many who are thinking about how we can overcome some of the barriers to action so that we can solve the climate crisis, some of the psychological barriers to action. Climate change feels like this distant, invisible problem. Every day it's becoming less that, but how can we motivate ourselves to do something now when action can make a difference for a benefits that are going to happen over time. The costs to action are now. That's one way that psychologists are contributing. Then, of course, the mental health. There are so many psychologists and people in social work and other disciplines who are looking at, "Okay, people are suffering now. What do we need to do to both help alleviate the suffering and prevent the further suffering? What kinds of treatments in addition to taking action? What can we do?" I'll turn it over to Susan. Thanks.

**Susan:** I totally agree with Christie. I'll put it in a bit of a historical context. For many years, psychologists have been working on behavior change when it comes to promoting environmental sustainability and pro-environmental behavior. Most of those people have probably been trained as social psychologists. That work clearly continues to be very important and, in fact, I think there's increasing integration of psychology into kind of group efforts to change behavior towards sustainability. I'm really excited about the number of businesses, for example, who have started paying attention to this issue and talking to psychologists about it. In fairly recent years, there has been, as Christie said, just an explosion of interest in the impacts on mental health of environmental conditions both

environmental degradation as we see in climate change but also the positive impacts that nature can have on mental health. We see lots of emphasis on the importance of spending time outside to calm yourself and so on. There's really a lot of interest in that and, particularly, in exploring mental health interventions, either at a formal level or at a more informal level, that can help people deal with some of the impacts of climate change on mental health.

**Mitch:** Let's talk about mental health for a bit. Susan, what is eco-anxiety? What is eco-grief? Are there treatment approaches to address these?

**Susan:** This is very much the cutting edge of work, at least, or cutting edge of some work. Eco-anxiety and eco-grief are not clinical diagnoses. These are not formal syndromes that have clearly diagnostic criteria and are mental health problems, but there are terms that have been used to describe the negative emotional responses people have when they think about climate change. Certainly, some research, that I've been involved in, shows that anxiety is a very common and powerful response but so is sadness and grief, both current sadness about changes people have seen and kind of an anticipatory sadness about changes they expect. One of the reasons we need to pay attention to these is the fact that they do have a potential to impact mental health. One of the things I and my colleagues have been looking at is when does anxiety about the climate or anxiety about other environmental problems start to, actually, have a clinically significant impact and impair people's ability to function, either by maybe their emotions are overwhelming and they find themselves crying or their behavior is affected and they can't sleep, or they can't concentrate on their work or on their homework if they're younger. There are some therapeutic approaches that are being used, but there's a lot of attention to thinking about, "Does climate change have a specific kind of profile that might suggest specific kinds of interventions?"

**Mitch:** Wow. Christie, Susan talks a little bit about developmental differences. I assume there are also cohort differences given that today's youth are growing up where climate change is not a hypothetical, we can see the effects of it every day. What do you think children and adolescents are experiencing with regard to mental health and climate change?

**Christie:** I can speak to this both from the personal and anecdotal standpoint of over the last 15 years of my work with young people on a college campus, and also looking at the research that we reviewed less than a year ago. We did a very thorough review of the research literature on this very topic. Yes, indeed, every age group, every cohort is feeling some amount of emotion about the climate crisis. We find it everywhere. However, it does seem that youth are particularly hard hit because, perhaps, they feel this discrepancy between the ways they see this crisis impacting their lives increasingly over time, and what research that Susan was involved in showed is that they also observe and are angry about the lack of action on the part of people who have the political or economic power to do something about the crisis.

I see this in the students I work with. It used to be, something, that we could talk about in class 15 years ago, and there was some emotion. Now, it's to the point where there are serious emotions and, sometimes, emotions to the point where it gets in the way of young people completing their studies, completing a class. They are changing their life paths because of thoughts about the climate crisis. They are taking time off to be part of a climate movement. I definitely see it among young people. It's poignant and prevalent.

**Mitch:** I think there are data to support that there are more and more people coming in with this as being the referral issue. A classic CBT approach seems a little bit funny here because the climate crisis is not an irrational cognition. Some of the concerns that people might have are, in fact, very real. Susan, are there treatment modalities in particular that are showing more promise for addressing eco-anxiety or eco-grief?

**Susan:** Well, there's actually going to be a session on this at the APA Convention this summer. I'll put a little plug for people to attend that. Again, there are, definitely, approaches that people are using, but the idea of assessing which ones might be particularly useful for this is still very much an active area of research. I would say, in addition to standard skills that you might give somebody to cope with their anxiety or their emotions, emotional regulation strategies, mindfulness, breathing, detaching yourself from social media for a little while, perhaps. There's often a specific attempt to get people outside in nature to take advantage of those benefits. One reason for that is that the kind of people, who are very anxious about the climate, are probably the kind of people who are specifically going to benefit from exposure to the natural world.

Then, another aspect of anxiety about climate change that's probably a little different than anxiety about other things is the socially contested or at least ambiguous nature of the issue where some people don't see it as a crisis, some people, although an increasingly small amount of people, refuse to believe that it exists. People might be reluctant to talk about their emotions or fear that it will lead to conflict or that they'll be mocked for expressing their concerns. Validating somebody's concerns about the climate, actually, seems to be a very important part of an effective therapeutic response.

**Mitch:** One of the things that seems to be directly related to climate change, of course, is the increased number of disasters and natural disasters that we see, which in itself is related to mental health outcomes but also might contribute to health equity issues because the resources that one has to deal with, the aftermath of natural resources is a big issue. Are there data to support climate changes being relevant to health equity for that or for other reasons? Christie, is that something you can comment on?

**Christie:** Absolutely. Yes. The data that we've reviewed absolutely support that preexisting inequities and oppressions mean that climate change is hitting some people harder by design, our social design, the way that our infrastructure is built. I'm speaking both in the United States but also globally. The deepest inequity of climate change is, of course, the people who contributed least to it, are being hit first and hardest. That's both within the United States and outside of the United States, globally around the world.

There are so many historical and present-day factors that contribute to where people live. For example, in the United States, the history of redlining, means that some people of color, Black people, in particular, were not allowed to live outside of certain areas that were then not invested and disinvested. Those areas correspond pretty precisely to the urban heat island, where heat waves hit the hardest because there's more concrete and less tree cover. You can look at floods and you see similar patterns. This means that, exactly, the people who have the least resources are also forced to endure the worst strength of the climate crisis.

It's this piling on of inequity because they're hit the hardest, and then they have the fewest economic resources to recover afterward. Though, in many tight knit communities, the social resources and the social networks that people build, actually, do give a protective benefit, but

one of the biggest lessons that I've taken from the research that I've done is we cannot adequately address climate change until we address inequity in our society.

**Mitch:** Thank you for that. Susan, did you want to comment, also? Are there demographic differences in the presentation of eco-anxiety or eco-grief?

**Susan:** Yes, there are. You tend to find the people within the US, at least, minority communities are demonstrating higher levels of climate change related anxiety. It seems to be-- Well, we can't directly say this is why, but it's quite consistent with the fact that they are more vulnerable to these kinds of impacts.

**Mitch:** I wanted to think about this globally as well. Of course, some countries, perhaps including the US, are disproportionately responsible for the problem for the global climate crisis. How does that play out in the ways in which people experience concerns or feeling of commitment to change this issue around the world?

**Susan:** I don't have data on that, but I can say, anecdotally, I've certainly seen reports and also personally experienced people essentially saying they feel very strongly the injustice of the fact that it is the rich countries, especially the United States and Australia, for example, that have been primarily responsible for climate change. I saw a question in the chat. Somebody was saying, "Well, what is the cause of climate change?" I'll be very brief and say burning fossil fuels is definitely the principal cause and yet, as Christie pointed out, the people who are most strongly affected are in often the developing world. They're not using nearly the level of fossil fuels that we're using in the US. In some cases, we're saying to them, "The climate is in crisis, so you can't burn fossil fuels." We already did that and now you can't.

There's clearly an inequity there, not just in the exposure to climate change, but in the lack of access to perhaps the lifestyle that we have enjoyed in the developed world. I think people are very aware of it, consider it unjust and, in some cases, and we see this at the governmental level, countries might resist adopting policies to address climate change because of that perceived unfairness. Why should we do anything if the US isn't going to do anything or if the US is not going to do enough?

**Mitch:** It's a great point. We're talking about mental health and some of the ways in which that's related to climate change, but of course, so many areas of psychological science are relevant to the discussion of climate change. Christie, I'm wondering if you could talk a little bit about some of the other areas of psychology that have direct science that would be relevant to helping people believe in climate change, change their behavior, change their attitude towards personal efficacy or anything, where you've seen great opportunities for psych science to play a role.

**Christie:** What comes to mind first of all? Well, two things. I'm a cognitive psychologist, so I love to think about how we think. I spend a lot of time thinking about the perceptual barriers and the fact that I already mentioned before and that Susan also said something about that, that we especially in an industrialized, urban society, I'm pretty insulated from the outside world and weather and climate change. I get my food in a grocery store. I'm not the farmer in the field, feeling the extreme weather and how that's impacting my livelihood. Those things come to me through other signals like increased prices or maybe fewer raspberries available when I want to have raspberries. I think about those kinds of barriers, those perceptual

barriers and how we can bring climate change closer to our personal experience for those in the world who, again, ironically, are probably contributing the most but feeling it the least.

One of the things that I'm most excited about right now is I've been working with friend and colleague, Dr. Elise Amel, who is in industrial-organizational psychology and thinking about how the study of organizational behavior and how-- because so much of climate change has been caused by corporations and corporate policies. This is also one way that we can behave collectively is by shifting the behaviors of organizations. I'm very excited to be working with this colleague, to think about a new research program on how to move organizations and other types of collectives toward shifting their practices, shifting their principles to embody a sustainability and an environmental justice ethic.

**Mitch:** Oh, that's terrific. Susan, do you also want to comment?

**Susan:** I do, actually. I want to jump in.

**Mitch:** Please.

**Susan:** I'm glad Christie brought that up because that was exactly what I was thinking is organizational psychology. Of course, organizations-- well, businesses are increasingly, I think, recognizing that they need to do something to address climate change and to become more sustainable, that it's a response to consumer demand and that they know they can't continue. If they ignore it, there will be an economic cost. I'm optimistic about the potential for business, especially when governmental action sometimes seems so paralyzed.

Also, businesses aren't the only organizations. Universities are organizations, the American Psychological Association is an organization. Organizations are wonderful ways to leverage individual behavior into a much larger impact. Of course, the American Psychological Association just recently received a report on psychology and climate change, essentially laying out directions for the future. Just an example of how more and more organizations can and should be thinking about this and how it can be incorporated into their practices.

**Mitch:** I see some comments in the chat from people who do science in so many different areas of psychology that is relevant. I just wanted to quickly mention political psychologists, media psychologists, consulting psychologists. I invite those listening, if you are in an area of psychology where the science in your area is relevant to climate change, please post that in the chat. Make sure you're posting to everyone, not just us as the panelists, so everyone can be inspired by all the different areas of psych science that are relevant to climate change.

With that, I'm going to turn to the Q&A box as well, which is on the bottom of your screen where we have lots of great questions coming in I want to make sure that we cover. One of the questions that we have is how psychological nudging can support people's responsible choices? How can an internal versus external locus of control, for instance, inform how people might relate to climate change? Some of that, I realize, is some social psychology. Susan, do you want to address any of that?

**Susan:** Yes, absolutely. For people who aren't familiar with the term, the idea of nudging is essentially how you can structure what might be described as a choice environment to encourage more sustainable choices without actually exerting direct control over people's behavior, so you don't run the risk of that backlash effect and it's more acceptable to people. Definite governments have relied on nudges to try and change behavior.

One very specific example that just occurs to me that I read regards menu choices. For anyone who's not aware of this, it's much more environmentally sustainable to eat less meat and more vegetables. A good step to take if you want to reduce your carbon footprint is to reduce the amount of meat you eat. For most of us, I think, when we go to restaurants, there's often a nice long list of meat-based entrees and then they'll have a few vegetarian ones, but they tend to be at the end. If you take those vegetarian entrees and move them up to the top of the list, people are more likely to choose them. That's a nudge. You haven't taken away anyone's power to choose, but you've constructed the list in a way that has a significant impact on their behavior. I do think that can be a very useful way to try and create behavior change.

**Mitch:** Terrific. Thank you so much for that. Cultural and social psychology, comparative human development, clinical psychology, family psychology, trauma psychology, all relevant to climate change and areas where you can make an impact. Here's another one that might be relevant to developmental psychologists or just the topic of youth in general. Christie, how can we, as psychologists, teach youth about this topic and empower youth to become more involved in joining programs or promoting interventions that can reduce this crisis? Any thoughts on that topic?

**Christie:** It's such an important question, and it's one that as both a parent and an educator I think about a lot because, of course, young people need to understand the climate crisis, but at what age is a very important question. Then, how do we help students and young people, in general, understand the reality of climate change without robbing them of their sense of hope and agency to do something about it. Just a few things that I've read in the research literature is that young people do better if they do have a relationship to nature in some form. It doesn't have to be that they've grown up in the wilderness. It can be that they have appreciated plants along the sidewalk in their neighborhood or trees in their neighborhood. It doesn't have to be anything more exotic than that. It can have a wide range, but some connection to nature and the opportunity to return and refill their bucket of well-being through a connection to nature, but then there is also a couple important other pieces are really just a sense of there are solutions, there is hope, we are not doomed.

I love, love, love the book *All We Can Save* because of the framing of, yes, indeed it acknowledges the seriousness of the crisis that we are facing, but it also points us in a direction that is meaningful. That's a really important thing for young people is to feel that what they are doing has meaning. Even if we know that we're facing imperfect outcomes, we can still do something about it and it can still give us meaning and make a difference in the world.

**Mitch:** That's fantastic. We were talking about merging, connections with nature. One question, are there other approaches that have been successful in promoting a pro-environmental behavior? What actions or behaviors have worked in the past that we could be emulating or elevating? Any thoughts on that, Susan?

**Susan:** Yes. Again, back to social psychology, social norms are an incredibly powerful tool and have been shown to be effective. It's ironic that one of the things about climate change is that people tend to underestimate the extent to which other people are worried. Most people think they're more worried than the average person, which if you think about it, is not possible. We can't all be more worried than average. There's kind of an existing social norm of not doing anything, but if you highlight a social norm that is to be more sustainable, that can have an impact on people's behavior. That's been used effectively to reduce, I think it's

people's water use in California, but maybe it's electricity use or maybe both. If people are shown that they're using more water than their neighbors on average, they actually tend to reduce their water use.

**Mitch:** Christie, any other thoughts on that, as well?

**Christie:** Well, I was just thinking about, it's sort of like nudging, but the design of the world around us that makes certain behaviors easier to access, more normal and socially acceptable. Just thinking about the, at the basic level, our psychological apparatus, we're invited to do things that feel good, inviting, safe. Building protected bike lanes is going to do a lot more for getting people to commute by bike than trying to send out mailers telling people about the health benefits of biking, so understanding the barriers.

Then, the other thing that I would say is that psychologists are learning quickly is that we really need to understand, again, the history that has not allowed some people to get involved in climate action. We need to listen to people like indigenous leaders, leaders of color who are bringing people into the environmental justice and the climate justice movement who have never felt welcome in the environmental movement. Psychologists need to pay attention to this and participate in these efforts to make the climate movement a more welcoming space. I do see some of that work going on among psychologists and lots of great analyses and lots of great work by psychologists of color on the particular barriers faced by people of color to taking part in climate action.

**Mitch:** Terrific. Where do you see most of the work in this area, either the research that's being done or countries that are doing a nice job of using psychological science to promote change related to the environment and climate? Is it the US or are there other countries we should be looking to learn from?

**Susan:** I can jump in with that. That's a great question. The US, I would say, is not at the front of the pack, although it's doing pretty well. Australia, I would say, is probably the country. This is not based on my counting the articles but just based on my impression of where I see the work being done. I think it's because they have been facing such significant visible impacts of climate change from the droughts to the bush fires and this year floods and also something that's very iconic and important to Australians is the Great Barrier Reef, it's important economically as well as emotionally, and that's threatened by climate change. Australians seem to have really taken climate change to heart more than Americans have, at least, before now. A lot of very good work is being done there about behavior change as well as about mental health impacts and education for young children.

I think in the UK, the United Kingdom, there's been a lot of work on how people are affected by floods. To get back to what Christie was just saying about indigenous peoples, there's been a fair amount of work in Canada with indigenous populations examining how they're affected by changes in their environment because there are a lot of indigenous people in Canada. We have indigenous peoples in the US as well, of course, but in Canada, you have the more rapid changes to the environment because warming is more noticeable. There's really been the potential to see how that affects the local populations. I think it's not evenly spread around the world, and one of the reasons for that has been that some countries have been more aware of the impacts of climate change than the US has, although I think that's changing.

**Mitch:** We've had a lot of questions really playing on that idea, Susan. I'm wondering if either of you could address whether exposure to harsh environments or to the effects of

disasters resulting from climate change leads people to be more invested in behavior change, more interested and believing in climate change, or in some cases, whether there's a sense of hopelessness and reactance and kind of a disregard. Christie, any thoughts about that?

**Christie:** The research literature does support that people who are more impacted are more concerned, but in the United States, there is a little bit of a political identity barrier, a worldview barrier that even people who are facing unequivocal changes in winter temperatures, for example, it tends to be the more liberal-leaning people who worry about climate change increases. Whereas, people whose worldview tends more conservative will claim that it's part of a natural cycle, even if it is beginning to disrupt, for example, some of the traditional activities that they do in the wintertime. This is a study in the Northeast Vermont New Hampshire Maine that showed this.

It is getting harder and we are seeing ever fewer people deny that climate change is part of the reason that, for example, we're seeing so many wildfires in the United States and other places in the world. I haven't seen data on this, but I've heard anecdotally that among farmers, for example, in the United States, there is an acknowledgment that something is changing, but there is still a hesitance to acknowledge climate change as the culprit, even though there is, "Yes, something's definitely wrong, something's definitely gone awry." The term climate change has been so politicized that it's still hard to accept that that's the cause. Do you have anything to add, Susan?

**Susan:** No, I think you're exactly right. Just speaking of farmers reminded me that I thought I would point out that impacts of heat on suicide among farmers have been observed, especially in India, as well as Australia. Being an agricultural worker of any sort, you're kind of on the frontlines in terms of exposure to climate change, and so we are seeing those mental health effects there.

**Mitch:** Your comments today are inspiring people very much to be involved. We have many questions about how to get involved, what to do, and where psychology can play a role? Susan, for example, can you talk about some of the tables that you are sitting at, to represent psychological science, and to ensure that the work that's being done in our field is being used to drive positive change?

**Susan:** Absolutely, and I will just say that, depressing as climate change, it's extremely exciting to think that what I have learned as a social psychologist is relevant and can help to address some of these issues or to call attention to them. In some ways, it's a very rewarding time to be a psychologist. I think a lot of younger professionals and graduate students in psychology are very enthusiastic about the possibility that their work will be relevant to this key social problem. One of the things that psychologists really have to do, and Christie made reference to this earlier, is to learn how to talk to other people.

I think the core recommendation would have to be do what's comfortable for you, what makes sense for you. There's many different ways of being a psychologist. If you're a mental health professional, you might want to just raise it with your clients or raise it with your professional organizations. There are also opportunities to get involved with groups that are focused on environmental conservation. I've certainly been trying to do that for a few years. My most rewarding professional involvement today has been that I participated in the Intergovernmental Panel on Climate Change report that was just released this Spring.

That, for people who don't know, it's a UN-sponsored organization brings together scientists from around the world to exhaustively (and I use that word advisedly) review the literature, and say, what do we know about climate change? What do we know about the impacts? It's very much objective, peer-reviewed, screened by governments, and it's considered the most definitive word on climate change. Then those reports, actually, influence governmental policy. Yes, psychologists can get involved at the local level but also at the national or international level, using their skills.

**Mitch:** Fantastic. Christie, can you also talk about ways in which psychological science is involved ways in which you're involved, ways in which others can get involved?

**Christie:** I just met, last week, with my local city district council. I'm very excited that people at even local but all levels of government are recognizing that, "Hey, there's a psychologist that we need to talk to about what we can be doing here in our neighborhoods, to increase climate resiliency, to think about some climate mitigation. What can we do at the local level?" I see this happening all around, and that's very exciting to me. Then, I also see evidence that some of the things that psychologists have been putting out there for years are starting to be picked up. I had an invitation, and other local nongovernmental organization, the other day, was having had a speaker come. When they sent the email out, just they gave a nudge. The first thing they said is, "Here's how to reach us via public transportation. Here's where the bike parking is." Then, the very last thing was how to get there by car and where to park. They didn't exclude that information, but they put the other information first. I thought, "This is a win for psychology." I really see it appearing in lots of different places, and it's very exciting and gratifying that our hard work is seeping into the public consciousness and being utilized for good.

**Mitch:** That's fantastic. Very, very exciting to hear. We just have a couple of minutes left. I wanted to mention a couple of things that have been raised in the chat, and then ask you one or two final questions. One is, there are some fantastic references, reports that our panelists have worked on, and all of those will be put up on our website for Essential Science Conversations at APA. That link will go out shortly, or you can just Google it, and you will be able to capture lots and lots of the references that have been posted here to continue your reading and your learning on this topic.

The second thing I wanted to mention is, for all of those listening who are in the US, please make sure that you join APA for our Advocacy Summit, specifically on climate change and environmental justice. You are all invited to come and join us for a virtual summit on Capitol Hill. It's on July 24th and 25th. APA Advocacy is hosting this summit where you will have the opportunity to speak with folks about these issues. We'll train you. We'll give you all the information you need. It's free, and you can come and speak with your congressional representatives. You do not need to have any advocacy experience. There is a linked form in the chat. For those interested in participating, make sure you respond by May 27th, which is coming up in just about a week. You are invited to come and make sure that our psychological science is used to change what happens in the US, and to talk with your congressional representatives about this.

I think any question on any discussion about the climate crisis is often best served by asking experts, "What is something that any individual could do today as a psychologist or as a citizen on this planet, to make a difference?" Now that they have been so inspired by your comments, and really want to impact climate change for the better, Susan, any thoughts?

**Susan:** Well, I guess, I would say two things. One is something I often tell my students is you can make a difference by raising the issue, by making it part of the conversation and can just be something you talk to your family about, your friends about, your neighbors about. It can be something you talk to governmental officials about or businesses about. One of the problems is, by far the majority of people in this country and around the world are concerned about climate change, but somehow, the importance that is assigned to it is not meeting what it should. I think talking about it more is important.

Then, if you just want to do something, if you want to think about individual behavior that would make a difference, I like to encourage people to consider their food, their eating habits. This doesn't mean it's definitely good to reduce the amount of meat you eat that will be good for your physical health as well, but it doesn't have to mean giving up meat. We waste a lot of food. I read that 40% of food that is grown is discarded. It's never actually consumed, and it's lost at all sorts of points from being left in the field to spoiling in the grocery store and so on, but a lot of it is because we buy it and we throw it away. That not only there are carbon emissions involved in producing that food but also decaying food in landfills releases methane, which is a very powerful greenhouse gas. You will save money, you will be healthier, and you'll be working to save the planet if you can try and reduce your food waste.

**Mitch:** Thank you. Christie?

**Christie:** I was recently inspired by a young activist. He's 30. Maybe, for some people, he doesn't sound young. To me, he's young, who asked a group of older people in the room, on behalf of his future, to get out of their comfort zone just once a month and do something toward collective action, something that will change the systems around us, whatever that may be, whatever you define as being within or without of your comfort zone. Maybe it's something like, for me, it's getting involved in phone banking or canvassing and having to knock on people's doors. That's terribly out of my comfort zone. Maybe it is writing letters, or maybe it's showing up for a demonstration, or maybe it's going to meet with one of your legislators, but do something this week that is out of your comfort zone, that aims for collective change, collective action and systems change. That's what I would encourage people to do.

**Mitch:** Thank you so, so much. I am told that in email, we will follow to participants to learn more about the Advocacy Summit and your opportunity to contribute. I want to thank Dr. Susan Clayton, Dr. Christie Manning so much for joining us and for the amazing contributions that you have made in this conversation. Thank you Shandol Hoover for organizing everything to make this happen, and the APA Science staff. Thank you so much to everybody who joined and thank you to the field of psychology and for psychological science, which may just change and save our planet. Have a good day, everybody. Take care. Thank you.