THE ASPEN INSTITUTE
COASTAL RESILIENCE ROUNDTABLE

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Co-chairs:

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THE ASPEN INSTITUTE
ENERGY & ENVIRONMENT
PROGRAM

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PURPOSE

In June 2019, the Aspen Institute's Energy and Environment Program – in partnership with Van Ness Feldman – convened the inaugural Aspen Institute Coastal Resilience Roundtable. This one-day roundtable brought together experts from academia, non-profits, the private sector, and government (including some current members of Congress) to discuss the state of America's coasts, what is needed to protect them, and how best to ensure their resilience for decades to come. The scope of the roundtable was expansive, and the rich dialogue and exchange of ideas confirmed the value of convening on this topic.

This report briefly summarizes the core themes and topics discussed at the Coastal Resilience Roundtable. After reviewing the key takeaways from the entire event, this document highlights the main thoughts and ideas that emerged during each of the roundtable's four sessions: (1) the state of the coasts; (2) national security and coastal resilience – opportunities and vulnerabilities; (3) the role of data in resilience planning; and (4) insights from state and local officials.

KEY TAKEAWAYS

- There is a pressing need to address the current damages occurring in U.S. coastal communities and to take action to prevent even more costly and destructive consequences in the future. Pre-disaster spending is always more effective than post. Boosting coastal resilience must be a vital national imperative – one that will benefit not only states with a coastline, but every community in the United States.
- More accurate mapping of coastal communities and flood zones, greater levels of funding, and improved coordination – both among federal agencies and among local, state, regional, and federal actors and jurisdictions – are all needed to ensure that communities have a better understanding of, and can better respond to, the range of risks they face.
- Quality updated data is essential to arming communities with the information and tools needed to improve coastal resilience, but the data currently available is inadequate. Data standards and coordination among the different actors in the space are necessary.
- Climate change is a threat to military infrastructure and to the communities in which military bases are located. Boosting coastal resilience will require civilian-military partnerships.

SESSION 1: THE STATE OF THE COASTS

The objective of Session One was to clearly define what "resilience" means and what the ultimate goals are with respect to resilient coasts. Participants discussed the federal and state mechanisms, tools, and programs that need to be utilized, catalogued, and created to manage coastal resilience and ensure adequate environmental and socioeconomic sustainability and disaster response. In particular, participants touched on the following themes, many of which resurfaced in other sessions throughout the day:

- **More accurate, updated mapping of coastal communities and flood zones is needed to ensure that communities have a better understanding of – and can better respond to – the risks they face.** Very few people or communities have an accurate understanding of their own hazard risk,

and more accurate and up-to-date flood mapping is one of the key tools needed to educate them. There are challenges associated with conducting more accurate mapping, however, including the resource-intensive nature of data collection, the lack of uniformity in data sets and tools, arguments about jurisdiction, and political controversies about whether and how to define the problem in relation to climate change.

Once people and communities gain a better understanding of their risk, they can better prepare a response – even if they have to act largely on their own, such as by relocating, purchasing flood insurance, or upgrading infrastructure. The federal government – in partnership with local governments – should be working to educate people and communities on ways they can help prepare themselves for what is to come.

- **Smart funding solutions are desperately needed.** Because communities do not have a solid understanding of their climate hazard risk, pre-disaster planning is difficult, even though it is generally far less costly to prepare before a disaster than to respond after one. As a result, instead of getting ahead of the disaster curve, communities are always playing catch-up – with a much higher price tag. In addition to lives and property, investing in coastal resilience can therefore also save money. However, while solutions and technologies to improve coastal resilience exist, the resources to scale and implement those solutions do not. More, smarter funding is needed.

  There are many potential sources for such funding. For example, there is a great deal of private capital that can be unlocked, as the return on investment in pre-disaster mitigation can reach as high as ten percent. Public dollars are likely to be at the core of resilience efforts, however. Localities such as Miami have voted to increase their tax rates in order to fund coastal flood mitigation and restoration. Some states have funds that could potentially be directed toward coastal resilience investments, but many states do not. One way or another, states and local communities should be adequately budgeting for mitigation and restoration and coordinating with each other to spend those budgets efficiently and effectively. While federal financing can help, including support from the Federal Emergency Management Agency (FEMA), the financial burden will not (and should not) fall entirely on the shoulders of the federal government.

  It is unclear, though, exactly how much is currently being spent on coastal resilience – in part because it is not clear which measures actually count as "resilience" investments. Without a solid understanding of the current costs associated with better preparing coastal communities, it can be incredibly difficult to plan appropriately for future spending. More coordination and clarity is needed regarding the funding available, as that funding is currently scattered across agencies, programs, and jurisdictions; some entity, probably at the federal level, needs to be in charge of adding it all up and helping people access it.

- **Coastal resilience creates an opportunity for a bipartisan, regional approach to solutions.** Resilience and adaptation are entry points for people who have not otherwise been engaged in or comfortable with climate-related issues. The issue of coastal resilience transcends political ideology, as coastal communities are geographically, culturally, and politically diverse. Having bipartisan interest and support creates room for stakeholders to take a broader approach to finding and sharing solutions. More robust regional coordination, for example, could allow for a breakdown of jurisdictional and political silos, improved sharing of information among communities, and

greater ability for local-level planning and actions to be scaled and applied regionally (or nationally) where appropriate. Coordination can help ensure that resource-rich cities are not the only ones becoming resilient and that localities and rural areas with less access to resources are not left behind. Regional coordination is particularly important because the decisions made in each unique coastal community will have implications for others; governance may occur in a bubble, but real-world impacts do not. On the other hand, the diversity of coastal communities creates challenges to such coordination as well, such as with regard to finding alignment on priorities.

SESSION 2: NATIONAL SECURITY AND COASTAL RESILIENCE—OPPORTUNITIES AND VULNERABILITIES

The objective of Session Two was to examine the national security implications of coastal resilience. Participants evaluated what recent experiences reveal about vulnerabilities in coastal infrastructure, governance, and recovery efforts, as well as what the Department of Defense and other related stakeholders are doing to prepare for increased incidence and intensity of extreme weather events. In particular, participants touched on the following themes:

- **Climate change is a threat – and a threat multiplier**. Sea level rise, flooding, and coastal inundation – as well as other climate change impacts – are creating serious challenges for the military and threatening the stability of military infrastructure. Some coastal military bases, for example, are getting hit hard. Norfolk, the U.S. Navy's biggest base, is already suffering severe damage as high tides continue to flood portions of the base, and that reality is unlikely to change. Damage to coastal military bases puts operations at risk, and repairs take energy and resources away from other important mission-related initiatives. All military bases and operations need coherent and comprehensive resilience plans that will ensure they are prepared and equipped to respond to disasters and changing climatic conditions.

  In addition, climate change will create new – and exacerbate existing – security challenges. For example, the United States and other countries are currently grappling with challenges related to immigration, but those will only grow thornier as climate change destabilizes other countries, increasing the flow of refugees. In the United States, the number of displaced *internal* refugees as a result of coastal inundation and other climate-related impacts is also on the rise, creating instability both in the impacted locations and in the communities into which people have relocated. The United States needs to be preparing to deal with the security and migration implications of growing climate-related instability around the world and at home.

- **Boosting coastal resilience will require civilian-military integration and partnership.** The U.S. military's focus on security and its expertise in research and technology position it well to be a leader in resilience planning, but coastal military bases do not exist in a vacuum. Where there is a base, there is a community. In order to tackle the issue of coastal resilience as robustly as possible, a concerted effort to create civilian-military partnerships is necessary. Those partnerships have the potential to unlock mutually beneficial resources, spur comprehensive resilience planning efforts, reduce costs, speed delivery of effective and innovative solutions, and improve both pre-disaster preparation and response times to disasters.

SESSION 3: THE ROLE OF DATA IN RESILIENCE PLANNING

The objective of Session Three was to discuss the data that is currently available to states, communities, industries, and individuals with respect to coastal resilience planning. This session also addressed how to adequately model unforeseeable "purple swan" events and how to ensure that governments devise and execute efficient resilience plans. In particular, participants touched on the following themes:

- **The data available to support coastal resilience planning is inadequate**. As noted earlier (in Session One), coastal risk mapping is not where it needs to be. All current maps are scientifically out of date, and there are areas facing likely problems that have not yet been identified because there is no risk mapping at all. There are many reasons for this data inadequacy. Historical data, which is the common basis for risk mapping, is no longer an accurate guide to future risks in a world dealing with climate change. Risk mapping in general is resource-intensive and time-consuming, and it is only more so when it requires staying on top of the most recent science and the best statistical models available. There is a need to identify which entities should be responsible for gathering the necessary information and how it will be accessed and utilized by a range of actors across jurisdictions, agencies, and sectors.

  In addition, there may be some foot-dragging on improving risk maps because updated mapping will show a greater portion of the population at risk, which will create more burdens, obligations, and expenses for governments and landowners on the front end.

- **Data can be powerful, if communicated clearly.** Improved coastal risk data will allow for more informed decisions about insurance, disaster preparation, and resilience planning that can reduce economic exposure after an event. The way risk information is presented to the public and to policymakers matters, though. Proper communication of data – translating difficult-to-understand scientific lingo into real, comprehensible risks – can help people understand climate change risks in a much more tangible way; data on storm and flood damage means more to most people than "global average surface temperature" data. Updated and comprehensive maps can provide such communication, raising risk awareness and spurring greater actions to boost coastal resilience.

- **Data standards and coordination among the different actors in the space are critical.** There are institutions, such as the National Oceanic and Atmospheric Administration, that have reputations for high-quality, reliable data, but the lack of standards and coordination among the different actors sometimes prevents such data from informing risk mapping. Establishing common standards for data would support better risk mapping for vulnerable coastal areas and could support creation of a more unified dataset from which practitioners can draw. Greater coordination among actors can also identify avenues for partnerships and can clarify the roles of the private sector, universities, and other research institutions in fulfilling data needs.

SESSION 4: INSIGHTS FROM STATE AND LOCAL OFFICIALS

Session Four sought to identify the most pressing challenges presently facing states and localities, as well as the challenges anticipated a decade from now. Discussants identified examples of successful coastal resilience strategies at the state and local levels and addressed ways in which the federal government and public- and private-sector entities can support resilience efforts. Participants also discussed changes that could be made in terms of planning and funding. In particular, participants touched on the following themes:

- **Coordination mechanisms are needed for a regional approach to resilience planning.** There is currently a great burden placed on cities to plan for potential resilience issues, but as noted in Session One, many of the problems facing the coasts are regional in nature. While there are jurisdictional boundaries, water and other climate impacts are not contained within them, and decisions made by one city or rural area affect its neighbors. As such, interdisciplinary coordination among different jurisdictions and levels of government is necessary, which may require organizational change within some government institutions.

- **Increased coordination is needed on coastal resilience funding as well.** Coastal protection and resilience are expensive, and funding is limited. Beyond asking the federal government for more funding, improving coordination on how existing funding is spent on the state, city, and county levels can help unlock smarter funding options and encourage more efficient solutions. For example, existing funding could be channeled to incentivize private-sector investment; figuring out how to tap into private capital resources could be a game-changer for many localities.

  In addition, in discussing funding, issues of equity must be addressed. There are many vulnerable cities, suburbs, and rural areas that have limited resources and high levels of poverty and so are unable to plan and adapt to potential threats. These places can be left even further behind when disasters strike. It is critical to consider how funding changes can be leveraged to address the needs of all affected communities.