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An assessment for developing resilience capacity of Tasmanian coastal governance

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ABSTRACT

Scholars argue that conventional environmental governance approaches have not been effective in reversing or slowing the deterioration of coupled social-ecological systems (SESs). Recent research suggests that resilience thinking offers a useful framework to analyse problems in SESs and could help improve the effectiveness of associated governance systems. Much of the available literature explores this from a theoretical perspective, identifying advantages from resilience thinking to improve governance of SESs. This paper builds on this literature, creating a set of attributes that are used to assess the specific challenges of a particular multi-level Tasmanian coastal governance context, and thus clarify where intervention responses are best directed. In this context, a low level of resilience capacity was apparent across the entire governance system. At the national level, we determined that knowledge management and sharing processes, and the diversity of expertise were the only attributes contributing to resilience capacity, with other attributes insufficiently developed to support any level of resilience. The performance was similarly poor at the Tasmanian state level, with leadership, adaptive planning, organisational flexibility and a supportive legislation framework at critically low capacity. Inter-organisational attributes also required significant improvement. On the other hand, a regional natural resource management body and two coastal local governments demonstrated attributes supportive of resilience capacity, including aspects related to leadership, transparent decision-making, stakeholder engagement, organisational learning, knowledge sharing and flexibility. These findings confirm that resilience thinking can offer practical suggestions for how to improve governance of this, particularly challenging context.

1. Introduction

Coastal areas are transition spaces where land and marine ecosystems interact, and have become significant foci for ecological, social, economic, cultural, and political concerns. Like all social-ecological systems (SESs), coastal areas are influenced by multiple social and environmental drivers of change. In coastal areas, these drivers include sea level rise, coastal inundation, erosion, population growth, human development and climate change (Kay and Alder, 2005; Moser et al., 2012; Nobre, 2011; Valiela, 2006). In the last few decades, a variety of management-oriented instruments have been developed to respond to coastal problems including Integrated Coastal Zone Management plans (ICZM), shoreline management plans and marine spatial planning. ICZM – as a set of guidelines, principles, instruments and methods that informs sustainable coastal development – has emerged in response to the inconsistency of management activities in coastal areas (Clark, 1995; Fabbri, 1998; Harvey and Caton, 2010; Soriani et al., 2015).

Management, however, can be understood as the practical operation of decision-making that is determined by an overarching regime or context. Governance emerged as the preferred term to convey the complex relations determining this overarching regime (Dietz et al., 2003). It refers to the "interactions among structures, processes and traditions that determine how power and responsibilities are exercised, how decisions are taken, and how citizens and other stakeholders have their say" (Graham et al., 2003, ii). Research exploring governance has become particularly pertinent as institutional arrangements move away from decision-making, policy development, planning and management led by government towards a regime of lean government and multiple actors in society increasingly sharing power with governments in decision-making and program delivery (Stoker, 1998). Management is also perceived as having a semantic association with command-and-control decision-making mindsets, whereas governance has become associated with collaboration, adaptive capacity and devolution of control and responsibility.

The restrictions and limitations of a management-oriented mindset in addressing complex social and political problems have been widely

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discussed in the scholarship. Soriani et al. (2015) identify the drawbacks of application of ICZM in dealing with social and political complexity in the Mediterranean Sea and Black Sea area. Research indicates that management systems are more concerned about technical issues and finer scale implementation to achieve a particular outcome (Armitage et al., 2012; Ludwig, 2001; Pahl-Wostl, 2009). Issues such as insufficient appreciation of the complexity of social-ecological systems (SESs), uncertainties associated with social and environmental drivers of change, and domination of command-and-control approaches create particular challenges for effective decision-making, policy development, planning and management involving coastal areas (Craig and Ruhl, 2010; Kay and Alder, 2005; Nobre, 2011). Thissen (2010) indicates that a responsive coastal planning and management system should allow for representation of multiple stakeholder interests and cross-scale interactions, address scale mismatches, and accommodate the complexity of SES dynamics and uncertainty of changes.

With the recognition of the drawbacks of conventional environmental management approaches and the need for more collaborative attitudes in environmental decision-making, scholars have identified requirements for incorporating the concept of governance into environmental research and practice (Armitage et al., 2012; Ludwig, 2001; Pelling, 2010). New forms of environmental governance have emerged as a response to political, economic, social and ethical considerations in environmental decision-making and policy development (Adger et al., 2003; Holley et al., 2011; Lockwood et al., 2010). Over the last few decades, variants of devolved, multi-level and polycentric governance have been widely recommended as a response to environmental and natural resource issues, including biodiversity conservation (Lockwood et al., 2014; Mitchell et al., 2015), terrestrial and marine protected areas (Lockwood, 2010; Lockwood et al., 2012), natural resource management (Clement, 2010), fisheries management (Allison et al., 2012; Jentoft, 2007), and coastal decision-making (Milligan & O'Riordan, 2007).

Rather than investigate the practical, managerial operations that underpin decision-making processes related to coastal governance, this paper therefore explores the potential that the concept of resilience and the framing of resilience thinking could deliver an appropriate mindset to establish a more effective environmental and coastal governance regime (Armitage and Johnson, 2006; Benson and Garmestani, 2011; Walker and Salt, 2006). We use resilience thinking to identify a set of attributes that might offer directions towards more effective environmental and coastal governance arrangements through improved consideration of system complexity, change and uncertainty, and cross-scale interactions (Berwick, 2007; Duxbury and Dickinson, 2007; Hopkins et al., 2011). We use these attributes to evaluate the overarching regime determining the processes and mechanisms of coastal governance in Tasmania, and thus offer directions for where interventions are required.

The next section (Section 2) introduces the concept of resilience and the framing of resilience thinking, and uses this to establish a set of attributes for coastal governance regime with improved in-built resilience capacity. We then outline the methods used to analyse Tasmanian coastal governance (section 3), and introduce the Tasmanian case study and its governance arrangements (Section 4). The findings (Section 5) are presented in three subsections: assessment of the importance of attributes for each of the key governance actors; assessment of the performance by each actor against these attributes; and what this means in terms of the resilience capacity of the Tasmanian coastal governance regime. This allows us to discuss broad strategies needed to foster improved resilience capacity (Section 6).

2. Resilience thinking and the design of a set of attributes for resilience-based coastal governance

Since Holling (1973) introduced the concept of resilience to the field of ecology, the idea has become a favoured approach in addressing multi-disciplinary contexts including urban planning (Alberti and Marzluff, 2004; Cartalis, 2014), disaster management (Boin et al., 2010), and coastal planning and development (Flood and Schechtman, 2014; Kaltenborn et al., 2017). During this time, resilience has evolved from a concept indicating an intrinsic property or feature of a system (Gunderson, 2000), to an approach for social-ecological assessment within a sustainability paradigm (Carpenter et al., 2001; Walker, 2005; Walker et al., 2004), and finally to an overarching “frame of mind” (Walker and Salt, 2012) and a “higher order thinking” (Fazey, 2010) that complements and could potentially replace the sustainability approach (Benson and Craig, 2014).

Conventional definitions of resilience concern the quality of responses that a complex self-organising system develops to adapt to drivers of change, as well as the capacity to bounce back and maintain its identity (Carpenter et al., 2001; Holling, 1986, 2001). In this respect, Holling (1996) discusses a distinction between system “resilience” and “stability”, where stability is a system's capacity to recover and return to its near equilibrium state after a disturbance, and resilience illustrates a system's “persistence” to maintain its identity and function (Gunderson, 2000; Holling, 1996).

Attempts to incorporate the concept of resilience in social-ecological analysis commenced in the early 2000s (Berkes et al., 2000; Carpenter et al., 2001; Holling, 2001). At that time, the notion of social-ecological resilience evolved from ecological resilience and was explained through heuristics such as the adaptive cycle and adaptive capacity (Carpenter et al. 2001, 2005; Folke, 2006; Walker et al., 2002). Social-ecological resilience aims to deliver a better understanding of system complexity and dynamics, reduce vulnerability, and enhance the adaptability of an SES to the uncertainty of drivers of change (Berkes et al., 2003; Folke et al., 2002; Walker et al., 2004).

With increasing recognition of the inevitability or desirability of fundamental system change, the idea of transformation and “bouncing forward” has also been incorporated into resilience definitions (Folke et al., 2010; Walker et al., 2004). To respond to the requirement for a more holistic, flexible and effective approach for dealing with drivers of social and environmental change and uncertainty, Walker and Salt (2006) coined the term “resilience thinking” to challenge the conventional fragmented thinking style in environmental and natural resource management, and indicate requirements for a broader, holistic and more inclusive “frame of mind”. Since then, resilience thinking has been widely appreciated as a useful overarching approach in environmental research and practice (Benson and Craig, 2014; Folke et al., 2010; Xu et al., 2015).

This framing of resilience thinking integrates the ideas of SES complexity (Cote and Nightingale, 2012), adaptability and transformability (Folke et al., 2010; Walker et al., 2004), and adaptive cycle and panarchy (Garmestani et al., 2009; Gunderson and Holling, 2001). Rather than “resilience” as a quantifiable “property of a system”, or a specific capacity to achieve a particular and planned outcome, “resilience thinking” addresses capacities, rationales, mechanisms and processes that enable adaptive and transformative decision-making in a governance system (Benson and Craig, 2014; Janssen et al., 2007; O'Connell et al., 2015; Walker and Salt, 2006). A number of terms have been used to indicate modes of governance that accord with resilience thinking, including adaptive governance (Dietz et al., 2003; Duit et al., 2010; Walker et al., 2004); resilient governance (Termeer et al., 2011); resilience governance (Walker, 2005) and resilience-based governance (Garmestani and Benson, 2013).

Research suggests that governance design for environmental and coastal SES can usefully be framed by resilience thinking (Sutton-Grier et al., 2015; Walker and Salt, 2012). The term adaptive governance could cause semantic confusion by giving exclusive emphasis to a requirement for adaptability and undermine the potential need to address system transformability. Resilient governance implies a mode of governance that is resilient in the face of change, rather than having the capacity to respond appropriately to change. This paper, therefore,