

Blue Health: Water, Health & Well-being

Introduction

This research reviews the evidence base for both positive and negative relationships between water in the landscape, health and well-being (termed blue health). Water is important for human health, both physiologically and psychologically; however, much of the research on blue health has focused on pathogenic associations between water and health i.e. the effects of environmental toxicology and poor water quality on disease and illness. Empirical evidence for the salutogenic (health improving) effects of blue space appears to be weak and water has received little attention in urban planning as a potential health resource. In conjunction with key Scottish Government agencies, the following themes were identified to be of priority interest and form the framework for this review: the salutogenic benefits of water settings; flooding and the impact on psychological well-being; sustainable drainage systems (SUDS) and their potential amenity and restorative health benefits. The research does not address other aspects of water security such as drinking water quality, levels of water use, foul water drainage, pathogenic impacts and water-borne diseases.

Key Points



- Across all three themes of our research we found little empirical evidence and many gaps in the literature on the links between blue space and health.
- The scientific evidence for salutogenic benefits of blue space is strongest for mental health, with evidence of water settings as a preferred landscape offering perceived psychological restoration, and some limited evidence that coastal settings may offer greater benefits for walking. However, there is a lack of objective measures and ‘real world’ research in everyday settings since much of the evidence has relied on self-reported indicators in student populations carried out in controlled laboratory conditions. The theory underpinning green health would suggest blue space ought to offer similar benefits in terms of promoting social contact and active living, but we found no empirical evidence supporting this.
- Qualitative research has shown that flood disasters can have severe and long-term social and health impacts, but there is a lack of robust, quantitative and longitudinal evidence to support this. Much of the evidence base has focused on specific mental disorders (e.g. post-traumatic stress disorder (PTSD)) with little research on the everyday distress and anxiety experienced from living with floods and future flood risk. We found evidence of social and health inequalities, with greater psychological impact of flooding being experienced by poorer communities, and amongst children, women and older people, but more research is needed to quantify this geographically and demographically. Whilst we found a number of educational initiatives directed towards places of flood risk (e.g. the Scottish Flood Forum mental health first aid course), we found no systematic analysis of the value of these initiatives to health and well-being.
- We found some evidence of the amenity benefits of SUDS, particularly in support of the aesthetic and recreational value of SUDS, especially where they incorporate ponds. We found anecdotal evidence of the amenity value of SUDS in schools, particularly their benefits for outdoor learning and for promoting well-being in children, but no formal evaluation, nor any research exploring the risks associated with these features, how they can be best managed and the trade-offs with health and well-being. The environmental bias of senior teachers in schools is suspected to influence the adoption of SUDS in schools but further research is needed to explore this.

Research Undertaken

The research objectives were two-fold: (a) to systematically bring together and review the empirical evidence for the role of water settings or blue space (inland, coastal, rural and urban) on health and suggest how this information might be used for health promotion in Scotland and (b) to work with key stakeholders (Scottish Government, Scottish Environment Protection Agency (SEPA), Scottish Water, Health Protection Scotland, NHS Scotland and Scottish Flood Forum) to focus the review on their priorities.

This summary is one of a set of four derived from the BlueHealth project. All summaries and the project report are available at www.crew.ac.uk/publications.

Policy Implications



Based on our findings, the strongest recommendation to emerge is that water settings can be used as a tool to promote mental restoration. The parallel field of green health also suggests blue space can offer scope for active living and social recreation. Scottish policy makers should therefore consider promoting access to water settings for active and passive recreation. The potential for water features in urban environments should also be explored, both as a soundscape to screen traffic noise and for visual and social amenity. We also recommend, rather than referring to blue and green space as separate entities, that the two are conjoined i.e. as 'blue-green corridors' or 'blue-green space'; this is more appropriate to the Scottish environment, where, more often than not, water is found within the context of green space.

Specific priorities for further research, identified in consultation with stakeholders, include:

- Exploring the potential (in Scotland) for blue space to offer active recreation (e.g. outdoor swimming, water sports), and the potential for water-edge recreation, especially walking, alongside rivers, coastal cliffs, canal and reservoirs/lochs.
- Considering the impacts of climate change and potentially rising ambient temperatures on demand for access to water for active recreation (e.g. outdoor swimming) and the implications for risk.
- Investigating the benefits of seaside recreation, including the opportunities of beaches for play, family recreation and active sports.
- Longitudinal research assessing: the impact of floods on mental health over time; social and health inequalities in areas of flood risk; and, the impact of educational initiatives designed to build resilience in communities affected or at risk of flooding.
- Primary research on the positive health and well-being outcomes of SUDS in schools (including longitudinal evidence of the impact on pupils over time and into adulthood).
- Secondary research mapping flood and blue-space data with Scottish health data.

Research Team and Contacts

David Miller (david.miller@hutton.ac.uk) **Sue Morris** (sue.morris@hutton.ac.uk) **Jane Morrice** (jane.morrice@hutton.ac.uk)
The James Hutton Institute **0844 928 5428**

Jenny Roe (j.roe@hw.ac.uk)

Caroline Brown (c.j.brown@hw.ac.uk)

Heriot Watt University **0131 449 5111**



Catharine Ward Thompson OPENspace (c.ward-thompson@ed.ac.uk)

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