

# **Biodiversity net gain. Good practice principles for development**

## ***Case studies***

*Tom Butterworth WSP*

*Julia Baker Balfour Beatty*

*Rachel Hoskin Footprint Ecology*



Griffin Court, 15 Long Lane, London, EC1A 9PN

Tel: 020 7549 3300

Fax: 020 7549 3349

Email: [enquiries@ciria.org](mailto:enquiries@ciria.org)

Website: [www.ciria.org](http://www.ciria.org)

# 2 Ecosystem services valuation, Medmerry scheme

## Details

**Organisations** Atkins, Environment Agency, Natural England, RSPB  
**Contact** Monica.Barker@atkinsglobal.com

## 2.1 PROJECT SUMMARY

The managed realignment scheme at Medmerry, Sussex, constructed between 2011 and 2013 at a cost of £28m, is the largest of this type of scheme to be undertaken on the open coast in Europe.

As well as protecting homes, businesses and critical infrastructure from flooding and storm events, the scheme has created around 184 hectares of new intertidal habitat, now managed as a Royal Society for the Protection of Birds (RSPB) reserve. Intertidal habitat, including saltmarsh, is generally accepted to deliver a wide range of benefits (commonly known as ecosystem services) to society, including biodiversity, flood defence, recreation, carbon sequestration and provision of nursery habitat for juvenile fish.



Figure 2.1 Intertidal habitat, including saltmarsh, at Medmerry

## 2.2 ISSUES

The wider benefits of flood schemes are often poorly valued within economic appraisals. Here, valuation refers to an assessment of the importance or significance of a particular service or good. Without an attempt to value such services in monetary terms, the value can be taken as zero. In economic appraisals for Flood and Coastal Erosion Risk Management (FCERM) projects, this means that the effects on natural capital and the associated flows of services can be under-represented, resulting in benefit-cost ratios that do not include the full range of impacts.

The aim of this study was to value the ecosystem service impacts (both positive and negative) of the scheme, to support the ‘mainstreaming’ of ecosystem services and natural capital assessments within FCERM.

## 2.3 OUTCOMES

The original business case identified the economic benefits of flood protection, estimated as £78.2m in present value (PV) terms over 100 years.

The original business case for the scheme also estimated a PV of £13.5m over 100 years for other environmental benefits. Atkins undertook an in-depth value transfer study of the scheme. This approach estimated the value of ecosystem service impacts of the scheme other than flood protection to be £2.95m per year, with a PV of £89.7m over 100 years. The study demonstrated that the standard business case had significantly underestimated the wider environmental benefits.

Innovative approaches were developed to value the key ecosystem costs and benefits of the scheme. The majority of the benefits relate to existence or non-use values from the provision of new, varied coastal habitats, now managed as an RSPB reserve, which represented a significant biodiversity net gain (BNG) compared to the low-lying farmland that previously characterised the site. The scheme also gave new opportunities for nature-based recreation and tourism. These findings are in-line with other ecosystem service valuation studies, which have indicated that cultural services often provide the largest proportion of benefits.

A concise and accessible report (Environment Agency, 2013), was produced that enables others to replicate and learn from the approaches used.

## 2.4 KEY BENEFITS AND SUCCESS FACTORS

With increasing pressure on limited flood protection funds at a time when the frequency and intensity of flood events is growing due to climate change, there is a need to prioritise investment. Existing approaches used to undertake an economic appraisal of potential schemes do not typically consider the full range of impacts on ecosystem services and natural capital. To ensure that flood schemes deliver the best value for money, there is a need to adopt new valuation approaches that enable these wider impacts to be accounted for. The ecosystem approach also highlights opportunities to improve the benefits of flood schemes to people, for example, through habitat creation and providing access to sites for recreational and educational purposes.

The study aims to support the Environment Agency in incorporating more sophisticated valuation approaches into cost-benefit analyses and economic appraisals for flood schemes.

Being able to demonstrate the value of habitat creation and management of the Medmerry RSPB reserve will also enable the RSPB to advocate for the creation and protection of similar sites in the future.