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Suffolk Estuarine Strategies

Blyth Estuary Strategy

Options Consultation Document

February 2004



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Our work includes tackling flooding and pollution incidents, reducing industry's impacts on the environment, cleaning up rivers, coastal waters and contaminated land, and improving wildlife habitats.

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Introduction

The Environment Agency is responsible for managing the flood risk arising from rivers and the sea, in many areas.

There are several areas in Suffolk that are becoming increasingly susceptible to flooding. The Agency has commissioned the development of long-term strategies to manage the flood defences for three of the Suffolk Estuaries: the Blyth, the Alde and Ore and the Deben. This project is known as the 'Suffolk Estuarine Strategies'. These flood management strategies are being developed over the next 2 years starting with the Blyth estuary (see Figure 1).

Additionally, certain areas on the Blyth estuary have been identified which would benefit from prompt action through the development of flood management works. These areas encompass the Tinkers and Reydon Marshes and the length of river between Blyford Bridge and Blythburgh Bridge.



Figure 1 Location of Area

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The aims of the Blyth Strategy Flood Management Options Consultation

A number of potential flood management options for the Blyth estuary for the next 100 years have been identified and are currently being evaluated.

This consultation document is the first stage of the option assessment process and follows on from *'The Blyth Estuary Strategy: Introduction to the Strategy - June 2003'* and comments gratefully received from the consultees during this period. It provides interested parties with the opportunity to express their opinions and concerns about the proposed options at an early stage of the project.

The objectives of this consultation document are to:

- Describe the flood defence options that are being considered
- Seek the views of interested and affected parties
- Identify key concerns of individuals and organisations
- Seek detailed environmental and technical data for the study area

Consultation with organisations and individuals who are interested and/or affected by the proposed will be undertaken at key stages throughout the programme as shown in Table 1. The parties to be consulted are listed at the end of this document.

What are the possible Flood Management Options?

In response to an increase in the risk of flooding in differing coastal and estuarine environments there are a variety of general flood management options available.

Such options may be used in combination to produce an overall Preferred Estuary Strategy Option. This preferred option is unlikely to be made up of any one option throughout the estuary.

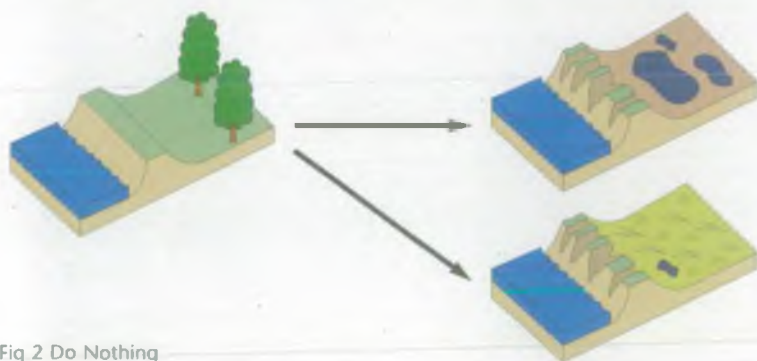


Fig 2 Do Nothing

Do Nothing (see Fig 2)

This option would involve ceasing all maintenance, repair and renewal work and any monitoring of the defences associated with this. The defences would eventually fail and the areas currently protected from flooding would no longer be protected. Existing sluices and weirs would also fail over a period of time. This may alter the estuary water levels and the area flooded in the estuary up to the current tidal limit and beyond. If adopted on a large scale, the Do Nothing option may eventually cause the estuary to change shape to a narrow upstream channel opening out to a wide mouth at the coast. Depending on many local factors the flooded land may then turn into mud flat or saltmarsh. Conversion of land to estuarine habitat could ease the pressure on more critical flood defences in other parts of the estuary.

The Do Nothing option is used as a flood defence option when technical, environmental and economic assessment indicates that this is justifiable. However, the Do Nothing option also provides a starting point against which all 'Do Something' options can be tested. i.e. The potential benefits or costs to the local and national economy, local amenities and environmental features as a result of the 'Do Nothing' option, are used to identify the benefits and costs that the implementation of other options might bring.

Also considered alongside Do Nothing is 'No Active Intervention'. No active intervention is the same as the Do Nothing option but with continued monitoring and assessment of the defences until such time as Do Nothing or a 'Do Something' option is considered to be appropriate.

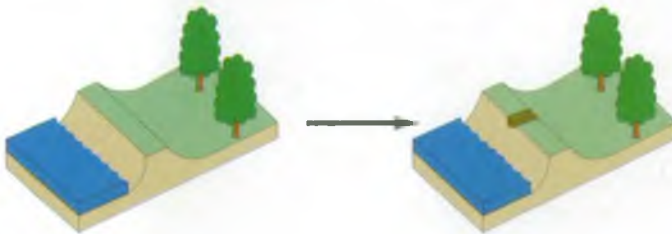


Fig 3 Do Minimum

Do Minimum (see Fig 3)

This flood defence approach involves 'Limited Intervention'. Limited Intervention entails only undertaking work to maintain and repair the existing line of defence when it is an emergency for health and safety reasons. This will lead to a reduced standard of defence over time due to the effects of sea level rise so the long term impact would be likely to be similar to the 'Do Nothing' option.

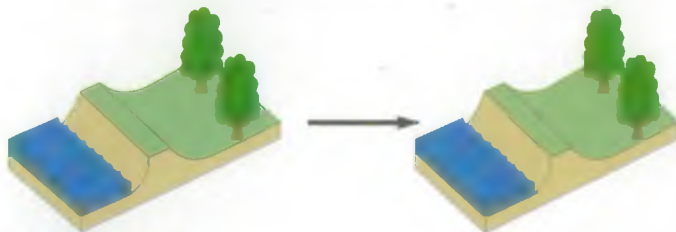


Fig 4 Hold the Line

Hold the Line (see Fig 4)

This flood defence option involves, through management, holding the existing line of a length of defence where it is. This may involve maintenance, repair work or improvements to the defence. However, due to sea level rise, holding the current line of defences is likely to require the existing defences to be substantially altered or completely reconstructed if they are to provide the same level of protection in the future as they now provide. Holding the line restricts the ability of the estuary to respond to changes in sea level and may result in increased pressure on defences.

Advance the Line (see Fig 5 and 6)

This involves building certain flood defences, such as walls or embankments, in front of existing defence, moving the line of defence forward into the estuary. The construction of tidal barrier or barrage can be also used to advance the line of defences, where appropriate.

The aim of a barrier or barrage is to stop flood tides from passing upstream beyond a certain point, limiting the area at risk from flooding in the estuary. The structure could be permanently in place, which would affect upstream water level management but could reduce pressure on flood defences down stream. It would also limit navigation upstream. Alternatively a tidal barrier could be a moveable structure that could be raised and lowered to protect upstream areas from very high tides that would cause flooding, but would not affect the estuary at any other time.

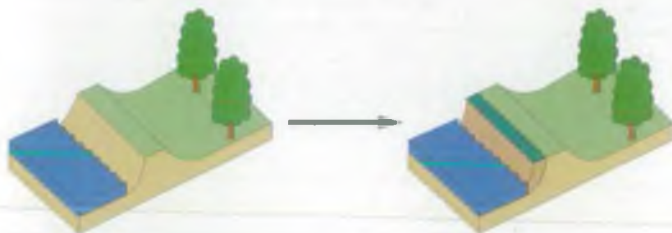


Fig 5 Advance the Line - defence wall

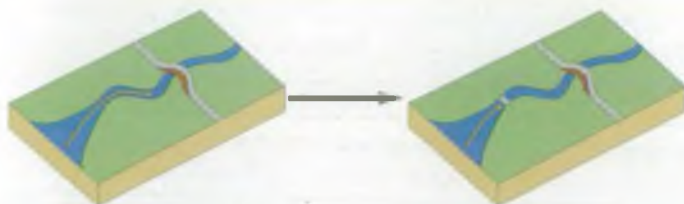


Fig 6 Advance the Line - tidal barrage or barrier

Managed Realignment (see Fig 7)

Managed realignment involves the partial or complete removal of a stretch of flood defence at a specific site, or movement of the line of defence onto the land behind. This allows the tide to inundate the exposed land during each tidal cycle allowing the estuary flood plain to expand until it meets higher land or the line of the new defence. Managed realignment could be implemented over time in a phased approach by building a new defence behind a current defence. This new defence could itself be set back at a later date, so allowing the estuary to be realigned to higher ground over a number of years, in a more controlled way than simply breaching the defence line, or allowing it to fail.

Depending on many local factors, the flooded land may then turn into mud flat or saltmarsh. Managed realignment provides controlled conversion of land to estuarine habitat and is often used to ease the pressure on more critical flood defences in other parts of the estuary. As with the Do Nothing option, large scale managed realignment may lead to changes in the estuary's shape but due to the controlled nature of this option, the impact to people and property can be reduced to minor levels.

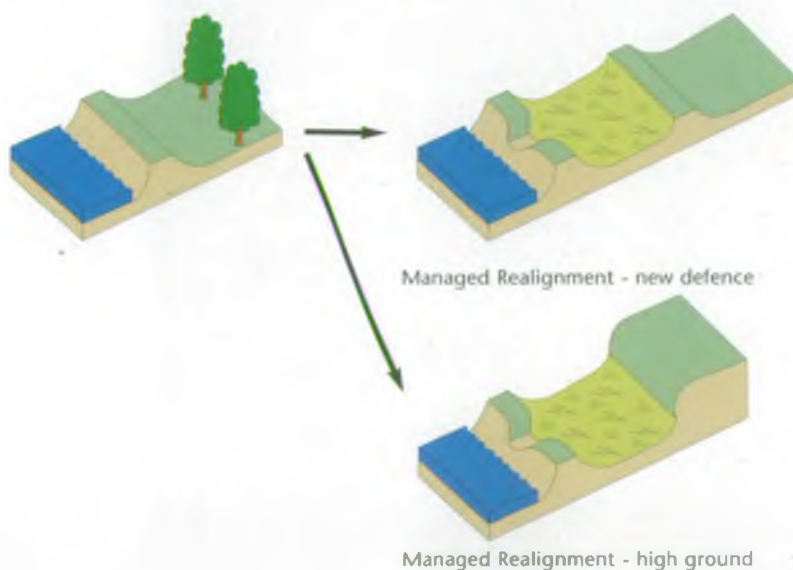


Fig 7 Managed Realignment

Considering the Options

Figure 8 presents how the potential general flood management options discussed earlier in the document will be considered for each stretch of defence in the Blyth estuary.

When considering the options in the development of the strategy the Agency is required to assess the preferred means of managing the estuary in terms of technical, environmental and economic benefits according to Government guidance. The Agency can then make a case to Government for funding of the long term management of the estuary over the next 100 years.

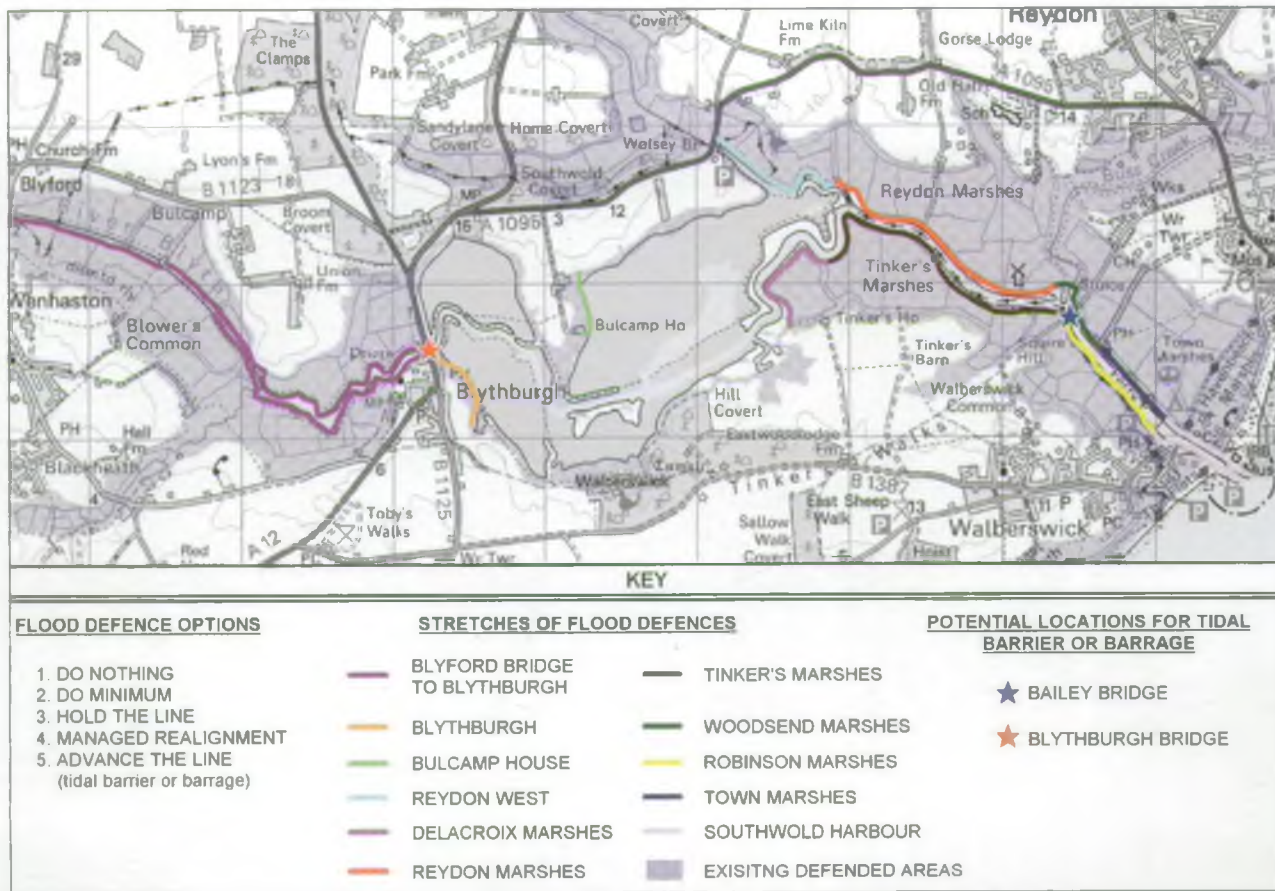
In general, wherever **Do Nothing** will move the line of defence back to higher ground, the Managed Realignment of the defences to somewhere between the current defence and the higher ground will be considered. The option of **Managed Realignment** can only be considered where there is a suitable area of low lying land to realign the flood defence to.

In consideration of **Advance the Line**, the building of new flood walls in front of the river side of existing defences is not generally considered as an appropriate solution since it narrows the width of the river. This can lead to a long-term increase in flood risk to the people and properties behind the defences or elsewhere in the estuary. Additional potential barrier or barrage locations may be considered as the strategy develops if new information comes to light.

The recommendations of the strategy may not call for an immediate change in the current flood defence situation. The strategy must consider the sustainability of each option in the long term, but may adopt shorter term flood defence measures to achieve the overall recommended long term option.

Due to the poor condition of some of the defences on the Blyth estuary the Agency is developing contingency plans to manage any problems that arise in the short term while the long-term strategy is being agreed

Figure 8 Potential Flood Defence Options for the Blyth Estuary



Technical Considerations

Technical Appraisal

Assessment of whether the options will be effective will be carried out by considering their effect on the existing estuary using a computer model that has been developed specifically for the Blyth.

There are technical issues to consider when reviewing options. These are, generally:

- How the option will be built. This relates to both the construction of the option, and what is there at the moment
- How the option will affect river and tidal flow, both in normal conditions and in times of flooding
- How river and tidal flow will affect the option, both in normal conditions and in times of flooding
- How the option will affect other parts of the estuary including the river mouth and the coast
- How effective the option will be in the short, medium and long term
- The sustainability of the option – whether the materials required to construct and maintain it will always be readily available at an acceptable economic and environmental cost, and how much maintenance it will need
- How easy it would be to alter the structure in future, if necessary.

Environmental and Socio-economic considerations

There are a wide range of environmental issues that must be considered when reviewing options.

A Strategic Environmental Assessment (SEA) will be carried to find out how each option will affect:

- Existing and future commercial, residential and leisure uses
- Areas designated for nature conservation and how the management of these areas will impact on the option
- Existing flora and fauna
- River and tidal flow and flooding and how this will affect present land uses
- Water quality in the study area
- Navigable water courses and infrastructure
- The existing landscape and visual amenity of the area
- Existing archaeological and heritage features

The SEA will assess the options against strategy objectives. These strategy objectives will be developed through consideration of key environmental and socio-economic issues identified through consultation. Statutory organisations will provide objectives related to UK law and policy, whilst local community and interest groups and members of the general public have been asked to put forward their own objectives on how they would like to see the estuary flood defences managed.

Economic Considerations

The Environment Agency is funded by national and local government.

The development of flood defence works must be carried out and justified using the rules set by the Treasury and the Department of the Environment, Food and Rural Affairs (Defra):

- The cost of damage caused by flooding if nothing is done must be defined
- The most cost-effective option in relation to the benefit it provides must be chosen, as long as it meets technical and environmental criteria
- Partnerships must be sought with others to make sure any potential for joint development is identified as well as any other opportunities

The study area is a very important part of the whole coastal region as an important conservation area and thriving tourist location. It is important to understand the effect that future changes in the study area will have on the Strategy. Therefore, the study of the assets to be protected in the Blyth estuary area includes current land use and plans for future development, identified in both Waveney and Suffolk Coastal District Council's Local Plan.

Priority Works for the Blyth Estuary

Certain flood defences along the Blyth estuary have been identified as requiring prompt action through the development of flood defence improvement works.

These 'priority works' studies are being carried out in conjunction with the Blyth estuary strategy study. This will allow the impact of priority works on the rest of the estuary to be taken into account. Once this has been achieved, a preferred option for both the Blyth estuary strategy and the priority works will be confirmed. The priority works will be implemented as soon as the overall Blyth strategy has been approved.

Three areas have been identified as 'priority works'. These are Tinkers Marshes, Reydon Marshes and the stretch of river between the A12 bridge at Blythburgh and Blyford Bridge.

Tinkers and Reydon marshes

Tinkers Marshes are situated on the south side of the Blyth estuary and are made up of a diverse patchwork of freshwater grazing marsh, reedbed swamp and areas of open water. Tinkers Marshes have been designated as a Special Protection Area (SPA), under the Habitats Regulations, and a Ramsar site due to their internationally important populations of overwintering and breeding wildfowl and waders. Reydon Marshes lie on the north side of the estuary, to the north of Tinkers Marshes and are made up of improved grazing marsh and part of the Hen reedbeds site, designated as a Special Protection Area and Ramsar site.

Tinkers and Reydon Marshes are protected by earth banks bordered by narrow salt marsh berms. These flood defence features protect large areas of freshwater grazing marsh, which lie below sea level. Due to changes in the volume and movement of tidal water within the estuary the areas of saltmarsh are eroding away, a process that will ultimately lead to the failure of the flood embankments that they support.

The options being considered for Reydon and Tinkers Marshes illustrated in the options description and in Figure 2, are:

Option 1: Do Nothing

Option 2: Do Minimum

Option 3: Hold the Line

Option 4: Managed Realignment of the Flood Defences

Option 5: Advance the Line

In addition, the impacts of other flood defence options implemented elsewhere in the estuary as part of the overall strategy will be considered.



Photo 2 Reydon Marshes



Photo 3 Tinkers Marshes

Blyford to Blythburgh Bridge

Blyford Bridge represents the tidal limit of the River Blyth; upstream of this point the river is freshwater. Between Blyford Bridge and the A12 at Blythburgh Bridge, the Blyth estuary is confined within flood banks protecting low-lying farmland just below the Mean High Water Spring (MHWS) tide level.

This stretch of river and adjacent land is under increasing pressure from rising tidal water levels, which may get even higher due to expected rises in sea level over the coming years. Additionally the current flood defences are thought to be coming to the end of their natural lives and will soon require replacement or major refurbishment if other action is not taken.

The options being considered for the Blyford to Blythburgh Bridge stretch of the River Blyth, illustrated in the options description and in Figure 2, are:

Option 1: Do Nothing

Option 2: Do Minimum

Option 3: Hold the Line

Option 4: Managed Re-alignment

Option 5: Advance the Line by installing a Tidal Barrier or Barrage at Blythburgh Bridge



Photo 4 Blyford to Blythburgh Area



Photo 5 Blythburgh Bridge

What happens now?

Consultation will be undertaken throughout the project with all interested and affected organisations and individuals. The key stages of the programme are shown in Table 1.

At present we are at the Initial Appraisal Stage of the programme, this is the second stage of the consultation process. Your feedback on the proposed options is important. If you have any comments about the range of options or about specific locations of the options for the strategy or the priority works schemes discussed in this document, please complete the enclosed questionnaire and return it to the address shown.

The results of the consultation on the Introduction to the Strategy and the Initial Appraisal of options will be used in the selection of a preferred option. Organisations and individuals that have expressed an interest at this stage will again be consulted on the preferred option. A Strategy Report including the findings of the technical and economic appraisals and the Strategic Environmental Assessment will then be published following the confirmation of the preferred option. Approval of the strategy will then be sought from Defra, statutory consultees and the wider Blyth estuary community before implementation of the strategy's findings can be carried out.

Table 1

Outline of the consultation process

Stage in Programme	Consultation Opportunity	Timescale
Introduction to the Blyth estuary study	Initial consultation with the local community, landowners, statutory authorities and other parties	COMPLETED
Initial appraisal of options for the Blyth estuary and priority works schemes	Presentation of the various scheme options in the form of a public consultation document. Consultation with organisations and individuals who expressed an interest in response to the previous consultation	Winter 2003
Appraisal of preferred option for the Blyth estuary and priority works schemes	Presentation of the preferred option in the form of a public consultation document. Consultation with organisations and individuals who expressed an interest in response to the previous consultation document	Spring 2004
Publication of Blyth estuary strategy and priority works schemes	Advertisement in local newspapers. Public exhibition of River Blyth estuary strategy and priority works schemes. Report available for public comment	Summer 2004
Approval of Blyth estuary strategy and priority works schemes	Period for review of strategy by Defra and other statutory consultees	From Autumn 2004
Blyth estuary strategy and priority works schemes implementation	Implementation of the Blyth Estuary Strategy review findings and recommendations	Following approvals

Consultees

The following groups will be contacted during the present and future consultations, as well as the general public

Anglian Water plc.	Environment Agency
Anglian Wildfowlers Association	Essex and Suffolk Water Company
Blyford Parish Council	Maritime and Coastguard Agency
Blythburgh Parish Council	National Farmers Union, NFU
Blyth Forum	National Grid
British Association for Shooting and Conservation	National Monuments Record Centre
British Canoe Union	National Trust
British Telecom	Norfolk and Suffolk Anglers Association
British Trust for Ornithology	Ramblers Associations
CEFAS, Centre for Environment, Fisheries, and Aquaculture Science	RDS, Rural Development Service
Country Land and Business Association	River Blyth Navigation Committee
Countryside Agency	RNLI, Royal National Lifeboat Institution
Crown Estate	RSPB, Royal Society for the Protection of Birds
Defra, Department of the Environment, Food and Rural Affairs	RYA, Royal Yachting Association
Department for Transport	Southwold Golf Club
East Anglia Fisherman's Association	Southwold Harbour Users group
Eastern Sea Fisheries	Southwold Parish Council
East Suffolk Water Ski Club	Southwold Sailing Club
English Heritage	Southwold Town Council
English Nature	Suffolk Coastal District Council
	Suffolk Coasts and Heaths Project

Suffolk County Anglers Association

Local landowners and businesses

Suffolk County Council

Local clubs

Suffolk Preservation Society

Voluntary and special interest groups

Suffolk Underwater Studies Group

Suffolk Wildlife Trust

Transco

Walberswick Common Lands
Charity

Walberswick Parish Council

Wangford and Henham Parish
Council

Waveney District Council

Waveney (Southwold) Harbour
Authority

Wenhaston with Mellis Hamlet
Parish Council

Wildfowl and Wetlands Trust

As well as,

Internal Drainage Boards

Local conservancy bodies

The SES and Blyth Strategy Consultation Groups

The Suffolk Estuarine Strategies (SES) Consultation Group

An overarching consultation group for the Blyth, Alde and Ore and Deben estuaries has been set up to provide guidance on the requirements of UK law, local government policy, planning issues and initiatives in the region and provide comment on project objectives for the strategy. The group is made up of representatives of the District and County Councils, English Heritage, English Nature, the National Farmers Union, Royal Yachting Association and the Suffolk Coast and Heaths Management Unit.

The Blyth Strategy Consultation Group

A consultation group made of representatives of the local community has also been set up to provide guidance and information about local issues and provide comment on local objectives to be considered in the development of the strategy. The Blyth Consultation Group includes representatives of the district, parish and town councils, English Nature, Suffolk Wildlife Trust, local landowners, RNLI, the Local Wildfowling Syndicate, sailing and yachting interests, The River Blyth Navigation Group, Waveney Harbour Authority, watersports users, Southwold Harbour Users Group and the Suffolk Coasts and Heath Management Unit.

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