

Research Statement

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Information technologies in planning and policy analysis have increased the types and quantity of data in environmental and natural resource management. These include new mapping systems for collecting, sharing, and visualizing data. In particular, the emergence of civic technologies provides new avenues for citizen science, volunteered geographic data, and new modes of representing public values. As these technologies have intersected with our democratic systems of resource management, they are often accepted as progress. However, a critical questions remain: How do these new modes of involvement and new forms of expertise change the outcomes of our policy processes? As more voices and ideas enter the policy deliberation via these technologies, how are trust and legitimacy affected? My research explores these questions through the examination of coastal and marine spatial planning and disaster planning for coastal communities.

My research is situated in two theoretical framings. The first is science and technology studies (STS) to understand technology and the practices of science as a social process in the political system. This includes reliance on theories of boundary organizations and objects to explore the transmission of information in the science-policy interface. The second is public administration, where I draw on theories of governance, public involvement, and representation to understand how changes impact the policy and administrative processes. My dissertation examines the case of coastal and marine spatial planning (CMSP) for ocean renewable energy off of the Oregon coast to explore these questions. The state planning process relied on an extensive public participatory geographic information system (PPGIS). Through interviews and content analysis of hearings and agency work sessions I explored the tensions of rational planning approaches struggling with political values. PPGIS attempted to make planning “post-political” – a technical exercise. In doing so the technology attempted to shift value debates to data definition debates. I have found that despite this tension, both planners and communities remain committed to this modernization effort. This suggests that the institutional commitment to technical solutions is one that pervades both the regulated and regulator communities.

In addition to my dissertation research on CMSP I have also partnered on an interdisciplinary ecology and natural resource team funded by Oregon Sea Grant to assess statewide public opinion and values for ocean resources. I designed and implemented two surveys to explore statewide opinions regarding Oregon's Marine Reserves program. The first was a random sample survey that found support was strongly correlated with levels of concern about ocean health and human use intensity over other predictors such as political affiliation or proximity to coastal areas. This research included a second convenience sample survey. This sample used a larger set of questions exploring environmental attitudes, civic engagement, ocean health concerns. I also included in this survey a participatory mapping exercise that collected over 11,000 points on the Oregon coast. The first sample, has been analyzed and is in process of being submitted for publication. The second sample I used to explore the individual attitudes that influence levels of support for marine protected areas as well as the spatial relationships of areas of value mapped on the

ocean. This is one of the first uses of an extensive paired attitudinal survey with a participatory GIS survey tool.

My goals for future research center on investigating how resilience planning efforts in disaster and hazards management are adopted by local and state government. While resilience has seen rapid acceptance as a concept, operationalization of the concept as a planning tool has not kept pace. I initiated this new line of research through an interdisciplinary grant funded project. I was a co-PI on an Oregon Sea Grant resilience grant funded project to explore the implementation of an asset based approach to disaster planning for three small communities on the Oregon Coast. Asset based approaches to hazard planning start with a series of questions focused on what communities value. Through interviews with leaders and stakeholders, I identified the defining characteristics for each community and steps that could be taken to protect and improve the quality of life. Some actions related to the threat of the tsunami, while others were focused on current concerns around housing, health care access, and workforce recruitment. After identifying key actions to take, I developed a willingness to pay survey administered to residents and coastal visitors. This analysis found local residents, vacation home owners, and visitors were willing to pay for resilience actions, though not enough to fully fund the projects. This provided policy recommendations for community resilience investments.

I will continue my hazards and resilience research with a focus on local planning efforts to improve community resilience. This includes a project to conduct a plan review across communities to assess how local and state planning efforts are creating or inhibiting resilience outcomes through public investments and regulatory choices. Initial work on this research has started with funding through a partnership with the University of Hawai'i for the Federal Emergency Management Agency. This work is part of my commitment to connect theory to practice, by producing outcomes that assist the communities that host my research. I have also just initiated a study with two colleagues at Portland State to assess the non-profit sector's ability to cope with disasters. I have designed a survey instrument to distribute to several hundred human and social service non-profits in the Portland metro region. This project is a partnership with our City Club of Portland, a civic non-profit organization with an engaged research mission.

My dissertation and disaster planning research rely on content analysis of written and audio records as well as semi-structured interviews. My research on marine protected areas uses multi-mode surveys and regression modeling for analyses. I have benefited from partnering on several research projects at Portland State University with faculty in other colleges and schools. These team efforts produced more engaging research questions, and allowed for applied research projects that collaborated with communities in Oregon.

In the next year, my publication development will focus on the research projects shared here. First, the marine protected areas geographic dataset will result in a publication examining the individual determinants and geographic values that inform support for expanding marine protected areas. My dissertation research will result in two publications focused first on the role of participatory technology in public administration and a second on the shift in policy processes where collaborative data science is used as a medium for negotiation and deliberation. I have a manuscript under revision that is based on my tsunami resilience research.