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Exploring a 'post-normal' science-policy interface for Integrated Coastal Management

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Abstract

This thesis is broadly about mobilising knowledge for the governance of the coast and specifically about the introduction of a 'post-normal' science-policy interface to Integrated Coastal Management. It begins by acknowledging the unique resource management challenges of the coast and follows the field of Integrated Coastal Management (ICM) as a widely endorsed framework for addressing these challenges. Contemporary developments in this field have seen ICM recognise the uncertainty, plurality and high political stakes characterising many issues on the coast and the attendant need to shift from models of 'management' to models of 'governance.' This thesis specifically engages debates on the epistemological implications of governance, which within ICM have led to calls to democratise the science-policy interface according to norms of dialogue, inclusiveness, integration and quality. Taking this as its point of departure, this thesis explores the 'post-normal science' perspective offered by Funtowicz and Ravetz, as a way of framing the science-policy interface.

This research began by viewing the complexity of coastal management through the particular lens offered by the model of 'interactive governance,' as a compelling perspective on ICM that is gaining credence. Interactive governance focuses on certain features of coastal management, and introduces certain measures of 'quality,' which were formulated into a novel evaluation framework for ICM. The research went on to explore how a 'post-normal science' approach may contribute to 'high quality' ICM, framed according to interactive governance. This occurred first via a literature review, and second through cross-scale empirical research. Internationally, the research followed the SPICOSA Project, as a Europe-wide focus on the science-policy interface for coastal management. Nationally, the research explored New Zealand's coastal management framework, mapping the emergence of new 'norms of governance' within the science-policy interface and their contribution to quality institutions, before interrogating three local-scale initiatives that gave effect to a post-normal science approach; in Whangamata, Waikaraka and Gisborne.

This research arrived at three key findings on the meaningfulness of a post-normal science-policy interface. First, that there are many ways to give effect to this approach, contingent on scale and context. Second, that this approach has significant potential for promoting high quality ICM according to measures of institutional quality and stakeholder interactional quality. And third, that the most significant threat to this approach is power; most notably the power of science to subsume other knowledge systems.

Preface and acknowledgements

My motivation for embarking on this research was drawn from a number of years working as a young coastal planner in New Zealand local government, and the problems that I faced. After finishing my degree in Resource and Environmental Planning, I found myself increasingly disillusioned with the messy and muddled decision-making that I faced on the coast, which departed so significantly from the 'scientific' process I had associated with planning. In conversations with other planners, I began to think reflexively on the way we managed the coast. I began to feel a degree of doubt; to what extent was I having any useful influence on the coastline, or the community that lived there? Increasingly I perceived the management regime that I worked within to be detached from the real coastal community and environment. I pictured a hulking 'coastal management machine,' operated by planners, that chugged away behind the locked door of the Council Chamber, and was only noticeable from the outside by the smoke and hot air shooting out the chimney.

I became uncomfortable with the way this machine addressed the uncertainty inherent on the coast, and condensed power within the hands of a few scientifically and legally literate 'technocrats.' I was frustrated by the fragility of the knowledge base on which decisions were built. In auditing Environmental Impact Assessments, I found it was less a question of finding the gaps in the knowledge, and more a case of finding the small islands of solid grounding in a sea of uncertainty. The knowledge foundation resembled rather an aggregate of fragile knowledge fragments, cemented together with gross generalisations. I found I needed to arrive at a hard line in the sand, sometimes quite literally, from very 'soft' knowledge. However, rather than recognise these uncertainties, the tendency was often to down-play them as unimportant. At the same time, I came to realise how many conflicting perspectives presented themselves within a coastal community, and the significant power planners wielded in determining which were admitted as 'legitimate' to the decision-making process. While pretending to some 'scientific determination' of stakeholders, these decisions could in reality be quite arbitrary and exclusive; admitting only those with a 'legally defensible' perspective. This revealed to me the planner's first duty was to uphold the integrity of the scientific and legalistic process, rather than the quality of the decision, or any subsequent outcomes. Those members of society not initiated in the ways of science or resource management seemed to be stripped of their power to turn the wheels of the machine.

However on the other hand, I also came to see that far from scientific, decision-making was fundamentally political. Local government technocrats were influenced by local politicians, who were influenced by their constituents. Because the issue or project was always so uncertain, it

could be legitimately framed in any number of ways, with power and political influence often the shaping force behind how the issue was finally defined and addressed. Decisions were more often based in personality and friendships of a local politician than any professional advice on my part. And though the decision could then progress to the Environment Court, this was rarely better because again the process favoured those able to communicate in that litigious court setting, or those with the wherewithal to employ legions of legal and technical expertise. I felt that if decisions were to depart from science, and be debated in a political arena, such arenas ought to at least take a more participatory form.

Then, finally, a realisation that the true power to shape coastal communities lay outside the Council Chamber; far beyond the huffing and puffing of the bureaucratic machine and the political masters. The coastal community was not determined by our rule-book, it was determined by the individual decisions and actions made by all of our constituents. Our coloured zones and coded rules did not have any omnipotent power to shape the destiny of the coastline; that was being constructed incrementally, every moment of every day, by the commercial fishers, the sand-dredgers, the local aquarium, and the family at the beach. No matter how tightly we drew our net of rules, activities would always slip through the gaps. Many people in our small community had no idea that the rules existed, and others did not accept them as legitimate. Our ideas of centralised control were illusory; collective decision-making, real collective decision-making, had to be considered as the collective sum of our community's different actions.

These three reflections served as both the normative motivation and means of orientating my research on better coastal decision-making. It begins from the personal realisation that a purely scientific process is untenable given the significant uncertainty associated with the coast, and undesirable given the exclusivity of a decision-making arena which places power in the hands of planners, consultants, and lawyers. It also begins from recognition of the power structures within fickle local government representative democracy, and the need to arrive at collective decisions a community can agree is legitimate, and not arbitrary. It seeks decision-making that gives equal consideration to principles of rationality and democracy. To this end, the thesis focuses specifically on the way knowledge can be mobilised in support of decisions.

This research was steered significantly by the lens offered by my academic and professional background in planning. As an inherently inter-disciplinary profession, a planner is often labelled as 'jack of all trades, master of none.' Significantly, I see that my professional background, and the focus on ICM as itself an interdisciplinary field, explains the way in which this research brought together a broad array of disciplines and bodies of thought, ranging from political science, to planning and resource management, to the philosophy of science. I see this as a strength, as it

reflects the complexity of coastal management, and cross-germination active in the social sciences and resource management. It constitutes an expression of the interdisciplinary and cross-scale kind of research and action increasingly demanded by coastal management.

However, I could not have completed this thesis alone. That this research has come to a culmination is testament to the huge amount of support that I have had over the past four years, across three different countries and tens of thousands of kilometres.

It began in New Zealand with a serendipitous phone-call to an old lecturer and friend Nigel Jollands, and then through the support of Ecological Economics Research New Zealand. Thank you to my lead supervisor Murray Patterson for his guidance in those early days when all things academic seemed...academic. Also a huge thank you to my co-supervisor Bruce Glavovic, who took me in after I turned up like an orphan on his doorstep, and provided an invaluable and formative influence throughout my tenure. I also need to acknowledge the Ryochi Sasakawa Scholarship, which was extremely generous, and particularly Jackie Koenders for her help. Still in New Zealand I need to thank my family for their patience and support through the high points and low. Thank you mum for actually reading my work, and putting a roof over my head when I needed it, and thank you dad and Lyn for taking a genuine interest in all things 'post-normal.' Also thank you to my friends and flatmates in Palmerston North and beyond.

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In August 2010, as I began to write the final chapters, I moved to Bergen in Norway. I went with many hopes but no expectations of what I would find in the cold 'North Way.' What I found at the Senter for Vitskapsteori was such an overwhelming welcome, compassion and support that I could not have imagined. This is truly a centre of excellence in every sense. Thank you Roger Strand for all of your help, and thank you Matthias Kaiser for taking me on and opening up a world beyond the PhD, which is filled with promise and new opportunities.

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