Committee on Natural Resources, Subcommittee on Water, Oceans, and Wildlife

Hearing on H.R. 2189, "Digital Coast Act"

Testimony of Sarah Newkirk, Director, Disaster Resilience,
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Good morning Chair Huffman, Ranking Member McClintock, and members of the Subcommittee. Thank you for the opportunity to testify on H.R. 2189, the Digital Coast Act of 2019. My name is Sarah Newkirk, and I am the Director of Disaster Resilience for The Nature Conservancy in California. I previously served as Director of Coastal Resilience for The Nature Conservancy in New York. In these capacities, have worked with local, state and federal partners on science-based coastal flood risk reduction and conservation for fourteen years.

About TNC

The Nature Conservancy is a global conservation organization dedicated to conserving the lands and waters on which all life depends. Guided by science, we create innovative, on-the-ground solutions to the world's toughest challenges so that nature and people can thrive together. We are tackling climate change, conserving lands, waters and oceans at unprecedented scale, providing food and water sustainably and helping make cities more sustainable. Working in all 50 states and 72 countries, we use a collaborative approach that engages local communities, governments, the private sector and other partners, including farmers, ranchers and other landowners.

TNC's Coastal Resilience program works to illuminate nature's role in reducing coastal flood risk through science, planning, and technology. The program has reached 17 coastal states in the U.S., globally across the Caribbean, Mexico and Central America, and most recently in Southeast Asia and Australia. The online tool, which we created in partnership with the Digital Coast Program, contains a diverse portfolio of data and tools to support land-use decisions, policy creation, and cost-benefit analyses for stakeholders ranging from local municipalities to multi-national businesses and development banks. In the program's first ten years, Coastal Resilience has reached over 100 communities around the world. In its 11th year, Coastal Resilience is partnering with Microsoft and Red Cross to use innovative geospatial technology to enhance both the social and ecological resilience to coastal flooding in communities around the world.

Increasing Flood Risk and Damages

Damages from flooding comprise by far the largest losses from natural hazards. Worldwide, from 1995-2015, floods accounted for 46% of all-natural hazard costs; when storm-related damage – which can also include flooding – is factored in, the total rises to 71%. Floods and storms together affected about 3 billion people and damaged or destroyed 87 million residences and 130,000 public buildings over this span of time. The threat from flooding has been increasing for several reasons, including the increase in development at the coasts, the relatively high value of the property there, and the acceleration of sea level rise, exacerbating erosion and bringing the danger closer to communities. Coastal communities are more aware than ever of the need to prepare for these events to reduce their cost and devastation.

But the science of coastal risk is constantly evolving, and coastal decision-makers need data and tools that evolve along with the science. What's more, the kind of science we need about our coast goes well beyond examining what is there now – it's about predicting the future.

What is the Digital Coast Project?

The Nature Conservancy is a founding member and supporter of The Digital Coast Partnership, whose other members include such diverse organizations as the National Association of Counties, the American Planning Association, Association of State Floodplain Managers, Coastal States Organization, National Estuarine Research Reserve Association, and National States Geographic Information Council, and the Urban Land Institute. Under the leadership of the National Oceanic Atmospheric Administration (NOAA), this innovative public-private partnership works to provide the tools, data and training that local governments, organizations, industries and individuals need to protect themselves from future coastal risks like storms, flooding and inundation. With the help of the Digital Coast Partnership, TNC creates maps and ecological and socio-economic models within our Coastal Resilience platform, and uses them to educates and collaborate with local, state and federal partners on coastal management. We use this same information ourselves to make conservation investments in coastal land as part of our commitment to preserving biodiversity, open space, and enhancing flood risk reduction for coastal communities.

My Own Experience

In my fourteen years with The Nature Conservancy, I've worked on both coasts – in New York and California – to support communities in planning for and recovering from coastal flooding and disasters. In 2007, my NY colleagues and I created and launched the first Coastal Resilience tool – the online tool I describe above. In this original version of the Coastal Resilience tool, it delivered coastal geospatial data to communities on Long Island. Our hope was that these communities would use that data, not only to plan for the future of their built assets, but also to conserve their natural assets because of nature's power to dampen waves and absorb floodwaters. NOAA was our first partner in that effort – they helped us access digital elevation data (called LiDAR), make projections of economic losses from flooding, and taught us how to project flood predictions over digital elevation maps so that we could then go out and train communities in how to use these maps to make their plans to reduce flood risk.

In late October 2012, about a year after I relocated to California, a New York colleague sent me an email that had only one line. It said: "what you said would happen happened." New York had been struck by Hurricane Sandy, a storm whose devastation and impact can only be described with reference to other superlative disasters…Katrina, Irene, Donna. Hurricane Sandy impacted everyone and everything in New York – Wall Street suspended trading, the United Nations closed their doors, the NY subway and commuter rail services stopped running…even Broadway cancelled their shows. I was heartened to learn that the evacuations and recovery efforts were made much easier by the maps we developed in partnership with NOAA. On top of that, science generated by The Conservancy and partners showed that investments in wetland protection in the northeast U.S. prior to [Hurricane Sandy saved $625 million in property damage](#) during the disaster.

In 2012, my California colleagues and I started a project called Coastal Resilience Ventura. As you may know, Ventura County California, is a beautiful place with a little of everything. Sunshine, beaches and waves; citrus and almond orchards; charming commercial districts side-by-side with open space and important military infrastructure. Ventura County is vulnerable and has a lot of infrastructure and people at risk of coastal flooding. The community has many diverse

stakeholders: local planners, Farm Bureaus, Natural Resource Agencies, non-governmental organizations, flood districts and the U.S. Navy; being inclusive meant reaching all these folks. By this point, the Digital Coast Partnership had been in action for 5 years, and access to data to underpin planning was easy. NOAA had released a more-or-less comprehensive map of coastal flood risk for the west coast, and we used this to convene this enormous group of stakeholders and to say to them, "This is your community; this is your community with five feet of flooding; how does that make you feel? what are you most worried about?" That group of about 80 stakeholders met regularly over a period of nearly two-and-a-half years to develop vulnerability and preparedness plans. The Nature Conservancy is still working with a subset of them – including the U.S. Navy – to refine their hazard mitigation plans and assess and make investments in natural infrastructure (see figure below).

Year 2060 Flood Inundation - Naval Base Point Mugu

Beyond supporting local planning, The Conservancy uses Digital Coast data to make and promote investments in coastal land conservation and restoration. Our California coastal team recently released the first comprehensive, statewide assessment of coastal habitat vulnerability in the face of coastal change. Built on a platform of Digital Coast data, we showed that 59% of California's coastal habitats such as wetlands, dunes, and barrier islands, are highly vulnerable to coastal change, including 39 special status species, and 41% of all the states conserved coastal area. Armed with this information, California renewed its commitment to coastal habitat protection, announcing its Hope for the Coast Vision – to a standing ovation of international delegates – at the Global Climate Action Summit in September.

Digital Coast Meets a Critical Need and Provides Important Services to All

The stories I share represent two important aspects of the Digital Coast program. First, the Program fills a critical need that is only growing over time; and second, it successfully plays an essential role in facilitating collaboration amongst diverse private, public and nongovernmental partners.

The Digital Coast represents the federal government at its best – providing essential information that helps people help themselves. It provides an accessible, user-friendly, high-tech 'crystal ball' to communities and other coastal decision-makers to help them set priorities for building infrastructure, investing in parks and open space, and keeping people and neighborhoods safe. Local governments need to make all sorts of decisions for which this kind of data is critical, including planning for construction and maintenance of roads, bridges and critical infrastructure, economic development, emergency management, land use planning, zoning and environmental protection. Following a disaster, local emergency managers are often first on the scene and play a

key role in coordinating emergency management efforts and working to mitigate damage before and after disasters. These are some of the most important functions of government; unfortunately, some local governments lack the economic resources and capacity to bring the best science to bear. The Digital Coast brings these resources to the table, supporting management, land-use and emergency response decisions with a strong foundation of science and technology.

As communities use the Digital Coast to plan for and mitigate hazards, they will save money for both themselves and the federal government. Study after study has shown that investment in pre-hazard mitigation pays for itself many times over. According to a 2017 National Institute of Building Sciences report, the nation saves six dollars in future disaster costs for every one dollar invested in mitigation activities. Recognizing the extreme importance of additional support for pre-disaster mitigation, this Congress passed the Disaster Recovery Reform Act of 2018, which set aside six percent of disaster expenses to fund the Pre-Disaster Mitigation Grant Program. This program will focus on funding public infrastructure projects that increase community resilience before a disaster occurs. But all the funding in the world won't help in the absence of the data and information necessary to make smart mitigation decisions. Digital Coast provides this information to communities, so they can protect themselves and save money.

The Digital Coast has shown the extraordinary power of government-facilitated collaboration. The list of contributors to the program is [online](#), and is too long to recount here. It includes over 100 academic institutions, nearly a dozen tribes, government agencies at all levels and countless NGOs.

Digital Coast – Examples of its Application from Across the Nation

Need to Better Integrate Community Hazard Mitigation Planning and Land-Use Plans. Example from Monterey County, California

Did you know that – for many local governments – land use planning and hazard mitigation planning are done by two separate, sometimes non-overlapping groups? Land use – or general plans - are written by professional planners, supported by local engagement processes. Local hazard mitigation plans, which are a requirement for eligibility for FEMA's Hazard Mitigation Assistance, are frequently led by emergency responders, like Fire Departments and Police. Whatever other results this disconnect may cause, it generally means that land use strategies – including nature-based strategies – are underrepresented in hazard plans. Increasingly, though, there is a move to integrate the two, and this move has been supported by Digital Coast trainings and data. In 2015, Monterey County – along California's central coast – updated its local hazard mitigation plan using Digital Coast data, tools, and resources. The resulting plan presents a strategy for all Monterey Counties municipalities for implementing specific, achievable, and measurable hazard mitigation actions and procedures to establish a sustained, long-term process for increasing the resilience of all communities to natural hazards. Indeed, the Digital Coast has supported hazard planning around the coastal U.S., with NOAA providing not only tools and data, but training to ensure that this planning is integrated and efficient.

Building Back Stronger in Puerto Rico

Hurricane Maria wreaked unmatched devastation on the Island of Puerto Rico. As the recovery proceeded, local officials knew that they needed to consider understand future flooding if they were to make their communities truly resilient. Digital Coast staffers responded with a specially updated Coastal Flood Exposure Mapper and trainings in flood mapping and green infrastructure. This

customized map tool is equipped with Post-Maria recovery data and fine-scale features displaying places and natural resources at higher flood risk. In addition, two training sessions—in San Juan and Mayaguez—helped participants visualize storm surge, high tide flooding, sea level rise, and tsunami scenarios. With these aids, Puerto Rico's planners are working with local communities on a more resilient recovery.

Green Infrastructure in Alaska

With more than 44,000 miles of coastline, much of which is not fully mapped, Alaska's coastal communities rely heavily on our waterways and shipping channels to support all forms of social and economic prosperity: goods from the lower 48, critical transportation needs, search and rescue operations, and the state's largest private sector employer – the fishing industry. More than 80 percent of Alaskans who reside in coastal communities are vulnerable to extreme weather events and flooding from storms. Most Alaska Native communities located on coastal or riverine environments are threatened by flooding and erosion.

Digital Coast trainers partnered with Kachemak Bay National Estuarine Research Reserve and Alaska Sea Grant to deliver several Green Infrastructure for Coastal Resilience training sessions in the area. Participants from non-profits, academia, and local municipalities throughout Alaska's Kenai Peninsula and Anchorage shared ideas for solutions specific to Alaska's landscapes— including absorbing floodwaters in urban areas and using natural shoreline stabilization techniques to reduce erosion.

The Digital Coast Act is an important step towards developing a system that supports our coastal communities with up-to-date and reliable information on our coastlines and weather conditions. Following the training, the State of Alaska Department of Environmental Conservation is using some of the materials from the training in their request for proposals for Alaska Clean Water Actions. Additionally, the City of Homer is undergoing a code review to allow green infrastructure in new development and other projects.

Future Wetlands in Maryland

As the coastline changes, natural habitats that rely on tides will adjust their locations in a process sometimes called wetland migration. To better understand the impacts that coastal change may have on the state's wetland system, the Maryland Department of Natural Resources (DNR) partnered with Digital Coast to conduct wetland migration modeling using the Sea Level Affecting Marshes Model (SLAMM). The Conservancy partnered with DNR to use the results to conduct a statewide Coastal Resiliency Assessment, which identified where natural habitats provide the greatest potential risk reduction for Maryland's coastal communities, and prioritize these areas for land conservation. Alongside DNR and the Conservancy, the U.S. Fish and Wildlife Service, National Wildlife Federation, and Maryland Environmental Trust, along with other coastal land trusts also use the results in conservation planning, targeting, and parcel-level reviews. Conserving these high-priority areas will allow habitats to shift inland naturally, protect developed areas, and allow places for wildlife to seek refuge as conditions change in the future.

Legislation Is Needed

On April 9, 2019, Reps. Dutch Ruppersberger (D-MD) and Don Young (R-AK) introduced H.R. 2189 the Digital Coast Act of 2019. They were joined that day in bipartisan introduction of the Senate companion, S. 1069, by Sens. Tammy Baldwin (D-WI), Lisa Murkowski (R-AK), Dan Sullivan (R-AK),

and Maria Cantwell (D-WA). Balancing economic development with ecological management requires accurate data and integrated information that enable coastal communities to address many coastal and emergency management issues. Legislation such as H.R. 2189 is needed to authorize this Digital Coast project into an official program. A broad coalition of organizations are advocating for this legislation, including representatives of end users of the data (the American Planning Association, the National Association of Counties, the Association of State Floodplain Managers, the National Estuarine Research Reserve Association, the National States Geographic Information Council, The Nature Conservancy, and the Coastal States Organization); and the data collection profession (MAPPS, the National Society of Professional Surveyors, and U.S. GEO). Jointly, this Digital Coast Partnership Advocacy Coalition has been a consistent voice in calling for Congressional action to authorize the Digital Coast program, and it continues to do so in the 116th Congress.

The strong bipartisan support for this measure is a demonstration of its broad appeal and value to the nation's communities. Over the next 15 years, NOAA predicts a 411 percent return on investment from the Digital Coast project. 75 percent of Digital Coast users surveyed by NOAA indicated that their projects would not have been possible without the Digital Coast. In their bipartisan, bicameral introduction of the Digital Coast Act, the Congressional sponsors have recognized the numerous benefits the Digital Coast can provide to coastal communities and those working to make them more resilient.

In Conclusion

Thank you for the opportunity to express The Nature Conservancy's support for the Digital Coast Act. If enacted, Digital Coast Act will help give communities the data and tools they need to better protect their residents, while providing a cost-effective service for federal, state and local governments and their citizens. Through Digital Coast we can not only protect and transform communities, but we can also lay the groundwork for a new and better future. I would be happy to answer any questions.