

The background of the entire page is a dark, green-tinted photograph. It depicts a scene of emergency response, likely a wildfire or a major fire. In the lower-left foreground, the silhouettes of firefighters are visible. One firefighter is in the foreground, wearing a helmet and a jacket with reflective stripes, looking towards the right. Another firefighter is slightly behind and to the left. The background is filled with thick, white smoke or steam that rises from the ground, partially obscuring the sky. The overall atmosphere is one of urgency and danger.

SEEING THE DANGERS AHEAD:

LESSONS FROM THE

*Office of Massachusetts Attorney General Maura Healey,
State Energy & Environmental Impact
Center at the NYU School of Law,
and Woodwell Climate Research Center's*

VIRTUAL SERIES ON CLIMATE RISK DATA

CONFERENCE REPORT

JUNE 2022

SEEING THE DANGERS AHEAD:

Lessons from the Office of Massachusetts Attorney General Maura Healey,
State Energy & Environmental Impact Center at the NYU School of Law,
and Woodwell Climate Research Center's Virtual Series on Climate Risk Data.

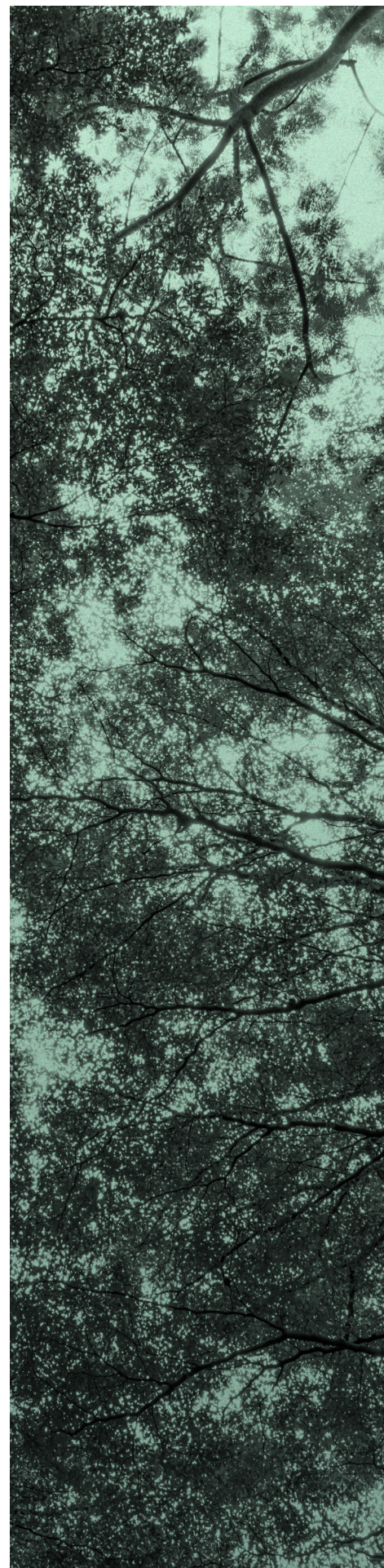
JUNE 2022

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The Massachusetts Attorney General's Office, in partnership with the State Energy & Environmental Impact Center at the NYU School of Law and Woodwell Climate Research Center, recently hosted a series of virtual events about harnessing physical and financial risk data to tackle the climate emergency. Over the course of three sessions, we heard from regulators, policymakers, investors, researchers, and advocates who are on the forefront of identifying, quantifying, and responding to climate-based risks. The bottom line from the panelists was clear: climate change is here, it is devastating, it is expensive, it is contributing to inequity, and it will get much worse.

To that end, this Conference Report provides an overview of the lessons learned from each of the three panels in this event series.



Recordings of Part I, Part II, and Part III of the series are available online. Resources from the series are also available online at

mass.gov/info-details/seeing-the-dangers-ahead-virtual-event-series



Part I



Part II



Part III

“We need a much better, and much more detailed, idea of what climate change will mean for our neighborhoods and our neighbors, and for the investments we've made and will be making. We need to ensure the data and analyses gathered from scientists and the private sector doesn't just sit on the shelf. It needs to be in the hands of policy makers, investors, and, most importantly, local communities that are already bearing the brunt of this all.”

- ***Massachusetts Attorney General Maura Healey***
Opening Remarks, Seeing the Dangers Ahead





PART I:

Beyond the IPCC: Understanding and Harnessing the Latest Climate Physical Risk Data and Tools



The first panel was moderated by **Eric Roston**, Sustainability Editor at Bloomberg, and it brought together four panelists who are gathering, disseminating, and applying data about the physical impacts of climate change:



Matthew Eby is the founder and Executive Director of First Street Foundation. First Street is a non-profit research and technology group whose goal is to “incorporate world class modeling techniques and analysis with the most up to date science available in order to simply, and effectively, inform Americans of their risk today and into the future from all environmental changes.”



Mekala Krishnan is a partner at the McKinsey Global Institute. Krishnan is one of the authors of the recently released McKinsey report, *The net-zero transition: What it would cost, what it could bring*. The report “look[s] at the economic transformation that a transition to net-zero emissions would entail” by “estimat[ing] the changes in demand, capital spending, costs, and jobs, to 2050, for sectors that produce about 85 percent of overall emissions” and across 69 countries.



Juliette Finzi Hart was the Program Manager at the California Office of Planning and Research’s Integrated Climate Adaptation and Resilience Program. The Program is “designed to develop a cohesive and coordinated response to the impacts of climate change across the state” and “develop holistic strategies to coordinate climate activities at the state, regional and local levels, while advancing social equity.”



Christopher Schwalm is the Risk Program Director at Woodwell Climate Research Center. Woodwell is a research organization that seeks to create and share “science-based solutions to the climate crisis” that are “comprehensive in scope and societal in scale.”

In this session, the panelists discussed the need for transparency in the dissemination of climate data, the importance of effective communication to different audiences about climate science, the interdependence of systems and infrastructure affected by climate change, and the parallels between the climate crisis and the COVID-19 pandemic.

PART I THEMES:

- The need for data transparency
- Effective communication about climate risk
- Climate change's impacts on interdependent systems and infrastructure
- Parallels between climate crisis and COVID-19

Several panelists emphasized the importance of making climate risk data available to members of the public and decision-makers for free. Schwalm discussed Woodwell's fundamental premise that "no one should be paywalled away from climate insight." Woodwell conducts outreach to communities that are over-exposed to climate risk and works to co-produce knowledge that is important to local decision-makers at zero cost. Such free access to data contrasts sharply with the private sector trend where private climate risk analysis firms charge steep prices and are consolidating, as seen in Moody's recent acquisition of climate risk modeler RMS. While this trend shows that the market recognizes the critical nature of climate risk data—and the lucrative financial opportunity such data present—it also places critical information beyond the reach of most Americans and their governments. Organizations like Woodwell and First Street are bucking this trend.

Eby gave an example of First Street's commitment to climate risk transparency when discussing Flood Factor, an online tool that allows homeowners to look at the flood risks for their own properties over the next several decades. The tool allows prospective homebuyers to consider future flood risks to inform their purchasing decisions now. Some online realtors have integrated the tool into their home listings. Of course, transparent access to data also exposes previously unknown risks and can come at great cost to individual consumers. Homeowners who made an investment many years ago when flood risk data were unavailable may suddenly face the prospect of paying for rising flood insurance if they keep their homes or selling

the homes at a loss if insurance is unavailable or unaffordable.

In a related theme, the panelists discussed the conceptual gap between the degree of transformation that climate science predicts and the expectations of most laypeople. Schwalm called the current "storytelling" around climate change "unimaginative" in that it fails to fully convey the scope of the changes to come. He described how most people imagine a "linear offset from the standard routine" due to climate change but that, in fact, the world ahead is likely to be completely different from the one we live in today. In another example of the disconnect between public discourse and climate science, Eby noted that in Yale's longitudinal studies on climate opinion, the percentage of Americans who now "think global warming is happening" is up to 72%. However, a lower percentage—only 59%—think global warming is already harming people in the United States now or will do so within the next 10 years. But, as the panelists confirmed, climate change is already here and is already wreaking massive damage.



CZU Lightning Complex Fires (Cal Fire, 2020)



**Dr. Mekala
Krishnan**

Partner
McKinsey Global Institute

It's important to recognize that there is an individual role. Having said that, there is also a societal, systematic role. I think that is the tragedy of the problem of emissions reduction. That every stakeholder needs to play a role, either because they directly contribute to emissions or indirectly participate in global value chains that contribute to emissions. I don't think we can reach that net zero goal without everyone contributing in some way.

Finzi Hart gave a stark example of the cumulative effect of climate crises in local areas. While displaying the image on Page 5 from Santa Cruz, California, she spoke about how climate-change-worsened wildfires, coastal erosion, earthquakes, and rock slides were all coinciding in a single location.

In light of these threats to the public and the environment, Finzi Hart spoke about the importance of effectively communicating what is at stake, particularly to community members whose involvement in adaptation and resilience solutions is vital. Finzi Hart gave the example of a sea level rise adaptation plan in California that was derailed by a single landowner. She stressed the need to shift the conversation from a language of loss to a language of community resilience to bring people along with the measures that will be required. As many of the panelists underlined, it is essential that individuals better understand the severity of the risks ahead and the commensurate urgency of action, even where the short-term costs—like those to homeowners in areas of rising flood risk—seem great. In this vein, Eby spoke about translating climate science into metrics like impact on GDP or human

lives, as opposed to purely scientific markers like levels of greenhouse gas emissions or degrees of temperature rise. “We need translation into a scale that is understandable,” he said. One vivid example of this type of translation came from Krishnan, who spoke about a finding in McKinsey's recent report about India, where a large share of GDP is tied to outdoor economic activity, including agriculture and construction. Krishnan reported that the first order impact of changing heat and humidity conditions—which impacts labor productivity, particularly outdoors—will be a 2.5-4.5% decline in GDP by 2030. Combined with an increase in lethal heatwaves, on evidence in India this spring, these rising temperatures will thus be a major challenge to India's future.

Panelists also discussed the need to tailor data analysis and communications to different audiences. Schwalm talked about how Woodwell works with private sector investors to analyze “earth observation data streams and climate experiments” and answer questions an investor would ask. These questions are not necessarily the same ones answered by traditional climate science reports, like the periodic reports of the

United Nations' Intergovernmental Panel on Climate Change ("IPCC"), which instead are aimed at climate scientists and global policymakers. Previewing the second session of the series, Krishnan similarly raised the expectation that jurisdictions would soon be requiring that banks stress test against physical and transition risks associated with climate change. The data and methodologies required for such stress tests will be in high demand.

Policymakers are another important audience for climate risk data. First Street aggregates climate risk statistics to the state and local level so that governments can determine the greatest risks within their areas of authority and how to achieve the greatest return on investment ("ROI") in new projects in light of those projected risks. On this topic, Finzi Hart highlighted the need for conversations about how to define ROI, including how to incorporate into this analysis historical underinvestment in certain areas and among certain communities.

Finzi Hart encouraged policymakers to think about ROI not just in terms of the raw number of people displaced or buildings affected, but who is being affected and how they have been represented in the past. On the question of local-level decision making, Schwalm spoke about the promising trend he was seeing of municipal engagement on climate risk being largely apolitical and focused more on practical and results-oriented communications rather than the political leanings of where the data-driven advice is coming from.

The panelists also discussed how to think about uncertainties in climate data. Krishnan noted the active debate around different emissions trajectories, which vary based on possible emissions reduction scenarios. Krishnan warned, though, that on any trajectory, we are headed for significant changes and challenges in the coming decades, and we must prepare accordingly. In terms of government planning, Finzi Hart also noted that the challenges are different in terms of targets for emissions reductions—which tend to be concrete numbers—versus targets for resilience, which inherently involve predictions about future threats. But metrics for resilience are being developed. Finzi Hart highlighted the approach of "adaptive pathways," which involves integrating flexibility into long-term planning to account for possible contingencies, as well the approach of simply planning for the worst-case scenario.

Another theme throughout the discussion was that physical climate risks are often systemic, such that even individuals who are not personally exposed will still face risk at a community level. First Street's flood risk data illustrate this point. As Eby explained, even if a homeowner's own property is not vulnerable to increased flooding, that homeowner would be affected by flooding at a local wastewater treatment facility, a nearby Superfund site, or at neighborhood schools. Related to earlier themes, the panelists agreed more work needs to be done to communicate this interdependence and the sharing of risk, so that people better understand how they will personally be affected by climate change in the coming years.

On a global level, Krishnan used the recent examples of supply chain shortages to discuss the interconnectivity of world economic systems, which will mean interconnected economic impacts from climate crises. In addition, supply chain shortages illustrate how the COVID-19 pandemic provides a forewarning of the cascading disruptions we can expect due to climate change as its impacts become more frequent and more severe. And the pandemic has provided another useful yardstick in terms of the scale of action needed. Schwalm noted that the 7% reduction in global emissions during the first year of the pandemic is the rate we need to maintain if we want to achieve net zero emissions in a reasonable amount of time.

Finally, looking forward to solutions, the panelists noted that while individual choices do have a role to play in addressing the climate crisis—including through changes in diet, consumer purchasing, and vehicle driving behavior, among others—systemic change is needed. As Krishnan succinctly put it, "We can't reach the goal of net zero without everyone participating."



PART II:

Risky Business: An Essential Introduction to Climate Financial Risks and the Role of Regulators



The second panel was moderated by **Madison Condon**, Associate Professor at Boston University School of Law, and brought together four panelists involved in regulating, generating, and applying financial climate risk data:



Yue (Nina) Chen is the Executive Deputy Superintendent at the Climate Division of the New York State Department of Financial Services. DFS supervises and regulates nearly 1,800 insurance companies with assets of \$5.5 trillion and more than 1,400 banking and other financial institutions with assets of more than \$2.9 trillion.



Wendy Cromwell is Vice Chair of Wellington Management. Wellington is one of the world's largest privately held asset managers with over \$1 trillion in assets under management.



Marilyn Waite is Managing Director of the Climate Finance Fund. The Climate Finance Fund is a philanthropic platform that helps mobilize capital for climate solutions in China, the European Union, and the United States.



Dave McGlinchey is the Chief of External Affairs at Woodwell Climate Research Center.

During this session, the panelists discussed mechanisms for quantifying and disclosing financial climate risk data at the state and national levels, the appropriate scope of such financial climate risk disclosures, the emerging focus on physical climate risks, the importance of standardized methodologies and shared vocabularies, and how to handle uncertainties in climate risk data.

PART II THEMES:

- Mechanisms for quantifying and disclosing financial climate risk data at the state and national levels
- The appropriate scope of such financial climate risk disclosures
- The emerging focus on physical climate risks
- The importance of standardized methodologies and shared vocabularies
- How to handle uncertainties in climate risk data

The panel began with comments from Robert Jackson, a former Commissioner of the Securities and Exchange Commission (“SEC”) and law professor at New York University School of Law. Jackson spoke about the then-expected rulemaking proposal from the SEC, which was subsequently published on March 21, 2022. The proposed rule is the first comprehensive effort by the SEC to provide specific rules for disclosure of climate risks by SEC-regulated companies. Broadly, the rule specifies requirements for those companies to disclose “information about climate-related risks that are reasonably likely to have a material impact on their business” and to disclose company greenhouse gas emissions.

Jackson’s remarks raised a major point of debate in the SEC rulemaking process, namely whether the required disclosures should include what are known as “Scope 3” emissions. In a method of categorization originated by the Greenhouse Gas (GHG) Protocol, emissions are divided into three “scopes.” Scope 1 emissions are direct emissions from sources owned or controlled by a company, and Scope 2 emissions are indirect emissions from the generation of purchased electricity, steam, heating, and cooling consumed by the reporting company. Scope 3 emissions are all other indirect emissions within a company’s value chain. Scope 3 emissions include a variety of upstream activities—such as employee commuting and emissions associated with purchased goods and services—and downstream activities—such as transportation and distribution of sold goods, emissions associated with investments, and the use and disposal of sold products. Scope 3 typically accounts for the majority of a company’s emissions—according to Waite, over 80% of emissions in the real economy are within Scope 3.

The panelists broadly supported an SEC financial disclosure requirement that would include Scope 3 emissions. Waite commented that over half of listed companies are already measuring and disclosing emissions data, but that for companies that do not disclose, it is expensive and difficult for outside stakeholders to gather, assess, and compare emissions data on a systems-level. Cromwell echoed these remarks, noting that investors like Wellington are currently buying estimated Scope 3 data from third party data providers, who rely on industry averages. As a result, in Waite’s words, there is currently “a lot of noise and unreliability in the noise” in the climate-conscious investment landscape. As Cromwell discussed, this has led to mispricing in the marketplace, whereby assets with vastly different climate outcomes may nonetheless be priced similarly, because the tools to analyze climate data are not yet widely used. Disclosure requirements would help to close the current information gap and recalibrate pricing to account for climate risks.

The panelists also responded to common critiques about the inclusion of Scope 3 emissions in the SEC rule. For example, Waite talked about how small businesses would be equipped to handle the requirements. She explained that when the Partnership for Carbon Accounting Financials was first brought to the United States from the Netherlands, the earliest adopters were smaller banks and credit unions. Waite called Scope 3 disclosures “beyond doable” for small and large companies alike, as shown by the track record of even small companies successfully disclosing all



Dave McGlinchey
Chief of External Affairs
Woodwell Climate
Research Center

The way you make this happen [...] is with transparency in education. Our success in establishing a shared vocabulary is an indicator of how successful any of our partnerships will be. The other directly related challenge is moving from high level climate change information to identifying relevant thresholds. You want this information to be actionable, you want it to be directly relevant to a decision maker's everyday world. When you put in the time to build that shared vocabulary, it sets the stage for success.

levels of emissions. Cromwell then addressed the concern that, because the Scope 3 emissions for one organization are the Scopes 1 and 2 emissions of another organization, Scope 3 emissions are therefore “double-counted.” Cromwell found such concern misplaced. This “double-counting” of emissions only matters if the exercise is to quantify the total amount of emissions worldwide—a calculation that serves no purpose to most investors or other stakeholders. By contrast, data about Scope 3 emissions are essential to assess a particular company's total emissions footprint and its vulnerability to climate risks, regardless of those emissions also being counted in a similar analysis for another company. As Cromwell explained, when an investor is trying to determine if a particular company's security is mispriced, the investor needs to understand if its inputs will be affected by changes in opinion, behavior, or regulation—in other words, by transition risks for suppliers. For example, if a company's input costs go up because of climate-related regulation that affects businesses in the supply chain, such as carbon taxes or emission reduction regulations, that makes the company's costs go up and that affects investment decisions. Thus, accurate analysis of a company's climate resilience must include Scope 3 data.

But climate risk disclosures are not only a matter for the SEC. Chen talked about parallel disclosure efforts at the state level. Her agency, the New York Department of Financial Services, issued a set of “high level expectations” at the end of 2020 for regulated banks and certain other financial institutions. The expectations instructed those entities to integrate climate risks into corporate governance, organizational structure, and business strategy, and to start to develop public disclosures of climate risks. This was followed in November 2021 by detailed guidance for New York domestic insurers about managing climate risk. Chen also highlighted the role of international networks in sharing best practices, especially given that European and Asian regulators are ahead of the United States in mandating climate risk disclosures. For example, as Waite described, the European Banking Authority recently issued final standards that would require all European Union banks to disclose Scopes 1, 2, and 3 emissions by 2024, without any caveats, exceptions, or thresholds.

Beyond emissions disclosures, the panelists discussed the challenges posed by physical risks to companies and their assets. From the investor side, Cromwell said that while transition risks—i.e. impacts to the business associated with regulatory,

societal, economic, and technological steps taken to reduce emissions—have been a focus for investors since the 2010s, more investors needed to also recognize physical climate risks. Several years ago investors like Wellington were not yet systematically thinking about the impact of heat, drought, floods, fires, or other climate-related weather events on the securities that such investors hold on behalf of their clients. To address this gap, Wellington formed a partnership with Woodwell to translate scientific climate risk data into forms usable by investors. Both Cromwell and McGlinchey attributed the success of the partnership to a joint commitment to develop a shared vocabulary between the science side and the investment side. Recalling the themes of the first session, McGlinchey underlined the need for climate science to be translated into terms that are useful for a variety of audiences. For example, a policymaker concerned with food security has little use for general data about heat trends but would benefit greatly from data that allow those policymakers to understand where temperature changes will be most relevant to agricultural output and the expected scope and effect of those changes.

The discussion also addressed how to ensure that climate risk data—whether quantifying Scope 3 emissions disclosures or quantifying physical climate risks—are comparable. In his opening remarks, Jackson raised the challenge for the SEC in ensuring that disclosures can be adequately compared and verified when the underlying data are often generated by outside accounting or consulting firms, which may not share the same methodologies. McGlinchey similarly raised concerns about a wide assortment of climate risk analysis firms taking different approaches, making it difficult to compare their risk assessments. This concern is particularly acute for black-box firms using proprietary methods that cannot be tested or checked and that may go beyond what the science supports. McGlinchey advocated for a “rigorous, transparent, and standardized methodology” in climate risk assessments and accompanying disclosures.

Even standardized methodologies cannot remove uncertainty from climate risk data, however. Inherent uncertainties in climate risk data pose another challenge for decision makers of all types who want to prepare for the future. But as Chen said, “uncertainty and data gaps do not justify inaction.” Chen noted first that there has been



methodology and disclosure, as seen in recent IPCC reports and the increasing adoption of the Task Force on Climate-Related Financial Disclosures (“TCFD”). And disclosure regimes can account for the uncertainty that remains. Chen’s own agency’s guidelines, for example, include certain expectations that would apply in any future scenario, such as board governance and organizational structures that support the effective management of climate risks. These expectations are therefore meant to be implemented promptly. By contrast, the implementation of other expectations in the guidance—like setting risk tolerance limits—requires a more iterative approach with insurers updating and refining their decisions as new information is obtained. As applied to mandated disclosures, Waite noted that companies can be transparent about uncertainty in their data. She explained that the Partnership for Carbon Accounting Financials incorporates a ranking of 1-5 when reporting out Scope 3 emissions estimations, where one is the least certain—for example, based on an emissions factor database or an estimation—and five is the most certain—for example, based on third-party audited data. Thus, uncertainties should not prevent or delay disclosures because those uncertainties can be characterized and adequately disclosed themselves.

The panelists also spoke about how mandated disclosures and investor pressure can close currently existing data gaps. As Chen remarked, institutions are not just passive users of data, they can also be proactive creators of data. For example, they can fill data gaps by getting data from customers, requesting data disclosures from companies they invest in, and collaborating with peers and regulators. Cromwell similarly spoke about “virtuous cycles” that can start with questions from investors. For example, the boards of many companies may not even know that factors like soil composition on site or building materials of a physical asset affect that asset’s climate risk. But as investors start to ask questions about those data points, the companies will realize they need to gather that information and share it more widely as a way to differentiate themselves in investor meetings. These investor questions can therefore prompt companies to start thinking more deeply about what they could be doing for resilience and adaptation or what data they could be gathering and then sharing. And, finally, the panelists underlined that even mandated disclosures will not themselves solve the climate crisis.

Regulators, states, and companies also need to proactively manage those risks by “decarbonizing the air and recarbonizing the soil,” as Waite urged. She summarized the three steps in addressing climate risks: (1) measurement, (2) disclosure, and (3) reduction. Waite added, “We need the third step or else we’re still on team ‘Don’t Look Up.’”





PART III:

Toward Equity and Resilience: Harnessing Climate Risk Information for Better Decision-making



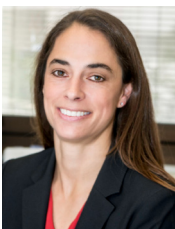
The third panel was moderated by **Heather Goldstone**, Chief Communications Officer at Woodwell Climate Research Center, and brought together four panelists involved in responding to the climate crisis and building resilience within their local communities:



Robin Bronen is the Executive Director of the Alaska Institute for Justice. Bronen works with coastal Alaska Native communities facing climate-related displacement.



Joyce Coffee is the Founder and President of Climate Resilience Consulting. Climate Resilience Consulting works with clients to create practical strategies that enhance markets and communities through adaptation to climate change.



Jennifer Jurado is the Chief Resilience Officer for Broward County in Florida. Jurado oversees county-wide climate resiliency initiatives, water resource policy and planning, environmental monitoring, shoreline protection, and marine resources programs.



Effie Turnbull-Sanders is the Environmental Justice Commissioner for the California Coastal Commission. The California Coastal Commission is a state agency within the California Natural Resources Agency with quasi-judicial control of land and public access along the state's 1,100 miles of coastline. Its mission is defined in the California Coastal Act, including to protect and enhance California's coast.

Over the session, which included opening remarks by former U.S. Congressman Joseph Kennedy III and former Mayor of Greenville, Mississippi, Heather McTeer Toney, the panelists discussed the severe toll climate change is already taking on many communities across the country, the role of community-based data collection in tracking climate change, and the importance of rights-centered and community-driven resilience strategies.

PART III THEMES:

- The severe toll climate change is already taking on many communities across the country
- The role of community-based data collection in tracking climate change
- The importance of rights-centered and community-driven resilience strategies

Bronen started the panel's discussion with a grim report of the existential threat that climate change already poses to coastal Alaska Native communities as they contend with loss of sea ice, thawing permafrost, and hurricane-force winds. These conditions have led to *usteq*, translated from Yup'ik as "catastrophic land collapse," a phenomenon whereby large sections of land give way at once. Bronen described how Alaska Native communities have been documenting environmental conditions in their areas and then working with outside experts to analyze those data

and understand the predicted rate of environmental change. Tribal governments can then use this analysis to determine their own thresholds of habitability, or the metrics that will indicate that the "awful decision" to relocate has become necessary. Tribal governments and their partners can also use the data to advocate for the resources that the community needs to stay where they are for as long as they can and to relocate when that is no longer possible. For some communities, these habitability thresholds were exceeded a decade ago, and yet those



Hon. Joseph P. Kennedy III
Board Member
Woodwell Climate
Research Center

Poor countries and marginalized communities will bear the disproportionate brunt of this impact. Almost everyone who understands the climate crisis understands that we, as a society, are struggling to respond adequately to the challenge. And yes, we need more data collected, analyzed, interpreted, published so that policy makers and civil society leaders can understand what to do with it and prepare our communities. But if you want data to inform decision making, we need to use it to inform public opinion as well.



**Heather McTeer
Toney**

Vice President of
Community Engagement

Environmental
Defense Fund

We can talk regulation all day, but without enforcement it is not sustainable. Without connection and community-driven solutions, and without proper planning we don't have a way to deploy and ensure that the solutions we come up with actually last and are efficient and are scalable, to ensure that we have a solid future. That's why communities have to be empowered to push forward community driven solutions. We have to listen, and truly think about doing something different.

communities have not gotten the resources or political support needed to complete relocation. Bronen emphasized the urgent and overdue need for federal leadership that prioritizes tribal self-determination and human rights as part of any relocation planning.

The discussion then traveled to coastal Florida, where residents are facing risks that are “distinct in geography but similar in terms of severity,” according to Jurado. As a low-lying, coastal area, Broward County is vulnerable to even slight changes in water levels, and its highly developed landscape with the Everglades along its inland edge leaves no room for retreat. Increased seawater flooding has been occurring predictably since about 2012. Coastal flooding not only directly impacts coastal areas but also blocks drainage systems and causes flooding in inland areas whose residents may have believed themselves protected by their distance from the coast. In one flood event that coincided with high tides, inland communities were flooded for two weeks because the water simply had nowhere to go. Jurado discussed measures the county is taking to address these grave risks, including investing in consistent flood barriers across

municipalities, using grants to address points of vulnerability (like a marina that had served as a funnel for floodwaters), and increasing the elevation requirements for floors of new buildings based on updated predictions. But even with all these efforts, Jurado acknowledged, the county is still a long way from reliable climate resilience.

Other parts of the country have also seen climate-related devastation with the increased frequency and intensity of extreme weather events. In his opening remarks, Congressman Kennedy talked about visiting Houston, Texas, after Hurricane Harvey and passing block after block of homes that had flooded. He described how the entire contents of those homes—often, the whole lives of their occupants—were piled on front lawns, waiting to be picked up by garbage trucks. Mayor Toney talked about how, during her term as mayor of Greenville, the region saw not just one, but two hundred-year floods that caused extensive and expensive damage to infrastructure, including roads, water systems, and bridges.

In terms of implementing climate solutions, Turnbull-Sanders talked about making environmental justice a comprehensive focus that is integrated into California's five-year strategic plans,

which set priorities for state agencies. It also includes approaching each locality as a unique jurisdiction with its own history, needs, and priorities. From her position in a state agency, Turnbull-Sanders emphasized the difficult but essential work of enacting state-wide change without imposing a bureaucratic top-down approach that fails to account for local concerns.

Maintaining the focus on local government, Coffee spoke about the most common recommendations she hears from communities: provide technical support, planning, and resources to local governments and prioritize funding to address housing displacement, which is one of the largest climate risks that many Black and Indigenous communities face, along with food insecurity. Based on community recommendations, Coffee also advocated to replace grant applications—which often exacerbate inequities between wealthier and poorer communities because grant applications are difficult and time-consuming—with “targeted universalism,” which directs resources toward the most vulnerable communities based purely on risk data rather than applications. Coffee further recommended that those grant and loan guidelines explicitly require engagement with and ceding power to local leaders to ensure a community-driven process and outcome.

The panel also addressed the role of public-private partnerships in climate solutions. Mayor Toney discussed her partnership while she was in office with Mars, Incorporated, which operates a rice mill in Greenville that occupies over 80 acres and employs a large percentage of the workforce in the area. Mayor Toney talked about how, when Greenville faced several serious flood events, Mars shared data that the company had already been gathering as part of its climate sustainability plan. This shared information allowed the city to assess what street upgrades were needed and where water system points of weakness or potential levee breaches were located, among other critical resilience data. As Mayor Toney described, these investments added value to the business while also providing protection to the community, making it an example of a mutually beneficial collaboration between private and public partners. Jurado similarly discussed Broward County’s partnerships with business leadership and how the county’s shift to including economic resilience and exposure within financial markets in its climate planning brought in a meaningful influx of business support.

Finally, the panelists agreed that there remains a troubling lack of urgency and momentum among lawmakers in prioritizing climate resilience. Climate change is, in Coffee’s words, “the humanitarian crisis of our time” and yet there remains a gap in the resources and political will needed to implement successful mitigation and adaptation measures. Mayor Toney laid out the challenge at the start of the session in no uncertain terms: in the face of the ongoing and intensifying climate crisis, it is up to us all to “create a more efficient and equitable process that saves our economy, our ecosystems, and our lives at the same time.”

In final remarks reflecting on the series, Assistant Attorney General Christophe Courchesne, Deputy Chief of the Energy & Environment Bureau of the Massachusetts Office of the Attorney General, summarized key takeaways from the three sessions. First, all of us must grapple with climate risks, which affect every facet of our social and economic systems in profoundly interconnected ways. Second, climate risk is material, in every legal and economic sense of the word, to public and private investment decisions made now. Third, we need strong legal requirements and public institutions dedicated to the disclosure and analysis of climate risk—this project is too important to leave to voluntary efforts alone. Fourth, our responses must prioritize marginalized, environmental justice communities, who are already facing the brunt of climate-related harms. And finally, it is imperative that we actually integrate climate risk information into the decisions we make if we hope to craft an equitable and sustainable response to the climate crisis.





ADDITIONAL RESOURCES FROM THE PANELISTS

IPCC Reports

- [IPCC WGII Sixth Assessment Report](#)
- [In-depth Q&A: The IPCC's sixth assessment on how climate change impacts the world](#)

Woodwell Climate Research Center

- [Probable Futures](#) (climate risk understanding tool)

First Street Foundation

- [Flood Factor](#) (comprehensive and peer-reviewed flood model)

McKinsey Global Institute

- [Climate risk and response: Physical hazards and socioeconomic impacts](#) (Report)
- [Protecting people from a changing climate: the Case for resilience](#) (Article)

California Integrated Climate Adaptation and Resiliency Program

- [Cal-Adapt](#) (raw physical risk climate information)
- [CA Fourth Climate Assessment](#) (studies analyzing the information used to understand impacts)
- [CA Adaptation Clearinghouse](#) (state and peer-to-peer resources on how people are preparing for those impacts)

New York State Department of Financial Services

- [Financial Risks from Climate Change](#)

Boston University School of Law

- [Market Myopia's Climate Bubble](#)

Climate Finance Fund

- [Senate Banking Testimony of Climate Finance](#)
- [SEC Letter on Climate Disclosures](#)
- [Don't Look Up's Make Your Money Count](#)

Broward County, Florida

- [Broward County Resilience Dashboard](#)
- [Southeast Florida Climate Compact](#)
- [The Business Case for Resilience in Southeast Florida](#)

Alaska Institute for Justice

- [Rights, Resilience and Community-led Relocation: Creating a National Governance Framework](#)
- [Usteq: integrating indigenous knowledge and social and physical sciences to coproduce knowledge and support community-based adaptation](#)
- [Climate-induced community relocations: using integrated social-ecological assessments to foster adaptation and resilience](#)

