World Health Organization Collaborating Centre on Investment for Health and Well-being

GIG CYMRU NHS WALES | Iechyd Cyhoeddus Cymru Public Health Wales

P6.1 Coastal Communities

Characterisation of impact on coastal communities

Intensity	Likelihood	Duration	Intensity	Likelihood	Duration
Positive impacts/opportunities			Negative impacts		
No evidence identified	?	No evidence identified	✸✸✸	✓✓ in some areas	S to L

✓✓ Confirmed ✓ Probable ? Possible ✸✸✸ Major ✸✸ Moderate ✸ Minimal S Short term M Medium term L Long term

How does climate change impact the health and wellbeing of coastal communities?

Positive impacts / opportunities

- Possible increase in outdoor recreation and tourism in Wales
- Community engagement with regards to development and implementation of Flood and Coastal Erosion Risk Management policies and plans

Negative impacts

- More exposed to the mental and physical health impacts of flooding
- Economic security for individuals and families
- Uncertainty and anxiety regarding the future
- Potential for negative impacts on coastal economies such as tourism and fishing

Over 60% of the population of Wales lives and works in coastal areas (Welsh Government, 2015). Coastal communities in Wales are diverse, spanning both rural and urban areas, different economic and social context and range of population groups (Oxford Consultants for Social Inclusion, 2016).

The vulnerability of coastal communities to climate change in Wales is based on the likelihood of exposure to climate change impacts of sea level rise, coastal erosion and flooding. This is coupled with the sensitivity/susceptibility of specific population groups such as older adults and other factors such as transient populations, tourism related seasonal work and poor transport links (Chief Medical Officer for England, 2021; Zsamboky et al., 2011). Coastal communities in Wales also include concentrated areas of disadvantage including people living on a low income, those in private rented housing, people with long-term health conditions or disabilities (Oxford Consultants for Social Inclusion, 2016) and socioeconomic disadvantage (Chief Medical Officer for England, 2021; Netherwood, 2021) (see also Section P 6.6).

The impacts of climate change across the social determinants of health appraised in the HIA (See Sections D1 -8.2) are all relevant to people living in coastal communities. The appraisal chapters on specific population groups such as Babies, Children and Young People (Section P1.1) and people living on a Low Income (P4.1) are also relevant to those groups living in coastal areas.

Given the overlap in Wales between coastal and rural areas, and coastal and urban areas, this section should not be read in isolation. See also Sections P6.2 – 6.6.

Sea level rise, coastal erosion and flooding

Coastal areas in Wales are particularly exposed to climate change impacts related to sea level rise, costal erosion and flooding (Netherwood, 2021; Zsamboky et al., 2011). Sayers et al. (2020a) highlight that ***"Flood disadvantage[1] exists across all sources to some extent but is most acute at the coast"*** (p. 14).

The Wales Climate Change Risk Assessment 3 describes these combined factors and related risks for some communities in Wales as:

> ***"… of such severity that the long-term sustainability and viability of coastal communities is threatened. Viability relates to the future physical existence of a settlement, for example its potential loss from coastal erosion, the future ability for people to live and work in a settlement for example due to safety issues related to flood risk and economic viability wherein the risk of coastal change affects the local economy to such a degree that is no longer viable to invest in the area".*** (Netherwood, 2021; p.85).

62,300 residential and 8,750 non-residential properties in Wales are currently at risk from tidal flooding (Natural Resources Wales, 2020) and 95 coastal areas will move from a 'holding the line' policy (active flood defence) to 'no active intervention' or 'managed realignment' by 2100 (Welsh Government, 2020a). Around 40 of those areas may require relocation of property (Welsh Government, 2020a). This transition is recognised as raising "significant social justice issues" in (Sayers et al., 2020b; p.38).

The health and wellbeing impacts of flooding reviewed in Section D5.3 are particularly relevant to coastal communities and include; physical injury and mortality; short and long term negative mental health impacts; economic impacts on incomes, livelihoods and employment; disruption to education; loss of valued places leading to emotional distress ('solastalgia'); damage to homes; and disrupted access to services.

Stakeholders in the HIA raised the importance of participation in local democracy and decision making as a protective factor for community resilience in the context of climate change (W2). The Climate Change Risk Assessment 3 for Wales, and a recent evidence review from the Environment Agency, emphasise the importance of early community and wider stakeholder engagement that where the future viability of communities may be threatened (Netherwood, 2021).

Enhancing control and facilitating participation are key protective factors for mental wellbeing and general health, and community empowerment is important to tackling health inequalities (Cooke et al., 2011; Marmot et al., 2020). Having a sense of control over decisions that affect your life is a protective factor for mental wellbeing (Cooke et al., 2011). Overall, 19% of people aged over 16 in Wales feel that they are able to influence decisions affecting their local area (Welsh Government, 2020b).

1 See Section D5.3 on Flooding for an explanation of "flood disadvantage"

The process of development, implementation and communication and engagement with flood and coastal erosion related policy can affect mental health and wellbeing (see also Section D4 on Mental health and wellbeing). For example:

- The process of development, implementation and communication of flood adaptation policies, for example Shoreline Management Policies, can impact mental wellbeing, for example; by contributing to increased stress and anxiety amongst affected populations (Bennett-Lloyd et al., 2019; Environment Agency, 2019).
- An evidence review by the Environment Agency in England on community engagement in climate adaptation, in particular in relation to flood and coastal erosion risk management (FCERM), found that there is a ***"need to recognise that responses to information about flood and coastal erosion risk – or about options for managing this risk – can be influenced by complex feelings associated with prior experiences of flooding and recovery, connection to place and knowledge of future risks"***. The importance of considering emotional and mental health in FCERM policy and practice is highlighted by the authors (Environment Agency, 2019).

Therefore, the process of decision-making and implementation of Shoreline Management Plans and Flood and Coastal Erosion Risk Management Policy are, therefore, likely to have implications for the health and wellbeing of coastal communities. The Wales Climate Change Risk Assessment 3 identifies that more action is needed to address the risks facing coastal communities, such as an enhanced multi-sectoral response that addresses economic and social justice outcomes, with clarity on roles, responsibilities, plans, processes for delivery, communication and engagement with affected communities (Netherwood, 2021).

The National Strategy for Flood and Coastal Erosion Risk Management in Wales (Welsh Government, 2020a) has committed to producing Coastal Adaptation Guidance and states that:

> ***"Providing clear information and evidence is key so that residents and businesses are aware of decisions which may affect them and can become involved in the long-term planning which may bring change to their coastline and community"*** (para 264).

Transport and Infrastructure

Rural (including rural coastal) areas in Wales are recognised as facing disadvantage in term of access to transport and services (Welsh Government, 2019; Welsh NHS Confederation, 2018; Green et al., 2022; Woods et al., 2022; W2[2]). Transport networks and other key infrastructure in coastal areas in Wales are identified to be currently risk of coastal flooding including; 312km of rail; 12 railway stations, 18 sewerage treatment works, 8 water sites and 7 electricity substations and further investigation is needed to understand cumulative risk and adaptation options (Netherwood, 2021).

2 Evidence from stakeholders is referenced in the appraisal sections as W1 and W2 for insights from participatory workshops, and Int.1 etc. for evidence from expert interviews.

Economic development, financial and housing security

Climate change is identified as being likely to impact on people who rely on a coastal location for their livelihood and economic security (e.g., fishing and tourism) (Zsamboky et al., 2011). The economic development of areas identified at risk of coastal erosion or future sea ingress can be negatively impacted, as by being identified as "at risk" in itself can lead to actual or perceived development blight and a reduction in housing values and investment (Bennett-Lloyd et al., 2019; Environment Agency, 2019; Zsamboky et al., 2011). This has significant implications for how risk and uncertainty are communicated in climate adaptation.

A review of a number of coastal adaptation projects by the Environment Agency in England (2019) found that:

> ***"Raised awareness of risk, due either to environmental changes or policy changes (for example, no active intervention) generates real impacts at community level including reduced property values/blight (or perceptions of), increases in complaints and pressure group activity, changes to community as people move, business decline and increased stress. Such impacts are (or should be) factored into cost-benefit calculations"*** (Environment Agency, 2019, p. 13).

Access to home insurance is a concern for homeowners in areas at risk of coastal erosion (Zsamboky et al., 2011) and future policy arrangement for flood insurance are likely to be highly relevant for people living in coastal communities. Take up of house buildings and contents insurance is impacted by levels of income and tenure, with lower levels of take up for households in private rented accommodation (Sayers et al., 2020a). Those living in social rented accommodation are also more likely to be on lower incomes and are less likely to have flood insurance. This combination increases the 'Relative Economic Pain' experienced when flooded (Sayers et al., 2020a).

Tourism

Employment in travel and tourism industries in the UK tends to be more concentrated in coastal areas (ONS, 2021) and is important to local coastal economies in Wales (Oxford Consultants for Social Inclusion, 2016; Natural Resources Wales, n.d.). Tourism is a major source of employment in counties in the west and north-west of Wales and prior to 2020:

- **19% of employment in both Gwynedd and Ceredigion was in travel and tourism**
- **22% of employment in both Conwy and Pembrokeshire was in travel and tourism**
- **23% of employment in Anglesey was in travel and tourism**

(ONS, 2021)

Tourism in coastal areas may be negatively impacted by damage to natural environment arising from climate change (Hoegh-Guldberg et al., 2018; Marine Management Organization, 2016). In addition, water scarcity combined with seasonal increases in population may place unsustainable demands on local infrastructure in costal locations in Wales (Int 3, 4). Economic opportunities linked to changes in climate enabling more outdoor recreation and tourism in Wales are recognised, however, the evidence base remains limited (Netherwood, 2021; W1; Int 7, 10). Any loss of tourism may, therefore, negatively impact employment and financial security in coastal areas.

Vulnerable population groups within coastal communities

Socially vulnerable neighbourhoods (see Section D5.3 on Flooding) are over-represented in areas prone to flooding, but most significantly in areas prone to coastal and tidal flooding (Sayers et al., 2017). Characteristics of specific population groups in coastal areas in Wales that are associated with increasing social vulnerability and flood disadvantage are summarised here. Please note that a number of other population groups section are also relevant to coastal areas and should also be consulted (P1 to P6.6).

- **Older People**

Older people have a range of increased sensitivities to climate change impacts (see Section P1.2). There are significant concentrations of older people living in rural coastal communities, with much of the South West, West, North West and North coast of Wales including a population of at least 20 - 29% of people aged over 65, and rising to 30 - 39% in many areas on the West coast (Woods et al., 2021). The resources and capacity of older people in coastal areas to prepare, respond and recover from climate change impacts are influenced by recognised drivers of health inequalities in this group including social isolation, low levels of mobility, existing long-term health conditions, barriers to access to services, lack of transport and poverty (Public Health England, 2019). Sources of resilience for this group (not specific to climate change) include strong social networks, a sense of community, accessible community based services, informal care, access to transport and green space (Public Health England, 2019).

- **Fishers**

Studies with fishers suggest that as a population they experience elevated levels of stress and depression (Homolova et al., 2020). Coastal erosion, and changes in the marine environment linked to climate change make fishing more challenging, and can impact on the livelihoods of fishers and their employees (Savo et al., 2017). Depletion of fish stock and changes to the coastal environment linked to climate change may impact the health and wellbeing of fishers via economic pathways (Homolova et al., 2020).

- **People staying in caravans/campsites**

Campsites and areas with mobile homes/caravans are recognised as being more vulnerable in flood scenarios due to structural factors and the potential for a lack of safe refuge above flood water levels (DEFRA/Environment Agency, 2006). Around 28% of caravan and camping sites (permanent and non-permanent) in England and Wales were estimated to be at flood risk from rivers and the sea (DEFRA, 2012; Kovats and Brisley, 2021).

- **People new to an area and transient populations: tourists, students, new residents**

See section P3.5.

Relevant statistics

- **Sea level projection for Wales vary depending on which climate emissions scenario is used as a basis. Across the UK there has already been a 16cm rise in sea level since 1901** (Met Office, n.d.).
- **By 2100, in a low emissions scenario sea level rise in Cardiff is projected to rise between 27cm and 69cm, and in a high emissions scenario the sea could rise between 51cm and 113cm** (Met Office, n.d.).

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Contact: Nerys.S.Edmonds@wales.nhs.uk

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