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Making sense of complexity in risk governance in post-disaster Fukushima fisheries: A scalar approach

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ABSTRACT

This paper evaluates how geographical theories of scale can give a more robust understanding of the governance of complex environmental risks. We assess the case of fisheries in Iwaki City, Fukushima Prefecture in Japan following the 2011 nuclear disaster. Fisheries in Iwaki and Fukushima more widely are operating on a trial basis as understanding of the marine radiation situation becomes clearer, however questions remain over whether consumers will buy produce and to what extent full-scale fisheries will resume. Based on empirical fieldwork undertaken in Fukushima plus supporting documentary analysis, we construct a scalar account of post-disaster Iwaki fisheries. We use this to argue that framing post-disaster fisheries governance at the municipal scale rather than the prefectural scale has opened up opportunities for enacting the more two-way forms of risk governance that contemporary environmental issues may require. We also argue locally-situated 'experts' (e.g. fisheries extension officers and citizen science groups) play a key role in negotiating citizens' and fishers' relationships with larger-scale scientific discourses due to their ability to work across scales, despite having less techno-scientific expertise than their national-level counterparts. In turn, we suggest that in governance of complex environmental issues, policymakers ought to (a) consider how community-level expectations may differ from risk governance processes developed at larger scales; (b) identify key institutions or figures who can work across scales and support them accordingly; and (c) show cognisance to the social effects that may arise from spatial demarcation of environmental problems.

1. Introduction

The March 2011 Great East Japan Earthquake and Tsunami, which killed more than 15,000 people and left over 2000 missing, profoundly affected fisheries in north-east Japan. Significant infrastructural damage was caused to ports, fisheries buildings and fishers' homes, and boats were swept away. The effects of the earthquake and tsunami were compounded in Fukushima Prefecture by the triple meltdowns at the Fukushima Dai'ichi Nuclear Power Plant (FDNPP). 70–80% of released radionuclides ended up over the north-west Pacific Ocean (Yoshida and Kanda, 2012), finding their way into sea water, sediments and marine species (Wada et al., 2013).

With over 40% of sampled bottom-dwelling fish caught in Fukushima waters exceeding regulatory limits for radioactive caesium (Buesseler, 2012), all commercial coastal fisheries in Fukushima waters were stopped after the disaster. Whilst deep-sea operations have since resumed, coastal fisheries remain closed apart from small-scale trial fisheries. These trials, running at about 10% of pre-disaster capacity, are targeted at species in which radioactive caesium has not recently been detected and aim to move towards the restart of larger-scale fisheries by monitoring the sale of Fukushima produce in markets. As of spring 2017 over 90 species had been released for trial fishing operations in this way (Fukushima Prefectural Federation of Fisheries Cooperative Associations, 2017). Yet despite monitoring regimes broadly agreed to be scientifically rigorous and reliable, consumer confidence in Fukushima produce is divided (Mabon and Kawabe, 2015).

This paper takes as its point of departure a slippage in terminology observed in interviews with post-disaster fisheries stakeholders, between 'Fukushima' fish (landed at ports in Fukushima Prefecture as a single entity) and 'Iwaki' fish (landed in at ports in the municipality of Iwaki, the further south of Fukushima's two fishing districts (see Fig. 1)) – two different spatial scales for addressing what appears to be the same issue. This question of scale has not gone unnoticed in environmental governance thinking. Shi et al. (2012) propose a consilience model to differentiate the kinds of governance required at different scales for climate change. Boyes and Elliott (2014) hold that the complexity of marine governance is enhanced by the interests of different actors and

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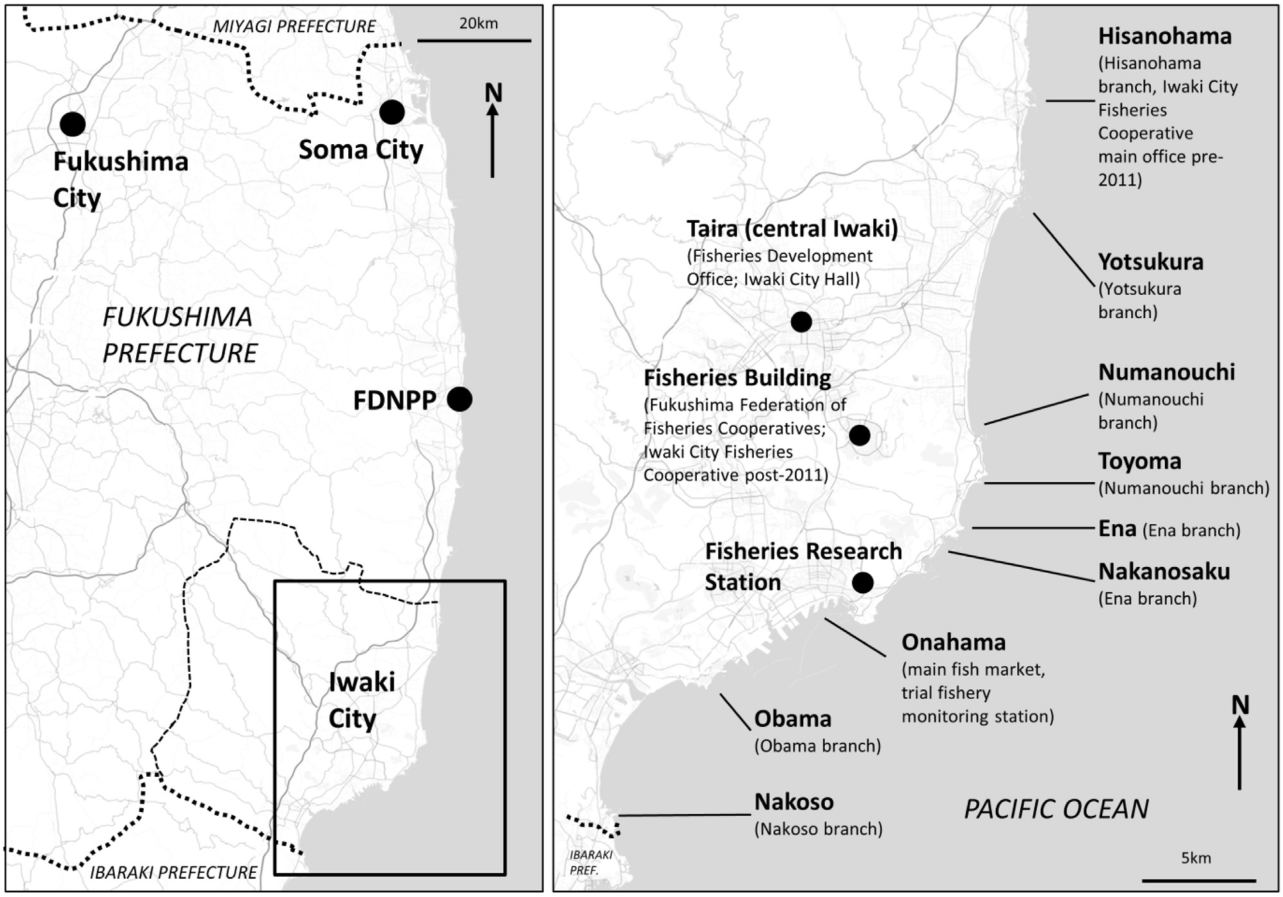

Fig. 1. Fukushima Prefecture and Iwaki City. Adapted from map tiles by Stamen Design, under CC BY 3.0. Data by OpenStreetMap, under ODbL, originally published in Mabon and Kawabe (2015).

institutions operating at different organisational scales. Building on this, through the case of post-disaster fisheries in Iwaki we suggest the scale at which the governance of an environmental risk such as marine radioactive contamination is framed may open up different management options and thus different societal effects. We argue that explicitly and specifically mapping out the involvement of actors involved in risk governance for a particular issue offers a systematic means of laying out and understanding complexity in environmental risk governance, and in turn helps identify pathways for the kinds of dialogue across scales that risk governance necessitates.

2. Spaces and scales of risk?

We set out the value of a scale-centered approach to understanding complexity in environmental risk governance, synthesising existing literature to argue that environmental risk governance happens across space, and that the spatial scale at which this governance is framed may engender particular social or political effects. Explicit attention to spatial scale, we suggest, may clarify the roles and aims of different actors within the risk governance process.

First, however, a reminder of what is meant by 'risk governance'. Pellizzoni (2003) characterises contemporary environmental issues through limitations in scientific knowledge, declining trust in 'experts' previously trusted to assess risks, and the potential for intractable conflicts to emerge. Such risks and decisions about their management nonetheless affect how people may live their lives and/or the environments and places meaningful to them, especially for energy or 'risky' large-scale environmental infrastructure (Bradbury, 1989; Wynne, 1992), hence can be seen as involving a significant value dimension. Partly because of this values-driven component, the requirement for risk governance has emerged, defined by Renn (2008) as a means of making decisions whilst balancing the range of societal perspectives on a given risk or set of risks. This does not mean 'anything' goes with regard to what may be considered a risk versus what may not (Klinke and Renn, 2002). Rather, it implies a value dimension to the underpinning knowledge (scientific or otherwise) used to inform decision-making (Duckett et al., 2015). The aim is to strive towards 'better' risk management decisions, sensitive to techno-scientific realities, but also the uncertainties inherent within these and the different value positions informing their interpretation. Rather than being one-way and top-down, effective risk governance is widely characterised as a dialogic process for evaluating different knowledge claims (Bradbury, 1989; Renn, 2008). By extension, 'risk communication' thus ought to be considered not as a one-way transfer of information from experts to citizens, but rather as the means through which discussions around these knowledge claims take place (e.g. Arvai, 2014; Kasperson, 2014).

For energy and/or environmental issues this risk governance relates to infrastructure or phenomena rooted in certain locations, hence the governance of risk will manifest itself in particular spaces or landscapes (Nadai and van der Horst, 2010). These landscapes in turn engender particular social effects. Blowers (1999) discusses 'landscapes of dependence' created around sites for nuclear waste disposal as a reflection of injustices, whereas Parkhill et al. (2014) evaluate 'landscapes of stigma' associated with undesirable infrastructure and note that residents may create their own alternative, more positive, narratives of place by way of resistance or response. This becomes all the more pointed for radioactive contamination, where the substance itself may be invisible (Pezzullo and Depoe, 2010) and yet can have profound effects on humans. These impacts transcend immediate health risks to include how others form opinions of places and the people within them