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Material expertise: An ontological approach to stakeholder participation in marine policy

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ABSTRACT

This paper utilizes the work of Bruno Latour to develop an ontology for the development of non-credentialed expertise. In the field of marine policy studies there is a wide body of scholarship advocating the importance of including stakeholder knowledge in the formation of public fishery policies. Despite the many calls for increased stakeholder involvement in fisheries and marine policy development, there remains a relative lack of scholarship that explores how the stakeholder expertise develops and how its quality might be assessed in policy settings. Employing Latour's concepts of material mediation, translation, and inscription to describe the connections between materiality, experience, and expertise this paper offers an ontological explanation of what constitutes non-credentialed expertise. By analyzing the Snook and Gamefish Foundation's deployment of non-credentialed stakeholder expertise in two Florida fisheries management debates from an ontological perspective this paper suggests a materially oriented heuristic for identifying and evaluating stakeholder expertise in marine policy settings.

1. Introduction

Despite long-running advocacy for the value of 'lay expertise' in matters of public deliberation and many calls for increased stakeholder involvement in environmental policy settings such as fisheries management, evaluating and utilizing the expertise of non-credentialed stakeholders remains a vexing task. This paper suggests that at least one root of this difficulty stems from the relative lack of scholarship that interrogates expertise ontologically. While epistemological analyses of non-credentialed stakeholder expertise have done excellent work to explain *what* lay expertise is, and *why* it is important to environmental policy deliberation, they ultimately neglect *how* such expertise develops. Without thoroughly exploring the ontic process of how non-credentialed expertise is formed, the development of actionable heuristics for qualifying the value of non-credentialed expertise and for integrating that expertise into policy development are also likely to remain uncharted.

This paper employs Bruno Latour's concepts of material mediation, translation, and inscription to develop an ontology that describes how non-credentialed stakeholder expertise develops. By describing the deployment of non-credentialed expert knowledge in terms of the relationship between material agency and stakeholder experience, this paper argues that a material ontology of expertise provides a non-normative means of qualifying expertise in matters of technoscientific deliberation such as marine policy. This material ontology of expertise is demonstrated by following ways that the Snook and Gamefish Foundation (SGF), a conservation group participating in the public policy deliberations surrounding Florida's Spotted Seatrout and Common Snook fisheries, was able to transmute non-credentialed stakeholder expertise into successful policy intervention. Finally, by contrasting the SGF's successful implementation of a more materially oriented approach to stakeholder expertise in the Snook fishery debates with their relatively subject-oriented failures in the Seatrout debates, this paper suggests a materially oriented heuristic for identifying and evaluating stakeholder expertise in marine policy settings.

2. Theoretical background

Frequently understood in terms of phronetic knowledge [31], tacit knowledge [5], experienced-based expertise [4], or lay expertise [21], environmental policy studies have worked to detail the epistemology of such knowledge [3,6,19,38], as well as that expertise's value to development and implementation of environmental policies [1,23,24,31,39]. However, the ontological assumptions concerning stakeholder knowledge have gone largely uninterrogated. By approaching non-credentialed expert knowledge as a process, an ontological account of non-credentialed expert knowledge demonstrates that expertise is an emergent process rather than as a 'ready made' that is either possessed or not. By detailing *how* expertise emerges from experience, the work of Bruno Latour suggests new ways of assessing the quality of non-credentialed expertise and of operationalizing that expertise into

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policy deliberation.

2.1. Epistemology of non-credentialed expertise

In Science and Technology Studies (STS) and its subfield, sociology of scientific knowledge (SSK), two of the dominant focal points for the analysis of lay expertise are its epistemological origins and its use-value in matters of techno-scientific deliberation. Although watershed studies of expertise in the public sphere by Wynne [50] and Fisher [7] primed public expertise as an issue of study, the work of Collins and Evans [4] and Irwin and Michael [22] perhaps best represent the epistemological analysis of expertise located outside of traditionally sanctioned systems; I will refer to this as 'non-credentialed expertise'.

Reflecting on the treatment of expert knowledge in SSK, Collins and Evans (2002) suggest that the origin of both credentialed and non-credentialed expertise be understood as based in experience. Although Collins and Evans are clear that experience "cannot be the defining criterion of expertise," they are adamant that the kind of "specialist abilities" [4] that emerge from prolonged experience with technical matters does warrant recognition as expertise. Once a person or group of people, by virtue of their technical experiences, can demonstrate or exercise "enough experience to contribute to the science of the field being analyzed," they can be recognized as processing "contributory expertise" [4]. Speaking on the epistemology of non-credentialed expertise, Irwin and Michael further develop the informal origins of expertise. Once again drawing on the SSK platform that "all knowledge is derived from its particular cultural and social context" [21] and reaffirming Irwin et al.'s 1999 observation that "local people actively create forms of understanding as they negotiate the conditions of every day life" [22], Irwin and Michael [21] dissolve the boundaries between formalized scientific expertise and that of non-credentialed publics. Through their concept of "lay epistemology," Irwin and Michael note that, like their legitimized counterparts, non-credentialed publics are often "engaged in a complex of judgments about trustworthiness, credibility, usefulness, [and] power" [21]. Irwin and Michael's combined focus on the contextual origins of expert knowledge and their embrace of the public's ability to critically reflect on that knowledge allow them to frame non-credentialed publics as "experts in areas of everyday experience" [21] worthy of both legitimation and utilization in technical discourses.

2.2. Stakeholder expertise

Environmental policy studies have utilized these developments on non-credentialed expertise to offer a wide body of scholarship advocating the importance of including stakeholder knowledge in the formation of public policies. Scholars have continued to explicate the social and contextual epistemology of stakeholder expertise [3,6,19,37], as well as stakeholder expertise's value-added to development and implementation of environmental policies [1,23,24,31,39]. For environmental policy scholars, stakeholders possess valuable expertise concerning their experiences and practices with and in their local ecosystems. Scholars of marine policy have been particularly active in exploring and describing the value of incorporating stakeholder expertise [18,20,25,32,48]. Within marine policy studies, scholars are deeply invested in developing theoretical frameworks for the integration of stakeholder expertise through concepts such as co-management [2,23,48] and co-production of knowledge or participatory research [25,26,39,49]. Advocates of community-based approaches to marine policies make compelling cases for how the input of local stakeholders can improve the sciences undergirding policy [48] and the quality of governance established by policy [33]. Common among these arguments is an understanding that in issues of marine policy, the knowledge of stakeholders such as fisher peoples – both local and indigenous – does possess technical, objective merit [26,37,38,48].

However, despite this scholarship's breadth, depth, and quality, integrating the expertise of non-credentialed stakeholders remains a difficult task. The integration of non-credentialed expertise faces serious challenges in terms of finding common ground between stakeholders, scientists, and policy makers for communication within complex techno-social systems, of overcoming deep cultural differences and perceptions, and addressing grave ethical issues of access, legitimacy, and power [32,34,47]. Even though the epistemological origins of stakeholder expertise in environmental policy settings have been well explicated and its use-value well advocated, its application remains problematic.

And why shouldn't it? Collins and Evans' [4] warning about the dangers of depending too heavily on experience as the primary criteria for expertise is difficult to heed. The vast spectrum and intensity of human experience makes delineating the event horizon of "enough experience to contribute to the science" [4] a serious quagmire. The danger of sinking too deeply into the quicksand of experience as the foundation of expertise is made doubly perilous when the environment is the focus of study or debate. Additionally, in marine policy settings such as fisheries management, the stakes are heightened by crises of ecological health and resource abundance. When the intractable complexity of ecosystems is paired with the infinitude of human subjective experiences, demarcating valid perspectives from extraneous ones is a Sisyphean task and yet a vital one. This is also one of the lasting lessons of Wynne's much celebrated study of the Cumbrian sheep farmers: in the end the non-credentialed experts and the credentialed experts were not able to communicate well [50]. While STS, SSK, and environmental policy scholars are aware of and actively engaged in addressing this difficulty, I believe that at least one obstacle emerges from an ontological gap in the scholarship on non-credentialed expertise. The ontic process of *how* the experience of non-credentialed stakeholders becomes expertise has gone largely unexplored. Without attempting to understand *how* expertise emerges from experience, actionable heuristics for qualifying non-credentialed expertise and for integrating that expertise into policy development will remain underdeveloped.

2.3. Latour and expertise

Bruno Latour's work to describe the ontological activity of science draws explicit attention to the importance of science's mundane activity. Reversing the common paradigm of scientific-objectivism, Latour signals that science's objects of study are not simply its subject, but rather its product. While Latour's focus on scientific knowledge as product may, at first, resemble a rehashing of SSK's privileging of contextual practice, his focus on the materiality of that practice represents a significant departure. The ontological activity that Latour and Woolgar, for example, explicate to describe how "phenomena *are thoroughly constituted by* the material setting of the laboratory" [30] is, here, valuable for better understanding the process through which expertise develops from experience. Latour's ontological concepts of mediation, translation, and inscription help detail a more precise understanding of *how* expert knowledge emerges from the experience of negotiating with the agency of the material world. This process-based approach to expertise demonstrates expert knowledge as a built product rather than as a 'ready made' that is either possessed or not.

2.3.1. Mediation

The importance of materiality's influence on the construction