

What adaptation and  
who decides?  
Progress in the Broads



# My presentation

- The Broads
- The reporting process
- Adaptation plan: approach and learning
  - Dialogue needs
- Climate change and navigation interests

# The Broads

- A member of the National Park family created through an Act of Parliament
- Three purposes of
  - Conserving and enhancing the area
  - Enabling enjoyment and understanding
  - Protecting the navigation
- The UK's largest lowland wetland and third largest inland navigation

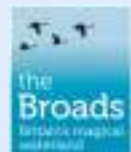
- 303km<sup>2</sup> in Norfolk and North Suffolk
- 6 rivers entering the sea at Great Yarmouth with over 200km of navigable waterways
- 25% of the land designated as if international wildlife importance
- 9 National Nature Reserves, 28 SSSIs
- Population of about 6000
- 7 million visitors a year contributing over £400million to the economy





The Broads is a uniquely beautiful area - the jewel of Britain's family of national parks. It is a magical place where land and water, people and nature meet, and time seems to stand still. An intricate maze of interconnected rivers and smooth, reed-fringed open waters invites exploration and rewards the curious. You can get so close to nature and every turn reveals a new secret.

“..a breathing space  
for the cure of souls”  
Ted Ellis



# Predicted climate change

- Hotter, drier summers
- Wetter warmer winters
- More extreme weather events
- Rise in sea level





# Reporting power

- 90 organisations told to report to Government to help formulate the UK Climate Change Risk Assessment
- Others, including the English National Parks & Broads Authority, invited to report as well
- Providing an Adaptation Plan by end of September 2011



# The Broads Climate Change Adaptation Approach

Preliminary Draft



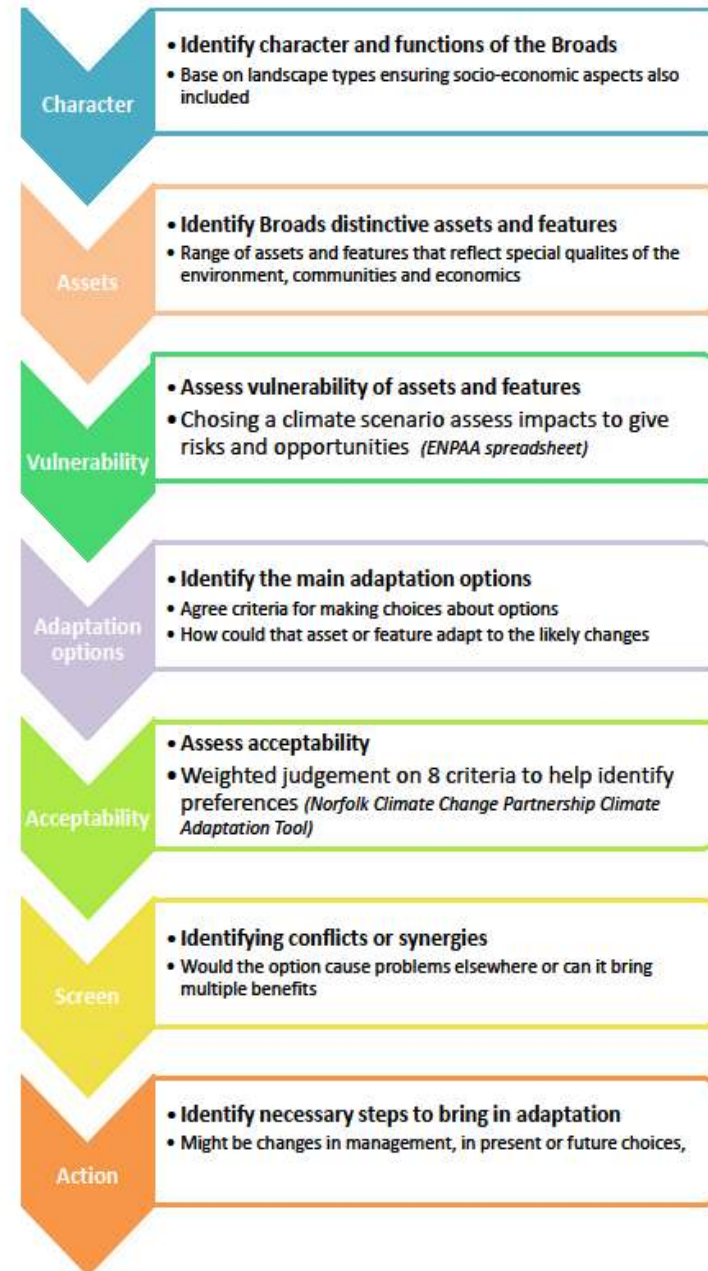
Acting as the Adaptation Plan for the Broads for the  
Government's Adaptation Reporting process

September 2011



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## Broads Adaptation Plan Methodology



Transparent process informing stakeholders – especially organisations, landowners and communities - of progress made and where they can contribute.  
Undertake compelling interpretation to reduce complexity and gain support

Ref	Special quality asset or function	Climate change variable	Impact
SQ1	Lakes (Broads)	Wetter winters	Higher water levels and flooding of adjoining land More run off from adjacent land into broads Increase duration and depth of flooding
		Drier, hotter summers	Lower water levels – possible pressure to increase winter usage; More plant growth; Stress on fish More tourists opportunities & pressures from them Less flushing
		Extreme events	More bank-side erosion from wave wash Run off impacts + pollution
		Sea level rise	Higher water levels and flooding of adjoining land Less predictability of water levels Mooring and staithes threatened Saline incursions changing plant and animal life
		Other	Tourism season extends Non native species invading: problems and possibly benefits
Indirect impacts		As flood defences change to cope, more raised / strengthened banks beside the broads	

Ref	Special quality asset or function	Climate change variable	Impact
SQ2	Winding rivers	Wetter winters	Higher water levels and flooding of adjoining land Run off impacts Velocity changes – channel and sedimentation changes Draught on bridges – hard to get under more often
		Drier, hotter summers	Lower water levels; depth impacting on boating? More plant growth; More tourists – opportunities & pressures from them Lower flows not holding back the salt incursion
		Extreme events	More bank-side erosion from higher energy water Run off impacts – pollution and silt
		Sea level rise	Higher water levels and flooding of adjoining land Less predictability of water levels Mooring and staithes threatened Saline incursions altering plant & animal life
		Other....	Arable pumping might increase level of salt coming down the river in the drier summers Non native species: problems and possibly benefits

A			
Access, recreation and tourism			
	Special quality	Climate conditions	Impact 1
1.1	Water access	Hotter summers	More plant growth ♠
1.2		Extreme events	Storms affect boats ♠
1.3			Silt waterways ♠
1.4		Sea level rise	Flooding ♠
1.5			Draught under bridges ♠
2.1	Land access	Wetter warmer winters	Route damage ♠
2.2		Extreme events	Flash floods ♠
2.3			Damage to infrastructure ♠
2.4		Sea level rise	Flooding threat ♠

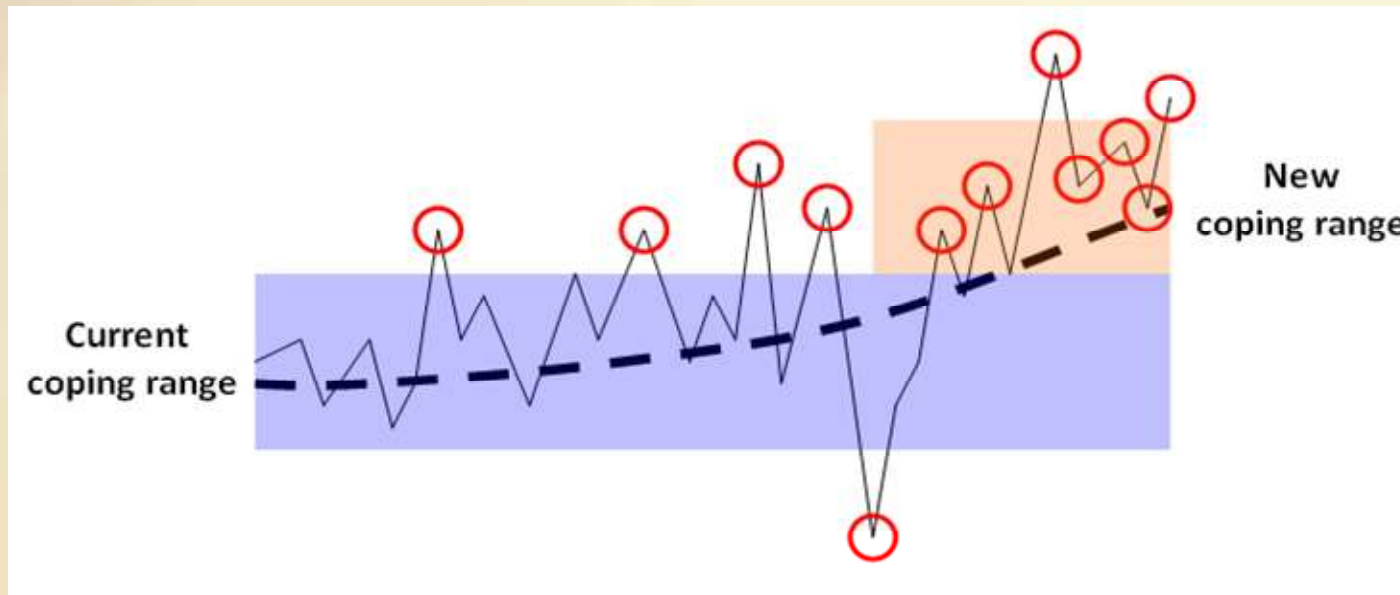
B			
Biodiversity			
	Special quality	Climate conditions	Impact 1
1.1	Fen	Hotter summers	Scrub growth (♠)
1.2			Fire threat (♠)
1.3		Wetter warmer winters	More diversity (♠)
1.4			Harder management ♠
1.5		Extreme events	Water depth ♠
1.6			Water fluctuations ♠
1.7		Sea level rise	Water quality decrease ⊕
1.8			Flooding threat ♠
2.1	Open water	Warmer wetter winters	Run off from land ♠
2.2		Extreme events	Greater erosion ♠
2.3			Run off ♠
2.4		Sea level rise	Water quality ⊕
2.5			Flooding threat ♠

# Communication plan

- Dialogue with wider interests
- Translate the complex and the technical into something understandable
- Using three scenarios as a starting point:
  - Business as usual
  - Control and direct
  - Make space for water
- Innovative dialogue techniques over time?

# Understanding adaptation:

How does adaptation happen?



# Results expected?

- Raise quality of debate and identify what else we need to know
- Will need to become spatially specific
- Need to explore the governance mechanisms
- Controlled by money? Or Policy?
- Will take time
- Mitigation will merge with adaptation?
- All the other issues are also important

# Climate change issues for navigation

- Getting to your boat
- Running your boat
- Discharges from the boat
- Maintaining the system
  - Dredging
  - Flood defence
  - New infrastructure
- Leadership?