

Habitat creation as compensation for port development in Natura 2000 areas of the Humber estuary - UK

1. Policy Objective & Theme

- SUSTAINABLE USE OF RESOURCES: Preserving coastal environment (its functioning and integrity) to share space
- SUSTAINABLE ECONOMIC GROWTH: Improving competitiveness

2. Key Approaches

- Integration
- Participation
- Ecosystems based approach
- Socio-economic
- Technical

3. Experiences that can be exchanged

Habitat compensation due to (port) development in Natura 2000 areas and involving a unique agreement between the developer and those who were initially opposed to the port expansion because of the habitat loss.

4. Overview of the case

A new Roll-on Roll-off terminal was constructed by Associated British Ports (ABP) at Immingham harbour in 2006 on the south bank of the Humber estuary. It resulted in the direct loss of 22 ha of intertidal mudflat and potentially up to 5 ha of indirect losses in the estuary proposed Special Protection Area (now an SPA) and possible Special Area of Conservation (now a candidate SAC). In consultation with regulatory bodies and local nature conservation interest groups, two managed realignment schemes at Chowder Ness and Welwick were identified as contributing to a compensation package for the impact of constructing the new harbour.

5. Context and Objectives

a) Context

In north-west Europe, intense economic activity occurs in coastal and estuarine areas. At the same time these coastal and estuarine areas support habitats and species of high nature conservation value. Demand for increased port capacity creates a need for deeper water and new infrastructure. Against these drivers, a number of European directives address the pressure on Nature, particularly the impact of new projects on sites designated as part of the Natura 2000 network. Experience has shown that the majority of project development and project planning organizations are experiencing difficulties in dealing appropriately with nature conservation issues and in particular the application of the EU Birds and Habitats Directives.

Port industry in the UK is essentially privatised or privately funded. As a result it is not current practice for port companies to publicise future development plans as there are obvious issues involving competition between ports for customers. There is also a risk that where proposals are publicised the value of land suitable for compensation will rise to an uneconomic level and may limit options.

b) Objectives

The undertaking had the aim to protect Natura 2000 sites as a coherent ecological network while providing the opportunities for social and economic (including maritime) benefits. The specific objectives at Chowder Ness were to create 10.5 ha of mudflat and 0.8 ha of saltmarsh which could support a variety of invertebrate and bird species. An additional requirement of the Chowder Ness scheme was to create terrestrial habitats to support a range of farmland bird species at the top and landward side of the new flood embankment and along a grassland berm between the base of the embankment and the dyke (with associated planted hawthorn). The primary objectives at Welwick were to create between 15-38 ha of intertidal mudflat, together with 12-28 ha of saltmarsh and 4-10 ha of grassland.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

The scheme was implemented by Associated British Ports (ABP) which provided the funding.

b) ICZM tools

An Environmental Impact Assessment was completed for the project (2001) which concluded that it was likely to have an adverse effect on the integrity of the proposed SPA/Ramsar site and on the pSAC through the direct loss of 22 ha of intertidal mud as a result of dredging the tidal basin.

There would also be further impact with the displacement and disturbance of internationally important bird populations, risks to water quality from accidental spillages or remobilisation of sediment bound contaminants and issues related to maintenance dredging and navigation. A number of alternative locations were considered but it was concluded that a new terminal at Immingham was the best option.

A stakeholder working group was set up to address all issues that were raised throughout the proposal phases of this project. Numerous discussions were held before an acceptable compensation/mitigation package for the port development was found; this included two managed realignment schemes at Chowder Ness (south bank, west of Immingham) and Welwick Foreshores (north bank, east of Immingham), developed on formerly reclaimed, inter-tidal farmland. To inform the final design of these sites, numerical modelling was undertaken based on elevation data obtained from LiDAR data (ground truthed with a topographic survey). Both sites were re-profiled to increase the area below Mean High Water Neap (MHWN), as mudflat creation was the main objective of the sites. Construction and dredging phases of the works commenced in February 2005.

At Chowder Ness, prior to construction, the area landward of the sea defences (12.2 ha), was largely set-aside agricultural land and in front of the sea defences were composed of a narrow mudflat and a small amount of saltmarsh and reedbed (0.1 ha). In order to create the site, new flood defences were constructed to the rear of the site with a minimum height of 6.7m above ODN (Ordinance Datum Newlyn). Although 200m remain, 570m of the existing seawall was removed: it was breached in July 2006. The realignment site at Welwick, to avoid disturbance of overwintering and breeding birds, was constructed over a 2 year period between April and August. New flood defences, designed to withstand a 1 in 50 year design event, were constructed to the rear of the site with a minimum height of 6.1m above ODN. The existing seawall was removed in stages over a length of 1,400m and it was breached in June 2006.

There is an extensive, initial 10-year monitoring and management plan that is being implemented at both the development and compensation sites. It describes both changes to sites fronting the realignment (bathymetry, invertebrates and waterfowl), and to the realignment's site itself (topography, saltmarsh composition, changes to intertidal invertebrates and wildfowl usage).

7. Cost and resources

The cost was £3.5m.

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

Chowder Ness: Over 12 ha of mudflat were created. During 2006/2007, a total of 13 waterbird species were found to be using

the newly created intertidal area. All target species established for the site were observed with one exception. Although the grassland and hedgerow are relatively new habitats six bird species were observed using the grassland of the newly created embankment during 2007, four of which held breeding territories. Again, all target species were observed with one exception. Welwick: The site covers a total area of 54 ha to the edge of the current saltmarsh in front of the seawall. Landward of the current defences the site area covers approximately 48ha, whilst the current sea defence accounts for 3 ha and saltmarsh in front of this covers 3 ha. A total of 29 waterbird species have been recorded with the realignment site having developed as a major roosting site for a number of wading birds at high water. With one exception, all target species established for the site have been observed.

In total, 66 ha. of farmland have been converted into new inter-tidal habitat to compensate for the 22 ha. of land lost due to the new port developments.

9. Success and Fail factors

At a very early stage, an integrated plan, considering flood protection, nature protection and maritime transport including mitigation measures, was developed. When the plans were first put forward, there was strong resistance because of the habitat loss. Through extensive consultation and close co-operation with a number of environmental organisations, an outcome was reached that was acceptable to all parties. The process ensured that the environmental impact of the project was clearly identified and mitigation and compensation actions taken. This led to a legally binding agreement – the first of its kind in the UK – that meant that ABP had to carry out the agreed set of offsetting measures but that they would not have to face a lengthy and costly public enquiry.

10. Unforeseen outcomes

None so far.

11. Prepared by




A. H. Pickaver, Coastal & Marine Union (EUCC), The Netherlands

12. Verified by

It has not been possible to verify this case.

13. Sources

- Creation and restoration of coastal and estuarine habitats A review of practical examples and a description of sequential guidelines for habitat creation and restoration in port areas (2007) S. Bracke, T. Bucx, N. Frost, H. Jaspers, J. de Groot, G. Quemeneur, F. Sahin, P. Slim, H. Slootweg, H. Smit, E. de Swart, T. Tessier, L. Vermeersch, T. Vanoutrive. New Delta
- Environmental Statement for a Managed Realignment Scheme at Chowder Ness. Report No. R.979. (2004). ABPmer
- Environmental Statement for a Managed Realignment Scheme at Welwick. Report No. R.980. (2004). ABPmer
- Managed Realignment in the Humber Estuary, UK. (2008). Hemingway, K.L., Cutts, N.C. & R. Pérez-Dominguez., Institute of Estuarine & Coastal Studies (IECS), University of Hull, UK.
- Potential for sustainable habitat creation in the Humber Estuary. Environment Agency Humber estuary shoreline management plan habitat migration study. (2000) Binnie Black and Veatch
- www.abpmer.net
- www.abports.co.uk
- www.harbasins.org
- www.humberems.co.uk

-  Creation_and_restoration_of_coastal_and_estuarine_habitats (7.89 MB) 
-  a_Managed_Realignment_in_the_Humber_Estuary (705.08 KB) 