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Tourists' representations of coastal managed realignment as a climate change adaptation strategy

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ABSTRACT

In coastal destinations climate change adaptation is needed to address coastal erosion due to a combination of sea level rise and more frequent extreme weather events leading to loss of natural features and tourism infrastructure. Managed realignment is increasingly adopted as a strategy to address coastal change; however, this has often proved a contentious strategy with stakeholder groups. This study explores tourists' representational framework of managed realignment and how this frames understanding of the concept, understanding of how coastal resources might change and implications for future visitation. Data compiled using a questionnaire adopted a social representations theory perspective to analyse how collective tourists' ideas may serve to mobilise the public in various ways. In general tourists have a poor understanding of managed realignment anchored to historic coastal management strategies and contextualised by use values with consequent implications for tourism planning and coastal management decision making.

1. Introduction

As a climate-sensitive sector, the tourism industry is facing impacts due to climate change which will affect the attractiveness of many destinations (Jopp, DeLacy, Mair, & Fluker, 2013; Wong et al., 2013). Sea level rise is likely to have profound impacts on coastlines around the globe (Gurran, Norman, & Hamin, 2013) in locations highly important for tourism (Ergin, Williams, & Michallef, 2006; Houston, 2008) and many coastal destinations face severe erosion leading to loss of sand, land and tourism infrastructure (Mycoo, 2014). For example, a third of the English and Welsh coastline is currently protected by defences aiming to protect people and property from flooding and erosion (Greene, 2006). In recent years, governments have started to question the goal of defending the coastline at all cost and policy is gradually shifting from maintaining hard defences towards working with nature (Early, 2008). Holding the line is a cost intensive measure (Early, 2008; Greene, 2006) which is not feasible for every location in the long term.

Many of the destinations projected to be most severely affected by climate change and sea level rise are in the least developed countries, developing countries and small island developing states (Hinkel et al., 2013; Mycoo, 2014), which have low adaptive capacity (Intergovernmental Panel on Climate Change, 2014), therefore an increasing number of destinations are unlikely to be able to maintain engineered protection. In developed regions, such as the EU, coastal destinations with limited hard or soft engineering measures are often small and rural destinations where communities depend on tourism as a source of economic activity. In the UK, tourism is a key industrial sector (McEvoy, Cavan, Handley, McMorrow, & Lindley, 2008; Tourism Alliance, 2012) and seaside towns are a crucial part of this industry.

Managed realignment is a soft engineering approach to sustainably address coastal erosion through working with the natural process of coastal environmental change (Esteves, 2014). In many implementation contexts managed realignment has proved contentious with local residents since communities feel vulnerable to natural processes that impact on local assets (Myatt, Scrimshaw, & Lester, 2003a, 2003b; Roca & Villares, 2012; Ryan et al., 2012; Weisner & Schernewski, 2013). There has been comparatively little work exploring the implications of sea level rise for tourism assets (Scott, Simpson, & Sim, 2012; Weaver, 2011) despite the likely physical impacts being widely recognised in the fields of environmental science, oceanography and coastal engineering. In

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particular there is a lack of research on tourists' understanding of the strategic approaches, perceptions of likely changes to the tourism resource and implications for visitation patterns (Jopp, DeLacy, & Mair, 2010; Michailidou, Vlachokostas, & Moussiopoulos, 2016). This is a significant gap given that coastal areas are often economically reliant on tourism (Reddy, 2013, pp. 26–31; Scott et al., 2012) and the IPPC's 5th Assessment Report identifies this as a priority research area (Scott, Hall, & Gössling, 2016). Destinations have low adaptive capacity in comparison to tourists. It is therefore vital to understand how perceptions of change and management strategies might influence tourist behaviour (Jopp et al., 2013).

Moscovici's (1981) social representations theory is used to frame the research. This theory, developed in social psychology, is particularly relevant where people encounter and make sense of a new concept such as managed realignment. The theory focuses on how various understandings of a new concept are socially and contextually derived and take on particular meanings to social groups. The theory has been applied to the study of risk in other contexts where it explores how risk evolves, why particular representations emerge, become accepted and are symbolic to some groups (Joffe, 2003). The paper aims to explore tourists' representational framework of managed realignment and how this frames understanding of the concept, understanding of vulnerability of coastal tourism attributes and behavioural implications of changes for future visits.

2. Sea level rise, managed realignment and tourism

Tourism research on adaptation to climate change in coastal areas is relatively thin (Becken, 2013; Jopp et al., 2013; Scott et al., 2016) and research on climate change adaptation in general is less developed in tourism compared to other sectors (Matasci, Kruse, Barawid, & Thalmann, 2014). Sea level rise and an increasing number of extreme weather events will cause a loss of low lying land along coastlines and will cause erosion of beaches and cliffs (Hadley, 2009; Hamilton, 2007; Hinkel et al., 2013). These physical impacts will also impact ecosystems and society by causing a loss of habitat and beach resources through 'coastal squeeze' (Ryan et al., 2012), a process where physical structures, such as seawalls or roads, prevent natural realignment processes (Scott et al., 2012). Sea level rise is a long-term and gradual process, however, extreme events are short term and can alter a shore in the matter of hours (Scott et al., 2012). Considering the high likelihood of sea level rise in the future, impacts of extreme events will be exacerbated leading to socio-economic consequences (Hinkel et al., 2013; Sano et al., 2015). Erosion is a wide spread issue as about 70% of sandy beaches are eroding worldwide (Bird, 1985).

The vulnerability of tourism in coastal areas will depend on the levels of exposure, sensitivity and the adaptive capacity of the destination (Lane, Mercer Clark, Forbes, & Watson, 2013; Michailidou et al., 2016). Exposure refers to the extent of anticipated physical changes due to climate change, such as sea level rise, while sensitivity reflects the location characteristics that lead to differentiated impacts (Sano et al., 2015). Destinations with better adaptive capacity will be more able to respond to changes and this depends on a range of factors including social and economic resources (Sano et al., 2015). There is a need for climate change to be integrated into coastal management policies (Sano et al., 2015). This includes tourism which is not only physically, but also economically and socially vulnerable. Coastal management strategies seek to protect vulnerable areas from risks that may not pose a danger for decades and relatively little is known about people's responses to these strategies (Jopp et al., 2013; Ryan et al., 2012) and the implications for tourism demand (Scott et al., 2016).

Matasci et al. (2014) explored barriers to climate change adaptation in the tourism sector and found social feasibility was a significant barrier. This refers to stakeholders' difficulties in perceiving changes and grasping impacts, and their lack of awareness of adaptation measures. Society will be most likely to protect high value land, important infrastructure and cultural assets where possible (Scott et al., 2012). There are five coastal management policy approaches regarding sea level rise: hold the line; managed realignment or managed retreat; no active intervention (do nothing); advance the line; and limited intervention (Greene, 2006). All management approaches have different environmental, social and economic implications and one area may apply a combination of these approaches according to the characteristics of the location (Mycoo, 2014; Scott et al., 2012). In recent years, government policy has shifted from continuing hard defences (hold the line) towards working with nature (Early, 2008). In many destinations where beaches suffer from erosion, soft engineering measures such as beach nourishment are applied to not only protect the coast but also to maintain a sandy beach for tourism purposes (Hamilton, 2007; Phillips & Jones, 2006). Structural protection or hard engineering, such as rock walls or dikes, often interfere with development goals of resorts, affecting undisturbed sea views and easy access to beaches (Hamilton, 2007; Scott et al., 2012).

Managed realignment is a deliberate and planned strategy of realigning coastal defences though exact definitions vary. It can involve building new defences further inland, removing defences, or allowing existing defences to collapse to enable natural processes and can result in creation of new habitat (Esteves, 2014). Managed realignment can lead to coastal advance as well as retreat and a critical element is enabling more natural processes to operate (Esteves, 2014). It is crucial to understand and deal with pubic views for truly sustainable outcomes and low levels of awareness and understanding generate conflict (Matasci et al., 2014; Roca & Villares, 2012). Even where people are aware of managed realignment, the general public does not have well informed views, lacks understanding (Myatt, Scrimshaw, & Lester, 2003b, 2003a; Roca & Villares, 2012) and can view managed realignment as a cost saving measure rather than a practical solution (Myatt et al., 2003a). Here social feasibility (Matasci et al., 2014) is evident as a barrier. A previous term, 'managed retreat', which is now largely defunct, implies land is given up to the sea (Esteves, 2014). This potential for loss of land is contentious (Roca & Villares, 2012; Weisner & Schernewski, 2013) with local people's interests feeling marginalised in comparison to environmental concerns (Esteves, 2014; Myatt et al., 2003a). There are also practical implementation issues. For instance, Barbados has a setback strategy to regulate coastal development and allow natural beach zone expansion and contraction, but this can be compromised by the extent of existing tourism development and resistance of private owners (Mycoo, 2014).

Managed realignment can benefit tourism as the natural coastal environment is re-established, providing space for tourism and creating habitat (Hadley, 2009). Coastal ecosystems such as salt marshes, wetlands, beaches and dunes serve as natural protection from storm surges (Abel et al., 2011) and according to Greene (2006, p.4), "managed realignment will be the only truly sustainable coastal management option for this century and beyond". Areas with high tourism assets in urban contexts are likely to adopt a hold the line approach to sea level rise and this strategy dominates in the Mediterranean region (Roca & Villares, 2012) and Australia's Gold Coast (Sano et al., 2015), however, managed realignment is increasingly an option for rural areas where it may affect small scale tourism assets which are likely to be important for the region.

Environmental features are an important element of tourist decision making (Braun et al., 1999; Uyarra et al., 2005). Significant