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The power of participation: Challenges and opportunities for facilitating trust in cooperative fisheries research in the Maine lobster fishery

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ABSTRACT

Recent paradigm shifts in fisheries science have emphasized the need for cooperative research to address sustainability challenges by bridging epistemological differences between scientists and resource users and promoting power sharing in the production of knowledge for a more holistic understanding of the marine environment. To address the question of power-sharing, this paper explores motivations, perceptions, and personal experiences of Maine lobstermen involved with various types of cooperative fisheries research (CFR). The main finding is that distrust between stakeholders is a persistent challenge, as shown in other research. However, a lack of trust may also sometimes serve as a motivator for participation, particularly where fishermen anticipate the threat of increased regulations. In cases where policies are top-down (e.g. Federal regulations like Endangered Species Act), fishermen are aware of a certain powerlessness despite the degree to which cooperative research involves their input. This reinforces their skepticism that often stifles the ability of researchers to build meaningful relationships, especially in projects with short life spans. Fishermen value personal relationships with researchers based on mutual respect that have been built over time, regardless of the type of research. The findings suggest that a better understanding of these personal relationships and power dynamics could guide researchers in the process of building trust and facilitating transparent communication between groups to overcome persistent barriers in CFR, address sustainability challenges in the fishing industry, and promote more power-sharing between scientists, managers, and industry members.

1. Introduction

Cooperative fisheries research (CFR) is often exalted as a paradigm shift to address sustainability challenges in fisheries science. Researchers increasingly recognize that disparities in perceptions about problems and solutions among scientists, fishery managers, and fishing industry members can result in misunderstanding, resentment, and distrust [1–4]. CFR, described as scientific research conducted in partnership with the fishing industry, gives attention to the value of fishermen's knowledge and experiences in decision-making [5,6]. Simultaneously, it aims to increase transparency and facilitate communication among all stakeholders [7,8]. Thus, CFR presents opportunities to bridge epistemological differences between scientists, managers, and fishermen while promoting collaboration and the co-production of scientific knowledge about the complex marine environment.

Despite a rich history of cooperative research to promote collaboration and address issues in fisheries management [8–10], distrust still exists between fishermen, managers, and scientists [11]. Little attention has been given to deciphering the sources of distrust and understanding fishermen's motivations for, and general perceptions of, participating in CFR. Most studies have focused on specific CFR project outcomes. Moreover, few studies have examined the spectrum of participation that exist in CFR [12], or how these forms of participation may have implications for CFR project outcomes. A more qualitative understanding of these complexities may guide researchers in their efforts to build trust and meaningful participation in CFR.

This paper reports on results from interviews exploring fishermen's general motivations and perceptions of CFR as a part of an interdisciplinary sustainability science project investigating the social, ecological, and economic dimensions of bycatch in Maine's lobster fishery. The overarching research objectives were: (1) to strengthen existing industry-researcher partnerships; (2) to understand diverse stakeholder perspectives of CFR; and (3) to explore the viability of participation by fishermen who feel distrustful of scientists and management. In

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exploring why fishermen participate in CFR, even if it may jeopardize industry interests, this paper suggests that distrust itself may be a motivating factor for fishermen.

1.1. Cooperative fisheries research: opportunities and barriers

Many social scientists and fishery scientists argue that fisheries management could be enhanced if researchers draw upon a more holistic understanding of the social-ecological complexity that characterizes the marine environment. Researchers and managers increasingly recognize the importance of local ecological knowledge and stakeholder engagement in fisheries research [8,13,14]. This form of research has both ecological and societal objectives. It can improve the quality and quantity of spatial, temporal, and categorical ecological data, as well as increase capacity-building within stakeholder groups, resolve differences between fishermen's knowledge and scientific knowledge, and foster relationships based on trust [8,15].

Studies on CFR suggest that trust, communication, and a sense of partnership between stakeholders are critical to successful project outcomes [14,16–19]. Moreover, CFR is often linked to policy changes and should seek the participation of those individuals who would be affected by such changes [12]. Participation is widely understood as stakeholders taking part in a project that may have outcomes that directly affect them their ways of life [12]. As part of a study by Feeney et al. [19], researchers solicited input in informal public meetings regarding the impacts of a decade of collaborative projects in New England. They found that stakeholders' perceptions of their participation the Northeast Consortium and NOAA research projects in the Northeast showed that fishermen perceived increased trust between fishermen and scientists due to engagement in CFR.

Despite some positive assessments of cooperative projects, other studies demonstrate that CFR still faces challenges to fostering trust between stakeholders [14,17,20,21]. Barriers to CFR, such as fundamentally disparate worldviews of fishermen and scientists, lack of validation of fishermen's knowledge, and concerns of confidentiality, can prevent stakeholders from working together to achieve resource management goals [22]. Moreover, fisheries science increasingly calls on fishermen to participate in research that may not always be in their best interest. Many fishermen feel that it is important for their knowledge and expertise to contribute to research, yet they are concerned with how the information will be used [7,11,12]. For example, fishermen who may contribute spatial data on species distribution or how often their gear interacts with bycatch may be providing information which will result in stricter regulations or fishery closures. These concerns are damaging to any potential stakeholder participation in CFR [8,11,14,17]. Politically sensitive topics, such as bycatch, further catalyze the formation of distrust and deter the development of cooperative linkages and participatory research [23].

New England has a long history of research collaborations involving cooperation between scientists, management and the fishing industry [9,19,24]. Simultaneously, the Gulf of Maine's commercial fishermen also experienced significant declines in commercially and culturally valuable species, which created tensions between resource users and scientists [9,14,25]. Specifically, fishermen's experiences with the groundfish crisis in the mid-1990s and the socioeconomic hardship that followed led to a divide between fishermen and scientists [10,19]. Fishermen's perceptions that scientists sought to reduce fishing effort during this time resulted in a decline in stakeholder participation in New England [11,19]. In an effort for scientists and managers to regain trust and increase the resolution of fisheries data, a 2006 reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act called for the development of regionally based CFR programs (U.S. Public Law 109–479, Title II, 318) to enhance pre-existing CFR projects. Since, scientists and the government have initiated various CFR research projects in New England [11,14,25], producing mixed results. Some projects have improved data collection and relationships between stakeholders [11] while other projects suffered from declines in participation due to the accumulation of distrust from other fisheries [14,17].

Mixed outcomes in CFR behoove scientists and managers to understand the many different forms of participation in CFR. The form of participation employed in CFR to engage stakeholders can facilitate or hinder future participation in projects [26]. Holm and Soma (2016:116) classify two forms of participation: (1) fishermen contributing to science, and (2) fishermen co-creating science. Some delineate between cooperative research and collaborative research; the former insinuating minimal levels of engagement and the latter characterized by engagement at all phases of a project [19]. Pretty (1995:1252) designates seven typologies of participation in her study of sustainable agriculture. The typologies range from “Manipulative participation,” characterized by participants with no power, to “Self-mobilization,” when individuals initiate participation outside of institutions or discussion with external agents. These various forms of participation originate from two schools of thought: (1) a way to increase efficiency of projects and reach agreement within a group, and (2) participation as a right which motivates individuals for collective action to achieve empowerment [26]. Typologies with lower levels of participation may provide useful information to the research conducted, but may have no lasting effect on participators' lives and may not co-generate knowledge [26]. Stakeholder perceptions of CFR projects in natural resource management were more negative when participation only included information-sharing and consultation, rather than when participation was interactive, problems were co-defined by stakeholders and external agents, or the project was initiated by stakeholders [26,27].

Given the politically sensitive nature of bycatch in fisheries and New England's conflicting history with resource decline and CFR, Pretty's [26] typologies are of particular interest to this study's overall aim of strengthening on-going collaborations and building trust and meaningful participation among various stakeholders. Building on interdisciplinary approaches pioneered by the burgeoning field of sustainability science [28], this study of perceptions about CFR contributes to interest in the participatory process in fisheries science (see for example, Silver and Campbell [12]) with additional insights for sustainability science focused on a knowledge-to-action approach [29–33]. Given what is known about trust issues in CFR and this study's central goal of strengthening partnerships between researchers and the fishing industry, this paper examines general perceptions and motivations for fishermen's involvement with various kinds of CFR. A focus on perceptions and motivations of participation may better explain the success or failures of CFR. Through this approach, attention to various forms of participation in formulating and conducting research will shed new light on how to improve cooperative study design and outcomes.

2. Study area

Maine is home to over 7280 state lobster fishery license holders and many fishing-dependent communities along its 3500-mile coastline [34]. The iconic Maine lobster fishery makes up 78% of fishery economic value in the state [34]. Not only are Maine fishermen economically dependent upon lobster, but their cultural identities and ways of life are tied strongly to the species [35]. Such dependence leaves fishing communities vulnerable to ecological and economic stresses [36]. The lobster fishery is split into state and federal management areas (Fig. 1). Maine Department of Marine Resources (DMR) manages the lobster fishery within 3 miles off the coast. Beyond the 3-mile line, the resource is managed by NOAA Fisheries. Regulations at both the state and federal level must comply with minimum regulations set by the Atlantic States Marine Fisheries Commission.

3. Methods

The research presented here was part of an interdisciplinary effort