

18 December 2013

Boston High Tide and Surge Tide Briefing

This briefing is to update you about the high tide forecast for early January 2014 and the important work we are undertaking to repair flood defences following the events of 5 December 2013.

What causes high tides?

High tides, often known as 'spring tides', are normal occurrences which happen twice every month (around a full and new moon), as a result of gravitational pull towards the moon. The next spring tides are due during the first week of January 2014.

What causes a tidal surge?

The height of a tidal surge depends on a number of factors such as the size and strength of the storm, high tides, wind direction as it approaches the coast, and the shape of the coastline and seabed.

Tidal surges occur as a result of low atmospheric pressure systems which cause sea levels to swell in addition to the high tide – low pressure causes a 1 centimetre sea level rise for every 1 millibar drop in pressure.

Strong winds also dictate the height of waves being generated and the direction it pushes the waves down the North Sea. The North Sea acts like a funnel as waves are driven towards the narrow opening of the English Channel.

The tidal surge on 5 December 2013 raised the sea level by an additional 1.60 metres above the predicted high tide.

In the UK, the timing of a storm surge coinciding with a high tide is particularly important. The diagram below shows the difference the high tide can make.



How does this affect Boston?

The spring tides in January 2014 are predicted to be at 4.42 metres ODN (this stands for Ordnance Datum Newlyn and describes the benchmark that all water levels in England are measured against), however a spring tide alone (without a tidal surge) will not usually cause tidal flooding. The tidal defences through Boston are approximately 6.00 metres ODN.

The spring tide in Boston on 5 December was predicted at 4.21 metres ODN. Because of the tidal surge, the tides actually peaked at 6.1 metres ODN. The tidal surge on 5 December was an example of extreme weather, when low pressure combined with spring tides.

We can predict spring tide levels with confidence as tide tables are produced each year. However tidal surges are determined by weather patterns and these conditions can only be forecast by the Flood Forecasting Centre, about one week in advance.

The chance of spring tides combining with weather conditions that caused the tidal surge this December is low for the New Year. However, our teams are closely monitoring the situation and we will remain vigilant to ensure we remain safe by issuing flood warnings where appropriate.

Repairs to flood defences

We are working hard in Boston to repair any defences damaged by the tidal surge on 5 December and reduce the risk of flooding.

Environment Agency contractors completed repairs to a 40-metre hole in a flood bank at Slippery Gowt on Sunday 15 December. The hole has been blocked using sheet piling reinforced with over 2,000 tonnes of stone. Teams worked 14-hour days using floodlights to complete the work as quickly as possible.

Work to rebuild 25 metres of collapsed flood wall at Bath Gardens is expected to be finished today (18 December). The rest of the wall needs re-pointing, which should be completed by Christmas.

Structural engineers have completed inspections of the flood wall between White Horse Lane and St Ann's Lane. Following that inspection we have decided to install temporary flood defences to reduce flood risk to properties in the area until we can do more permanent repairs. We will also be water-proofing part of the flood wall to reduce the risk of seepage. We have already supported the South section of the wall with one-tonne sand bags.

The temporary repairs at Black Sluice Pumping Station on London Road have been completed. Over 100 one-tonne sand bags have been placed in front of a damaged flood wall by the Environment Agency and the Witham 4th Internal Drainage Board.

If you have any questions about the recovery work in Boston then please contact the Environment Agency's national customer contact team on 03708 506 506 (landlines are charged the same as a local geographic call but mobiles may vary) or email enquiries@environment-agency.gov.uk

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