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Fisher responses to private monitoring interventions in an Indonesian tuna handline fishery

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ABSTRACT

Information is central to the assessment and regulation of fisheries, yet underreporting remains a persistent problem, especially in the small-scale and developing country fisheries. Private actors, using a variety of enumeration approaches and technologies, have started to supplement government enumeration programs to meet a range of reporting obligations. This paper introduces a social practices approach to understand the response of fishers to private enumeration interventions. We base our analysis on the introduction of landing enumeration, fisher logbooks and Spot Trace devices by the Indonesian NGO, Masyarakat dan Perikanan Indonesia (MDPI) in a Fair Trade USA certified handline tuna fishery in Eastern Indonesia. The results show how a social practices approach offers a grounded understanding of responses to monitoring interventions that extends beyond conventional analyses of fishery-dependent data collection. The paper concludes that understanding data collection as a set of socially mediated practices that intervene in established fishing and landing practices can help to improve the design of fisheries data collection.

1. Introduction

Information is central to the assessment and regulation of fisheries (de Graaf et al., 2011; Gutierrez, 2017). Despite this, underreporting is a persistent problem in fisheries worldwide, and especially pronounced in small-scale, developing country fisheries that are often excluded from government monitoring programs (de Graaf et al., 2011; Salas et al., 2007). This exclusion is often attributed to poor government resources and the remoteness of fish landing sites (Béné et al., 2010). As a result, the formulation of relevant policies and consequent market access for these fisheries is hindered and their contribution to livelihoods and national wealth is poorly understood (Béné et al., 2016; Pauly, 2006).

Recognizing these challenges private actors, including both industry and Non-Governmental Organizations (NGOs), have developed monitoring programs that provide data on both large and small-scale fisheries (Bush et al., 2017) (see Fig. 1). Several private efforts use information technologies to digitize data collection efforts, with the goal of increasing the coverage of fisheries at lower costs and higher precision and accuracy (Toonen and Bush, 2018). Yet despite the perceived potential of these private (information technology-based) monitoring programs, there is limited understanding of how fishers respond to these interventions in real life settings. Instead research has almost exclusively focused on the structure, funding and precision of government enumeration programs, including the importance of feeding back data to fishers (McCluskey and Lewison, 2008; Prescott et al., 2016; Schroeter et al., 2009). A common feature of this research is also the portrayal of fishers as skeptics of new technologies or new forms of monitoring and surveillance (Acheson, 1981; Eayrs et al., 2014; Mangi et al., 2015).

To better understand the role of private (and therefore voluntary) interventions we introduce a new research framework that goes beyond traditional social scientific categories of the 'perceptions' and 'willingness' of fishers to change to instead observe changes in the *social practices*. In doing so we argue for a shift from understanding participation in these enumeration programs as a rational choice to instead determined by the extent monitoring can intervene in routinized and socially mediated practices on the water and at the shore (Boonstra et al., 2017; Shove et al., 2012). By shifting attention from the intent of individual fishers to how they actually respond to and change their practices, we can provide more nuanced and valuable insights on what constitutes effective (private) monitoring programs for small scale fisheries.

Our analysis is based on a case study of a private monitoring program implemented by the Indonesian NGO, *Masyarakat dan Perikanan Indonesia* (MDPI) in the first Fair Trade USA certified fishery (Bailey

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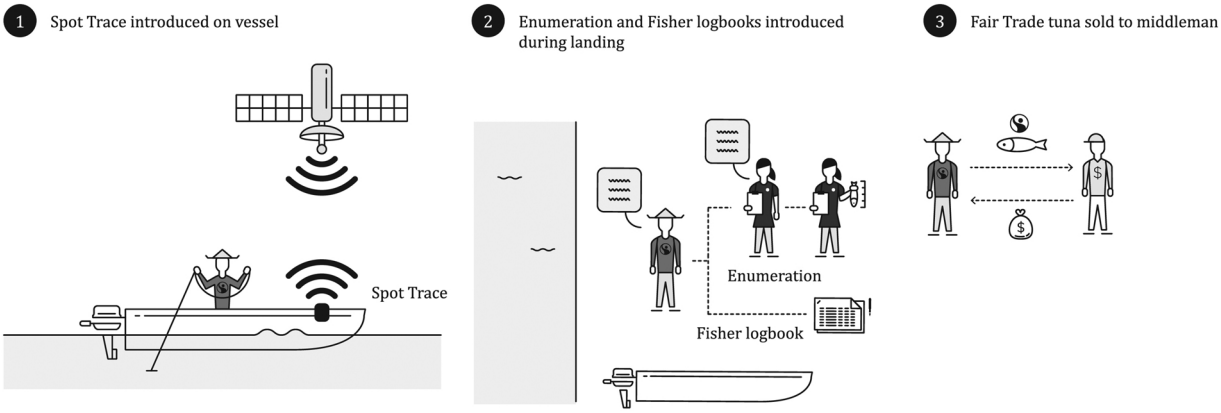

Fig. 1. Conventional understanding of the three monitoring interventions.
Source: This figure is based on principal author's fieldwork into the three monitoring interventions as well as on conventional rational choice perspectives on behavior and interventions (for applications in fisheries see Glass et al., 2015; Jensen, 2007; Mangi et al., 2015).

et al., 2016; Duggan and Kochen, 2016). To be Fair Trade USA certified fishers and supply chain partners must comply with the Fair Trade USA Capture Fisheries Standard, which specifies requirements for community development, human rights, working conditions, resource management and trade, including data collection (Bailey et al., 2016; Fair Trade USA, 2014). Using qualitative methods and a so-called 'role playing game', we analyze how and why fishers responded to and incorporated three successive monitoring interventions introduced to facilitate Fair Trade compliance into their daily fishing practices: (1) paper-based enumeration of fish landings, (2) fisher logbooks and (3) vessel-tracking 'Spot Trace' devices. In doing so we provide insights into data collection as not only a demand driven requirement for transparency and management, but also as a set of socially mediated practices that determine where, when, how and why interventions succeed or fail.

The following two sections outline the social practices intervention framework and methodology used to evaluate monitoring interventions and fishers responses. Section four presents the results of the monitoring interventions. The paper concludes with a discussion of the implications of our findings for the future development of monitoring interventions for small-scale fisheries.

2. A social practices intervention framework

Theories of social practices challenge assumptions of conventional approaches that analyze human behavior either in terms of the motives of individuals or the general structures that govern social life. Practice theorists consider shared and routinized practices, such as 'catching fish', 'trading fish' and 'processing fish', as the core units of analysis to understand human behavior and how it changes (Schatzki, 2002; Shove et al., 2012; Spaargaren et al., 2016). By focusing on how groups of fishers perform a variety of practices that constitute 'fishing and landing', it is possible to identify how, where and why they accept, reject or adapt interventions.

Policy- or governance interventions take on a variety of forms, and their characteristics affect the responses they generate. For example, monitoring interventions can be simple or complex, software or hardware related, easy or difficult to master, and put forward either by well-trusted or yet unknown sources or agents. Using a social practice perspective to study interventions means that we try to specify and assess the impact of the interventions on a number of circumscribed, well-established social practices. By mapping in detail what interventions 'do' to social practices it is possible to understand the responses they generate. To analyze interventions, three practice theoretical concepts were used to construct the social practices intervention framework (Fig. 2). Each of the concepts is elaborated further below.

First, social practices are reproduced and routinized in the everyday lives of knowledgeable and capable actors and, as such, are often taken for granted by the actors involved (Spaargaren, 2011). This infers that usually practices are done on 'auto-pilot', with little discursive reflection on the material and social conditions that shape these practices. For instance, 'fishing' comprises a series of social interactions and the application of technologies to find and catch fish. When a new technology or goal (such as transparency) is introduced into a practice, practitioners enter into a phase of temporary *de-routinization* of their daily practices, as they are forced to collectively deliberate whether and if so, how to best appropriate an intervention into established practices. When practitioners start to experiment with the new rules, goals or technologies, they gradually establish new or adapted (*re-routinized*) routines.

Second, the *performance* of social practices by practitioners are observable as five integrated *elements*. These are (1) the written or unwritten rules and norms that structure the practice, (2) the meanings or general understandings on what the practice is about, (3) the skills and competences needed to perform the practice, (4) the material objects and infrastructures that constitute the practice, and (5) the goals (or so called 'Teleo-affective structures') that give direction to the behavior of the practitioners (Schatzki, 2002; Shove et al., 2012). The effects of interventions on social practices can be analysed by looking at what they do to these different elements, both separately and in combination. For example, to assess the impact of a new fishing gear on fishing practices, attention should be given to the new skills required by fishers, as well as the impact of the technology on the goal of catching fish in combination with safety-at sea. The impact of a intervention depends on which elements are affected. For instance, a new fishing gear might have limited impact on the daily fishing routines. Alternatively, it might bring new goals, such as sustainability, as well as requiring a new set of skills (e.g. Haasnoot et al., 2016).

Third, responses to external interventions (such as new gear or an enumeration program) are not only dependent on the re-constitution of (elements of the) social practices, but also the degree to which the targeted practices are *embedded* - connected to and supported (or not) – in multiple adjacent social practices not necessarily related to fishing. For example, value chain practices such as processing, packaging, labelling, and trading, as well as non-fishing practices like running a family, practicing a religion and invigorating the local community relate to and influence the targeted fishing and landing practices. Embeddedness within wider sets of practices depends on the number and kind of *linkages* with other social practices that are created, broken or reinforced. For example, a monitoring intervention can take the form of an emerging 'reporting practice' that neatly fits the existing configuration of practices and their dynamics. Alternatively, new monitoring