

Adapting the Broads to cope with the weather

BUSINESS ISSUES WITH A CHANGING CLIMATE



The Broads Authority and its partners are looking at adaptation to get the best for the Broads from predicted climate change and sea level rise.

*Through the **Broads °C**Community project, we are working with stakeholders to share conclusions to date and common ideas on the next steps. The background information and ideas in this paper are therefore still being formed and are open to debate and change.*

WHAT CHANGES ARE EXPECTED?

- Warmer, drier summers; intense rainfall periods possible; more cloud free days
- Winters that may be a little wetter but with more intense periods of rain and a little warmer
- More extreme weather events, both in terms of frequency and intensity
- Steadily rising sea levels

The latest predictions relevant for the Broads suggest that, by the 2080s, we could expect the weather in Spring, Autumn and Winter to be more like it would be 2-3 months later in the year. This could mean, for example, June weather conditions in March.

The future *average* temperature in Summer would be most similar to the current average *maximum* temperature. Although an average August maximum temperature of 26°C is not that great, the number of days exceeding 30°C seem likely to increase and days that would

have been 30°C could be 34-36°C.

The average January stream (water) temperature might be like those now occurring in May, and May/June temperatures more like those in August. Winter sea temperature is projected to be like that currently experienced in May.

This information comes from 2014 research by Dr. Jeff Price at UEA, updating work first completed for the Broads Authority in 2003.

LESSENING THE SCALE OF CHANGE

Although this leaflet looks primarily at 'adaptation' needs, it is important to remember that the build-up of greenhouse gases in the atmosphere continues to change our climate. The more we can do to limit emissions now and in the immediate future, the lower the rate and range of change that will happen.

Part of the adaptation process is therefore to find ways of rapidly decreasing our reliance on fossil fuels (such as coal, gas and oil). Adaptation planning helps that change as well as making us more resilient to whatever the weather challenges us with in the future.

BROADS ADAPTATION PLAN

The Broads Climate Change Partnership has developed an adaptation plan for the area. A central idea is to take a 'Climate Smart' approach, where the projected climate changes are related to the important assets and qualities in people's lives and localities to see how they might be affected.

This enables you to list your vulnerabilities to climate change. You can then consider what could be done to minimize adverse or maximize beneficial impacts. This creates adaptation options that can be researched to see what is feasible, most effective, economically or technically viable and brings the best benefits.

It is possible that none of the options seem plausible. You may then choose to change the objective/goal and look again at adaptation options to see if the choices are better.

WATER MANAGEMENT

The Adaptation Plan highlights that for the Broads, the future management of water is especially important – something also picked up in the National Adaptation Programme.

Later in this leaflet we look in more detail at the main options regarding flood management, as it seems likely that new approaches will be required to cope with the likely conditions being projected.

As future climate impacts in East Anglia retain a level of uncertainty it will also be important to consider issues around periods of drought and how we can retain the necessary level of water quality (especially as treating poor water quality utilises a lot of energy which currently releases more carbon dioxide).



Will a changing climate bring new opportunities for recreation and sport?

ENVIRONMENTAL CHANGE AND TOURISM

Relating the predicted environmental changes to the special features and qualities of the Broads, some conclusions may be made about the most important aspects for tourism businesses. A preliminary list may include:

Predicted change	Possible/probable impacts
Wetter, warmer winters	<p>Longer tourism season</p> <p>Frost damage to water assets less likely</p> <p>Periods of poor access due to wetness</p> <p>More intense rain, but less frequently</p> <p>Feeling warmer but still prone to rain</p>
Drier, hotter summers	<p>More cloudless summer days</p> <p>Hotter summers promoting more outdoor living</p> <p>Longer tourism season</p> <p>Work in middle of day becomes less tolerable</p> <p>More sun causing more incidents of sunburn and cancers</p> <p>Stress on water supplies – hose pipe bans more likely</p> <p>Lower water levels in the waterways possible</p>
Extreme events	<p>Damage to infrastructure and assets</p> <p>Greater safety threats to visitors</p> <p>Travel options constrained</p> <p>Flood risk – damage, accessibility, time to get back to normal</p> <p>Bad news stories damaging confidence of possible visitors</p>
Sea level rise	<p>Water table held higher for longer</p> <p>Flood risk – damage, accessibility, time to get back to normal</p> <p>Changes to the beach environments around the coast</p>
Other	<p>Diversification opportunities / needs</p> <p>New products and services required / demanded</p> <p>Changing perceptions about the English countryside</p> <p>Different investment parameters need to be developed</p> <p>Supply (and demand) chain impacts</p>
<p>Impacts with generally positive outcomes Impacts with generally negative outcomes</p> <p>Impacts with both positive and negative impacts</p>	
<p>Please do send us your thoughts on whether this table is helpful or how it could be improved</p>	



ADAPTATION OPTIONS

Sometimes it is easy to see how you might adapt – though often it might be important to cast your thinking wider and consider fresh approaches.

As adaptation planning may cover several decades there could be new solutions achievable in the future. Part of the approach is therefore to try and keep as many options

open as possible. At the same time it is also worth remembering that acting now may well save money in the long run.

The table below summarises the kind of responses that may be worth thinking about in more detail.

Style of response to change	Change the management	Change the technology	Relocate assets	Take no action
Resist change, make alterations to keep things same	✓	✓	X	X
Accept change, make no alterations	X	X	X	✓
Accept change, make alterations to get best from situation	✓	✓	✓	X
Accept change, alter goals/strategies/objectives	✓	✓	✓	(✓)

DEALING WITH FLOODING

As more frequent and larger scale flooding is a likely consequence of a changing climate, the Broads °Community is fostering the debate on the best way to manage the situation.

There are three general ways of dealing with this vulnerability:

Carry on as normal

In this approach we tend to slowly upgrade flood defences over time, especially in response to a flood event.

Seek to control and restrain the water

Here the emphasis is on engineered solutions with walls and barriers being built to keep the water out - though as it has to go somewhere, the interventions may cover extensive areas.

Allow water to find spaces and dissipate

This accepts that on occasions there will be excess water that is allowed to go into and onto areas that can cope, such as washlands. It also tries to find natural ways to hold water back and allow it to infiltrate into the

ground.

WHAT DO YOU THINK IS THE BEST WAY FORWARD FOR FLOOD MANAGEMENT?

The Broads °Community wants to know what people think about these scenarios to help inform the development of appropriate policy and practice. Which approach would suit your business and life? Would you be interested in learning more and seeing what can be done on your land? More information can be found on the website (details below) and this will slowly grow as ideas are shared.

Current policy is designed to create an acceptable coping regime. As the impacts of a changing climate and rising sea level start to really influence our environment this is likely to need to change – and we need to start planning now. Significant barriers to retain freshwater will be expensive and technically challenging; finding space for water will require different land management choices by landowners and probably new ways of getting a financial return be it through new crops or support payments.

Please share your views with the Broads °Community. We will draw them together and use them as we develop our plans for the future of the Broads.

JOIN THE DEBATE

Broads °Community wishes to help 'early innovators' to develop their climate adaptation considerations and plans. If you would like further advice and support, or have views to share about adaptation planning - particularly about the choices for future flood management - please contact Simon Hooton / Broads °Community.

Information

Information about the Broads °Community project, including Dr Price's report, is on the Broads Authority's website at www.broads-authority.gov.uk/managing/climate-change

Getting in touch

Email: broadscommunity@broads-authority.gov.uk

Tel: 01603 756025

Post: Broads Community, c/o Broads Authority, Yare House, 62-64 Thorpe Road, Norwich, Norfolk NR1 1RY

