

Engaged, not embedded: Hubs as transformative forces that integrate people and science through long-term engagement

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1) Why is long-term community engagement essential and why should it be part of a Hub?

A central emerging theme from the National Science Foundation's Coastlines and People (CoPe) Scoping Session is that the people most affected by coastal change must be part of the scientific process. Often, those expected to use and apply scientific knowledge are not involved in setting research priorities, or generating that new knowledge. Another emerging theme is that this scientific process should integrate diverse communities and stakeholders to optimize effective and equitable decision-making. The accelerating pace of coastal change and its associated uncertainty also requires a long-term perspective. These three factors necessitate sustained community engagement as an imperative component of CoPe Hubs. We propose to achieve NSF's ambitious CoPe objectives through the use of Hubs by: (1) making science inclusive and integrated, not simply peripheral to coastal communities; and (2) connecting long-term community engagement with the basic research that forms the basis for understanding and attributing environmental and social change. In doing so, individual Hubs serve as a flexible structure that provides a framework for context- and system-specific research that feeds into a broader network. This network is designed to transform understanding of the interactions between people and the coast.

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To achieve these objectives and overcome the associated long-standing challenges, we argue that long term community engagement be identified as a fundamental component—not merely tangential, aspirational, or an afterthought—of the Hub structure.

2) What is 'long term' and what is and who is part of a 'community'?

A community is a unified group of individuals. CoPe Hubs can be transformational by creating an environment that builds trust among the many members of that community. Community members have diverse experiences, affinities, and interests, many of which are overlapping. These include, but are not limited to, scientists, decision and policy makers, practitioners, and underrepresented groups. The groups are intended to be translational, and can be both local and regional.

Long-term community engagement is critical for scientific research to be useful for both place-based decision-making and broad knowledge creation. Sustained, committed, and intentional engagement must be a fundamental component of decision-making that will be effective for building the resilience of complex coastal systems and coastal communities. Investing in the

development of long-lasting relationships among local communities creates reciprocal lines of communication among researchers, decision-makers, local citizens, and others. CoPe Hubs act as physical, topical, and virtual spaces to facilitate this interaction and dialogue among varied groups.

3) What are the essential Hub characteristics to effectively integrate diverse perspectives?

Diverse perspectives are at the heart of transformative, meaningful solutions to coastal challenges. An intentional investment in flexibility, connectivity, continuity, expertise, and trust are critical components in ensuring long-term engagement and participation.

a) Flexibility: Place and context define engagement efforts. What works in one area or for one research question may be completely ineffective for another. Hubs should maintain the flexibility to adapt to changing contexts. In other words, the Hub should provide the backbone and essential structure, but the network of partners and approach should be tailored to the audience and needs. For example, while a Hub can include a community of engaged scientists, practitioners, and local stakeholders, the problem would define which partners would work together to both define and address particular needs. This approach ensures both appropriate scale and scalability. Drawing on the Hub network, NSF can tap into a broad range of expertise and partnerships to promote meaningful and sustained engagement.

b) Connectivity & continuity: We envision Hubs as a “network of networks.” Many effective partnerships are already in place that include invested stakeholders from beginning to end, from defining research priorities and shaping questions to building shared solutions. NSF is in an ideal position to leverage these existing relationships and give them even more impact. A Hub infrastructure should foster continued connectivity between these organizations and to a broader learning network. Moreover, a Hub provides the infrastructure for sustained involvement of these valued partners.

c) Expertise: The challenges facing coastal environments and communities are complex and inherently require a broad range of interdisciplinary expertise. Expertise can come in many different forms (natural science, social science, local or traditional knowledge, and practitioner perspectives), and often defies traditional academic disciplines. A Hub structure provides the opportunity to meld and synergize these different perspectives, facilitating the identification of common ground and accelerating new discoveries. Hubs will be a safe space for information-sharing; this novel combination of approaches fosters innovation. Ensuring representation throughout research process fosters both creativity and investment in long-term solutions.

d) Trust: Building trust between working partners takes time, effort, and resources. Nothing meaningful can be accomplished without trust – it is the foundation of credibility and effective partnerships. A recent study by Google shows that the single most important factor to effective

teams is psychological safety – the feeling that your voice can be heard. Hubs promote long-term engagement by providing a space for storytelling and new narratives that spark partnerships and novel ideas.

4) How do we get there? Our proposed Hub model requires NSF to recognize the following issues:

- Building trust and effective partnerships requires time. Durable, sustained funding is thus essential to support long term engagement that can lead to transformational solutions.
- A model for design of the Hub system must address the need for long-term engagement whether Hubs are ultimately thematic, regional, virtual or some combination.
- A model for Hubs must integrate sustained long-term community engagement as a primary objective while simultaneously allowing for flexibility in how each Hub designs its own engagement mechanisms and processes.
- The long timeline required to translate research to operations and policy.
- Specific metrics and monitoring processes must be developed that will facilitate ongoing evaluation of each Hub’s long-term engagement efforts.