

Climate Change Adaptation
Report by Head of Strategy and Projects

Summary: This paper tries to summarise the work so far on climate change adaptation and explains the Broads Authority's position. Members are invited to review the situation to see if they feel this is the last route to follow.

1 Introduction

- 1.1 During discussions about the Draft Climate Change Adaptation Plan at the Broads Forum meeting on 6 October 2011, Martin George suggested that it would be helpful if the Authority made clear that it was determined to do everything possible to ensure that the region remained the best example in Britain of a predominantly freshwater ecosystem, this despite the threats posed by climate change. In the event, it was suggested that it would be premature to make such a statement at this early stage in the discussions about the draft Adaptation Plan, and the proposal put forward by MG was not put to the Authority. Instead, the next steps being followed (which have been endorsed by the panel of experts set up to advise the Authority on the Plan) involve putting in place a comprehensive series of consultations with local communities and those who live and work in the region. This should help to ensure that people involved have an opportunity to express their views about what, if anything, should be done to adapt to the effects of climate change. In addition, the feedback from this period of community debate will provide the Authority with an invaluable insight into what local people consider as priorities.
- 1.2 The Authority wants to support the Broads Forum in developing its agenda and this paper seeks clearly to set out the situation around climate change for the Authority and enable the Forum to comment on the way ahead.

2 The Process So Far

- 2.1 An important influence for the Authority in looking at climate change implications was the sizeable debate triggered by the press coverage on the work done by Natural England on considering what impacts climate change might have on the natural environment in the Broads Character Area as part of a national pilot considering ways forward.
- 2.2 This demonstrated how important it was for the public agencies to work closely together and for the process to be open and transparent. The Broads Authority has used the Broads Climate Change Adaptation Panel – a high

level panel with representatives of a range of bodies chaired by Professor Kerry Turner from UEA¹ – to steer the work looking at adaptation options and committed it to regularly reporting back to the Broads Forum to keep people informed and seek their advice. All the approved minutes of the Panel have been published on the Authority's website.

- 2.3 Defra has driven the Government's process of creating a national climate risk assessment and has told a range of public and private bodies to produce an Adaptation Plan to help inform the process. The Department also invited other bodies to produce such a plan, an offer accepted by the English National Park Authorities and the Broads Authority.
- 2.4 The Parks developed an outline methodology that sought to create an area-based adaptation plan (rather than just a business continuity plan). The Broads Authority has developed this further, making use of a common risk and opportunity assessment developed by the Parks and the Norfolk County Council Climate Adaptation Tool.
- 2.5 The adaptation planning process is complex, not least because the science of climate change is still being refined. For example, the prediction of impacts 50 to 100 years away is clouded by what we decide to do to reduce greenhouse gas emissions in the next few decades. To help those not closely associated with the details, it was agreed that the Broads Adaptation Plan would develop some initial thinking worked through the methodology, so that wider interests had something more concrete to react to. This activity also showed how many assumptions had to be made (because of a lack of agreed knowledge or information) and the value of bringing more people and perspectives into the process as it progresses.
- 2.6 The Adaptation Plan was re-named an 'Approach', to show that considerable further work was needed with a wider set of people, and sent to Defra. The Panel and the Authority support the idea of now entering into a period where the information generated is shared with different communities, to test the thinking and refine the process. A project plan is being created to run for the next 12 months. Again, this phase will be in conjunction with Natural England, the Environment Agency and UEA and make strong use of links to local authorities and the National Farmers Union (NFU).

3 Main and simplified issues for the Broads

- 3.1 The initial analysis of vulnerabilities – and opportunities – has drawn out that the water resource and how we manage it is the main area of concern. This includes the management of levels (flooding) as well as quality (including increased saline influences) and quantity (public water supply). This is also reflected in Defra's assessment of the priorities for the region, along with impacts on biodiversity loss and food and farming.

¹ Panel includes representatives from Broads Authority, Natural England, Environment Agency, National Farmers Union, local authorities and UEA.

- 3.2 The Broads has of course been coping with flooding for centuries, and the area has many strategies in place to cope with this (such as the Broadland Flood Alleviation Project to invest in flood protection levels). The impacts of climate change do, however, suggest that the area may require a step change in approach to deal with the new frequencies and intensity of flooding.
- 3.3 The details of what will be required does still depend on what we do in mitigation now – but change will happen anyway due to accepted sea level rise from land movement (and especially its impact on river levels) as well as forecasted climate change impacts. Therefore, developing understanding and making informed choices about different water management approaches is seen as important.
- 3.4 The Adaptation Panel's advice, which has been supported by the Forum, is that talking about three indicative scenarios about the potential responses to flood management may be the most effective starting point in spreading understanding and informing the debate about solutions. These outline scenarios were shared with the Forum at the last meeting.
- 3.5 At this stage, the Broads Authority and other agencies are making no judgement about the value or effectiveness of these or other approaches to dealing with the changing likelihoods. Reality may, of course, mean that there will need to be a blend of approaches rather than segmented ones as described. The partner bodies have therefore taken the stance that, although they imagine the area remaining important for its wildlife, heritage and recreational importance, they are not stating a detailed future vision for the Broads at present but are instead waiting to be informed by the engagement process. They do, however, support the current policy of defending the coast and supporting the Broadland Flood Alleviation Project and other catchment management.

4 Future Options for the Broads Authority to Take

- 4.1 The Broads Authority could of course take a different approach to this issue including supporting the principles (if not the exact words) put forward by Martin George. To help consider these alternatives, Table 1 sets out 5 different options with a simple analysis on why they should or shouldn't be supported.
- 4.2 The Authority has to recognise that there are other organisations that will be seeking to set and influence policy, not least the Government and its major departments of Defra and Department of Energy and Climate Change (DECC) who contribute funds for this work, let alone the other main environmental agencies. Any conclusions of the Broads Forum will need to be set alongside these other factors so if the Authority wished to re-visit the options it would consider the matter in the round.
- 4.3 The Authority wishes to work with the partner bodies (especially NE, EA and UEA) to progress the technical understanding and fill the 'gaps' identified from

discussion – such as looking at the costs and technical challenges of protection / adaptation approaches; updating the work on potential barriers and managing the coast; and examining how the public purse mechanisms like agri-environment schemes could be put to adaptation use.

TABLE 1

Option description	Why it should be chosen?	Why it shouldn't be chosen?
State strongly desire to maintain the current values and importance	<p>Gives a clear direction to head for.</p> <p>Creates clear message about importance of area.</p> <p>Supports current jobs / ways of managing which have evolved to meet current challenges.</p>	<p>May stifle debate about other approaches.</p> <p>May be technically and/or financially very difficult if climate changes are large.</p> <p>May restrict evolving options in the future.</p>
State strongly specific alternative future vision	<p>Gives a clear direction to head for.</p> <p>Helps focus effort into working out how to achieve things.</p>	<p>May stifle debate about other approaches.</p> <p>May send a message that a (significant?) proportion of the population dislikes.</p> <p>May blight certain areas of activity (prematurely).</p>
Facilitate the debate over the issues and choices	<p>Gives a chance for a wide range of people to understand the situation and the possible choices.</p> <p>Enables identification of important things we do not yet know.</p> <p>Starts building a common goal that more people will ultimately have greater faith to invest in.</p>	<p>Gives no clear leadership on the way to go.</p> <p>Fails to identify the importance of the current 'assets' and the need to care for them.</p> <p>May fail to involve sufficient people.</p>
Move away from this issue and focus on short term changes only	<p>Takes away the emphasis on something that is not clearly understood by the majority.</p> <p>Allows precious resources to be invested in short term priorities.</p> <p>Allows the complex science to be resolved</p>	<p>May delay planning and action until choices have become (severely) limited.</p> <p>Could support investment in effort proves to be pointless.</p> <p>Shirks from making hard choices (because they are hard?)</p>

	before seeking solutions.	
Take the government line no matter what	Follows the interests of the main funding body. Lessens the potential of future critical close scrutiny of actions. Reflects society's decisions on priorities.	Could get directed into something that loses political favour in the future. Avoids the potential of being driven by rhetoric when clear evidence is not always available. Based on national perspectives rather than local priorities.

5 Summary

- 5.1 This paper seeks to record the process followed so far by the Broads Authority. It provides a wide picture of how the future activity might look. Broads Forum members are invited to consider how this is viewed by their constituents and provide comment and advice to help the Broads Authority to determine its future actions.
- 5.2 The Broads Authority and associated Climate Change Adaptation Panel bodies feel the priority is to take some of the preliminary thinking to a wider audience of other interests in a gradual and productive way. It wishes to share and test the thinking behind the climate change adaptation approach, to see if it is possible to move towards a consensus on the way to adapt the Broads to the inevitable climate changes predicted. The Authority will use the objectives and priorities identified in the Broads Plan to guide its work and its efforts to influence others. At this stage the belief is that it would be counter productive to boldly state an outcome for the Broads over and above recognising the major contribution it makes to the quality of life and a desire to see the area continue to have great value in the future. The Authority will continue to support the existing policy to protect and conserve the area while helping to have a fulsome and productive debate about future choices. It will seek ways of filling the gaps in knowledge and understanding on how climate change will impact on the Broads. The endorsement of this approach by the Broads Forum would be welcomed as would any further advice on how to work effectively with wider interests in addressing the impacts of climate change.

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Appendices: APPENDIX 1 – A simple summary of the possible impacts facing the Broads in the 2050s if a medium emission scenario provides to be correct

A simple summary of the possible impacts facing the Broads in the 2050s if a medium emission scenario proves to be correct

These are succinctly summarised in the biodiversity report produced recently by UEA:

- **Hotter summers** - with summer mean temperatures predicted to increase by 2.5 C
- **Drier summers** - with mean summer precipitation predicted to decrease by 17%
- **Milder winters** - with winter mean temperatures predicted to increase by 2.2 C
- **Wetter winters** - with winter mean precipitation predicted to increased by 14%
- **Sea level rise** - relative sea levels in Great Yarmouth predicted to be 24.3 cm higher.

It should be noted that the rate at which these changes occur will depend on a whole range of variables, not least the extent to which the emissions of greenhouse gases are increased or decreased.

All these factors will impinge to some extent on the region. For instance, reduced flow rates in the rivers during the summer months (as a result of reduced precipitation) will reduce the dilution currently afforded nutrients and other pollutants. Similarly, the progressive increase in mean annual temperatures can be expected to exacerbate the growing problem of the colonisation of the region by invasive and disruptive plants and animals currently confined to the continent. But the main problem will almost certainly stem from the progressive rise in relative sea levels, and a corresponding increase in mean water levels in the rivers which can be exacerbated by extreme events. The rise will, in turn, lead to changes in the distribution of saline, brackish and freshwater communities in each river system, as well as an increase in the number of occasions when waterside dwellings, boatyards etc are subject to flooding.