

Broads Climate Change Adaptation Plan
Report by Head of Strategy and Projects

Summary: The draft Broads Climate Change Adaptation Plan (full and summary versions) was subject to public consultation between July and September this year. A limited number of replies were received and comments made have been summarised along with a proposed response. In general, the comments either drew attention to the complexity of the subject and the need to relate actions more clearly to everyday situations, or sought a bolder set of actions to take things forward. The paper suggests the next steps including developing clear collaborative actions, more work around saline incursion, and finding resources to advance interpretation and help changes in understanding and behaviour. The views of the Broads Climate Change Adaptation Panel will be reported verbally at the meeting.

Recommendation:

Members are asked to:

- (i) note the comments received and agree the proposed responses in modifying the full and draft climate adaptation plans by the end of 2015;
- (ii) support the principles outlined in 2.3;
- (iii) support the recommendations from the Climate Change Adaptation Panel about the proposed next steps (shown in para 3, but subject to modification after the Panel meeting on 5 November 2015).

1 Background

- 1.1 As part of the Climate Change Act, English National Parks were invited by the Government to submit a climate change adaptation plan under the Reporting Powers legislation alongside the statutory plans needed from bodies like utilities and infrastructure agencies. The Parks agreed and worked to a common framework. In developing its plan the Broads Authority worked through the Broads Climate Change Adaptation Panel, which brought into partnership key bodies like the Environment Agency, Natural England, the National Farmers Union and the University of East Anglia. The drafting process demonstrated the need for more discussion with a range of stakeholders to get different perspectives, and therefore the Broads Authority submitted only a preliminary draft plan to Defra in 2011.

- 1.2 The Panel then developed a process for greater local engagement. However, with the national emphasis on the economic downturn, climate issues tended to be downplayed and the dialogue was limited in its success. The information already gathered informed the writing of a more detailed draft plan to help people consider the issues. To support the consultation process, the Panel produced material under the 'Broads⁰Community' brand, a user-friendly brand on behalf of the partnership.
- 1.3 Through the development of the draft Plan it was clear that the climate impacts and solutions remained complex and greatly variable, and it would be better to suggest an approach that allowed people to consider their own vulnerabilities and possible actions to improve resilience and adaptation. This led to proposing a 'climate smart' approach, whereby a series of steps helps any organisation to consider its risks and opportunities and promotes open thinking around future actions.
- 1.4 Defra is keen to see a comprehensive and technical document submitted with evidence on the local thinking and data. It became clear that such a large document would not be that helpful in eliciting thoughts from our main stakeholders. Therefore a summary document was written and promoted as the main document for consultation (although the draft full Plan was also available for comment).
- 1.5 The documents were placed on the Broads Authority website, with paper copies available on request. The documents were promoted from July with emails sent to the Broads Authority's standard consultation list (from parish councils to user groups as well as statutory bodies) with a closing date of 18 September. An offer was also made for an officer to attend any relevant meeting to talk about the documents and the concepts within them.

2 Consultation and learning

- 2.1 In all, 14 responses were received and these are summarised in Appendices 1 (summary document) and 2 (full document), together with suggested responses. Although there were limited responses, useful points were raised.
- 2.2 The main learning from the responses can perhaps be condensed into:
 - The subject is complex and community responses suggested that it was still not clear how this really related to their everyday lives.
 - It is important to give consideration to all elements within the Broads, ensuring that impacts and actions encompass people as well as the environment and that the network of environmental assets is considered.
 - There is a general desire for something more specific about what was actually going to happen, as there was a need for a bold and clear plan of action.
 - The importance of managing water holistically, including exploring the implications and possible actions regarding the incursion of saline water, was supported.

- The climate-smart approach was supported and those that commented also supported the initial analysis around flood risk and sea level rise.

2.3 From this, the following principles are suggested:

- A. The concept of taking a climate-smart approach continues to be promoted.
- B. The importance of working together to develop integrated responses to a changing climate. This will grow in importance to ensure sector actions do not develop unintended adverse impacts elsewhere.
- C. The need to increasingly seek a holistic approach to water management and to embed understanding on how critical good water care is for the Broads.
- D. The Broads Plan (currently under review) is the document to express the aspirational and guiding strategic approach to get the best for the Broads from a changing climate. However some more detailed and specific plans to take integrated action and make a difference are also needed.

3 Next Steps

The Broads Climate Change Adaptation Panel has been asked to consider the following suggestions and their recommendations will be reported verbally to Members at the meeting.

- 3.1 **Documents:** Revise the full Climate Change Adaptation Plan and the summary document, taking into account the consultation responses received. This will include building in a description of the consultation process and outcomes within the full document. Both documents will be submitted to Defra and posted on the Broads Authority website with a target of the end of 2015.
- 3.2 **Interpretation:** There is a need to improve the awareness and understanding about the implications of a changing climate for the Broads to enable people to have confidence to take a climate-smart approach, assess their own vulnerabilities, and start planning ahead to use the need to change to their advantage. This can be tackled in three ways:
 - 3.2.1 **Broads Plan and other plans:** The current review of the Broads Plan enables climate change issues to be clearly embedded throughout the document and demonstrate how adaptation planning can be part of normal forward planning. There is also a need to scope and start drafting a 'water plan' across the Broads to aid future holistic water management and developing the evidence/knowledge about integrated adaptation changes to retain the special qualities of the Broads.
 - 3.2.2 **Using protected landscape adaptation actions to influence behaviour change in others:** A project being developed to interpret the climate change actions being taken in the Broads and other protected landscapes to particularly inform visitors and then influence their behaviour at a community level, needs

to be finalised and brought to fruition. It will require external funding to implement, initially at a pilot scale, with the hope of rolling out to other National Parks and AONBs.

3.2.3 Provide support to selected interested parties in our priority groups (farmers, tourism businesses, parish councils and young adults) to develop examples of climate smart assessments and action plans so that a body of good practice develops for sharing with others.

3.3 **Saline incursion:** The risk of more salt coming into the Broads' system remains and further work is needed to consider what can be done. Two initial strands of work are suggested:

3.3.1 The Broads Authority is supporting a new PhD study at UEA modelling longer term (20 years+) impacts of a changing climate and rising sea level and how this affects flood risk and saline incursion. The study will also consider the response to the modelling undertaken by communities and stakeholders – does it improve understanding and confidence to act?

3.3.2 The Climate Change Panel will press the Environment Agency to revisit their work on barriers to update understanding on technical feasibility and financial implications. This should then give more clarity on options for retaining a predominately freshwater system for as long as possible and allow a more open discussion with local and national interests

3.4 **Partnership working:** There remains a strong need to continue to work in partnership so that common approaches can be developed. This may be helped by:

3.4.1 The Adaptation Panel becoming known as a Partnership and retaining flexibility on who is invited to join and participate in the partnership – though primarily retaining its high level representation.

3.4.2 The Partnership to identify key bodies that can lend support to the differing elements in an action plan and invite their involvement.

3.4.3 The Partnership seeking to strengthen links to academia and encourage new research and the development of possible visions for how the Broads might adapt to the changing circumstances.

3.4.4 To continue to press the Broadland Rivers Catchment Partnership and the various (and evolving) coastal partnerships to realistically take account of the vulnerability of the Broads and develop ways of making the area more resilient and adapting to get the best for the Broads.

3.4.5 Working closely with the Environment Agency to undertake effective dialogue about future flood risk management options as the Broads Flood Alleviation Project comes towards its conclusion.

Background papers: Climate Change Adaptation Plans on Authority web site

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Broads Plan Objectives: CC2, CC3, CC4

Appendices: APPENDIX 1 – Summary of consultation responses to draft summary document
APPENDIX 2 – Summary of consultation responses to full draft plan

Summary of responses to Broads Climate Adaptation Plan – SUMMARY DOCUMENT

Name/ organisation Alphabetical order	Location in Plan	Comment	BA response
Anglian Water		Nothing to raise	Noted
Beccles Town Council		Considered pragmatic and workable document but raised many questions which were not answered. Some adaptation options raised neither practical nor acceptable. (e.g. option ‘e’ table 3).	Intention was to show the need to have wide ranging thinking about possibilities; though agree the realistic choices may be much more limited.
	Page 15	List of bodies to be involved in the future appears to miss out parish and town councils and other interest groups. They need to be fully involved and kept informed of progress	Support. Intention is to work with communities (spatial and of interests) to help develop understanding and expertise and encourage action.
	All 6 questions	Happy to give a positive response to them noting the above	Noted
Broads Society		Differing views generated in considering document. The Society notes the plan’s content	Noted
Historic England	Q1	Need to refer to the whole historic environment as a fundamental part of what makes the Broads special: reference in particular to historic landscape and archaeology would be welcome. Adaptation response should aim to conserve the significance of affected heritage assets and seeking to avoid unintended harm.	Support. Support. Will seek to incorporate
	Q2	The possible adaptation options are reasonable at the broad level; actions to record assets before they are lost are helpful but should be	Support. Noted for text review

		<p>the last resort after efforts to preserve assets in situ are exhausted.</p> <p>Water abstraction and holding back water could impact on heritage assets and need to be considered carefully. Similarly for actions related to flood management. Coastal adaptation (fresh/salt impacts) and extreme events response can also have impacts. Moving historic assets would be radical and very much a last resort.</p>	Support. Noted for text review
	Q3	The production of climate-related risk management plans for specific heritage assets, or types of heritage assets, would be helpful.	Support.
	Q4	Encouraging people to do their own planning and adaptation is positive though professional advice and support should always be sought where proposals have the potential to affect heritage assets	Support. Noted for text review.
	Q5	<p>Section 5 / Table 3 does make reference to the historic environment though not always consistently. Evidence gathering to monitor and predict future conditions should include information and analysis on the historic environment. Agree with the need for further detailed discussions around options and would be pleased to be involved in those to help protect the heritage assets.</p> <p>Support retaining the freshwater elements for the time being and recognise that careful consideration will be needed around future adaptation.</p>	<p>Noted for text review. Pleased to see offer of help.</p> <p>Noted.</p>
	Q6	Steps outline in 5.6 are appropriate provided they include discussion, evidence gathering and analysis of the historic environment involving Historic England where needed.	Noted.
D Howard, Newcastle Uni	General	No real reference to coping with projected sea level rise of nearly 1metre by end of century	Text sought to take a positive outlook when possible and avoid 'scare-mongering'. Comment is valid and noted for text review.

Norfolk and Suffolk Boating Association – R Card	General	Consider the water quality of the Broads of fundamental importance and all that is necessary must be done to retain to the greatest extent a fresh-water system. Principal issue not the prevention of flooding itself but stopping the threat of saline impacts. Planning needs to consider storms and sea level rise.	Noted. Threat of saline impacts is recognised though options for management remain limited at present. Support the need to include planning for storms and sea level rise so noted for text review.
		No mention about the impact of dredging with respect to flood prevention and resisting salt levels in rivers. Dredging Breydon water and re-instating surrounding salt marshes might be effective in reducing saline incursion and effect of surges. Dredging to an adequate depth throughout the system obvious importance to flood/saline impacts	Whilst dredging can contribute to flood protection there is current debate seeking to learn from experiences in Somerset to ensure it is cost effective and appropriate. Amounts of fresh-water for flushing and resisting salt needs to be considered.
		Views differ as to the practicability of barriers to prevent flooding but would encourage further investigation of new technology/options to provide protection saline incursion.	Support need for improved understanding around management methods for saline incursion.
Norfolk County Council		Comments primarily led by Green Infrastructure team and NCC reserve right for further comment as ideas evolve	Noted.
	Q1	Need to assess if current special qualities are sustainable. Take joint approach between all levels/types of authorities and land owning bodies to plan to cope with shifts. Need to consider qualities as interrelating with the interconnections as important	Support need for considering interrelationships and promoting collaborative approach between different bodies.
	Q4	Agree to people doing their own climate-smart planning which will need support to understand and interpret what is needed. Perhaps template to help? Provide material on line and on paper and with face to face options	Support the need for further assistance in developing skills around climate-smart planning and note template idea as an option.
Norwich & Norfolk Local Transport Group - D Carlow	General	Worried that the BA are suggesting they are concerned about climate change but raised no sustainability objections to the Norwich Northern Distributor Road which will increase emissions. Worries would also relate to any support for Acle Straight dualling. Need to protect the	Concerns noted. Balancing pros and cons on decision making can be testing and proving direct impacts can be challenging. Broads ⁰ Community approach hopes promoting climate-smart approach will help identify

		environment.	long term needs are not lost in short term goals.
RSPB	General	Detailed comments on the plan in appendix. These would have been easier to make with more detailed numbering (esp Table 1).	The RSPB have provided some helpful detailed comments on the content of the plan. These have not been comprehensively listed in this summary due to space but hopefully all substantive items are summarised. These will be followed up specifically with them and incorporated in iterations of the plan. The need for better numbering is acknowledged.
	General	<p>Impacts and adaptation options are a good start but remain high level and too ill defined to provide certainty that appropriate long term measures will be implemented.</p> <p>Plan must not be overly focused on flood risk and should consider holistic water management and other factors like invasive non-native species.</p> <p>Need to recognise the opportunities climate change brings</p>	<p>Intention was to use the first full plan to raise awareness about the scale and scope of needs and encourage further action. Support the need to get on with a more detailed plan of action.</p> <p>Support need for move to holistic water management. Emphasis on flooding because deemed as highest risk.</p> <p>Support the need to include opportunities where relevant.</p>
	General	Appears to be noticeable difference between summary document and full document. E.g. why no table 2 in the full plan? Need to incorporate into the full the consultation process and outcomes	Full plan developed to a point where reactions of stakeholders were needed. Summary document developed to help stakeholders respond to significant elements. Will use the consultation to update and improve full plan and will include reference to consultation process and outcomes.
		Consider Breydon Water to still function as an estuary (not a relict)	Noted for text review.
	Section 3 / Q1	The special qualities represent the range of interests in the Broads However the plan lacks clear strategic intent for the next 25-30 year period incorporating the environment, biodiversity and maintenance of the integrity of the protected area network within a balanced	Noted for text review the comment that the environmental elements are sometimes not equally referred to. Intention was to use the consultation process to help gauge stakeholders' priorities in

		approach to adaptation across all interests. Need to consider opportunities as well as impacts	setting the medium to longer term strategic intent. Support idea of a clear future vision
	Section 5	Greater clarity on the range of water pressures (quality, resources as well as flood) and the need for a holistic approach to adaptation options rather than the current emphasis just on flood risk	Support. Noted for text review.
	Section 5	Further clarity/emphasis needed on the risks and opportunities related to species especially invasive non-native species	Noted for text review. Difficult to be sure non-native species invasion is due to climate change as opposed to accidental introductions.
	Q2	Table 1 costs and impacts are overly optimistic in places such as related to coastal change and where habitat creation is identified.	Initial ideas set down to gauge other's views. Noted for text review.
	Q3	Oversimplification of the issues and measures; lack of a holistic plan for water management; lack of ambition in identifying opportunities; the need to be proactive and with less emphasis on letting market forces determine action (e.g. tourism related).	Summary plan written for all stakeholders with the intention of helping raise awareness and understanding perhaps from a low base. Difficult to identify intervention options when there remains ambivalence to act in places and insufficient powers /political will for change. Holistic water plan is supported although mechanisms for change are still unclear.
	Q4	Support the climate-smart approach and the need to plan strategically but need to allow individual groups to identify the best approach for them. Ultimately unless interests work together the Broads climate adaptation plan is unlikely to be effective.	Support. Intention was to provide a structure for those wishing and needing to act including an overall approach for a spatial area. Individual actions are welcomed and the need for a collaborative approach for effectiveness is seen as important.
	Conclusion	A Climate Adaptation Plan for the Broads is essential to inform a consistent approach to management across the Broads in the future. The draft plan provides a good basis and aligns with the work that the RSPB is currently undertaking around its Futurescape areas and reserves. However, there remain a number of refinements that are	Comments noted for text review. Support the idea of creating a clear and bold vision to stimulate action. Futurescape work is a good example of strategic thinking. Welcome the opportunity to work together positively to evolve and effective approach.

		<p>required if a truly effective plan is to be created and implemented.</p> <p>The RSPB looks forward to working positively with the Broads Authority to support the development of an appropriate climate adaptation plan.</p>	
South Norfolk Council	Q1	List seems relevant and comprehensive and a reasonable list to use. Perhaps need reference to communities to include a human dimension	Support need to ensure human dimension is included.
	Q2	In table 1 there are places where reference to impacts on communities needs to be added – e.g. under sea level rise and flash flooding	Support. Noted for text review.
	Q4	Support the idea of local climate smart planning. May need to be support to help with the analysis and subsequent actions. Some can be tackled locally but may need to be a mechanism to coordinate action across wider areas	Support the need for assistance to develop planning effectively and that coordination of actions for larger scale change is likely to be needed.
	Q5	Agree with analysis of flood risk	Noted and welcomed.
	Q6	Agree with next steps being proposed and having nothing to add	Noted and welcomed.
R Walpole	General	Can reviews of flood management include consideration of the provision/improvement of footpaths?	Noted.
Woodbastwick Parish Council	General	Not an 'easy read'; recognise it is complex but would like at some point a document relating to 'our community'	Intention was to try to make a complex subject accessible but when writing succinctly for a wide range of stakeholders examples may not always been ideal. Happy to explore how we can support community interests more.
	Q1	Special qualities argument should not override the needs of local people	Support the need to ensure local communities are considered part of the special qualities.
	Table 1	Impacts and adaptation options seem heavily weighted to tourism /	Noted for text review. Intention is certainly to take a

		market forces: Should be qualified with regard to local communities need	rounded view helping residents and visitors.
	Table 2	Example not good for local communities. Support idea of own climate smart planning but will need technical support/advice and mechanism to involve local people in changes needed	Support the view that technical information and helping mechanisms will be needed and would welcome local community involvement in developing that.
	Q5	Agree with flood risk analysis and support preliminary conclusions	Noted and welcomed.
	5.6 3 rd para	Support principle of need for high quality information and needs to be appropriate to local level to help engage people	Noted.

APPENDIX 2

Summary of responses to Broads Climate Adaptation Plan - FULL PLAN

Name/ organisation Alphabetical order	Location in Plan	Comment	BA response
J Ash, BA member	P4, third line	Use the phrase 'water resources' – bit ill-defined what you are referring to	Will clarify – means water management in all its forms
	P6, first para	Climate over 30-50 years. Isn't the time frame longer and more like 100 years ahead?	Will clarify. Refers to the blocks of time used to reflect climate: normally 30 year blocks but occasionally longer – and these are used to look forward over the century.
	P7, bullets	Add sea level rise and its impact in the Broads.	Support. Noted for text review
	P7, last para, first sentence	Explain more fully how the sea level affects flooding in the Broads.	Support. Noted for text review
	P10, Table	Add into title the example is 'a riverside footpath'	Support. Noted for text review
	P12, bottom para	Add in sea level rise	Support. Noted for text review
	P13, Table	Indicative cost. Needs a bit of explanation about its meaning. Is the gap for options for Hotter drier summer deliberate?	Support. Noted for text review Error. Will put in something.
	P14, Sea level rise line	Put in strengthen RIVER defences alongside coastal ones	Support. Noted for text review

	P15, top line Squeeze of coastal	Salt barriers – explain what is meant Add ‘....against high ground and barriers	Support. Noted for text review
	P16, Tidal surges box	Add river management plans alongside Shoreline Plans	Support. Noted for text review
	P17, first line, First para	Clarity over meaning for ‘water resources’ Improve to draw out it is a tidal system throughout	Support. Noted for text review Support. Noted for text review
	P17, Climate impacts bullets	Add in another bullet point referring to squeeze of riverine habitats	Support. Noted for text review
	P18, top bullet pts	Add ‘Loss of river habitats’	Support. Noted for text review
	P21, Table, b. d.	May want to expand /explain ‘current legislation’ May want to add into considerations that this would only be a medium term solution	Noted for text review
	P23, top para	May need another look to make it clearer and more precise	Noted for text review
	P27, 2.9	Do the projections of absolute sea levels include isometric change? Would reference to river level changes be helpful?	Will check/ review
	P29,	Include that EA do design and construction of sea defences	Support. Noted for text review
	P31	Water and sewage companies: review what they do as limited work on flood management	Will review

	P32	IDBs: put in clearly that the core role is land drainage	Support. Noted for text review
L Johnson, Environment Agency, Sustainable Places planning advisor	Glossary	CAMS defined as including monitoring for failing water quality. This is not the case and needs to be changed	Support. Noted for text review
Further comment will be made by the Environment Agency through the Adaptation Panel's deliberations on next steps			