


# YORKSHIRE AND HUMBER CLIMATE CHANGE ADAPTATION STUDY

## LOCAL AREA REPORT RICHMONDSHIRE DISTRICT

<b>Location</b>	
<b>Description of District</b>	<p>A rural district which is one of the most sparsely populated districts in the country. A large part of the district is within the Yorkshire Dales National Park.</p>
<b>Future Climate Projections</b>	<p>The results of the modelling carried out for the Yorkshire and Humber Regional Climate Change Adaptation Study suggest that the following changes are likely by 2050:</p> <ul style="list-style-type: none"> <li>• Long term annual maximum temperatures are set to increase by 3°C and annual minimum temperatures to rise by nearly 2°C;</li> <li>• The annual average number of hot days will rise slightly;</li> <li>• Winter wind speeds are predicted to rise marginally; and</li> <li>• Winter average rainfall has the greatest rise in the study area, with an extra 15.4mm (~20%) projected.</li> </ul> <p>These figures relate to the nearest modelled cells, which were Stapleton (Darlington) and Askrigg (Pennines / Yorkshire Dales).</p>

## Key Impacts and Adaptation Actions

Although principally a regional / sub-regional study, there are a range of issues that are of particular relevance to Richmondshire District. These are set out below, using the same 'sector' headings as the main report. These points are not the only issues for consideration, however, and should not be read in isolation. Sub-regional and regional reports, as well as the thematic or sectoral areas of the website, do cover other issues relevant to this local authority area.

### Flooding

#### *Key Impacts*

- A greater flood risk (fluvial, sewer/drainage, and from direct surface runoff) due to faster flood flows off the Yorkshire Dales and likely to increase with the increasing seasonality of rainfall bringing higher intensity, flashy flood flows;
- Flooding affecting access along key transport routes between rural towns; and
- Key risk in popular tourist rural areas to highly vulnerable caravan parks and camping sites.

#### *Key Adaptations*

- Improve monitoring and flood warning for upstream areas;
- Ensure flood management strategies are developed in line with rural nature of the area, to retain river channel flow capacity (through the management of vegetation and removal of blockages) and encourage beneficial changes to local land management practices;
- Produce multi-agency response plans to co-ordinate responses during extreme events and ensure clear access routes are kept available; and
- Ensure appropriate planning regulation is undertaken for caravan and camping parks with increased tourism.

### Groundwater and Minewater

#### *Key Impacts*

- There is a generic risk of minewater outbreak from former metal mines due to increase in frequency of multi-day rainfall events in the headwaters of the River Swale: Barney Brook, Hard Level Gill, Gunnerside Gill and Arkengarthdale sub-catchments

#### *Key Adaptations*

- Risk is low due to areas being sparsely populated but monitoring will assist build an understanding of the risks.

## Business and Economy

### *Key Impacts*

- Increases in pest and disease spread, together with more 'exotic' species and increased vulnerability of livestock, may demand changes to management;
- Increased flooding in urbanised and developed areas, combined with increasing temperatures, will increase the risk of contamination within the food and drink industries; and
- Higher summer temperatures are expected to increase demand for leisure and tourism, and especially outdoor amenity over an extended tourist season. However, increased numbers of tourists may place significant strain on existing attractions and infrastructure.

### *Key Adaptations*

- Promote and circulate research developments into the likely impacts of climate change on, in particular, upland agricultural and livestock management. Encourage early adoption of adaptive management strategies, including upland water storage and shelter provision;
- Initiate, develop and review pest management strategies, in particular in rural areas, to ensure the early identification and treatment of species or conditions; and
- Although standards are very high already there may be an increased demand on audit and quality control, and new processes and equipment may be required in the food manufacturing industries;
- Long-term changes in the tourism industry should be built into visitor management strategies, and the expected future needs and demands of increased numbers of tourists should be built into infrastructure and other regional plans, to ensure that development of the industry is sustainable and does not damage natural environments and community structures.

## Public and Voluntary Services

### *Key Impacts*

- Secondary fires that will see the largest proportional increase in incidents. With the North York Moors National Park within the council area, heightened summer temperatures and dryer soil conditions could spark a noticeable increase in secondary fires;
- Coupled with this problem, budgets and personnel requirements may increase as a result of greater required effort, together with impacts on their primary jobs and therefore staff recruitment and retention in rural areas.

### *Key Adaptations*

- Greater education of businesses and visitors about the risks of fire could limit the occurrence of outdoor fires; and
- Emergency planning will need well developed communication links with the Armed Forces Units to prepare for resourcing when required. Catterick Army garrison in North Yorkshire could provide a contingency resource for emergency planning operation and emergency services.

## **Infrastructure and Utilities**

### *Key Impacts*

- Surface melt of rural road surfaces and associated knock-on effects, such as disruption to travel and continuity of welfare provision;
- Increased number of traffic accidents delays on A1(M) and A66 caused by increased winter rainfall and winter average wind speeds;
- Increased demand on water resources;
- Increased tourist and recreational use of Yorkshire Dales National Park;
- Increased blockage of drains, culverts and gullies; and
- Mechanical operations within the water distribution grid could be affected by climate-related disruption to power supplies.

### *Key Adaptations*

- Allow additional resources for use of alternative road surfacing materials in carriageway maintenance programmes to ensure higher melt resilience;
- Weather and travel warnings issued to users of principal roads during storm events;
- Farm-holdings to consider local winter water storage reservoirs to assist with summer irrigation or livestock watering;
- Plan for increased visitor numbers and provide additional public transport;
- Re-evaluate resources and approaches for inspection and clearance of drain, culvert and gulley blockages; and
- Increased awareness of inter-dependencies between critical infrastructure, leading to improved resilience planning.

## **Biodiversity**

### *Key Impacts*

- Increased soil moisture stress as a result of increased temperatures, with heathland identified as a particularly vulnerable habitat;
- Heavy rainfall could enhance localised erosion risk to peat bogs, particularly when combined with other pressures such as recreational disturbance and extraction; and
- Calcareous grassland may be prone to further loss due to the combination of existing pressures plus climate change.

### *Key Adaptations*

- Wherever possible allow natural processes to continue, and therefore adaptation to change to occur naturally;
- An overall expansion in habitat types currently suffering from isolation or fragmentation, to improve habitat permeability. The overall connectivity of existing and newly created habitats needs to be enhanced to enable species to migrate and disperse easily;
- Maximise the potential for different habitats and species to help sustain each other. New habitats may take on functional roles such as buffering natural hazards such as wind, flooding and drought; and
- Limit additional pressures on, particularly sensitive, habitats through more formal management of visitor access and altering land management practices.

## **Health and Welfare**

### *Key Impacts*

- Impacts upon mental and physical health due to increasing temperatures, exacerbated by an increasingly elderly population moving into rural parts of the County; and
- Increased flood risk again exacerbating mental health issues.

### *Key Adaptations*

- Building, and enhancing existing, networks of support and healthcare services to cater for an increasingly elderly population;
- Raising awareness, educating and building community resilience, and encouraging rainwater capture and harvesting and other larger-scale flood preparedness work within vulnerable communities.