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Blue space geographies: Enabling health in place

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ABSTRACT

Drawing from research on therapeutic landscapes and relationships between environment, health and wellbeing, we propose the idea of 'healthy blue space' as an important new development. Complementing research on healthy green space, blue space is defined as; 'health-enabling places and spaces, where water is at the centre of a range of environments with identifiable potential for the promotion of human wellbeing'. Using theoretical ideas from emotional and relational geographies and critical understandings of salutogenesis, the value of blue space to health and wellbeing is recognised and evaluated. Six individual papers from five different countries consider how health can be enabled in mixed blue space settings. Four sub-themes; embodiment, inter-subjectivity, activity and meaning, document multiple experiences within a range of healthy blue spaces. Finally, we suggest a considerable research agenda – theoretical, methodological and applied – for future work within different forms of blue space. All are suggested as having public health policy relevance in social and public space.

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1. Geographies of water and health

There has been a resurgence of interest in water within human geography. Recent writing on oceans, coasts and inland water bodies consider historic and contemporary relations between humans, water and the sea (Wylie 2005; Mack, 2011; Ryan, 2012; Anderson and Peters, 2014; Brown and Humberstone, 2015). New strands in cultural geography document water-based activities, practises and cultures such as surfing and diving (Merchant, 2011; Game and Metcalfe, 2011; Anderson, 2014). Yet this aqueous focus has an established literature in health geography. Relationships between water, health and place were central to early therapeutic landscapes research (Williams, 2007; Foley, 2010). Watering-places like Bath and Lourdes inspired Wil Gesler's development of a concept associated with the cultural production of places with healing reputations (Gesler, 1992, 1993, 2003). In health geography and environmental psychology, substantial literatures on green space environments emphasise their potential to promote health and wellbeing (Korpela and Hartig, 1996; Mitchell and Popham, 2007; Richardson and Mitchell, 2010; Mitchell, 2013; Mitchell, Pearce and Shortt, 2015). There are frequent incidental reflections of blue space within the green; in rivers, lakes and coasts (Herzog, 1984; Hansen-Ketchum et al. 2011; Richardson et al. 2013; Amoly et al., 2014). Traditional landscape 'gazes' are potentially shifting

horizons from green to blue, deepened through embodied engagements with waterscapes (Herzog, 1984; Strang, 2004; Wylie 2007; Anderson and Peters, 2014). The time is ripe therefore, to pay more specific attention to blue space and extend the scope spatially, methodologically and in inter-disciplinary ways as part of a broader hydro-social set of therapeutic geographies (Parr, 2011; Rose, 2012; Throsby, 2013; Budds and Linton, 2014).

The specific idea of *healthy blue space* has been bobbing around for some time within health geography. Research by the Blue Gym project in the South-West of England, has documented the value of the coast for citizen health and wellbeing (Depledge and Bird, 2009; White et al., 2010; Wheeler et al., 2012). Parallel research by the Bonn WHO Collaborating Centre for Health Promoting Water Management emphasised the same for inland water, especially 'urban blue' and established initial links to public health practise (Kistemann et al., 2010; Völker et al., 2012; Völker and Kistemann's, 2011) review of environmental health and blue space recognised literal and metaphorical components of 'upstream' health (Antonovsky, 1996). Historically blue space was central to the development of spas, baths and other healing water spaces across a range of cultures and settings (Smith and Puczkó, 2009; Foley, 2010). Experimental work in environmental psychology documented the restorative effects of water while more contemporary research identified experiential accounts of active and affective healing engagements and encounters in blue space (Herzog, 1984; Kaplan and Kaplan, 1989; Kaplan, 1995; Conradson, 2005a; Williams, 2007; Foley, 2010; Hansen-Ketchum et al., 2011;

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Rose, 2012). A re-discovery of water within wider public health is evident in the promotion of coasts, rivers and lakes as spaces of leisure, exercise and recovery (Andrews and Kearns, 2005; Conradson, 2005a; Wylie, 2009; Thompson-Coon et al., 2011). Such spaces can be explored at a range of scales, though critically, specific therapeutic encounters are always contingent and uncertain in their health benefits (Conradson, 2005a; Collins and Kearns, 2007; Duff, 2012). Finally, while green space research has gained traction in public health policy, we feel that blue space has similar potential for enabling health that has been significantly under-explored (De Vries et al., 2003; White et al. 2013).

What do we mean by healthy blue space? We suggest one definition as; *'health-enabling places and spaces, where water is at the centre of a range of environments with identifiable potential for the promotion of human wellbeing'*. The term blue is chosen given its established associations with oceans, seas, lakes, rivers and other bodies of water. We fully recognise the myriad shades and forms (grey, brown, dark, oily, muddy, clear) that are recognisable dimensions of water bodies at different scales. Despite these 'palettes of place', we suggest that blue is the colour most people associate with the medium (Strang, 2004). The colours green and blue blur in writings on healthy environments, though we see strong overlap between the two (De Vries et al., 2003; Coombs et al., 2010). Yet there are understandable place differences between parks or woods and lakes or oceans and such nuances are important to consider.

This special issue consists of six papers from Europe and Oceania that explore how blue space has been conceptualised and inhabited for a range of potentially therapeutic outcomes (Foley, 2010). Most draw from therapeutic landscapes research and develop the idea in theoretically focused ways. The papers primarily utilise qualitative methodologies though with some quantification (Völker and Kistemann). Two New Zealand-based papers (Coleman and Kearns; Kearns, Collins and Conradson), focus on islandness via different routes, namely ageing-in-place and carceral geographies associated with illness recovery (Randall et al., 2014). Papers from Denmark and Germany (Thomas; Völker and Kistemann) consider overlaps between green and blue space in European urban settings, where informants describe and evaluate the importance of blue space relative to the green; documenting place-specific components that inform how they are differently perceived and used. Two final papers from Ireland and Switzerland (Foley; Lengen), consider physical, emotional and imaginative wellbeing encounters with blue space. All are framed to consider their salutogenic potential, embrace the prospect of bringing the idea of 'blue space' into a public arena and reach out to other subjects, especially public health, psychology and urban planning, to develop a working agenda for contemporary and historic research on blue space as an enabler of health and wellbeing (Fleuret and Atkinson, 2007).

2. Writing healthy blue space

Therapeutic landscapes have been defined as, 'a geographic metaphor for aiding in the understanding of how the healing process works itself out in places (or in situations, locales, settings, milieus)' (Gesler, 1992: 743). Given many therapeutic landscapes have identifiable 'blue space' settings; the working out of healing processes in such spaces is a key starting point (Gesler, 1992; Williams, 1998, 2007; Foley, 2010). Wil Gesler's foundational work on the subject noted that; 'One particular aspect of the physical environment that has been a source of healing for many societies is water' (Gesler, 1992: 737). His studies of Bath identified well-established associations between the town's hot springs and its commodification as a healing site. Here the source of health came directly from the water; pumped, both literally and

metaphorically, by different historical users (Roman, Georgian, Victorian) for a range of curative/rehabilitative purposes (Gesler, 1998). Other studies, especially of Lourdes, considered how healthy place production was driven by sacred water framed as medicinal (Gesler, 1996).

As the subject developed in scope (Kearns and Gesler 1998; Gesler, 2003), blue space remained a significant part of the narrative (Williams, 1998, 2007). Palka (1999) discussed wilderness as an exemplary therapeutic setting, within which water (lake, river, waterfall) emerged as a significant healing component. Other research identified historical associations between healing and mineral waters within hot springs and wider spa cultures (Geores, 1998; Foley et al., 2011). Ongoing connections between the blue space idea and contemporary spa and wellness research sustain commodifiable links to different forms of water (Smith and Puczko, 2009). Specific blue space settings for therapeutic encounters were also identified; lakes in Canada (Wilson 2003; Williams, 2007), river banks in Germany (Völker and Kistemann, 2011, 2013) and different coasts around the world (Andrews and Kearns, 2005; Collins and Kearns, 2007; Kearns and Collins, 2012).

From environmental psychology research, elements of both green and blue space were identified as significant in showing how nature emerged as a significant component of healing environments (Ulrich, 1979, 1983; Kaplan and Kaplan, 1989; Calogiuri and Chroni, 2014). In particular, research on attention restoration theory, landscape preference studies and favourite places, all identified ways by which natural environments affected wellbeing, including stress reduction, faster illness recovery and long-term improvement in individual health (Herzog, 1984; Kaplan, 1995; Korpela and Hartig, 1996; Hartig and Staats, 2003; Velarde et al. 2007). For example, experimental research in Finland using a perceived restorativeness scale (PRS), identified a range of specific places, including those associated with water, that were associated with improved wellbeing (Korpela and Hartig, 1996). By providing evidence of their curative efficacy, such green/blue space elements became influential in the design of formal and informal care settings such as hospitals, clinics and retreats as well as in wider urban design (Kaplan, 1995; Gesler et al., 2004; Conradson, 2005a, 2005b; Curtis et al., 2007). Different forms of water – still, flowing, raging, spiritually charged – were additional built components, particularly in retreat, CAM and contemporary spa settings (Conradson, 2007; Hoyez, 2007; Lea, 2008; Foley, 2010; Little, 2013). Hoyez's study of 'yogic landscapes' showed how therapeutic landscapes were reproduced and globalised; within which sacred water and wider 'blue settings' of water and sky were considered essential components in the (re)production of wellbeing. Finally, aspects of the nature of water itself, especially its still contemplative features, have also been prominent in cultural geography research on wellness and the restoration of physical and mental health (Strang, 2004; Conradson, 2007; Lea, 2008; Duff, 2011; Foley, 2011).

Research involving authors in this issue has significantly developed the subject. A systematic literature review by the Bonn 'Blue' WHO-CC¹, summarised relationships between inland water and health/wellbeing and identified strands associated with perception and preference, landscape design, emotions, restoration and recreation (Völker and Kistemann, 2011). The cited studies drew from experimental, quantitative and cross-sectional methods but identified a need for more qualitative, multi-faceted and interdisciplinary work. Völker and Kistemann (2011, 2013) also extended the therapeutic landscape idea theoretically to incorporate four broad space dimensions; active, social, symbolic and experiential. The UK-based Blue Gym initiative identified a range of

¹ The WHO Collaborating Centre was set up in 2001 as a multidisciplinary team from geography, environmental medicine, psychiatry, public health, biology and education.

important dimensions of coastal geographies related to mental, physical and social wellbeing (DePledge and Bird, 2009; White et al., 2010, 2011, 2013; Asbulla et al., 2013). Here the English coast was specifically reframed as a public and socially produced space for health promotion, illness prevention and improved health and wellbeing (Wheeler et al., 2012). Methodologically the research drew from national and local surveys to develop empirical knowledge on how coastal health was produced and developed; driven by a multi-disciplinary team drawn from health psychology, geography, public health and anthropology. Key outcomes demonstrated how health was linked to reduced stress and increased physical activity (Wheeler et al., 2012). Other health geographers considered relationships between water and health in historic coastal settings (Foley, 2010). Here the reputation of healing waters, evident in historic seaside resorts, demonstrated how blue space therapeutic assemblages developed through a mix of social, economic, entrepreneurial and affective routes (Andrews and Kearns, 2005; Foley, 2010)

Theoretically, there has been a 'relational turn' within health geographies research (Parr, 2004; Conradson, 2005a; Cummins et al., 2007; Duff, 2010; Andrews et al., 2014). Through that research, the sometimes complex theoretical discourses associated with ANT (actor-network theory), more-than-representational theories and mobilities thinking are slowly acquiring a healthy blue tinge (Lorimer, 2005; Foley, 2011; Gatrell, 2013; Andrews et al., 2014; Kearns, 2014). Clear tensions exist between applied and theoretical health/place work that reflects splits between material descriptive accounts and more critical philosophical writing (Creswell, 2013; Kearns, 2014). Duff (2011) particularly argues for the need for meaningful accounts that merge the theoretical and empirical to show how place shapes therapeutic outcomes. One area where the two productively meet are emotional and psychotherapeutic geographies (Philo and Parr, 2003; Davidson et al., 2009). Through studies focused on phobic/phobic geographies, different approaches that combine theory and materiality demonstrate how health may or may not be enabled in place (Duff, 2010; Parr and Davidson, 2010; Doughty, 2013; Philo, 2014). Different culture and condition-specific, embodied, gendered and experiential accounts are drawn from within both green and blue space to provide more nuanced understandings of how enabling places work and how theoretical ideas on relational place are central to those articulations (Foley, 2011; Duff, 2012; Merchant, 2011; Doughty, 2013; Pitt, 2014).

Post-medical geographies of health have also drawn from innovative thinking in health philosophy to develop new perspectives. An essential aspect of the cultural turn saw health geography shift from biomedical towards social models (Kearns, 1993). Health promotion, developed strategically through the Ottawa Charter (WHO World Health Organisation, 1986), extended that narrow biomedical approach and recognised broader and more critical holistic understandings of health (Williams, 2010; Lovell et al., 2014). Social, political and socio-ecological models of health and disease have been widely adopted that additionally focus attention on place (Illich, 1976; White, 1981; Kearns and Moon, 2002). Interestingly salutogenesis, a concept developed by Antonovsky (1979) and central to health promotion theory, has so far played a limited role in health geography, in part due to his very limited engagement with place. Antonovsky's key research emphasis was on what causes health (salutogenesis), not disease (pathogenesis). According to Antonovsky (1987) all humans are positioned somewhere on an ease/dis-ease continuum between total absence of health (H-) and total health (H+) and conceptually salutogenesis means the movement towards H+. Through two additional concepts, generalised resistance resources and 'sense of coherence' (SOC), Antonovsky identified a set of culturally-framed life-course factors that enabled human health. The SOC comprised three components; comprehensibility (cognitive), manageability (behavioural),

and meaningfulness (emotional); all implicitly but not explicitly connected to where people live. Some aspects of the 'salutogenic umbrella' have been adopted by health geography, i.e. social capital, cultural capital, empowerment, resilience, coping (Benz et al., 2014). But a more direct articulation on how particular types of places or environmental conditions are or become salutogenic is almost completely absent (Ergler et al. 2013; Benz et al., 2014, especially Fig. 1). How blue space can be specifically framed against salutogenesis and extend its geographical potential, underpins many of the papers in this special issue (Lindström and Eriksson, 2005).

Another concern for critical health geography is the need to make research more policy relevant (Parr, 2004). A number of recent international documents have created a robust policy backbone for links between environments and health. WHO Europe, through its Health-For-All (HFA) strategy, adopted a common health policy that recognised the dependence of human health on a wide range of environmental factors, covering both direct effects and more indirect psychosocial factors, such as urban development and land use (WHO 1994). According to the European Charter (WHO (World Health Organisation), 1989) every individual was entitled to an environment conducive to the highest attainable level of health and wellbeing. The UN Agenda 21 (UN, 1992) additionally demanded improved environmental quality and policies to protect and promote human health worldwide (WHO, 1993). Most recently Shanahan et al. (2015) identified a fundamental shift in public health discourse that encompassed the diverse potential benefits of nature and open spaces. However, limited understanding of which components of nature deliver which health benefits still impedes an effective integration of nature into health policy (Calogiuri and Chroni, 2014). As a result, policy frameworks tend to employ broad provision-based targets such as proximity of natural spaces to residential areas, minimal size, or size per capita (English Department of Health, 2010; Scottish Government Directorate for Built Environment, 2009; US National Park Service Health and Wellness Executive Steering Committee, 2011). We share the vision of Shanahan et al. (2015) in calling for interdisciplinary research that brings together ecologists and health scientists to more fully uncover the mechanisms by which nature benefits human health.

Public Health professionals are increasingly aware of the relevance of health geography research to their work (Dummer, 2008). Research into the health-promoting effects of blue spaces is a promising area for further engagement as it is already on the agenda of many current planning initiatives through earlier environmental psychology research (Kaplan, 1995). Post-industrial uses for former water sites have received renewed attention within regeneration and sustainability initiatives, especially in urban settings (Hoyle et al., 1988; Kistemann et al., 2010). Planners around the world have recognised the 'added value' of water sites (Wakefield, 2007), in part because blue space is relatively cheap to produce and maintain but also due to its potential social and health benefits (Luttik, 2000; Kistemann et al., 2010). A more explicit valuing of the coast may also help position 'blue space' research as firmly into the public health arena as existing work on green space and obesogenic environments (Collins and Kearns, 2007). This special issue offers practical and theoretical approaches that provide more differentiated understandings of the relevance of blue space for public health policy (Mitchell and Popham, 2007; Richardson et al., 2012; Andrews et al., 2012).

3. Thematic discussion: relational geographies of healthy blue space

All six papers in this special issue are, explicitly or implicitly, inspired by an overarching salutogenic vision of the 'enabling' dimensions of blue spaces. If we combine 'salutogenesis' and SOC dimensions of cognitive, behavioural and emotional health more

directly with dimensions of 'place', this opens up interesting perspectives for future health geographical research. In better uncovering how and why blue spaces and places matter for health and wellbeing, we identify four sub-themes; embodiment, inter-subjectivity, activities and meanings, that contribute to more nuanced discussion of salutogenic associations within the papers.

3.1. Geographies of embodiment: a place for healthy/unhealthy bodies

Relationships between the body, health and place remain important in culturally-shaped health geographies (Dorn and Laws, 1994; Hall, 2000; Moss and Dyck, 2003; Longhurst, 2005; Craddock and Brown, 2010). Bodies have material, discursive and imaginative components linked to physical and mental health and these are relevant in blue space. A range of intriguing metaphors emerge from the papers in terms of how bodies physically engage with, by and in water (Völker and Kistemann; Foley). Specific activities are stimulated by mobile and embodied inhabitations of water (Wareham et al., 2002; Duff, 2010). While the physical act of swimming, for example, provides established health benefits associated with exercise, Foley argues there are immersive benefits in being active in blue space that are less measurable, but still speak to the idea of physical health. For Völker and Kistemann, there are self-identified physical benefits for bodies in urban blue spaces that are considered as having different, and conceivably, better effects than in nearby green spaces. Here again there is a blurring of space, as there are green-alongside-blue settings of river and lake-side that incorporate both forms.

Mental associations can also improve wellbeing, especially in blue space settings like lakes or coasts (Kearns and Collins, 2012). The idea of a 'feel-for-water' was identified in a number of papers, with Lengen specifically considering the imaginative aspects of blue space encounter. For her respondents, a feel for water, and indeed the colour blue, was not always positive, with darker shades associated with poorer mental health states. Yet the quality of the blue, shaped by light, shade, setting and reflection, were identified in several papers as important positive components that reflected a variety of moods. Associations between mental health, emotion, memory and blue space were also evident (Coleman and Kearns, Lengen), where blue space was a factor in a positive emotional attachment developed across the life course (Casey, 2001; Budruk and Stanis, 2013). For Coleman's respondents on Waiheke Island, the importance of the view of water, or the mark of it on the horizon, gave their lives greater value and meaning and supported a healthy ageing in 'thick-place' (Casey, 1993). In the urban settings of Cologne, Düsseldorf and Copenhagen (Völker and Kistemann, Thomas), that feel was evident in preference for the blue linked to the particular character of water and its imaginative impact, reflecting earlier landscape preference research (Herzog, 1984).

Several of the papers considered bodies of difference within blue space (Dorn and Laws, 1994; Hall, 2000; Longhurst, 2005; Chouinard, 2010; Parr and Davidson, 2010). There were a range of healthy/unhealthy bodies involved running across a perceived and measured 'salutogenic' range (Andrews et al., 2012). One characteristic of blue space is its capacity to embrace bodies of difference in ways that are gently enabling. People with a range of physical disabilities can find it difficult to actively interact with green space; something that research on green space design, walkability and obesogenic environments arguably overlooks (Andrews et al., 2012). Yet bodies of difference can be explicitly enabled in blue space, in part through immersion within water (Foley; Kearns, Collins and Conradson; Coleman and Kearns) or through a more mental immersive engagement with an environment that takes one outside oneself (Thomas; Lengen; Völker and

Kistemann). The papers provide accounts by different bodies from different types of blue space; gendered (Thomas), carceral (Kearns, Collins and Conradson), aged (Coleman and Kearns, Foley) or mentally impaired (Lengen). In those accounts we can better understand the salutogenic continuum through engagements with blue space to envisage more inclusive understandings of multiple bodies of health in place. Finally a concern for how bodies were managed on Rotoroa Island, linked to a specific connection with alcohol abuse (Kearns, Collins and Conradson), referenced the Foucauldian definition of 'managed/governmental bodies' and wider debates on representation within embodiment (Foucault, 1979; Longhurst, 2005; Craddock and Brown, 2010). Considering how bodies of difference are enabled in freer ways in blue space is a core concern for most of the papers.

3.2. Relational spaces of inter-subjective encounter

A concern with inter-subjectivity is evident in all the papers. Drawing from relational geographies, the papers explore relationships between different subjects and between subjects and place (Cummins et al., 2007; Lorimer, 2008; Pile, 2010; Ash and Simpson, 2014). Such work has had some attention in health geography, especially in relation to emotional geographies (Conradson, 2005b; Davidson et al., 2009; Wood and Smith, 2004). Yet a concern for inter-subjectivity remains under-developed and the papers provide useful empirical examples that flesh out inter-subjective components of place attachment and orientations towards health (Duff, 2010; Budruk and Wilhelm Stanis, 2013). In particular, descriptions of inter-subjective encounters extend thinking around the subject-object relationship to consider multiple subjects relating to multiple objects in blue space (Bingley, 2003; Ash and Simpson, 2014).

For Foley, the exploration of health and wellbeing in swimming places considers how an inter-weaving of individual and group meanings and shared life course histories provide an experiential affective power that emerges specifically from encounters in blue space (Pussard, 2007). Swimmers as subjects swim within water-as-object that is mobile, enclosing and productive in health terms (Evans and Allen-Collinson, 2014). That sense of an inter-subjective experience is also evident in the urban papers (Völker and Kistemann, Thomas), where communal interactions also have enabling effects. In walking, sitting, eating and contemplating by the River Rhine, the multiple subjects reflect a mobile blue space that contains embodied flows (Pitt, 2014). For Thomas the encounter may not always be a positive or health-promoting one, and it is important to recognise that negative aspects of inter-subjectivity associated with the presence of other subjects – engendering shame, fear, disapproval – can be by-products of public blue space encounters. All of the studies speak to what Philo (2014) refers to as 'insecure' bodies, and this inter-subjective aspect emerges in many of the accounts.

The remaining papers (Coleman and Kearns, Foley, Lengen and Kearns, Collins and Conradson) identify more affective and emotional dimensions of inter-subjectivity (Davidson et al., 2009). For each, place energies that are mobile, material and imaginative, are experienced in blue spaces to produce what Duff (2010) broadly describes as affective atmospheres. For Lengen, her respondents reflect on imagined landscapes that move them; emergent from memory and their own experiences of people and place. For Coleman and Kearns, the affective power of Waiheke Island as home, community and refuge, sets out a deep affection for blue space through shared feelings of care between subject and object (Casey, 1993). Here Tuan's (1990) term topophilia can be easily re-rendered as *hydrophilia*. Even for a client group of people with alcohol addiction (Kearns, Collins and Conradson) a 'hard' love evolved, bounded by more refugitive and redemptive visions of blue space

though admittedly one that included institutionalised co-dependency.

Inter-subjectivity was also reflected in a mutual understanding that combined both individual capacities and social domains (Ash and Simpson, 2014). In all papers, individuals reflected on how they saw, valued and enjoyed blue spaces which were public, shared and multiply experienced and encountered. Blue spaces and blue space encounters were rarely fixed or static in place but emerged as nodes within wider networks of place interaction. In health and wellbeing terms, all the identified blue spaces were sought out, either for occasional, temporary or long-term inhabitation, and recognised as places with emotional and life-course resonances that extended well beyond specific single encounters (Wood and Smith, 2004). People in Copenhagen, Cologne, Düsseldorf, Waiheke or Dublin all returned to blue space throughout their lives. Blurring physical/imaginative space in terms of cognitive human interactions identified a fuller place for psychotherapeutic encounter; evident in the work of Lengen, but glimpsed too on Rotoroa (Kearns, Collins and Conradson), where deeper personal traces of addiction, dependency and familial histories all shaped a movement toward the blue that was deeply inter-subjective (Parr, 2002; Bingley, 2003; Philo and Parr, 2003; Anderson, 2014). Here the differential imbrications in place mirrored Conradson's (2007) work on retreat spaces, reflecting how individual histories of place encounter were simultaneously embodied (internally) and emplaced (externally).

3.3. Activity spaces

Blue spaces offer versatile and popular places for physical activity. These activities comprise on the one hand water-specific sport and leisure activities such as bathing, swimming, rowing, paddling, sailing, fishing, and on the other hand associated activities such as walking, running, biking and skating with water (Kistemann et al., 2010). The papers in this special issue all shared a sense of active engagement with and in blue space, informed also by wider mobilities paradigms (Gatrell, 2013). This was reflected in a range of health behaviours and performances and such mobile and active engagements are at the heart of blue space health in a range of different settings. This is evident in behavioural responses that are both self and institutionally generated, especially in their rehabilitative potential.

The value of green space, as an explicit arena for physical activity, has recently attracted the interest of public health research (Jones et al., 2007). Exposure to green space has been identified as a factor reducing health inequalities in the UK (Mitchell and Popham, 2007). Physical activity within green spaces has been investigated as a possible mechanism behind the relationship between access to green space and salutogenic effects (Maas et al., 2006, 2008; Macintyre et al., 2008; Coombes et al., 2010; Koohsari et al., 2015; Hunter et al., 2015; Buck et al., 2015). In contrast, outside of environmental psychology, the health-related value of blue space and the role of physical activity within blue spaces have attracted much less attention to date (Herzog, 1984). When mentioned, blue space has only been included as an element of green open spaces, but not investigated independently. In Copenhagen, Thomas demonstrates that natural blue-green spaces provide key opportunities for physical activity, but that gendered position matters. Women preferred spaces nearer home for their physical activity, while open spaces in the city were linked to more social activities.

Swimming has historically been identified as having active benefits in terms of the treatment of chronic disorders such as rheumatism, arthritis or skin diseases (Foley, 2010). Specific therapeutic benefits of swimming were perceived by Foley's respondents, as were positive effects for strength and fitness and

mental health. On Rotoroa Island, Kearns, Collins and Conradson identify blue spaces persisting as an arena for physical activity. The New Zealand Salvation Army provided beaches as an opportunity to engage directly with blue space for both staff and residential clients during a century of inebriates' rehabilitation. After conversion to a recreational destination, the island is now advertised as a place to 'walk, swim, explore'.

Völker and Kistemann identify urban blue spaces as being activity-promoting. According to their observations, blue spaces primarily support activities with lower physical levels, such as walking. The riverine area of urban blue spaces particularly motivates people to carry out dynamic activities: "the Rhine is a walking and movement zone". An intersection with contemplative activities such as "looking around" was also evident. Coleman and Kearns' very old island participants recognised a more contemplative passivity. Observing ever-changing views of the water, the sea, the sky and the weather affecting the sea from a window, a conservatory or other favourite places within the home had replaced former physical activity (Velarde et al., 2007). In terms of appropriative dimensions 'experienced space' had replaced 'activity space', wherein contemplation was explicitly linked with an enhancement of disposition (Völker and Kistemann, 2011). Interestingly, through their remembered passive contemplation many respondents experienced salutogenic echoes of former active engagements with blue spaces – on the beach, in a sailing boat, in the sea. These findings confirm Conradson's (2005a) contention that it is the experience rather than the place itself that is generative of wellbeing, containing both active and passive components.

3.4. Symbolism and meanings

Blue spaces also emerge from the work as having a range of different meanings for different individuals, groups and populations. These symbolic and metaphorical components are empirically important in the work and also tap into aspects of identity. Conradson (2005a: 338) took the therapeutic landscape experience as a relational outcome 'that emerges through a complex set of transactions between a person and their broader socio-economic setting.' In being meaningful, blue spaces become blue places (Relph, 1976; Cresswell, 2004). Following Conradson (2005a), we argue that the meanings of places, which certainly vary between groups and individuals according to their cultural, social, spiritual and individual imprints, substantially contribute to the variation in the therapeutic landscape (space/place) experience.

Examples from the papers include the symbolic role of swimming, as one example of an immersive experience within blue space. As Foley emphasises, the images of leaping into and swimming in blue spaces 'tell a thousand stories and captures an affective, instinctive, non-representational act that has a world-wide resonance for human health and wellbeing'. For Lengen's clients, water is a symbol of change, a metaphor for change in life that may, *inter alia*, reflect spiritual rituals marking both the beginning and end of life. Their blue spaces also represent continuity and symbolise identity: forever changing, yet staying the same. However, the clients also express the 'deep ambiguity of this stuff' (Illich, 1986); feelings of fascination as well as fear, which they ascribe to darkness and invisibility.

Following their own conceptual framework, Völker and Kistemann identify numerous symbolic processes and association in urban blue spaces; reflecting the meanings of urban waterfront promenades for the visitors: emotional bonding, place dependence, 'Heimat' (roots), memories, atmosphere, and spirituality. Additionally on Rotoroa, Kearns, Collins and Conradson draw on Duff's (2011) concept of 'enabling places' to dissect persisting key connotations of island life, as surrounded by blue space: isolation,

boundedness, separateness and vulnerability, senses of both smallness and community, but also constriction, exile, and even a sense of intrigue. We suggest that all these aspects contain a strong affective dimension of meaning (Duff, 2011). From another island, Coleman and Kearns demonstrate that diverse meanings and symbolic characteristics of blue spaces offer coping strategies to promote health and wellbeing during ageing-in-place. The watery aspects of Waiheke are perceived as a metaphorical resource, with spiritual aspects of living at the sea mentioned as being vitally important during this life-stage.

4. Future research: enabling health in blue space

In setting out future agendas for healthy blue space research, we identify theoretical, methodological and applied directions, while also noting the enormous range of specific water-related subjects.² We confine our suggestions to how health geographies and associated disciplines can develop the subject's critical and theoretical appeal and gain traction in public health and policy settings. Yet we also acknowledge a wider subject arena that discusses water and the 'blue' through more inter-disciplinary environmental routes, where associations with fresh air and sky (important components allied to blue space) and the health of water itself are important for human flourishing (Hartig and Staats, 2003; World Health Organisation, 2015).

We are minded in this special issue to generally (re)present blue space health in a positive light, though all papers show an awareness of unhealthy/risk narratives. This sense of a contested therapeutic geography is well developed (Conradson, 2005a; Collins and Kearns, 2007; Milligan and Bingley, 2007; Williams, 2007) and such reflexivity should be maintained in future critical writing. We see this as adding credibility to more positive wellbeing accounts from blue space. Biomedical perspectives value quantifiable health outcomes and research that begins to quantify the value of blue space, either through improved physical capabilities or mental health instrument scores, may help progress this (Moon, 1995; Moffat et al., 2006; Amoly et al., 2014; White et al., 2013). Similarly environmental and health psychology research on perceived and measurable benefits of coastal encounters can place blue space research in a positive light (Wylie 2009; Wheeler et al., 2012; Calogiuri and Chroni, 2014; White et al., 2013). In encouraging-slightly perversely-work that challenges and even disproves assumed benefits of healthy blue space, future work can be made more critically robust (Duff, 2011). We likewise cannot ignore the pervasiveness of a global water-safety discourse, with a measurable focus on water-based accidents and illnesses central to how public perceptions of health are defined in relation to water (Collins and Kearns, 2007; Game and Metcalfe, 2011). We would encourage work to critically consider such risk-averse discourses from the 'new public health' in more positive and autonomous ways (Brown et al., 2012).

Theoretically, our papers engage with wider discussions from human and cultural geography, including relational, feminist, emotional and psychotherapeutic geographies (Bingley, 2003; Philo and Parr, 2003; Lorimer, 2005; Conradson, 2007; Pile, 2010; Rose, 2012). Health geographers are engaging with theory in a way that contributes to the wider geographical world (Andrews et al., 2014; Kearns, 2014). As a second and counter-acting incentive, much theoretical writing in human geography can at times seem wilfully complex and devoid of empirical illustration and trans-disciplinary value (Cresswell, 2013). This may be a dominant

paradigm, but it can also stifle interesting writing that brings theory to life. We would suggest that work on blue space has the capacity to develop new approaches to theoretical writing with an enhanced empirical basis. The papers have considered theoretical terms like affect, inter-subjectivity, difference, rhythm and flow, mobilities and emotion but given them a comprehensible purchase in place (Gatrell, 2013). In addition, explicit associations with water are at the forefront of recent cultural geography research, and work on blue space can help concretise the place of health geographies in that research (Andrews et al., 2014).

Most of the papers in the special issue employ qualitative methodologies, yet only scratch the surface of a wider research arena utilising a range of methods. Methods chosen by Lengen and Coleman and Kearns in particular, engage in innovative and sensitive visual ways with vulnerable populations that highlight the value of blue space in maintaining and restoring health. Innovative methods applicable to blue space should reflect its specific compositions and forms and extend the more experimental approaches used in environmental psychology with a more experiential approach (Ode et al., 2009; Merchant, 2011; Liggins et al., 2013). A balancing quantitative direction should consider more measureable and mappable evidence bases to engender biomedical and public health interest. Combining quantitative and qualitative methods can help evaluate blue space as a health resource that needs to be protected, developed and managed (Nicholls, 2014). Both routes also offer interesting directions for a range of mental health studies associated with blue space, for example, work with people with severe mental illness and their specific engagements within blue space (Wylie, 2009; Doughty, 2013). The use of new technologies, such as GoPro cameras, accelerometers and GPS/GIS, may help gather affective health specific-responses in and from blue space environments, including the sub-aqual (Merchant, 2011; MacKerron and Mourato, 2013). Additionally, discourse analyses of health and wellbeing policy could measure the impact, if any, that the idea of healthy blue space has made, including the wider arena of sport, leisure and recreation. Any specific mention of the 'blue' within health promotion/health education policy may help identify and encourage subtle shift in policy emphasis into the future.

One particular application area that blue space geographies can contribute to is work that considers geographies of difference. There is considerable scope to consider narratives based on experiential engagements by gender, age (especially children's geographies), ethnicity/culture, sexuality and class (Wiltse, 2007; Amoly et al., 2014; Lobo, 2014). One can consider in particular how blue space has the capacity to enable, e.g. the capacities of disabled or unfit bodies for immersive and contemplative encounters that almost completely re-cast those capacities (Andrews et al., 2012; Throsby, 2013). In addition, more spiritual encounters in/by water (as transcendental-affective moments) may emerge from a range of natural or built environments (Foley, 2011; Madrell, 2011; Pitt, 2014; Lea et al., 2015). Given that many different groups globally use water in different ways, there is scope for deeper comparative cultural geographies of water associated with spirituality, healing and wellbeing (Smith and Puczkó, 2009; Little, 2013). The potential of blue space to engender and capture a healing intent from a range of social, cultural and embodied perspectives should be more fully articulated.

Access to healthy blue space as a resource can be explored in a range of different ways. At a fundamental level, access to clean healthy water is a human right (United Nations (UN), 2010) and central to development while water-related diseases remain significant problems (UNECE (United Nations Economic Commission for Europe) and WHO (World Health Organisation) Europe, 2000). Blue space research is especially encouraged in development settings (Luginaah et al., 2015). Here competing discourses around

² See also Terje Tvedt's multi-volume series under the broad banner of *A History of Water* for an encyclopaedic list (London, I.B. Tauris, 2005–2014 ongoing).

risk and functional utility may show blue space to have quite different meanings. More broadly, barriers to access can be critically discussed around a range of rights and equity based perspectives where ownership of blue spaces in turn constrains or promotes access to healthy activities (Strang, 2004; Wiltse 2007; Kearns and Collins, 2012; Bolton and Martin, 2013; Lobo, 2014). Throughout this introduction we have emphasised the value of blue space for enabling health; yet we must recognise a tension with the commodity value of the blue (Collins and Kearns, 2008; Duff, 2011, 2012). 'Sea' and 'view' combined are considered to be the two most 'expensive' words in the English language. Considering potential clashes between 'healthy' and 'wealthy' blue space may encourage critical considerations of how these two terms are enacted and experienced in space, especially when additionally associated with tourism and leisure geographies (Wilson, 2012; Nelson, 2013).

Finally, framing blue space as a health resource can promote environmental health and the sustainable management of water bodies (De Vries et al., 2003; Duff, 2011; Fonstad, 2013; Pikey and Cooper, 2014). Valuing the 'blue world' as a health-enabling resource is also where environmental and social meanings meet and may extend nature-culture thinking in interesting ways (Anderson and Peters, 2014; Nicholls, 2014). Our blue world is large and open and we hope to see new work that explores all its nooks and crannies, depths and shallows, shades and temperatures, waves and currents, natures and cultures for a continuous uncovering of its enabling value to health and wellbeing (Duff, 2011).

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