

Coastal Schemes with Multiple Funders and Objectives FD2635

Case Study Report 1 Alkborough Flats Tidal Defence Scheme



This case study is one of 14 documents supporting the research project Coastal Schemes with Multiple Objectives and Funders - Case Studies FD2635, available from <http://tinyurl.com/6dzyusy>. This research was conducted in 2010/2011 by Maslen Environmental on behalf of Defra and the Environment Agency's Research and Development programme.

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1 Case Study: Alkborough Flats Tidal Defence Scheme

1.1 Introduction

Alkborough Flats is located on the south bank of the Humber Estuary, on the eastern side of the confluence between the River Trent and the River Ouse, which then forms the Humber Estuary. The site sits at the point where all the rivers of the Humber Basin coincide. The Humber Basin is the largest basin in the British Isles and drains one fifth of the land area of England. The Humber is one of the busiest UK commercial estuaries, with the port complex the busiest in the UK. The Humber is also an important habitat for wildlife and has been recognised by a range of official protections. These include national designations such as Sites of Special Scientific Interest (SSSI) and international designations such as Ramsar Wetlands, Special Areas of Conservation (SAC) and as a Special Protection Area (SPA) for birds, commonly known as the Natura 2000 series. It is one of the most important estuaries in Europe for wintering birds.



Figure 1. Alkborough Location Map

There are several major towns and cities along the banks of the Humber, including Hull, Cleethorpes and Grimsby, with Goole upstream of the River Ouse, as well as other residential and industrial developments and agricultural land. Approximately 300,000 people live around the Humber.

The ports of Hull, Immingham and Goole in the estuary are linked through the River Ouse and River Trent to the inland navigation network. The Association of British Ports is responsible for the navigation network on the Humber and the lower parts of the Ouse and Trent at Alkborough.

As a result of climate change and post-glacial geological processes, it is predicted that by 2050 relative sea level could have risen by around 300mm in the Humber area and by 1.2m by 2100. This poses a massive challenge to managing flood risks, especially considering that nearly 90,000 hectares of land in the Humber area is at, or below, the current level of the highest tides.

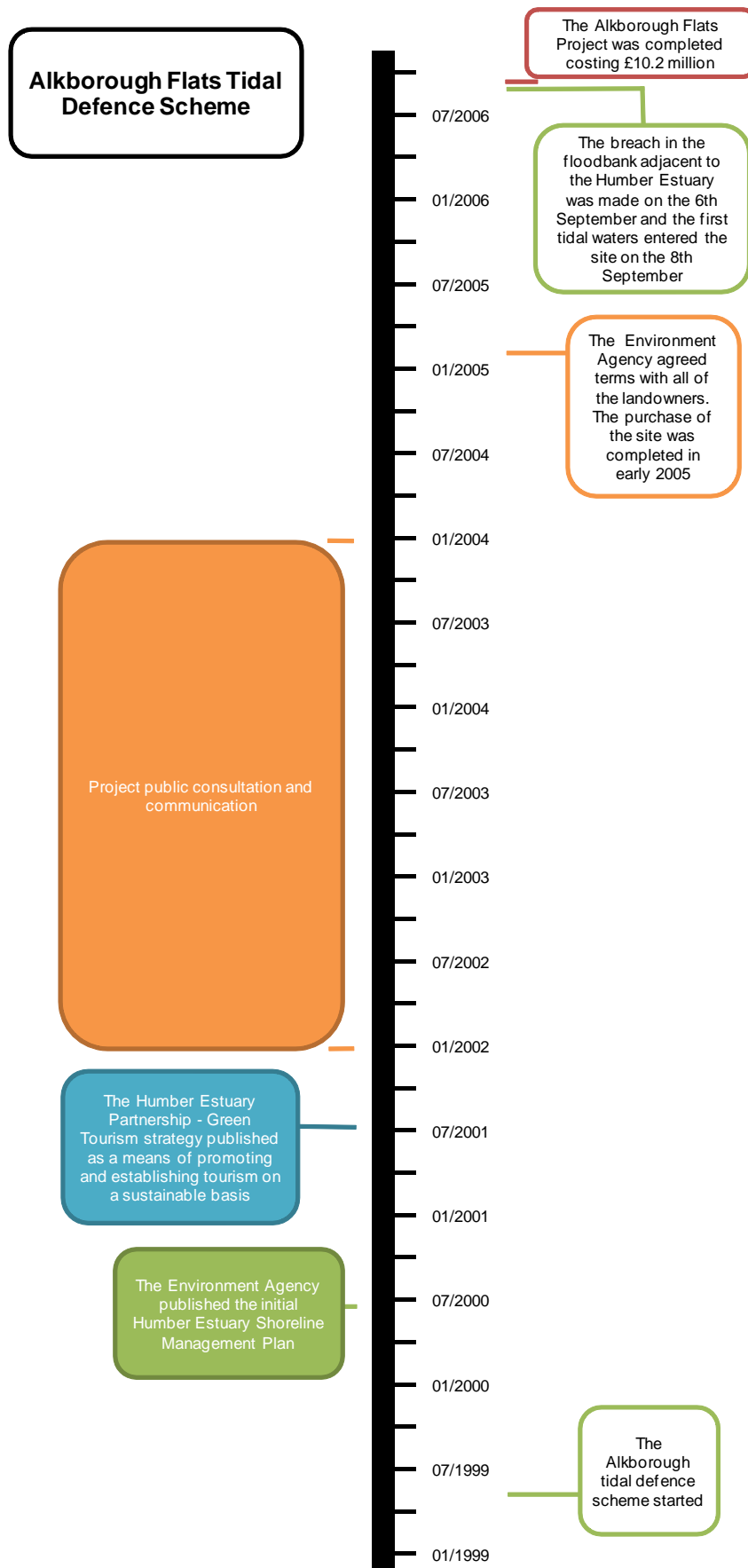
An increase in the predicted frequency of extreme weather events, the overall amount of precipitation and the number of surge tides pose a further challenge to the flood defences of the Humber Estuary and tidal stretches of the rivers Ouse and Trent.

The natural habitats of the estuary are also threatened by the predicted rise in sea level. As the water level increases, the high water mark will move closer to the flood defences. This will squeeze the natural habitats of the intertidal zone up against the flood barriers and embankments, reducing their area and threatening the significant nature conservation value of the estuary. The current best estimate for the overall loss of intertidal habitats through coastal squeeze by 2050 is 600 hectares, at a rate of sea level rise required by Defra for planning purposes.

To meet these challenges a partnership led by the Environment Agency produced a long term 100 year vision for flood risk management on the Humber 'The Humber Estuary Shoreline Management Plan (HESMP). Published in 2000 it took account of changing government policy namely 'Making Space for Water' and Planning Policy Statement 25. Proposals were submitted to Defra in 2006/07 to deliver a series of projects for the first 25 years. These were integrated into the Flood Risk Management Plan for

the Humber Estuary, published in 2008. Within this document, the Environment Agency made recommendations aimed at ensuring that flood risk is managed in a sustainable way around the estuary. It looks at different ways of managing flood risk; raising defences where appropriate, but also introducing sites for managed realignment and flood storage, which will also help maintain valuable habitats.

Figure 2. Timeline for the Alkborough Flats Tidal Defence Scheme



The FRM strategy aims to ensure a good standard of protection from tidal flooding for the next 25 years and beyond for 99 per cent of residents around the estuary and the important industrial areas. However, it is recognised that there are limited funds, so not all of the estuary's defences can be improved. The FRM strategy proposes a more sustainable approach to flood risk management and maintaining amongst other things the nature conservation interests, the navigation interests, the cultural interests and economic interests of the estuary. It encompassed a proactive rather than reactive approach to flood risk management and aimed to develop a coherent and realistic plan for the estuary's flood defences that are compatible with natural estuarine processes and adjacent developments and are sustainable in the long-term. The plan aimed to ensure that all proposals should be technically feasible, economically viable, environmentally appropriate and socially acceptable. It was based on sound scientific understanding of estuarine processes, seeking to work with, rather than against them. It also acknowledged all of the competing issues and as far as possible adopted an integrated and participative approach. This was the most advanced approach to estuary strategic flood risk planning in the UK at this time.

A key part of the approach in the both the HESMP and further FRM Strategy was the establishment of a series of realignment sites where flood defences can be moved, creating space for the estuary, lowering water levels and creating new intertidal habitats. The estuary-wide approach and application of this method was a significant addition to more traditional methods of flood management and a significant move towards more sustainable methods, which can deal with sea level rise and maintain the value of the estuary for habitats.



Figure 3. Alkborough Flats Managed Realignment - breach to the right. Copyright: Environment Agency

The largest realignment site in the UK (and at the time of its creation the largest in Europe) was planned at Alkborough Flats. The site is 440 hectares in size and prior to work on the scheme starting, consisted of agricultural land (arable) and foreshore. 375 hectares of the site lies to the landward side of a flood embankment constructed in the late 1950s. The Alkborough tidal defence scheme started in 1999 and was completed in 2006, costing £10.2 million. The scheme increases the level of flood protection to an area stretching from the Humber Bridge to Goole up the tidal River Ouse and as far as Keadby Bridge on the tidal River Trent. The scheme features include a 20 metre wide breach in the existing flood bank, a 1,500 metre length of lowered embankment or spillway, new habitat areas, a pumping station and a new section of flood bank to protect assets. The breach in the floodbank adjacent to the Humber Estuary was made on the 6th September 2006 and the first tidal waters entered the site on the 8th September 2006.

By allowing tidal waters to flow into the site, the scheme has enabled new inter-tidal habitats to develop. Within the first six months (after site breach), mudflats had started to develop where there is regular tidal inundation. Presently the mudflats are continuing to increase and saltmarsh is starting to develop. Huge numbers of birds are attracted to this area, particularly during the winter when thousands of wading birds and ducks can be seen feeding and roosting. There is now an area of around 170ha of mudflats and developing salt marsh on the site. The new area of habitat will help to replace some of the mudflats and saltmarsh that will eventually be lost within the Humber estuary due to sea level rise. The scheme has

also provided a new network of public footpaths, bird watching hides and interpretation boards around the site and the local area. In addition, the South Humberbank project developed in parallel to the Alkborough project provided educational facilities and achieved tourism objectives.



Figure 4. Site breach, Copyright: Environment Agency

The scheme was developed by a core partnership including the Environment Agency, English Nature and the Countryside Agency (now Natural England), Associated British Ports (ABP) and North Lincolnshire Council (NLC). In addition, a Stakeholder Group that included the RSPB, Parish Councils and landowners helped steer the project.

1.2 Objective Setting

1.2.1 Project Drivers

The project objectives included:

- Long-term flood defence needs in the Humber estuary; and
- Maintaining the estuary's environmental importance.

One of the HESMP's key recommendations taken forward into the Humber FRM Strategy was to establish a number of 'setback' sites where flood defences could be realigned to reduce the impact of rises in sea level elsewhere within the estuary and its main tributaries.

Providing flood storage at Alkborough has made it possible to defer improvements to other flood defences in the tidal rivers upstream and downstream of the site that would otherwise be needed to counter the effects of sea level rise. This was driven by the 'Making Space for Water' policy that promotes the use of natural flood defences and options such as flood storage areas.

1.2.2 Partnership Objectives

At the start of the projects' development there were a high number of objectives set out by the partners. These project objectives and ideas originated through previous partnership working but there were challenges in both communicating and developing many of those objectives. Work on objective setting took place through partnership meetings.

The Environment Agency's objectives were to protect people and property (residential and commercial) from the risks of flooding and to meet habitat objectives. Natural England's (NE) main objective was to protect the Humber Estuary which is a European designated site. NLC's objectives were related to economic regeneration, such as through green tourism benefitting local business and creating improved public access. ABP is a small landowner in the area and had long term interests in seeking to provide compensatory habitats as part of its port development.

The strong personalities and influential roles of representatives involved in the partnership provided significant positive benefits for this project. In addition, there were very few staff changes amongst the key partner project personal, this was important, benefit for and helped to maintain momentum and continuity.

1.2.3 Project Objectives

The objectives agreed at the outset of this project were:

- To contribute to the practical implementation of the HESMP (later Humber FRM Strategy) and Coastal Habitat Management Plan (CHaMP);
- To demonstrate sustainable flood defence planning and implementation in the face of sea level rise;
- To create new inter-tidal habitats, which contribute to UK Biodiversity Action Plan (BAP) targets and help to maintain favourable conservation status of the European Site;
- To create a new National Nature Reserve;
- To provide a catalyst for improvements to the local economy through tourism, diversified agricultural uses and new business development;
- To link to and add value to wider regeneration initiatives in the North Lincolnshire area;
- To provide access and interpretation for the wider community;
- To provide a demonstration project for good practice across all aspects of planning and implementation of the project; and
- To establish Europe-wide links in relation to flood risk management in estuaries

1.3 Partnerships

1.3.1 Building the Partnership

The following organisations have been involved in the scheme. All of the partners are either land owners or have applied for and secured funding in their own right:

Management Group Partners (Key Partners)

- English Nature and the Countryside Agency (now NE);
- Environment Agency;
- ABP; and
- NLC.

Funders

- Department for Environment, Food and Rural Affairs (Defra);
- Yorkshire Forward (Regional Development Agency - RDA);
- Heritage Lottery Fund;
- European Union (EU); and
- NLC.

Advisory Group

The stakeholder advisory group was made-up of a 'loosely formed' group of organisations including:

- Parish Council;
- RSPB;
- Lincolnshire Wildlife Trust;
- National Farmers Union;
- Individual Landowners;
- Ramblers Association; and
- Wildfowl Groups.

1.3.2 Partnership Working and Governance

The project was Environment Agency led. A Management Group was set-up that included senior representatives from all of the key partners. Management Group meetings were held regularly to discuss project progress, issues etc. Initially there were no formal agreements, however many of the funding instruments including the Heritage Lottery Fund (HLF) required these agreements to be in place, particularly landowner agreements.

The Management Group was supported by a Stakeholder Steering Group with representatives from around fifteen stakeholder organisations as well as local people. In total more than 60 people regularly provided input to all aspects of the project

The approach undertaken from the outset in Alkborough Project was to engage a wide group of interested parties in the planning of the proposals. This included the local affected communities, for example landowners, ramblers, shooting interests and Parish Councils.

Due to the projects innovative technical approach and the scale of the proposed new land uses, it attracted interest and contributions from around the country and the project approach brought in the RSPB, British Association for Shooting and Conservation (BASC), and National Framers Union (NFU), as well as observers (engineers, ecologists and land managers) from different national and international agencies.

Specialist Working Groups were formed to look at specific aspects such as farm management and site conservation design. Stakeholder Group meetings were regularly held throughout the planning of the project, with attendance between 30 and 50 individuals. The wider community were kept informed of progress of the project through community consultation events and regular newsletters.

The Environment Agency, NE and ABP are the principle landowners, site management is carried out by NLC. NLC employ the site management staff, responsible for taking forward and developing the site into a nature reserve. Two local farmers, both of whom owned part of the site, are now tenants. One is a tenant of the Environment Agency only, the other tenant's land is owned by the principle landowners under three separate agreements.

To oversee management of the site, the Alkborough Flats Management Group consisting of representatives from each of the partner organisations, meeting several times a year. Each partner provides funding, or an in-kind contribution where appropriate, in order to finance the management of the site.

The Environment Agency bore all risk management costs for this project, at all of its stages (feasibility, construction and operation).

From an early stage there was some negative public reaction towards the options put forward. The older demographic of the local community was most adverse to change, supported by the Parish Council and residents. A key lesson to come out of the project of this was that different approaches must be taken when addressing the concerns of multiple stakeholders. Approaches and tools such as those now found in 'Building Trust with Communities' were found to be of particularly use.

1.4 Approvals, Planning Context and Legislation

There was a lengthy planning submission required, including a full Environmental Impact Assessment and public consultations. Habitats regulation consent was granted by NE, questions have been raised since regarding the 'ease' of gaining such permissions as they had vested interest in the project. A navigation assessment was carried out to understand the effects the scheme had on material/erosion displacement in the estuary, this was a particular concern for ABP.

At the outset of the project the land was in 11 separate ownerships and under arable production with small areas in set-aside. The Environment Agency agreed terms with all of the landowners and purchase of the site was completed in early 2005. Once the main landowners were happy with the arrangements the others fell into place.

During initial engineering and land-forming works, over 800 World War II bombs were discovered which did not present themselves at site survey stage. This caused significant delay and cost to the project, this emphasises the importance of a contingency budget, which the Environment Agency employs on all its projects.

Internal sign-off was required by senior representatives from all the organisations providing a financial contribution. This was particularly challenging as all organisations had their own financial and sign-off procedures. Yorkshire Forward (YF) provided funding to pay for legal advice to help the partnership develop such agreements and assist in financial and procedural matters.

1.5 Funding Arrangements

The total scheme cost was £10.2 million and funding was derived from a variety of external funding and partner contributions. A collaborative approach meant that once the project vision was agreed, the partnership used individual and collective skills, experience and contacts to seek funding opportunities.

This took on a dynamic non-structured approach, particularly at the start of the project. This process required the partners to communicate effectively and be flexible in their approach to contributions.

This has produced a complex but truly multi-objective, multi-funded scheme, presented in the table below:

Funder	Application lead	Objectives	Amounts (approx.)
Defra FDGiA	Environment Agency	Flood risk management (engineering) and biodiversity. Demolition and site preparation.	Approx. £5,400,000
Heritage Lottery Fund 'Your Heritage' Grant (1)	North Lincolnshire Council	Alkborough Community Heritage Project - Oral and Local History	£50,000
Heritage Lottery Fund 'Project Planning' Grant (2)	North Lincolnshire Council	Alkborough Community Archaeology Project	£50,000
Heritage Lottery Fund (3)	Environment Agency	South Humber Bank Wildlife & People Project (SHWAP)	£225,000 (29% of total)
EU Interreg IIIb	Environment Agency	FRaME: Flood Risk Management in Estuaries: Sustainable New Land Use in Flood Control Areas Promotes new approaches to reduce impacts of climate change	Approx. £750,000 (21% of total project to Alkborough)
Office of Deputy Prime Minister	Environment Agency	Interreg IIIb Development Funds	£115,000
Yorkshire Forward	North Lincolnshire Council	South Humber Bank Heritage Tourism	£276,000 (7% of total project to Alkborough)
EU LIFE Nature	Environment Agency	Life Environment - Mr MoToWFO Biodiversity delivery	£920,000
Yorkshire Forward (ERDF)	Environment Agency	Delivery of economic and social benefits	£1,200,000
Capital modernisation fund - Defra	Natural England	Land purchase Habitat creation works	£1,000,000
Single Regeneration Budget and Local Authority sources	North Lincolnshire Council	Economic development, biodiversity and recreation.	£200,000
Total			£10,200,000

In-kind contributions were also significant, this came in the form of staff time donated by the partners (not quantified). The ABP allowed some of their land to be used as part of the scheme, and they provided intangible benefits around their dealings with tenants and wildfowlers.

The Alkborough scheme has encouraged other projects to move forward, for example NLC is leading a £4million project funded by YF to develop a range of new visitor and tourism opportunities along the Humber from Barton to Alkborough. This programme of works builds upon the investment and partnership approaches adopted at Alkborough.

The European Regional Development Fund (ERDF) Interreg project element was particularly challenging, due to delays in final payment. This delay required the Environment Agency to take on the funding shortfall. Although late, the EU monies arrived, which was used to fund post-scheme maintenance delivered by NLC.

The project was very successful in identifying and applying for external funding. A key lesson to note is that many funding pots are available, but not all fully meet your principle project business case. Making a 'go' or 'no-go' decision requires further work and negotiation with stakeholders to refine the business case.

1.6 Lessons Learnt

- Define absolute and desirable objectives early in the project's development;
- Clearly understand partner requirements throughout the project development;
- A lead partner is essential. In this case of Alkborough Flats Tidal Defence it was the Environment Agency;

- Secure finances from partners as early in the process as possible (do not underestimate internal sign-off procedures);
- Do not underestimate how long a partnership project of this size and nature takes to develop. It took almost seven years to develop this project. Over such a long time it was difficult to keep the partners and stakeholders focussed, this was particularly the case with local communities where particular groups were quite nervous about this scheme;
- Benefits of working in partnership include using the multiple skills across the partnership to provide benefits to the project's development. Partnership working provided more capacity and knowledge to assist having a well-informed dialogue at objective setting stages and allowed the specialist working groups to be formed. However, this process must be well managed by the project manager;
- When working with a number of partners, this project used various 'working groups' to tackle particular issues, e.g. a Habitat Enhancement Group was set up to consider habitat creation opportunities;
- It is important to keep the same project representatives involved as this saves cost and time;
- In essence, partnership working has produced a very different looking and working scheme than if the Environment Agency was to have solely funded and developed it. The scheme has certainly benefitted as a result;
- Contractual and financial agreements developed between partners are complex and time consuming and often require specialist legal input;
- It is important to have a contingency budget to cover any unforeseen costs, caused by delays, additional work etc. The Environment Agency's standard practice is 60% of the total costs should be allocated at the outset as a 'risk pot' then reviewed regularly;
- When considering wider stakeholder engagement, it is important to understand the needs of all stakeholders effected by a project, be mindful of individual groups needs and address these individually;
- There were a number of additional opportunities that arose during and after this project. These need to be quantified and understood more fully and when the original business case is subsequently reviewed. For this project a positive 'multiplier effect' included commercial opportunities e.g. diversification for farmers, a tea room was set-up by a farmer. This was a flagship scheme for the partnership and the area. It created a momentum amongst partners from which other projects developed;
- Parallel project development creates efficiencies and scale. Projects that deliver similar objectives should be understood to ensure the same stakeholders are consulted and involved at the same time. For example, in parallel to this, projects related to community access and green regeneration were developed along the South Humber Bank, such as the Far Ings Education Centre, Waters Edge Land Reclamation including a Visitor and Business Centre; and
- An alternative approach which was not considered at the time, might have included the use of agri-environment schemes to deliver habitat creation objectives. Countryside Stewardship/Higher Level Stewardship schemes could have provided funding to landowners for habitat elements of the project. However, the short-term and sometimes uncertain nature of these schemes could have presented difficulties in the long-term delivery of the objectives.

1.7 References

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