

PROCEEDINGS OF 2021 NSF COPE WORKSHOP ON COASTAL RESILIENCY IN THE FACE OF COASTAL HAZARDS AND THE RENEWABLE ENERGY TRANSITION

—EXECUTIVE SUMMARY—



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Executive Summary

The National Science Foundation (NSF) Coastlines and People (CoPe) Virtual Workshop on Coastal Resiliency in the Face of Coastal Hazards and the Renewable Energy Transition was held April 20-22 (2021) and organized by the University of Delaware, with assistance from the University of Rhode Island. The workshop, and resulting research roadmap and best practices, was designed to complement the CoPe program mission statement and advance new interdisciplinary areas of research examining transitions across coastal communities in the U.S.

The workshop was designed around the following three questions.

1. How should non-local natural resource managers and energy regulators balance critical social, economic, and cultural needs of coastal communities in an era marked by climate change, including sea level rise, and proposals to industrialize the ocean through renewable energy development, primarily offshore wind power?
2. How can society improve collaborations between the research (science) community and small coastal towns and rural communities, including those that are underserved, so that scientific research and data can be more effectively leveraged (“useable science”) to (i) support local capacity to implement resiliency projects and adapt to coastal change, and (ii) define and leverage potential benefits of development and adaptation, particularly for those communities that are already in transition?
3. Which risk communication strategies are likely to be most effective at reaching vulnerable populations on the coast (including underserved communities) and how should the tradeoffs, uncertainties or potential opportunities associated with climate change and offshore wind power development be communicated?

The workshop was organized by Jeremy Firestone, University of Delaware; Bonnie Ram, University of Delaware; Danielle Swallow, Delaware Sea Grant; and David Bidwell, University of Rhode Island. Bonnie McCay, Kirstin Dow and Melissa Finucane provided the keynote addresses, with Patrick Field, Darlene Finch, Marccus Hendricks and Vanesa Parks, and co-conveners, Danielle Swallow and David Bidwell serving as discussants/breakout facilitators.

The [workshop website](#) includes the [research questions](#), [agenda](#), [participants](#), [participant biosketches](#), and presentations.

Workshop Organizers



Jeremy Firestone



Bonnie Ram



Danielle Swallow



David Bidwell

Research Roadmap and Best Practices

Outcomes

1. How to best facilitate the identification of community needs and plan for risks and uncertainties with more effective communication? How do we ensure that communities who are often invisible, are visible (e.g., underserved local populations and students)?

2. What means/methods can be employed to gather better baseline data about underserved coastal communities and to better define community structures, perceptions, cultures, and demographics over time? Can a common set of criteria to characterize underserved/under-resourced communities be devised to assist in standardizing approaches (e.g., [SoVI index](#), [CDC index](#)) and ensuring before and after data and views are examined? Is there a way to standardize the different tools/models of vulnerability so that we are able compare communities across time and space?

3. How can adaptive systems better examine ‘rates of change,’ as communities may not be able to adapt as quickly as the physical system is changing?

4. In the context of global environmental change, is offshore wind “Blue Growth” and/or “Ocean Grabbing”? How can the risks and benefits of these offshore concepts be defined more clearly with the values and perceptions of local stakeholders and other interested and affected parties?

5. What are the range of “co-benefits” that can be defined and developed for local communities? How should researchers help to co-create these benefits with communities that may be impacted? Can multi-objective planning processes be designed to identify co-benefits and advocate for more equitable solutions?

Engagement

6. How to define and communicate about the uncertain futures of climate change vulnerabilities and offshore wind infrastructure across different spatial and temporal scales? How can this move forward with a process that emphasizes co-creation of knowledge between experts and small and/or rural towns, including local policymakers?

7. What are the barriers to broadening participation among underserved communities and aging populations? How can this participation address complex ecosystem and socio-economic problems and opportunities? How do we better support equitable partnerships and strategies?

8. How can researchers and practitioners learn more effectively from a variety of coastal communities about vulnerability and adaptation over time? And how should researchers incorporate the co-creation of knowledge between experts and small and/or rural towns into decision making with short-term funding mechanisms and with limited public participation opportunities that are robust and two-way?



9. Multiple knowledge gaps¹ that need to be addressed to improve risk communication include:

- What constitutes meaningful engagement?
- How could risk communications address contextual, procedural, and distributional dimensions of equity?
- How might connections between natural and social systems be disrupted for some groups and not others?
- How can communications integrate multiple perspectives on the opportunities and challenges posed by transitions?
- What frameworks and methods can help to integrate diverse types of knowledge?
- What decision support tools facilitate discussions about tradeoffs?
- What data are needed to track how community needs and concerns change over time?
- How would those data inform adaptive improvement of risk communications?

Capacity and Funding

10. The funding streams for this interdisciplinary work is very uneven across regions and communities and typically short-term (less than 2 years). How can NSF and other funders change the funding streams and the decision process for competitive research that encourages partnering with small and rural communities over a longer period of time? This shift in funding stream would help communities realize potential co-benefits of developments while building capacities that address coastal resiliency.

11. Regarding toolkits and models, the participants found that there are many effective tools and models, however, for small and rural communities, there is often neither the capacity nor time to apply these models and tools. How can expert networks provide more extension services and continuity of assistance while also making the tools/models more 'adaptive'? How can they be applied more effectively at the local level so as to reflect distributive values and changing conditions and needs over time?

1 Reference: Keynote presentation of Dr. Melissa Finucane

Best Practices

Build on successful models such as Sea Grant and RISA (funders)

Legitimize diverse knowledge – epistemic communities (society)

Appreciate diversity in communities and in stakeholder groups within communities (society)

Incorporate flexibility into systems (society)

Institute meaningful and not diffuse engagement (government, developers)

Establish cultural liaisons (developers)

Form long-term relationships with towns, with a pipeline of funding and technical expertise (researchers)