

Hamble Estuary Partnership Topic Sheet

This document has been produced to provide some general background information for River Hamble stakeholders who might wish to know more information about a particular topic. Stakeholders should be aware that the information may not be up to date at the time of reading and should contact the Hamble Estuary Partnership officer (harbour.office@hants.gov.uk) if they would like more information.

Coastal Flooding

Despite having a total catchment of approximately 170 km² the River Hamble has a relatively small freshwater input. The flow of the Hamble is instead dominated by the tide. The River Hamble (and the rest of Southampton Water) has an unusual double high water and a stand on the flood tide, this is caused by Southampton Water's position at the centre of the English Channel. As the tides oscillate around the centre point, the effects of friction, decreases in channel width and irregular depths combine to give the Hamble a double high water. The flood and ebb tides are quite different. The flood tide typically lasts 50% longer than the ebb tide however the speed of the ebb tide flow is much quicker.

As the River is tidal, it does not flood in the same sense that other non-tidal rivers may flood. The regular rising and falling of the tides has shaped the location of development around the river and for the most part flooding is not a problem. However, flooding can be an issue in the upper reaches of the River particularly if a high spring tide coincides with a period of heavy rainfall. Low atmospheric pressure can exacerbate the problem so that for each fall in air pressure of 1 mBar, tide height can rise by 1 cm. This flooding is a particular problem around the village of Curbridge.

Sea level rise, caused by climate change, is likely to have a significant impact upon the River Hamble. Sea levels have risen by an average of 14 cm during the 20th century. Scientists believe that sea levels will continue to rise and have predicted that sea levels in London will be 18 cm higher by the 2040s and 36 cm higher by the 2080s (based on a medium emissions scenario). Since the end of the last ice age, southern England has been sinking relative to Scotland, this effect (known as isostatic rebound) has been taken into account when making these predictions. Higher sea levels will have a range of impacts in the Hamble. The extent and frequency of coastal erosion and flooding events is likely to increase and this could pose a risk to life, property and the environment. It will also affect recreation, the Bunny Meadows footpath is already occasionally overtopped by high tides and this is only likely to get increase in frequency as sea levels rise.

Sea defences can help to reduce the risk of flooding but are very expensive to build and maintain. Over the next century, the cost of sea defences is expected to rise to between £6 and £20 million per kilometre. It is not cost-effective to maintain all of the country's sea defences in perpetuity and inevitably tough decisions will need to be made about which areas to protect

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and which areas to not. A Shoreline Management Plan is a document which sets out a framework to manage the coastline and coastal defences. The document considers the coastline over 3 time periods: 0-20 years, 20-50 years and 50-100 years and recommends policies for each stretch of coast. These policies are then examined in further detail within a Coastal Defence Strategy.

Further Information

Curbridge Preservation Society
www.curbridgepreservationsociety.org.uk

Environment Agency Flood Risk Maps
www.environment-agency.gov.uk/homeandleisure/37837.aspx

North Solent Shoreline Management Plan.
www.northsolentsmp.co.uk

River Itchen, Weston Shore, Netley and Hamble Coastal Defence Strategy
<http://www.southampton.gov.uk/s-environment/climatechange/coastal-issues.aspx>

UK Climate Change Projections 2009 report
<http://ukclimateprojections.defra.gov.uk/content/view/12/689/>