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Storm flooding, coastal defence and land use around the Thames estuary and tidal river c.1250–1450[1]

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A B S T R A C T

Climatic deterioration in the later middle ages was associated with an increasing frequency of marine storm surges affecting the coasts of the southern North Sea. This paper investigates the impact of storm surges upon the lands bordering the Thames estuary and tidal river between the mid-thirteenth and mid-fifteenth centuries. Land use in the coastal and riverine marshes is reviewed, and the means and costs of defence against marine flooding explored. The impact of flooding upon human use of the marshlands, upon the suburbs of medieval London and upon the Thames fisheries are all investigated. Stress is placed upon the complex interaction of economic and environmental factors in determining the response to the threat of marine flooding.

On 4 July 2006 the sea-wall at Wallasea Island in Essex was deliberately breached to create a new 115 hectare wetland near the mouth of the River Crouch, which adjoins the much larger estuary of the River Thames. New sea defences had been built further inland, and the area behind the old sea-wall

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was to be allowed to revert to salt marsh and mudflats, 'to replace […] bird habitats lost to development […] improve flood defences, provide for better fish nurseries and create opportunities for recreation'.[2] This was the latest and most dramatic of a series of recent attempts to realign the coastline of south-eastern England in response to habitat loss and the increasing threat of marine flooding, associated with sea-level rise and a possible increase in storminess linked to global warming. However, this policy of 'managed realignment' in turn represents only the latest phase of a dynamic relationship between humanity and the sea around the Thames estuary. Habitat and land-use change associated with the breaching of sea-walls have been regular features of the estuary since the medieval period, although the sea has in most cases been the active party.[3]

Coastal wetlands are sometimes seen as having constituted 'marginal' lands during the medieval period, colonised and exploited later than adjacent drier areas. While this may be true in a chronological sense it ignores the fact that, unlike most other areas regarded as marginal — uplands and areas of heath or sandy soils — wetlands had the potential, once drained and protected, to constitute some of the most valuable grazing and arable lands, supporting dense flocks and herds and producing high-yielding crops of grain. Moreover, the formula also ignores the diverse ways in which unreclaimed coastal and riverine marshlands were exploited; inter-tidal salt marsh and mudflats provided valuable opportunities for fishing, fowling, grazing of sheep flocks and salt-making and had been used in these ways for millennia.[4] As the population grew in the central middle ages pressures to exploit wetlands in more intensive ways increased, but even in the thirteenth century unreclaimed and reclaimed or 'inned' marsh coexisted in many areas. This was true of the lands around the Thames estuary and tidal river in south-east England (Fig. 1), where some marshes, particularly on the Essex shore, remained unprotected from the tides, despite the fact that they lay in a highly populated and commercially developed region, subject to the influence of the London market and the pull of continental urban centres.[5]

The costs and benefits of wetland reclamation were complex, reflecting a wide variety of social, economic and environmental factors.[6] Increasingly important during the course of the later middle ages was the factor of climatic deterioration, which increased the costs of defending reclaimed marshland along the shores of the estuary and the banks of the tidal Thames. In particular, an apparent increase in the frequency of damaging storm surges threatened to overwhelm coastal defences here as elsewhere around the southern North Sea littoral. This paper examines the impact of storm flooding upon the estuary and the tidal river between the mid-thirteenth and mid-fifteenth centuries, and places this pressing environmental influence within the wider context of the costs and benefits of reclamation. A review of the changing climatic parameters is followed by consideration of the use and value of Thames-side marshlands, the physical and organisational aspects of coastal defence, an overview of the evidence for marine flooding in the Thames area, and a case study of the impact of storm flooding on the manor of Barksore, near the mouth of the River Medway.[7] The implications of change over the course of the later middle ages are explored, including possible impacts upon the city and suburbs of London.

[2] Defra news release, 4 July 2006, <http://www.defra.gov.uk/news/2006/060704a.htm>, accessed 6 September 2006.

[3] *The archaeology of the Essex coast, vol I. The Hullbridge survey*, ed. T.J. Wilkinson and P.C. Murphy (East Anglian Archaeology 71, Chelmsford, 1995), 184–6, 208–9.

[4] The best overview of coastal wetland history and landscape archaeology is S. Rippon, *The transformation of coastal wetlands. Exploitation and management of marshland landscapes in north west Europe during the Roman and medieval periods* (Oxford, 2000).

[5] For London's influence on the economy of its region, see B.M.S. Campbell, J.A. Galloway, D. Keene and M. Murphy, *A medieval capital and its grain supply. Agrarian production and distribution in the London region c.1300*, (Historical Geography Research Series 30, London, 1993).

[6] See M. Gardiner, 'The transformation of marshlands in Anglo-Norman England', *Anglo-Norman Studies*, 29 (2007), 35–50. Gardiner argues that the modern use of the term 'reclamation' for the walling and draining of marshland embodies a distorted and partial view of wetland history, which by implication denigrates the multiple economic and social benefits which communities have in the past obtained from salt marsh and undrained inland fens.

[7] The core data on which this paper draws were collected from the *Calendar of patent rolls* [hereafter *CPR*], 44 vols (London, 1891–1911, and online version, devised by G.R. Boynton, at <http://sdrc.lib.uiowa.edu/patentrolls/>) and the *Calendars of inquisitions post mortem* [hereafter *CIPM*], 22 vols (London, 1904–2003) and *Calendars of inquisitions miscellaneous* [hereafter *CIM*], 8 vols (London, 1916–2003), supplemented by manuscript account rolls for Barksore and other manors of Canterbury Cathedral Priory held in Canterbury Cathedral Archives [hereafter CCA], together with accounts for the estates of Boxley Abbey and manuscript inquisitions held in The National Archives, Public Record Office at Kew [hereafter TNA: PRO]. Full references are provided below.